RESIDENCES AT 4400 VON KARMAN PROJECT

Traffic Impact Study

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1 INTRODUCTION

This Traffic Impact Study has been prepared to evaluate the potential traffic-related impacts associated with the proposed Residences at 4400 Von Karman ("Project"). This report has been prepared in accordance with the City of Newport Beach Traffic Phasing Ordinance (TPO) traffic impact study requirements, County of Orange Congestion Management Program (CMP) requirements, and in support of the environmental documentation for the Project, per the California Environmental Quality Act (CEQA) requirements.

This analysis has been undertaken to analyze whether the proposed Residences at 4400 Von Karman Project would result in any new or substantially more severe significant environmental impacts as compared to the conclusions in the *City of Newport Beach General Plan Update Final Environmental Impact Report* (EIR) (2006). The purpose of this analysis is to document whether any new traffic-related impacts would occur compared to the City's General Plan EIR, based on the proposed Project (described below) pursuant to State CEQA Guidelines Section 15164.

2 PROJECT DESCRIPTION

2.1 Project Location

The project site is located at the southeast corner[1] of Birch Street and Von Karman Avenue in the Airport Area of the City of Newport Beach. A vicinity map is provided on Figure 1. The approximately 13.00-acre site is relatively flat at an approximate elevation of 46 to 52 feet above mean sea level (msl).

The project site is an irregularly shaped property generally bordered by Birch Street to the northeast, Von Karman Avenue to the west, and existing office uses and associated surface parking lots and parking structures to the east and south within Koll Center Newport. The Property currently provides a common pool of structured and surface parking to serve office tenants within the Koll Center Newport. Koll Center Newport is an approximately 154-acre mixed-use development area generally bordered on the northeast by Campus Drive, on the southeast by Jamboree Road, and on the west by MacArthur Boulevard.

Regional access to the site is from State Route 73 (SR-73) via Jamboree Road to the south and Interstate 405 (I-405) via Jamboree Road to the north. Vehicular access to the site is provided from Birch Street and Von Karman Avenue. Currently, there are three driveways on Birch Street and two driveways on Von Karman Avenue.

The site is approximately 0.5 mile southwest of John Wayne Airport, 0.5-mile northwest of the San Joaquin Freshwater Marsh Reserve, and 1.5 miles northwest of the University of California, Irvine (UCI).

[1] As shown on Figure 1, the streets adjacent to the project site are oriented on a diagonal. For purposes of this report, Jamboree Road, MacArthur Boulevard, and Von Karman Avenue are considered to be the north-south streets, and Birch Street is an east-west street.

2.2 Existing Land Uses and Access

The project site is located within the surface parking areas serving the existing Koll Center Newport office park. Proximate to the project site, Koll Center Newport consists of general office buildings with surface parking and a parking structure; the parking structure is for the 5000 Birch office building. The existing office buildings located within the boundaries of the project site (4440 Von Karman, 4490 Von Karman, and 4910 Birch), or immediately contiguous to the site (5000 Birch, 4340 Von Karman, and 4350 Von Karman) are not a part of the proposed development. Access to Koll Center Newport is currently provided by two driveways on Von Karman Avenue, and three driveways on Birch Street. All driveways are currently unsignalized and gated. The existing Koll Center Newport site is shown on Figure 2.

2.3 Proposed Project and Access

The proposed Project would allow for 312 residential apartments with structured parking, a 0.5-acre public park, a free-standing parking structure, and the reconfiguration of some of the existing parking areas. The 312 apartment units would include 299 market-rate units and 13 very-low income affordable units. The Project would include 55 studio units, 149 one-bedroom units, and 108 two-bedroom units. The residential building is proposed as a five-story podium building with three levels of structured parking (one level on-grade and two levels below ground). The proposed 0.5-acre public park would be centrally located to the project site and would be approximately equidistant from Birch Street and Von Karman Avenue. The conceptual site plan is shown on Figure 3.

As noted, access to the Koll Center Newport is currently provided via three driveways on Birch Street and two driveways on Von Karman Avenue. Upon completion of the proposed Project, access to the project site, as well as existing office buildings, would be provided via two full-movement locations on Birch Street and one full-movement location on Von Karman Avenue.

To allow for the construction of the proposed Project, some of the existing surface parking areas and the common landscape areas would be demolished. All residential parking would be provided in the residential building's parking structure. Office parking displaced by the Project would be provided in a new, free-standing parking structure, in the residential building's parking structure, and surface parking. Visitors to the publicly-accessible park can use surface parking east of the residential building. The Project will provide 565 parking spaces for its residential units and 626 parking spaces for office uses, including 275 parking spaces in the free-standing parking structure.

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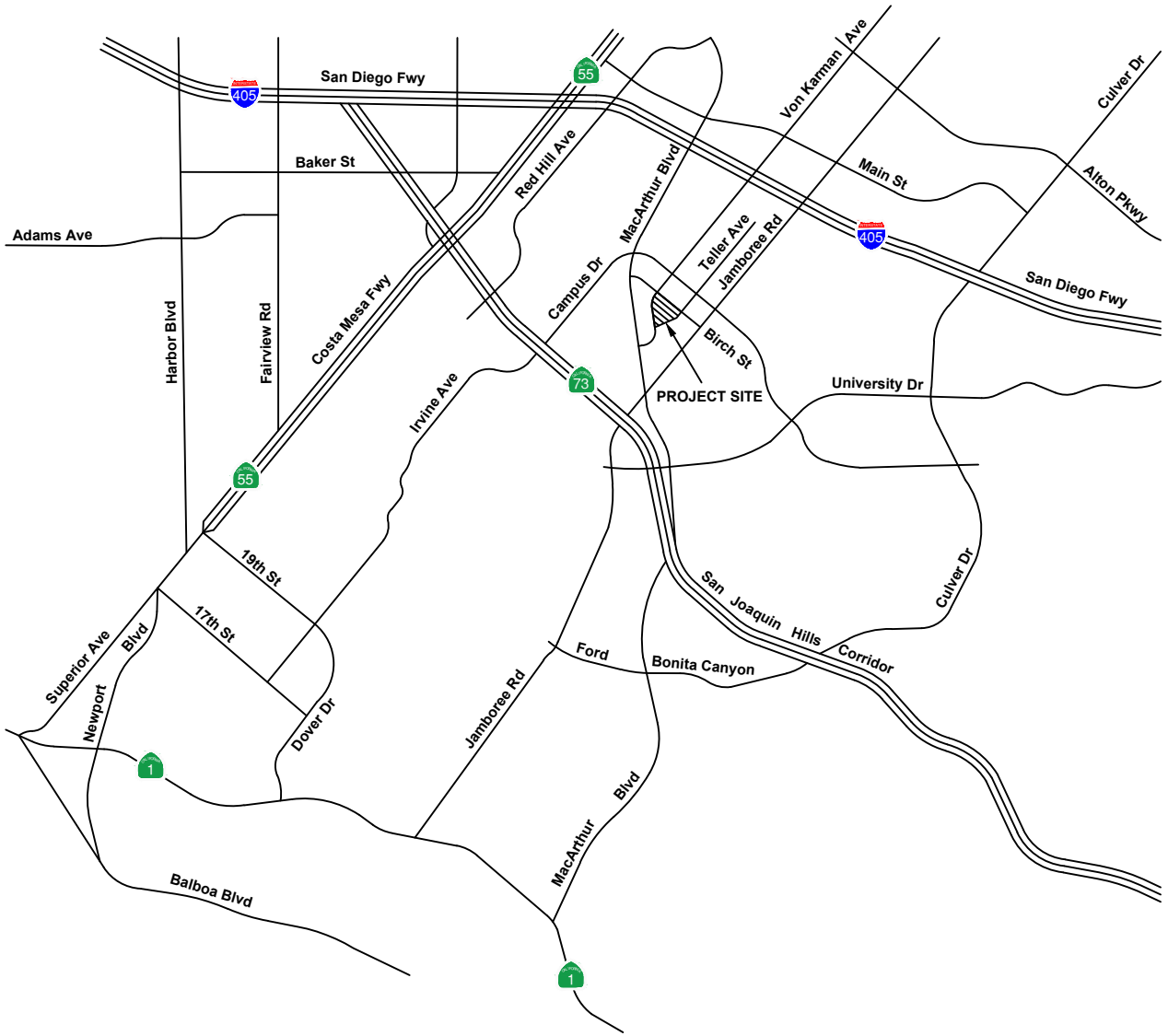

FIGURE 1
VICINITY MAP

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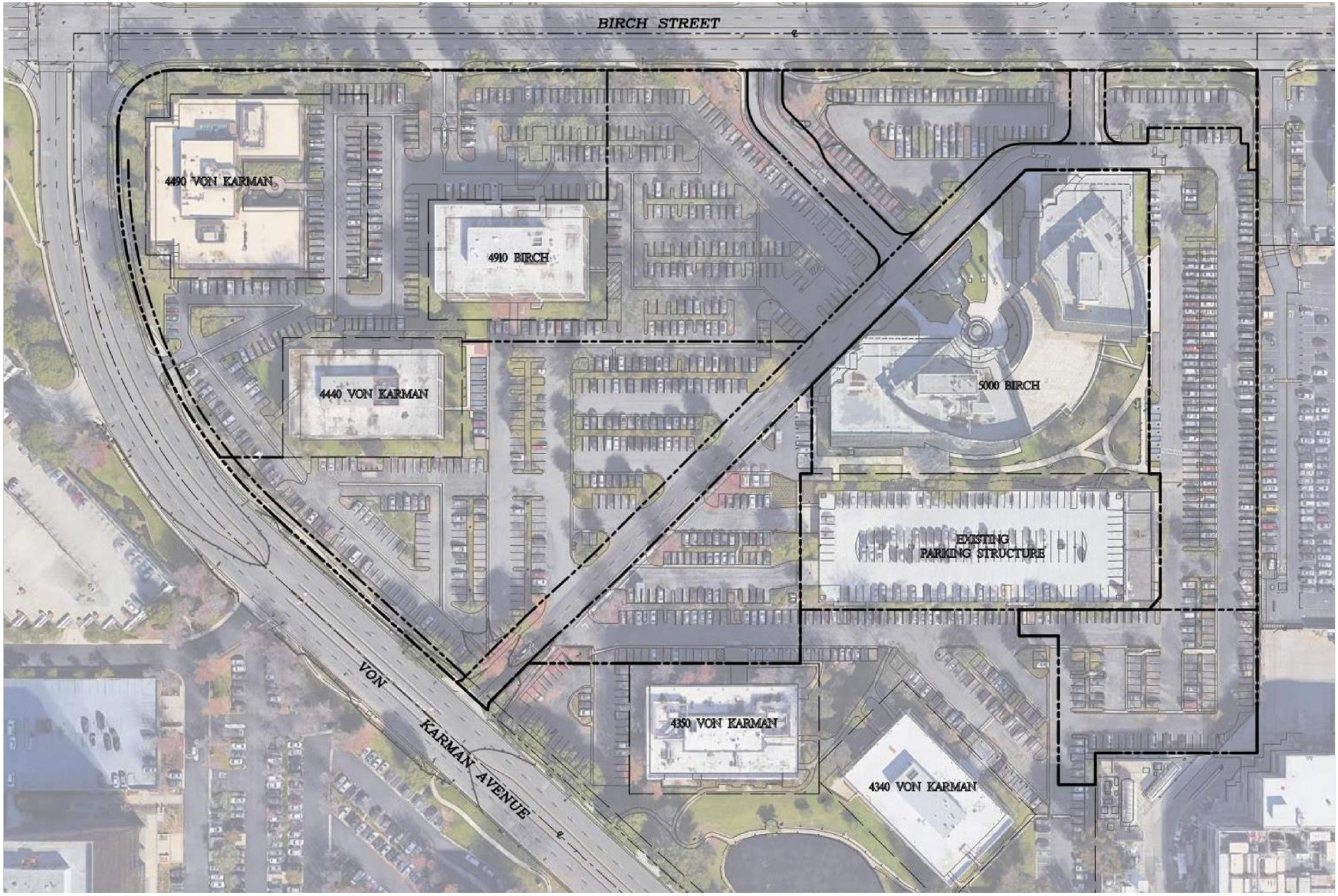

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FIGURE 2
EXISTING PROJECT SITE

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FIGURE 3
PROJECT SITE PLAN

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3 METHODOLOGY

3.1 Study Area

This traffic analysis provides an evaluation of morning and evening peak hour intersection at 25 intersections. The study intersections consist of a combination of intersections in the City of Newport Beach and the adjoining City of Irvine. The study area and study intersection list reflect input received from the cities of Newport Beach and Irvine. The locations of the study intersections are shown on Figure 4. Of the 25 study intersections, 8 are controlled and maintained by the City of Irvine and 15 are controlled and maintained by the City of Newport Beach. The two Interstate 405 (I-405) freeway ramp intersections at Jamboree Road are controlled and maintained by the California Department of Transportation (Caltrans).

Study Area Intersections

No.	Intersection	Jurisdiction [1]	Traffic Control
1	MacArthur Boulevard at Campus Drive [1]	Irvine	Signal
2	MacArthur Boulevard at Birch Street	Newport Beach	Signal
3	MacArthur Boulevard at Von Karman Avenue	Newport Beach	Signal
4	MacArthur Boulevard at Jamboree Road [1, 2]	Newport Beach	Signal
5	Von Karman Avenue at Michelson Drive	Irvine	Signal
6	Von Karman Avenue at Campus Drive [1]	Irvine	Signal
7	Von Karman Avenue at Birch Street	Newport Beach	Signal
8	Teller Avenue at Birch Street	Newport Beach	2-way Stop
9	Jamboree Road at I-405 NB Ramps [2]	Caltrans	Signal
10	Jamboree Road at I-405 SB Ramps [2]	Caltrans	Signal
11	Jamboree Road at Michelson Drive	Irvine	Signal
12	Jamboree Road at Campus Drive [1]	Irvine	Signal
13	Jamboree Road at Birch Street [1]	Irvine	Signal
14	Jamboree Road at Fairchild Drive [1]	Irvine	Signal
15	Jamboree Road at Bristol Street N	Newport Beach	Signal
16	Jamboree Road at Bristol Street S	Newport Beach	Signal
17	Jamboree Road at Bayview Way	Newport Beach	Signal
18	Jamboree Road at University Drive	Newport Beach	Signal
19	University Drive at Campus Drive	Irvine	Signal
20	Bristol Street N at Campus Drive	Newport Beach	Signal
21	Bristol Street S at Irvine Avenue / Campus Drive	Newport Beach	Signal
22	Irvine Avenue at Mesa Drive	Newport Beach	Signal
23	Birch Street at Bristol Street N	Newport Beach	Signal
24	Birch Street at Bristol Street S	Newport Beach	Signal
25	Bayview Place at Bristol Street S	Newport Beach	Signal

[1] For "shared" intersections on the boundary between the two cities, the city listed indicates the city that maintains and controls the signal. Freeway ramp intersections are maintained and operated by Caltrans.
[2] Designated County of Orange Congestion Management Program (CMP) intersection.

Each intersection has been analyzed using the methodology and parameters employed by the city in which the intersection is located. For "shared" intersections on the city boundary, the intersection analysis is based on the methodology used by the City that controls and maintains the signal.

3.2 Analysis Methodology

Intersection analysis for all signalized intersections has been conducted using the Intersection Capacity Utilization (ICU) methodology, which is the methodology utilized by both cities, as well as the Orange County Congestion Management Program (CMP). Intersections that are located at an Interstate Highway intersection are also analyzed in accordance with Caltrans requirements, using a separate methodology, as discussed later in this report.

The ICU methodology provides a comparison of the theoretical hourly vehicular capacity of an intersection to the number of vehicles actually passing through that intersection during any given hour. The ICU calculation assumes an hourly per-lane capacity for each lane through the intersection, and a clearance factor to account for the effect of yellow and red signal phases.

Variations in analysis input parameters between the cities of Newport Beach and Irvine have been accounted for in the analysis. The following presents the ICU parameters for each of the cities.

ICU Parameter	City of Newport Beach	City of Irvine
Saturation Flow Rate / Lane	1,600 vehicles per hour (vph)	1,700 vehicles per hour (vph)
Clearance Interval	0	.05 of cycle length
Right-turn-on-red allowed [1]	NA	Yes
ATMS Credit [2]	NA	.05
Critical Movement / ICU calculation	3 decimals for each critical movement, summed and rounded to 2 decimals for the final ICU for the TPO analysis, and 3 decimals for the CEQA analysis	2 decimals for each critical movement and final ICU

[1] Right-turn-on-red is allowed from exclusive right-turn lanes. For the City of Irvine, "unofficial" right-turn lanes (known as a de facto right-turn lane) are assumed in the ICU calculation if 19 feet of travel lane exists from lane stripe to edge of roadway, and curbside parking is prohibited during peak periods.

[2] ATMS is an advanced traffic signal management system employed by the City of Irvine to allow the control of signal operations in real-time response to traffic conditions at the intersection. Intersections with the ATMS equipment installed are given a 0.05 capacity credit. The ATMS credit is not applied to intersections located within the Irvine Business Complex (IBC). One study intersection (University Drive at Campus Drive) has the ATMS equipment installed. The ATMS credit is applied in all study scenarios.

Intersection analysis for unsignalized intersections has been conducted using the Highway Capacity Manual (HCM) methodology, which returns a delay value, expressed in terms of the average seconds of delay per vehicle.

Operating conditions for both ICU and HCM methodologies are expressed in terms of "Level of Service" which is also referred to by its acronym, LOS. The ICU calculation returns a volume-to-capacity (V/C) ratio that translates into a corresponding Level of Service, ranging from LOS A, representing uncongested, free-flowing conditions; to LOS F, representing congested, over-capacity conditions.

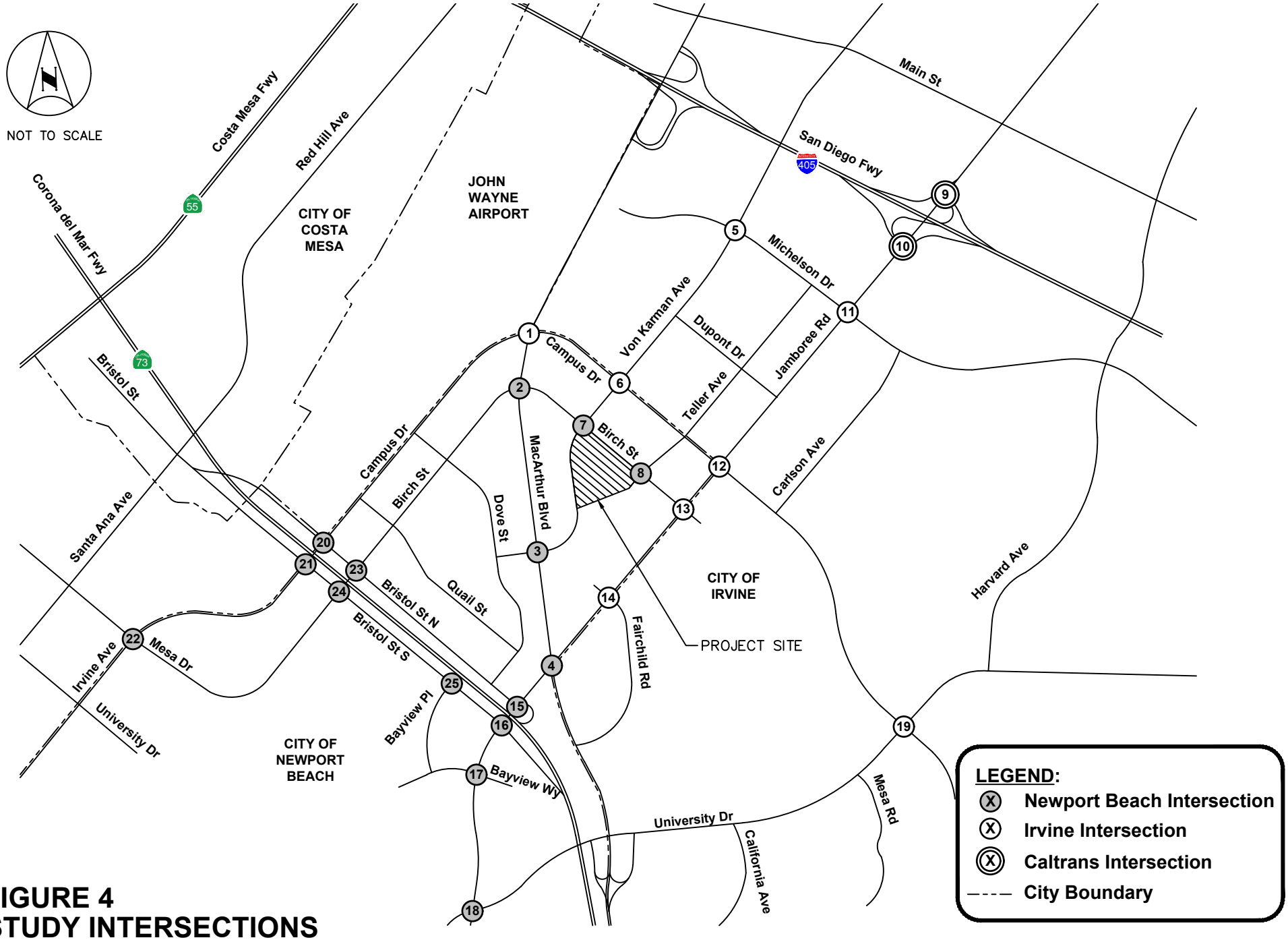

FIGURE 4
STUDY INTERSECTIONS

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A summary description of each Level of Service and the corresponding V/C ratio or delay is provided below.

LEVEL OF SERVICE DESCRIPTIONS			
Level of Service	Signalized: ICU	Unsignalized: HCM [1]	Description
	V/C Ratio	Delay (sec)	
A	0.00 - 0.60	≤10	EXCELLENT – No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.61 - 0.70	> 10 and ≤ 15	VERY GOOD – An occasional approach phase is fully utilized; drivers begin to feel somewhat restricted within groups of vehicles.
C	0.71 - 0.80	> 15 and ≤ 25	GOOD – Occasionally, drivers may have to wait through more than one red light; back-ups may develop behind turning vehicles.
D	0.81 - 0.90	> 25 and ≤ 35	FAIR – Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive back-ups.
E	0.91 - 1.00	> 35 and ≤ 50	POOR – Represents the most vehicles that the intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.00	> 50	FAILURE – Back-ups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

LOS = Level of Service; ICU = Intersection Capacity Utilization; HCM = Highway Capacity Manual; V/C = volume-to-capacity
[1]Source: Highway Capacity Manual, 6th Edition

3.3 Performance Criteria

The City of Newport Beach target Level of Service (LOS) for peak hour operation of signalized intersections is LOS D or better, except for designated intersections within the Airport Area shared with the City of Irvine, where LOS E is acceptable. The shared Airport Area intersections applicable to the proposed Project are as follows:

No.	Intersection
1.	MacArthur Boulevard at Campus Drive [1]
4.	MacArthur Boulevard at Jamboree Road [2]
6.	Von Karman Avenue at Campus Drive [1]
12.	Jamboree Road at Campus Drive [1]
13.	Jamboree Road at Birch Street [1]
14.	Jamboree Road at Fairchild Road [1]

[1] Will be analyzed using the City of Irvine ICU parameters
[2] Will be analyzed using the City of Newport Beach ICU parameters

In the City of Irvine, the target Level of Service is LOS D, except where the intersection is located within the Irvine Business Complex (IBC) or the Irvine Spectrum area. A map of the IBC is provided in Appendix G. For these intersections, the target Level of Service is LOS E. The following study intersections are located in the IBC:

No.	Intersection
1.	MacArthur Boulevard at Campus Drive [1]
4.	MacArthur Boulevard at Jamboree Road [2]
5.	Von Karman Avenue at Michelson Drive [1]
6.	Von Karman Avenue at Campus Drive [1]
9.	Jamboree Road at I-405 Northbound Ramps [1,3]
10.	Jamboree Road at I-405 Southbound Ramps [1,3]
11.	Jamboree Road at Michelson Drive [1]
12.	Jamboree Road at Campus Drive [1]
14.	Jamboree Road at Fairchild Road [1]

[1] Will be analyzed using the City of Irvine ICU parameters
[2] Will be analyzed using the City of Newport Beach ICU parameters
[3] Will be analyzed using Caltrans HCM parameters

3.4 Significance Thresholds

City of Newport Beach

To determine whether the addition of project-generated trips at a signalized study intersection results in a significant impact, the City of Newport Beach has adopted the following thresholds of significance:

- A significant impact would occur when the addition of project-generated trips causes the Level of Service at a study intersection to deteriorate from an acceptable (LOS D, except for intersections on a CMP facility, or designated intersections in the Airport Area, where LOS E is acceptable) to a deficient Level of Service.
- A significant impact would occur when the addition of project-generated trips increases the ICU at a study intersection by one percent or more (v/c increases by 0.010 or more), worsening a projected baseline condition of LOS E or F.

For unsignalized intersections operating at an unacceptable Level of Service, a signal warrant analysis will be conducted to determine if a signal is warranted. The signal warrant analysis will be conducted according to the California Manual of Uniform Traffic Control Devices (MUTCD).

City of Irvine

All of the study intersections in the City of Irvine are signalized. To determine whether the addition of project-generated trips at a signalized study intersection results in a significant impact, the City of Irvine has adopted the following significance threshold:

- A significant impact would occur when the intersection exceeds the acceptable Level of Service (LOS D except for intersections located in the IBC or on a CMP facility, where LOS E is acceptable) in the baseline condition and the impact of the development is greater than or equal to two percent (v/c increase by 0.02 or more), or;
- The Project increases the ICU by one percent or more (v/c increases by 0.01 or more) at a study intersection, causing it to become deficient.

Caltrans

A separate analysis of the Intersection Highway intersections using the analysis methodology and significance thresholds specified in the *Caltrans Guide for the Preparation of Traffic Impact Studies* is provided in a separate section of this report.

3.5 Study Scenarios

Each of the study intersections has been analyzed for the following scenarios:

- Existing Conditions
- TPO Analysis Year 2025 Without Project
- TPO Analysis Year 2025 With Project
- CEQA Analysis Year 2025 Without Project
- CEQA Analysis Year 2025 With Project
- Post-2030 General Plan Buildout [1]
- Post-2030 General Plan Buildout With Project [2]

[1] The Newport Beach Traffic Model (NBTM) Traffic Analysis Zone (TAZ) 1405, where the project site is located, consists of 128 apartment units, 128,610 square feet of general commercial use, and 695,137 square feet of office use
[2] This "With Project" scenario assumes an additional 184 dwelling units, for a total of 312 dwelling units, as proposed by the Project.

4 EXISTING TRAFFIC ENVIRONMENT/AREA CONDITIONS

4.1 Existing Transportation System

Roadway Characteristics

Regional access to the project site is provided by the Corona del Mar Freeway/San Joaquin Hills Transportation Corridor (SR-73), located less than one mile to the south of the project area, and by I-405, located approximately 1.5 miles north of the project area. The proposed development would take access to the surrounding street system via connections to Von Karman Avenue and to Birch Street.

Michelson Drive is a four-lane divided east-west arterial in the City of Irvine, located approximately one-third mile south of I-405. Michelson Drive is divided by a painted median and has a posted speed limit of 40 miles per hour (mph) west of Jamboree Road and 45 mph east of Jamboree Road. East of Dupont Drive, Class II bike lanes are provided on both sides of the roadway. Michelson Drive is designated as a Commuter Highway in the City of Irvine Master Plan of Arterial Highways.

Campus Drive is a six-lane divided arterial that extends north-south between Bristol Street and MacArthur Boulevard, then turns and extends as a four-lane undivided arterial in an east-west orientation between MacArthur Boulevard and Carlson Avenue, then two-lane undivided between Carlson Avenue and University Drive. Class II bike lanes are provided on both sides of Campus Drive. The posted speed limit on Campus Drive ranges from 45 mph to 50 mph within the study area. Campus Drive is designated on the City of Newport Beach Circulation Element as a Major Arterial between Bristol Street and MacArthur Boulevard, and as a Secondary Arterial between MacArthur Boulevard and University Drive.

Birch Street is a four-lane undivided roadway, designated as a Secondary Arterial on the City of Newport Beach Circulation Element. Birch Street extends in a north-south direction from south of SR-73 to MacArthur Boulevard, and then turns and extends in an east-west direction from MacArthur Boulevard to Jamboree Road. Birch Street is divided by a painted median, and on-street parking is prohibited in the vicinity of the Project. The posted speed limit is 45 mph.

Fairchild Road is a four-lane collector in the City of Irvine that extends in a northwest-to-southeast arc from Jamboree Road to McArthur Boulevard. Fairchild Road is divided by a painted median. The speed limit is 45 mph.

MacArthur Boulevard is a six- to eight-lane divided arterial that extends through the cities of Newport Beach and Irvine. MacArthur Boulevard is divided by a raised or painted median and has a posted speed limit of 55 mph south of Campus Drive and 45 mph north of Campus Drive. MacArthur Boulevard is classified as a Major Arterial in both cities' Circulation Elements.

Bristol Street North is part of the Bristol Street couplet that runs along either side of SR-73. Bristol Street North is a three- to four-lane one-way arterial that extends from Jamboree Road in a northwest direction north of and parallel to SR-73. It crosses over SR-73 and connects with Bristol Street at Santa Ana Avenue/Redhill Avenue. Bristol Street is classified as a Primary Arterial on the City of Newport Beach Circulation Element. The posted speed limit is 45 mph. Bristol Street North provides a Class II bike lane.

Bristol Street South is the southbound portion of the Bristol Street couplet. Bristol Street South is a four-lane one-way Primary Arterial that extends from Santa Ana Avenue/Redhill Avenue to Jamboree Road in a southeast direction south of and parallel to SR-73. The posted speed limit is 45 mph. Bristol Street South provides a Class II bike lane.

Von Karman Avenue is a four-lane north-south Primary Arterial that starts at MacArthur Boulevard in the City of Newport Beach, and extends northward into the City of Irvine. Von Karman Avenue is divided by a painted median and has a posted speed limit of 40 to 45 mph. Von Karman Avenue is classified as a Primary on the City of Newport Beach Circulation Element. On the City of Irvine Circulation Element, Von Karman Avenue is classified as a Secondary Highway between Campus Drive and Michelson Drive and as a Major Highway north of Michelson Drive.

Jamboree Road is a six- to eight-lane divided arterial that extends through both Irvine and Newport Beach in a north-south direction. Within the Newport Beach city limits, Jamboree Road is mainly a six-lane divided arterial with three lanes in each direction, except for the segment between Birch Street and Fairchild Road, where there are four southbound travel lanes. Jamboree Road transitions into a seven-lane arterial north of the Newport Beach city limits. Jamboree Road is divided by a raised landscaped median and has a posted speed limit of 55 mph south of Campus Drive and 50 mph north of Campus Drive. Jamboree Road is classified as a Major Arterial in both cities' Circulation Elements. Class II bike lanes are provided on both sides of Jamboree Road.

University Drive is a four-lane to six-lane divided arterial. University Drive extends eastward from Jamboree Road in the City of Newport Beach across the SR-73 into the City of Irvine, and through UCI) University Drive transitions from four to six lanes at the SR-73 southbound ramps. University Drive is divided by a raised landscaped median and has a posted speed limit of 50 mph within the Study Area. University Drive is classified as a Primary Arterial on the City of Newport Beach Circulation Element and a Major Arterial on the City of Irvine Circulation Element. Class II bike lanes are provided on both sides of University Drive.

Existing Transit Service

Transit service in the vicinity of the project site is provided by the Orange County Transportation Authority (OCTA) bus lines. The bus routes currently operated by OCTA through the study area in the cities of Newport Beach and Irvine are shown on Figure 5. The following OCTA routes serve the project site and vicinity.

OCTA Route 59 operates between the cities of Anaheim and Irvine via Kraemer Boulevard/Glassell Street/ Grand Avenue and Von Karman Avenue. The Route 59 stop closest to the project site is east of Campus Drive and University Avenue. Route 59 operates in full-route mode on weekdays from 5:50 AM to 10:30 PM with 50- to 60-minute headways (the time interval between bus arrivals). On Saturdays, Route 59 does not offer service to UCI; it only operates to Pullman Street and Dyer Road from approximately 5:50 AM to 9:20 PM with 50- to 60-minute headways. Route 59 does not operate on Sundays.

OCTA Route 76 operates between the cities of Huntington Beach and Newport Beach via Talbert Avenue/ MacArthur Boulevard. The Route 76 stop closest to the project site is at the corner of Michelson Drive and Dupont Drive. Route 76 operates on weekdays, from approximately 6:00 AM to 7:00 PM, with 1-hour headways. Route 76 does not operate on weekends.

OCTA Route 79 operates between the cities of Tustin and Newport Beach via Bryan Avenue/ Culver Drive/ University Avenue. The Route 79 stop closest to the project site is at the corner of Michelson Drive and Culver Drive. Route 79 operates every day from 6:10 AM to 9:00 PM with 1-hour headways.

OCTA Route 167 operates between the cities of Orange and Irvine via Hewes Street/ Irvine Boulevard/ Jeffrey Road. The Route 167 stop closest to the project site is at the corner of University Drive and Harvard Avenue. Route 167 operates weekdays from approximately 5:15 AM to 9:25 PM with 1-hour headways. Route 167 does not operate on weekends.

OCTA Route 178 operates between the cities of Huntington Beach and Irvine via Adams Avenue, Birch Street, and Campus Drive. The Route 178 stop closest to the project site is located at the corner of Birch Avenue and Von Karman Avenue. Route 178 operates on weekdays from 5:10 AM to 9:50 PM with approximately 1-hour headways. Route 178 does not operate on weekends.

OCTA Route 213 operates between the cities of Brea and Irvine via SR-55. The Route 213 stop closest to the project site is located at the corner of Michelson Drive at Riparian View. Route 213 operates on weekdays from 5:30 AM to 7:00 PM with 30-minute headways. Route 213 does not operate on weekends.

OCTA Route 472 operates between the cities of Tustin and Irvine via Edinger Avenue, Red Hill Avenue, Campus Drive and Jamboree Road. The Route 472 stop closest to the project site is located at the corner of Jamboree Road and Birch Street. Route 472 operates on weekdays from 6:10 AM to 9:10 PM with 30-minute to 1-hour headways. Route 472 does not operate on weekends.

OCTA Route 473 operates between the cities of Tustin and Irvine via Edinger Avenue/ Harvard Avenue. The Route 473 stop closest to the project site is located at the corner of Harvard Avenue and Bridge Avenue. Route 473 operates on weekdays from approximately 6:10 AM to 9:20 PM with 20- to 30-minute headways. Route 473 does not operate on weekends.

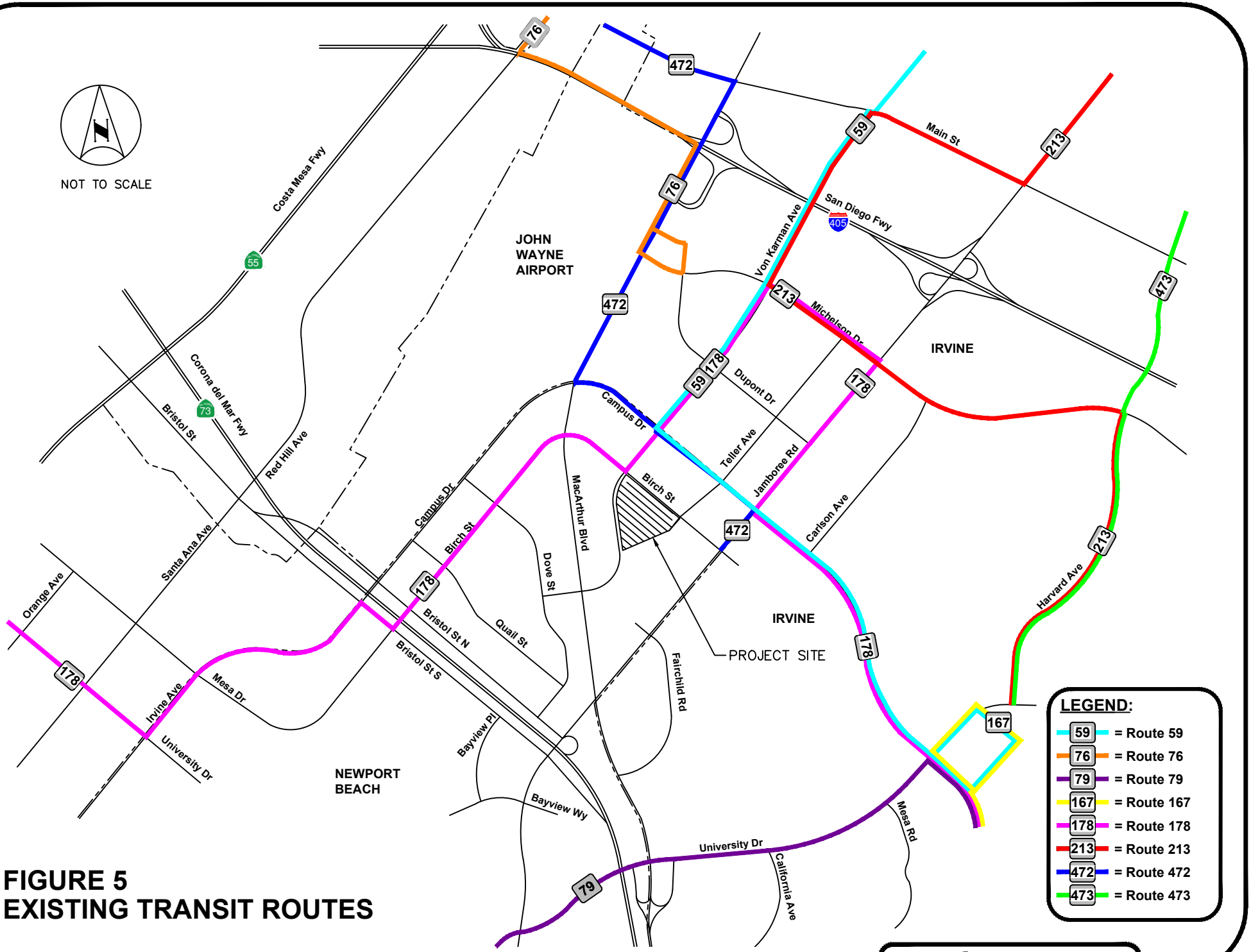

FIGURE 5
EXISTING TRANSIT ROUTES

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5 EXISTING TRAFFIC CONDITIONS

5.1 Existing Traffic Volumes

Field observations of all study intersections were conducted to document the number of through and turning lanes, traffic control, and other existing traffic conditions at each intersection. Existing lane configurations and intersection traffic control at the study intersections are shown on Figure 6.

Existing morning and evening peak hour intersection turning movement counts were provided by the cities of Newport Beach and Irvine. Intersection counts that were not provided by either city were collected in either 2018 or 2019. The traffic counts provided by the cities of Newport Beach and Irvine were conducted between 2017 and 2019. For City of Newport Beach intersections, traffic counts older than one year have been grown at 1 percent per year on certain major roadways, per direction from City staff, to grow the counts to Year 2020. For City of Irvine intersections, traffic counts were grown at 2 percent per year, based on direction from City staff, to grow the counts to Year 2020. The resulting peak hour turning movement volumes are shown on Figure 7. Copies of peak hour traffic data collection sheets are provided in Appendix A.

5.2 Existing Intersection Analysis

Peak hour intersection analysis was conducted for the signalized study intersections using the applicable intersection analysis methodology and parameters for each city, as discussed previously in this report. Unsignalized intersections were analyzed using the HCM methodology for unsignalized intersections.

Existing AM and PM peak hour intersection operations are summarized on Table 1. All study intersections are currently operating at an acceptable Level of Service (LOS D for all intersections, except LOS E for intersections in the Airport Area or the IBC area, and CMP intersections). Intersection Level of Service worksheets are provided in Appendix B.

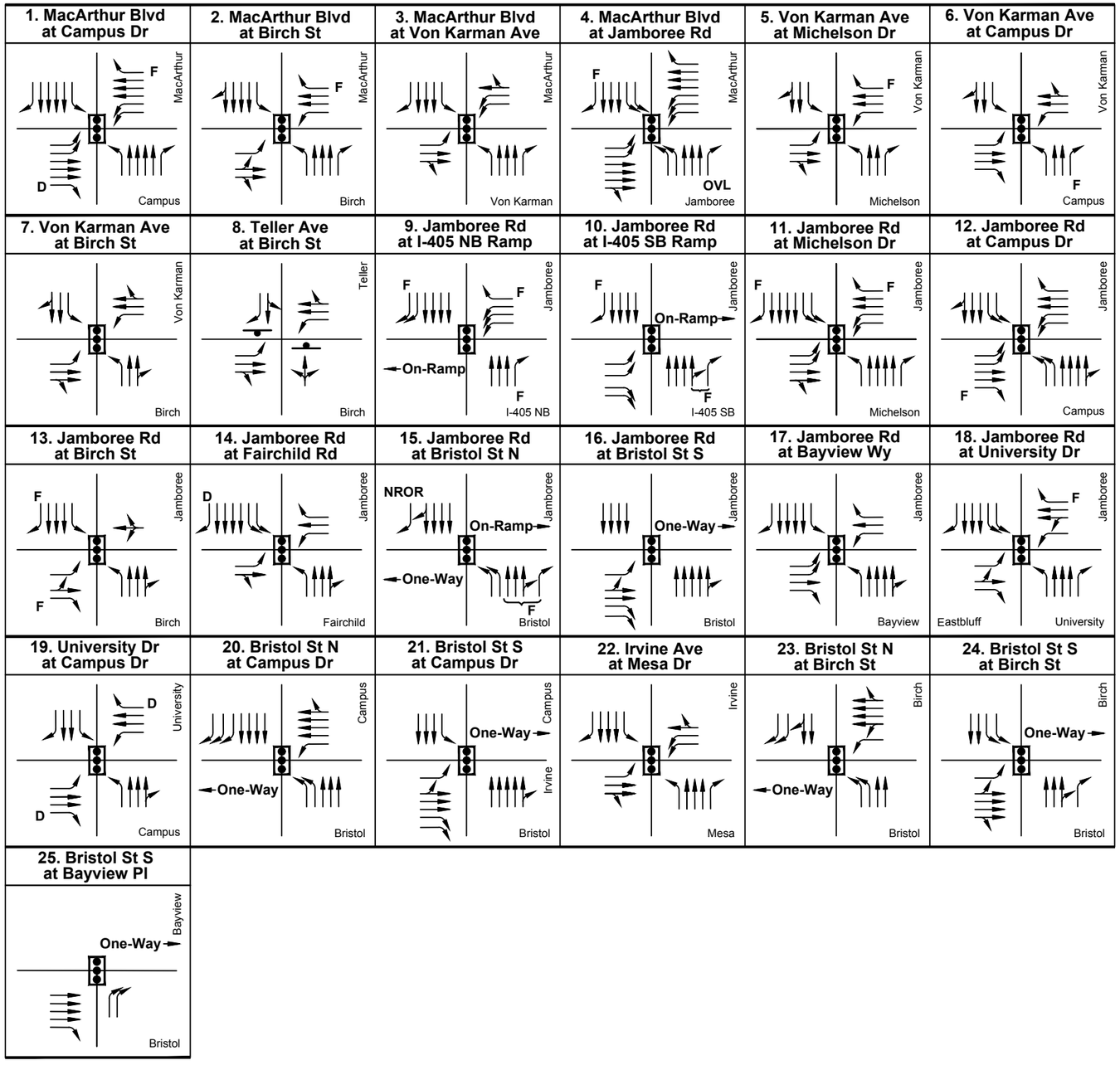
Table 1: Summary of Intersection Operation Existing Conditions

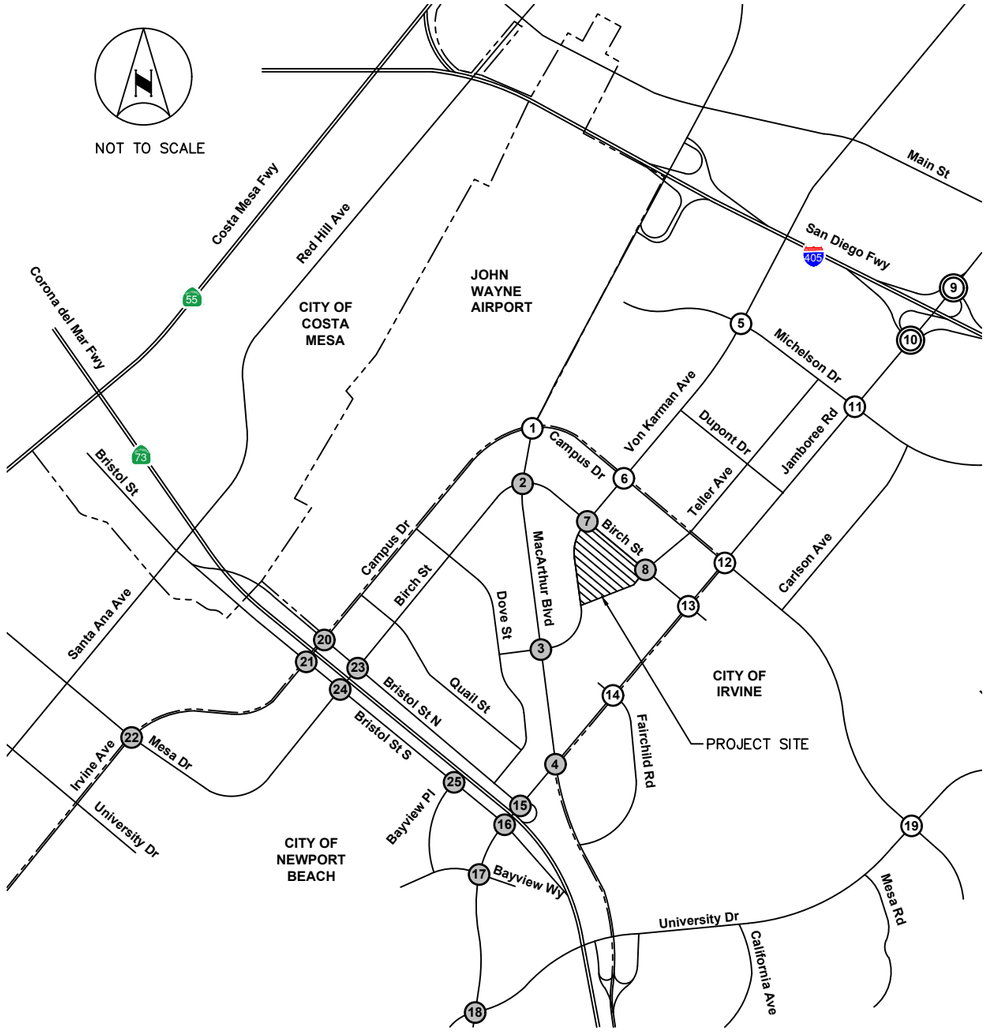
Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			ICU/Delay	LOS	ICU/Delay	LOS
1	MacArthur Blvd at Campus Dr*	S	0.50	A	0.82	D
2	MacArthur Blvd at Birch St	S	0.34	A	0.52	A
3	MacArthur Blvd at Von Karman Ave	S	0.55	A	0.52	A
4	MacArthur Blvd at Jamboree Rd*	S	0.58	A	0.67	B
5	Von Karman Ave at Michelson Dr*	S	0.54	A	0.68	B
6	Von Karman Ave at Campus Dr*	S	0.52	A	0.70	B
7	Von Karman Ave at Birch St	S	0.32	A	0.42	A
8	Teller Ave at Birch St	U	12.2	B	13.5	B
9	Jamboree Rd at I-405 NB Ramps*	S	0.76	C	0.85	D
10	Jamboree Rd at I-405 SB Ramps*	S	0.96	E	0.95	E
11	Jamboree Rd at Michelson Dr*	S	0.63	B	0.88	D
12	Jamboree Rd at Campus Dr*	S	0.62	B	0.63	B

Table 1: Summary of Intersection Operation Existing Conditions

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			ICU/Delay	LOS	ICU/Delay	LOS
13	Jamboree Rd at Birch St*	S	0.52	A	0.53	A
14	Jamboree Rd at Fairchild Dr*	S	0.57	A	0.69	B
15	Jamboree Rd at Bristol St N	S	0.37	A	0.46	A
16	Jamboree Rd at Bristol St S	S	0.67	B	0.62	B
17	Jamboree Rd at Bayview Way	S	0.43	A	0.44	A
18	Jamboree Rd at University Dr	S	0.62	B	0.53	A
19	University Dr at Campus Dr [1]	S	0.79	C	0.79	C
20	Bristol St N at Campus Dr	S	0.54	A	0.68	B
21	Bristol St S at Irvine Ave/Campus Dr	S	0.68	B	0.52	A
22	Irvine Ave at Mesa Dr	S	0.48	A	0.64	B
23	Birch St at Bristol St N	S	0.64	B	0.55	A
24	Birch St at Bristol St S	S	0.48	A	0.48	A
25	Bayview Pl at Bristol St S	S	0.51	A	0.50	A

S = Signalized; U = Unsignalized; ICU = Intersection Capacity Utilization; LOS = Level of Service
Bold and shaded values indicate intersections operating at LOS E or F per City standards.
For signalized intersections, intersection operation is expressed in volume-to-capacity (V/C) ratio using the ICU methodology. For unsignalized intersections, LOS is expressed in average seconds of delay per peak hour vehicle, based on the methodology outlined in the 2010 Highway Capacity Manual.
* Level of Service E is acceptable at this intersection.
[1] A 5% capacity credit is applied at this intersection to reflect implementation of the Advanced Transportation Management System (ATMS)





LEGEND:

- (X) Newport Beach Intersection
- (X) Irvine Intersection
- (X) Caltrans Intersection
- ---- City Boundary
- F Free Movement
- OVL Right-Turn Overlap
- D Defacto Right-Turn Lane
- NROR No Right-Turn On Red
- Signal
- Stop Sign

FIGURE 6
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

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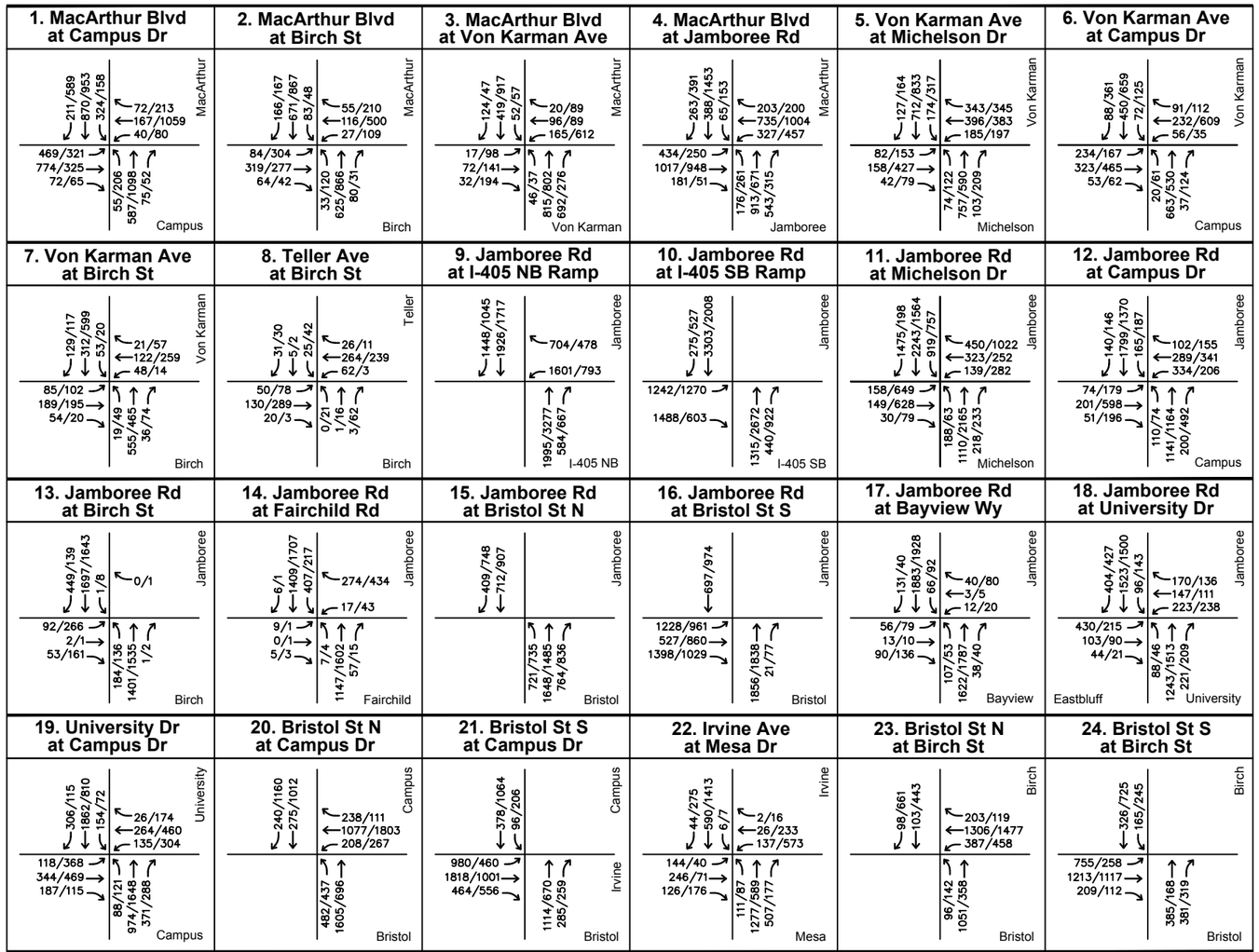

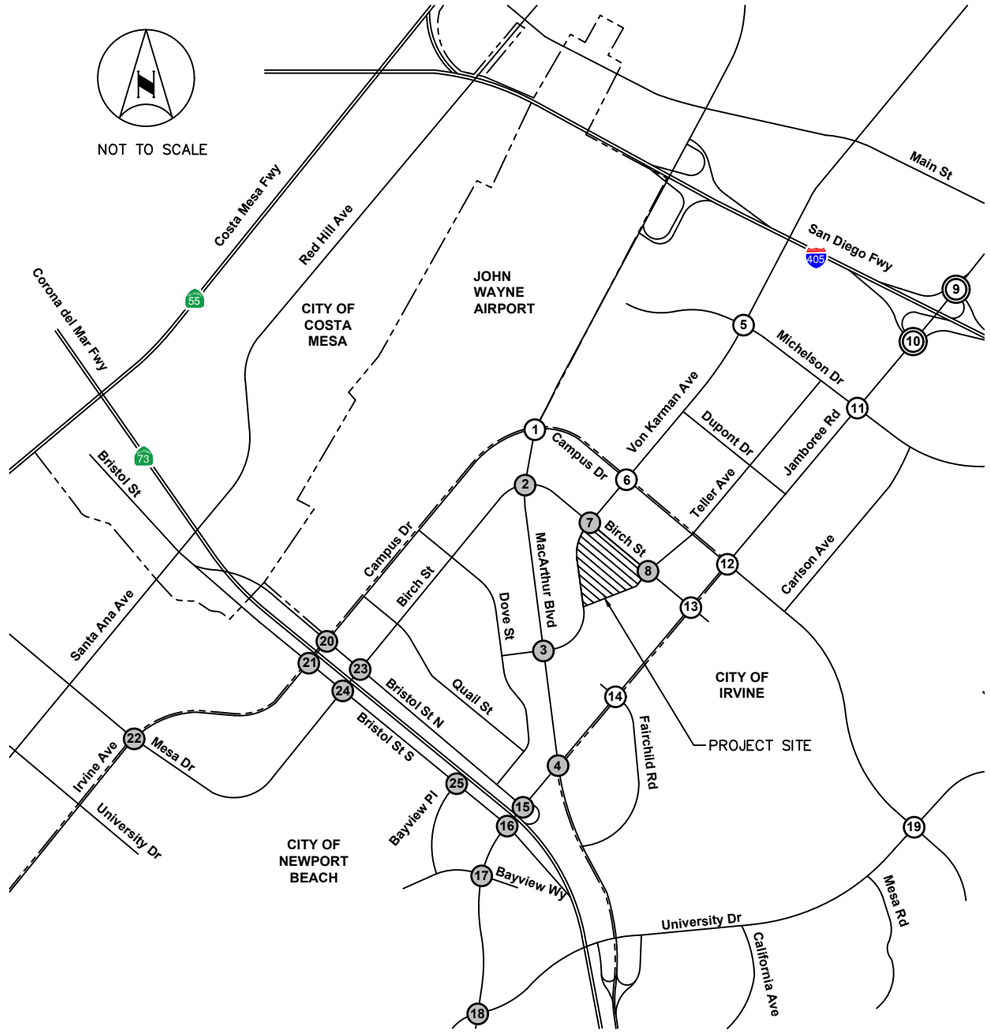

LEGEND:

- (X) Newport Beach Intersection
- (X) Irvine Intersection
- (X) Caltrans Intersection
- ---- City Boundary
- XX/YY AM/PM Peak Hour Turning Movement Volumes

FIGURE 7
EXISTING PEAK HOUR TRAFFIC VOLUMES

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6 PROPOSED PROJECT TRAFFIC

6.1 Project Trip Generation

Trip generation estimates for the proposed Project were developed using the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) publication. The proposed project components and trip generation estimates for the Residences at 4400 Von Karman are as follows:

- Multifamily Housing (Mid-Rise) (Land Use 221)

Daily, morning peak hour, and evening peak hour trip generation estimates for the proposed Project are shown on Table 2. The Project (312 units) would generate approximately 1,697 daily trips, with 112 morning peak hour trips (29 inbound and 83 outbound) and 138 evening peak hour trips (84 inbound and 54 outbound).

The project site is located in traffic analysis zone (TAZ) 1405 of the Newport Beach Traffic Model (NBTM). The City of Newport Beach General Plan Transportation Study (March 2006) includes 128 apartment units. Because the Project proposes 312 multi-family rental units, the Post-2030 General Plan Buildout With Project scenario adds 184 additional multi-family units.

Table 2: Summary of Project Trip Generation

Land Use	ITE Code	Unit	Trip Generation Rates [1]						
				AM Peak Hour			PM Peak Hour		
			Daily	In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise)	221	DU	5.44	0.094	0.266	0.36	0.268	0.172	0.44
Land Use	**Quantity**	**Unit**	**Trip Generation Estimates**						
				AM Peak Hour			PM Peak Hour		
			Daily	In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise) [2]	312	DU	1,697	29	83	112	84	54	138
Total Project Trips			1,697	29	83	112	84	54	138

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition
[2] Trip generation estimates shown in Table 2 have been used for TPO Analysis Year 2025 With Project and CEQA Analysis Year 2025 With Project analyses. Trip generation for Post-2030 General Plan Buildout With Project is shown on Table 10.

6.2 Project Trip Distribution and Assignment

Project trip distribution assumptions for the project site were developed based on likely origins and destinations of project residents and visitors, and the transportation network available for those trips. Distribution assumptions were submitted to City staff for review and concurrence. Trip distribution assumptions for the Project are shown on Figure 8. The resulting project-related traffic volumes at each study intersection are shown on Figure 9.

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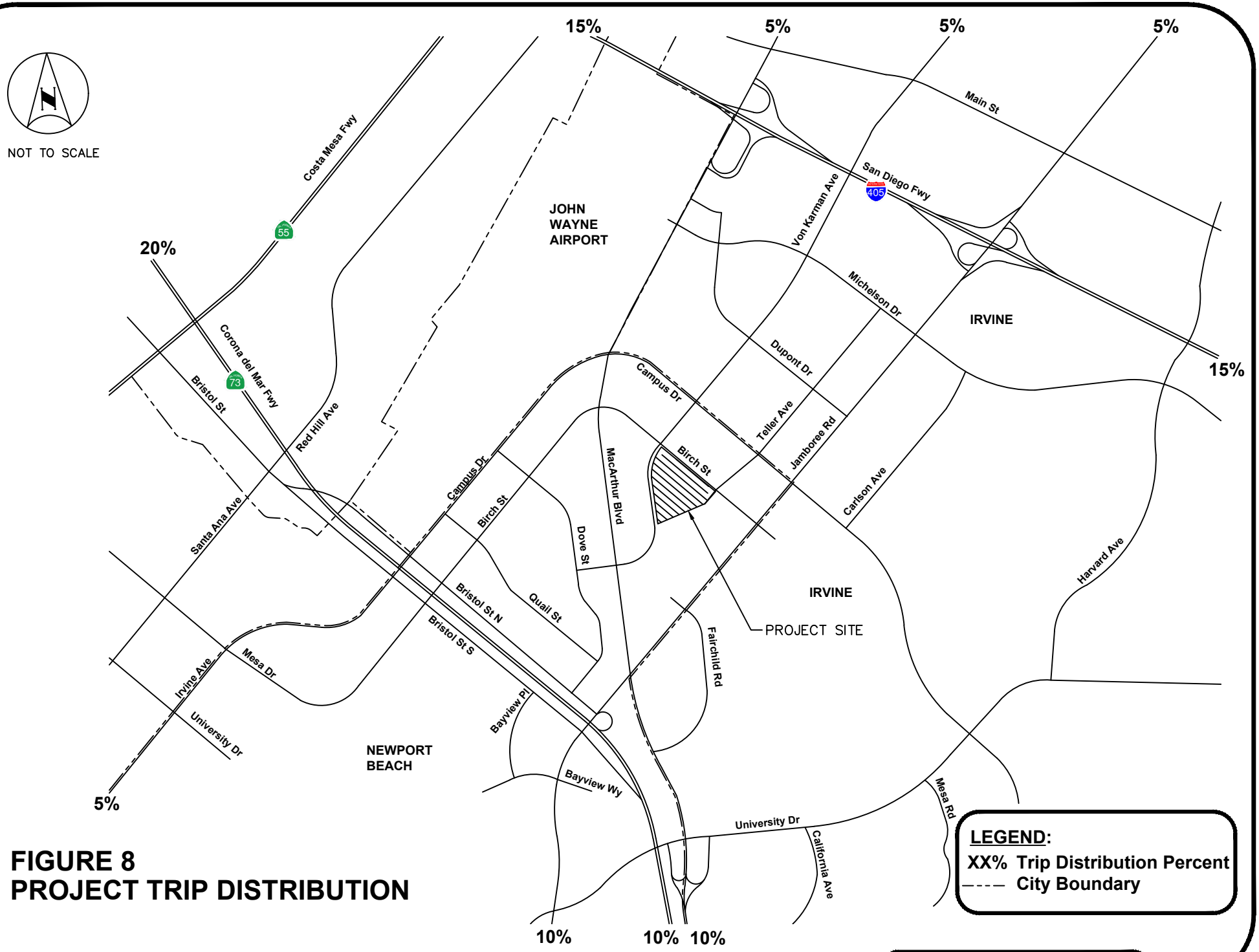

FIGURE 8
PROJECT TRIP DISTRIBUTION

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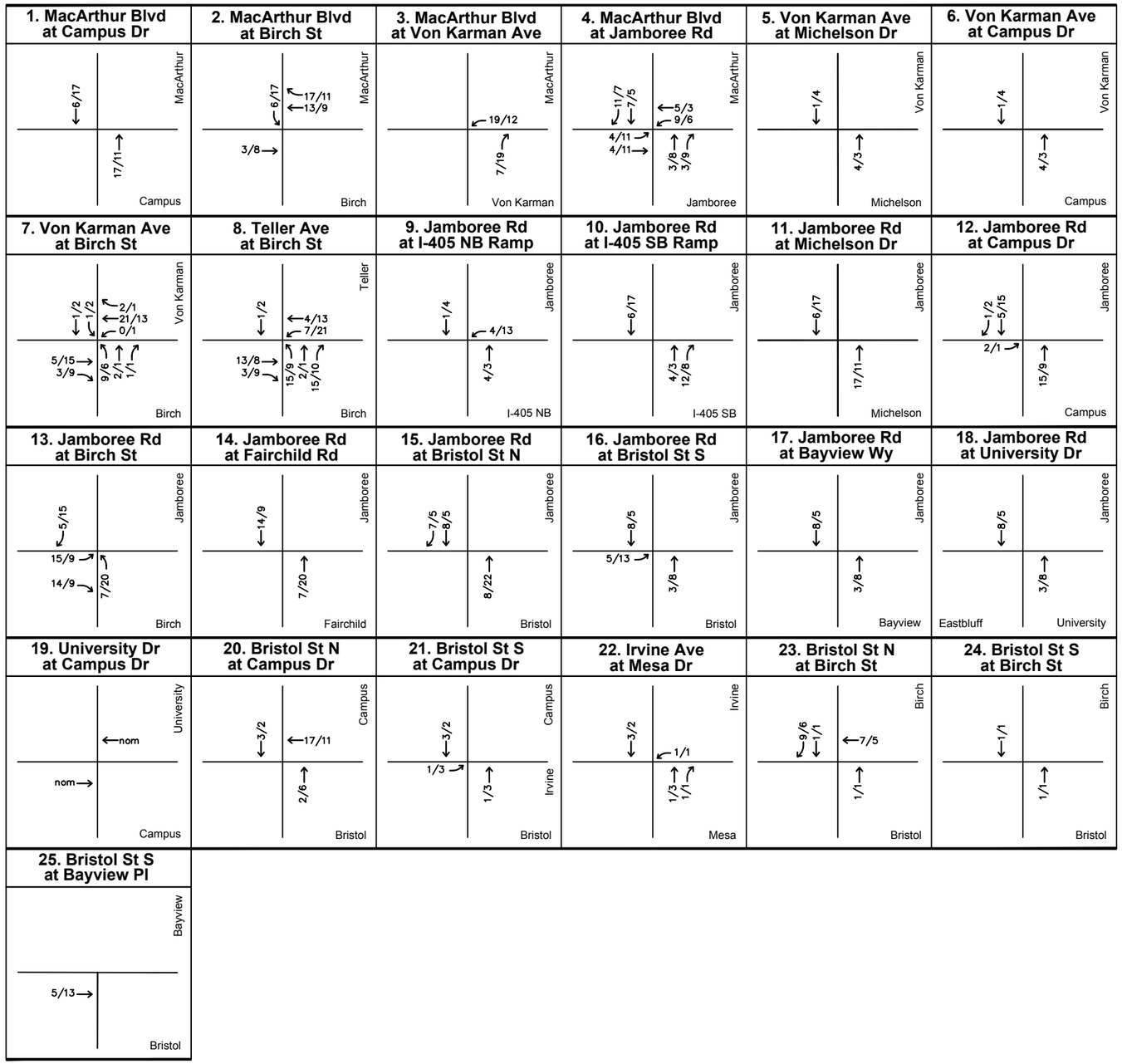

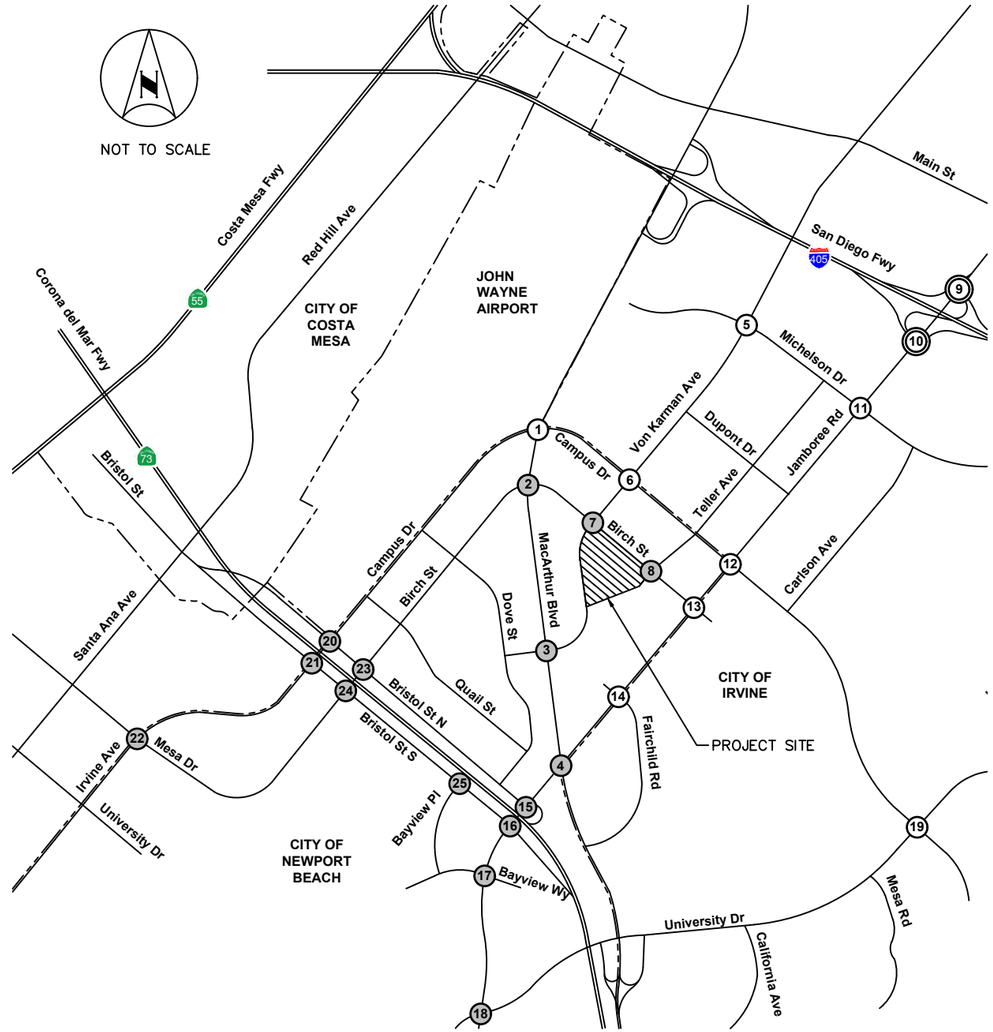

LEGEND:

- (X) Newport Beach Intersection
- (X) Irvine Intersection
- (X) Caltrans Intersection
- ---- City Boundary
- XX/YY AM/PM Peak Hour Turning Movement Volumes
- nom Nominal Volume

FIGURE 9
PROJECT-RELATED PEAK HOUR TRAFFIC VOLUMES

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7 FUTURE CONDITIONS

The project Opening Year is Year 2024. Per the City's TPO analysis guidelines, the Future Year analysis is one year after Opening Year, therefore Year 2025 was used in the Future Conditions analysis. Near-term future traffic forecasts have been developed for two analysis conditions:

- Future Year with Existing plus Growth plus Committed Projects, representing analysis of the conditions required by the City of Newport Beach Traffic Phasing Ordinance (TPO)
- Future Year with Existing plus Growth plus Committed plus Cumulative Projects, as required by CEQA.

A discussion of each is provided in the following sections.

7.1 Traffic Phasing Ordinance (TPO) Analysis

The City of Newport Beach TPO first requires a determination of whether project trips will increase traffic volumes on any leg of a Primary Intersection by one percent (1%) or more during either the morning or evening peak hour one year after project completion, or that portion of the Project expected to be constructed within five years (sixty months) of project approval, which would be Year 2025. The TPO then requires a Level of Service analysis of the project impact at any Primary Intersection that exceeds the one percent threshold.

For TPO purposes, traffic forecasts for study intersections in the City of Newport Beach are developed by applying an ambient growth rate of one percent per year on primary roadways (Jamboree Road, MacArthur Boulevard and Irvine Avenue), plus traffic from Committed Projects in the vicinity of the project site. For study intersections in the City of Irvine, a growth factor of two percent per year is applied to develop Year 2025 forecasts.

Committed projects consist of projects in the City of Newport Beach that have been approved but are not yet fully constructed and occupied. Committed Projects information was provided by the City of Newport Beach Staff. A copy of the Approved Projects data sheets provided by the City of Newport Beach is included in Appendix C. A summary of the Newport Beach Committed Projects is provided on Table 3.

Traffic volumes generated by the Committed Projects in the study area were added to existing peak hour volumes plus ambient growth to develop the TPO Analysis Year 2025 forecast traffic volumes. The resulting peak hour traffic volumes are shown on Figure 10.

Table 3: Summary of City of Newport Beach Committed Projects		
Project Number	Project Name	Percent Complete
148	Fashion Island Expansion	40%
154	Temple Bat Yahm Expansion	65%
945	Hoag Hospital Phase III	0%
949	St. Mark Presbyterian Church	77%
955	2300 Newport Boulevard	15%
958	Hoag Health Center	95%
959	North Newport Center	0%
962	328 Old Newport Medical	0%
965	Mariner's Pointe	82%
968	Uptown Newport (Phase 2)	0%
969	Uptown Newport (Phase 1)	5%
971	Back Bay Landing 300 E. Coast Highway	0%
974	Newport Executive Center	70%
975	Ebb Tide Residential	20%
976	ENC Nature Pre-school	0%
977	Balboa Marina West	0%
979	Newport Crossings	0%
980	Vivante Senior Center	0%
Source: City of Newport Beach – Traffic Phasing Ordinance Data – Includes approved projects less than 100% complete.		

TPO 1% Analysis

In accordance with City of Newport Beach traffic study requirements, the project traffic contribution at the Primary Intersections was evaluated to determine the extent of the Traffic Impact Study required of the Project. The Primary Intersections identified through the 1% Analysis will be evaluated for the LOS Analysis.

For the TPO Analysis, the project-related morning and evening peak hour traffic volumes were compared to the TPO Analysis Year 2025 Without Project peak hour volumes on each leg of each Primary Intersection to determine whether the Project would result in a 1 percent increase. The results of the analysis are summarized on Table 4. The 1% Analysis Worksheets for the TPO Analysis are provided in Appendix D. Table 4 shows that the project traffic will exceed 1 percent on at least one approach in one or both peak hours at each of the Newport Beach Primary Intersections, except at the following intersections:

6. Von Karman Avenue at Campus Drive
12. Jamboree Road at Campus Drive
17. Jamboree Road at Bayview Way
18. Jamboree Road at University Drive
21. Bristol Street South at Irvine Avenue/ Campus Drive
22. Irvine Avenue at Mesa Drive
24. Birch Street at Bristol Street South
25. Bayview Place at Bristol Street South

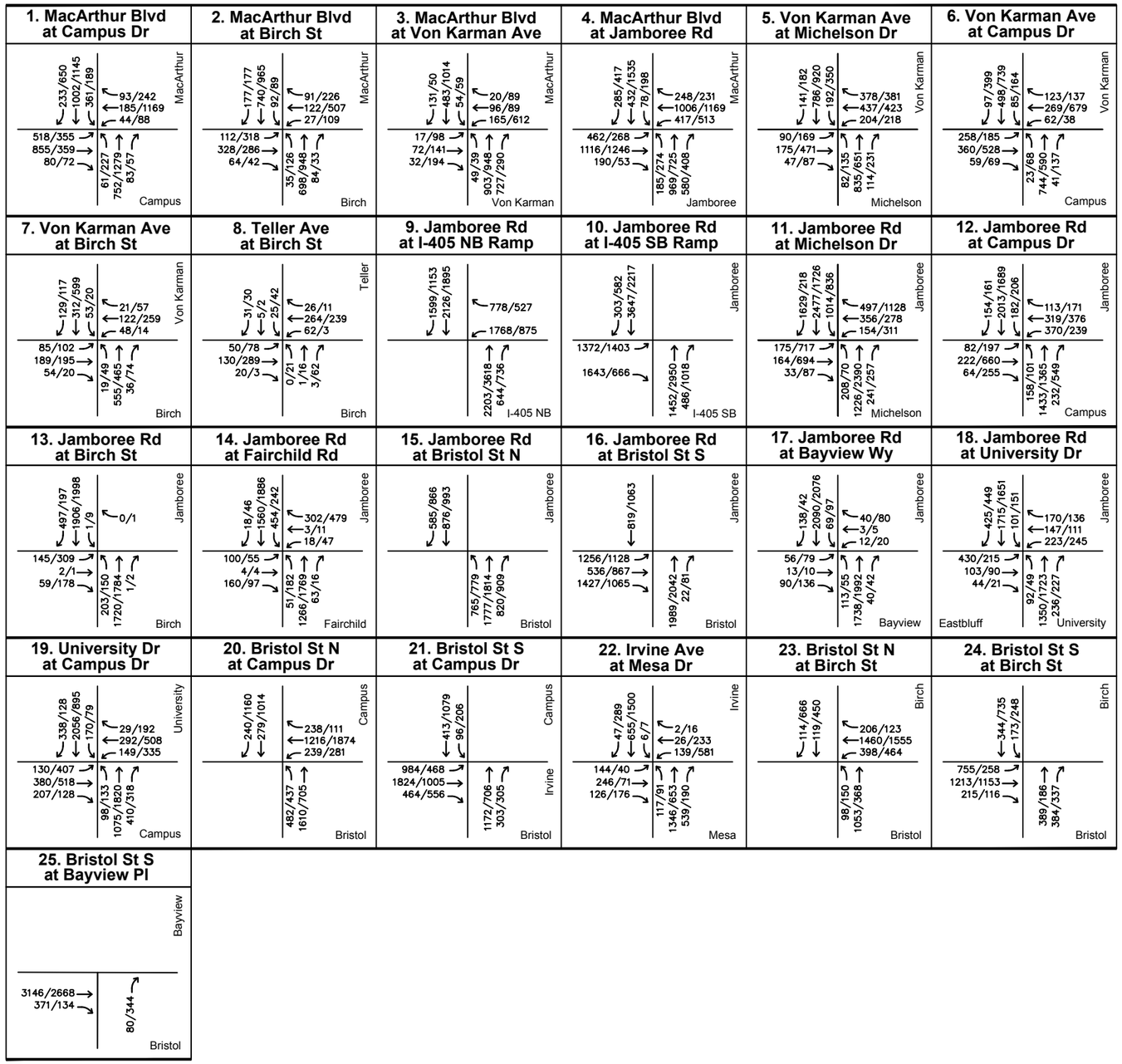

FIGURE 10
TPO ANALYSIS YEAR 2025 WITHOUT PROJECT PEAK HOUR TRAFFIC VOLUMES

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The analysis will proceed with a TPO Traffic Impact Study at the remaining Newport Beach Primary Intersections. It should be noted that the 1% Analysis was not conducted for the study intersections entirely in the City of Irvine because the TPO requirement only applies to the City of Newport Beach Primary Intersections. All study intersections in the City of Irvine, including study intersections located on the border of Irvine and Newport Beach, have been analyzed for all study scenarios in this report.

Table 4: Summary of 1% TPO Analysis

No.	Intersection	Condition	Northbound Approach		Southbound Approach		Eastbound Approach		Westbound Approach	
			AM	PM	AM	PM	AM	PM	AM	PM
1	MacArthur Blvd/ Campus Dr	1% of projected pk hr volume	9	16	16	20	14	9	3	16
		Project peak hour volume	17	11	6	17	0	0	0	0
		Project traffic less than 1%?	N	Y	Y	Y	Y	Y	Y	Y
2	MacArthur Blvd/ Birch St	1% of projected pk hr volume	8	11	10	12	5	7	2	9
		Project peak hour volume	0	0	6	17	3	8	30	20
		Project traffic less than 1%?	Y	Y	Y	N	Y	N	N	N
3	MacArthur Blvd/ Von Karman Ave	1% of projected pk hr volume	17	12	7	11	1	5	3	8
		Project peak hour volume	7	19	0	0	0	0	19	12
		Project traffic less than 1%?	Y	N	Y	Y	Y	Y	N	N
4	MacArthur Blvd/ Jamboree Rd	1% of projected pk hr volume	17	14	8	21	18	14	17	18
		Project peak hour volume	6	17	18	12	8	22	14	9
		Project traffic less than 1%?	Y	N	N	Y	Y	N	Y	Y
6	Von Karman Ave/ Campus Dr	1% of projected pk hr volume	8	8	7	13	7	8	5	9
		Project peak hour volume	4	3	1	4	0	0	0	0
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y
12	Jamboree Rd/ Campus Dr	1% of projected pk hr volume	18	20	23	21	4	12	8	9
		Project peak hour volume	15	9	6	17	2	1	0	0
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y
13	Jamboree Rd/ Birch St	1% of projected pk hr volume	19	19	24	22	2	7	0	2
		Project peak hour volume	7	20	5	15	29	18	0	0
		Project traffic less than 1%?	Y	N	Y	Y	N	N	Y	Y
15	Jamboree Rd/ Bristol St N	1% of projected pk hr volume	34	35	15	19	0	1	0	1
		Project peak hour volume	8	22	15	10	0	0	0	0
		Project traffic less than 1%?	Y	Y	N	Y	Y	Y	Y	Y
16	Jamboree Rd/ Bristol St S	1% of projected pk hr volume	20	21	8	11	32	29	0	0
		Project peak hour volume	3	8	8	5	5	13	0	0
		Project traffic less than 1%?	Y	Y	N	Y	Y	Y	Y	Y
17	Jamboree Rd/ Bayview Wy	1% of projected pk hr volume	19	21	23	22	2	3	1	2
		Project peak hour volume	3	8	8	5	0	0	0	0
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y
18	Jamboree Rd/ University Dr	1% of projected pk hr volume	17	20	22	22	6	4	5	6
		Project peak hour volume	3	8	8	5	0	0	0	0
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y

Table 4: Summary of 1% TPO Analysis

No.	Intersection	Condition	Northbound Approach		Southbound Approach		Eastbound Approach		Westbound Approach	
			AM	PM	AM	PM	AM	PM	AM	PM
20	Bristol St N/ Campus Dr	1% of projected pk hr volume	21	11	5	22	0	0	17	22
		Project peak hour volume	2	6	3	2	0	0	17	11
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	N	Y
21	Bristol St S at Irvine Ave /Campus Dr	1% of projected pk hr volume	15	10	5	13	33	20	0	0
		Project peak hour volume	1	3	3	2	1	3	0	0
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y
22	Irvine Ave at Mesa Dr	1% of projected pk hr volume	20	9	7	18	5	3	2	8
		Project peak hour volume	2	4	3	2	0	0	1	1
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y
23	Birch St at Bristol St N	1% of projected pk hr volume	12	5	2	11	0	0	21	21
		Project peak hour volume	1	1	10	7	0	0	7	5
		Project traffic less than 1%?	Y	Y	N	Y	Y	Y	Y	Y
24	Birch St at Bristol St S	1% of projected pk hr volume	8	5	5	10	22	15	0	0
		Project peak hour volume	1	1	1	1	0	0	0	0
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y
25	Bayview Pl at Bristol St S	1% of projected pk hr volume	1	3	0	0	35	26	0	0
		Project peak hour volume	0	0	0	0	5	13	0	0
		Project traffic less than 1%?	Y	Y	Y	Y	Y	Y	Y	Y

TPO Analysis Year 2025 Without Project

Intersection analysis was conducted for the TPO Analysis Year 2025 (Existing plus Growth plus Committed Projects) Without Project peak hour traffic conditions. Intersection worksheets are provided in Appendix B. The results of the intersection analysis are summarized on Table 5. Review of the table shows that the following study intersection would operate at an unacceptable Level of Service under TPO Analysis Year 2025 Without Project Conditions:

10. Jamboree Road at I-405 SB Ramps: AM – LOS F; PM – LOS F

Table 5: Intersection Operations – TPO Analysis Year 2025 Without Project Conditions						
Int.#	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			ICU/Delay	LOS	ICU/Delay	LOS
1	MacArthur Blvd at Campus Dr*	S	0.56	A	0.90	D
2	MacArthur Blvd at Birch St	S	0.37	A	0.55	A
3	MacArthur Blvd at Von Karman Ave	S	0.57	A	0.55	A
4	MacArthur Blvd at Jamboree Rd*	S	0.65	B	0.73	C
5	Von Karman Ave at Michelson Dr*	S	0.59	A	0.74	C
6	Von Karman Ave at Campus Dr*	S	0.59	A	0.77	C
7	Von Karman Ave at Birch St	S	0.32	A	0.42	A
8	Teller Ave at Birch St	U	12.2	B	13.5	B
9	Jamboree Rd at I-405 NB Ramps*	S	0.83	D	0.93	E
10	Jamboree Rd at I-405 SB Ramps*	S	1.07	F	1.04	F
11	Jamboree Rd at Michelson Dr*	S	0.69	B	0.97	E
12	Jamboree Rd at Campus Dr*	S	0.70	B	0.71	C
13	Jamboree Rd at Birch St*	S	0.59	A	0.62	B
14	Jamboree Rd at Fairchild Dr*	S	0.68	B	0.79	C
15	Jamboree Rd at Bristol St N	S	0.42	A	0.51	A
16	Jamboree Rd at Bristol St S	S	0.70	B	0.68	B
19	University Dr at Campus Dr [1]	S	0.88	D	0.86	D
20	Bristol St N at Campus Dr	S	0.56	A	0.69	B
23	Birch St at Bristol St N	S	0.68	B	0.57	A

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Intersection operation is expressed in volume-to-capacity (v/c) ratio for signalized intersections, and average delay for unsignalized intersections.
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

* Level of Service E is acceptable at this intersection.

[1] A 5% capacity credit is applied at this intersection to reflect implementation of the Advanced Transportation Management System (ATMS)

TPO Analysis Year 2025 With Project

In this scenario, project-related peak hour traffic volumes are added to the TPO Analysis Year 2025 Without Project traffic volumes. TPO Analysis Year 2025 With Project peak hour volumes are shown on Figure 11. The results of the intersection analysis are summarized on Table 6. Review of this table shows that the following study intersection would operate at an unacceptable Level of Service under TPO Analysis Year 2025 with project conditions:

10. Jamboree Road at I-405 SB Ramps: AM – LOS F; PM – LOS F

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Table 6: Intersection Operations – TPO Analysis Year 2025 With Project Conditions

Int. #	Intersection	AM Peak Hour						PM Peak Hour					
		Without Project		With Project			Sig	Without Project		With Project			Sig
		ICU/Delay	LOS	ICU/Delay	LOS	Change	Impact?	ICU/Delay	LOS	ICU/Delay	LOS	Change	Impact?
1	MacArthur Blvd at Campus Dr*	0.56	A	0.56	A	0.00	No	0.90	D	0.90	D	0.00	No
2	MacArthur Blvd at Birch St	0.37	A	0.38	A	0.01	No	0.55	A	0.56	A	0.01	No
3	MacArthur Blvd at Von Karman Ave	0.57	A	0.58	A	0.01	No	0.55	A	0.55	A	0.00	No
4	MacArthur Blvd at Jamboree Rd*	0.65	B	0.66	B	0.01	No	0.73	C	0.74	C	0.01	No
5	Von Karman Ave at Michelson Dr*	0.59	A	0.60	A	0.01	No	0.74	C	0.75	C	0.01	No
6	Von Karman Ave at Campus Dr*	0.59	A	0.59	A	0.00	No	0.77	C	0.78	C	0.01	No
7	Von Karman Ave at Birch St	0.32	A	0.33	A	0.01	No	0.42	A	0.43	A	0.01	No
8	Teller Ave at Birch St (unsignalized)	12.2	B	12.7	B	0.5	No	13.5	B	14.8	B	1.3	No
9	Jamboree Rd at I-405 NB Ramps*	0.83	D	0.83	D	0.00	No	0.93	E	0.93	E	0.00	No
10	Jamboree Rd at I-405 SB Ramps*	1.07	F	1.07	F	0.00	No	1.04	F	1.04	F	0.00	No
11	Jamboree Rd at Michelson Dr*	0.69	B	0.69	B	0.00	No	0.97	E	0.97	E	0.00	No
12	Jamboree Rd at Campus Dr*	0.70	B	0.70	B	0.00	No	0.71	C	0.71	C	0.00	No
13	Jamboree Rd at Birch St*	0.59	A	0.60	A	0.01	No	0.62	B	0.64	B	0.02	No
14	Jamboree Rd at Fairchild Dr*	0.68	B	0.68	B	0.00	No	0.79	C	0.79	C	0.00	No
15	Jamboree Rd at Bristol St N	0.42	A	0.42	A	0.00	No	0.51	A	0.52	A	0.01	No
16	Jamboree Rd at Bristol St S	0.70	B	0.70	B	0.00	No	0.68	B	0.69	B	0.01	No
19	University Dr at Campus Dr [1]	0.88	D	0.88	D	0.00	No	0.86	D	0.86	D	0.00	No
20	Bristol St N at Campus Dr	0.56	A	0.57	A	0.01	No	0.69	B	0.69	B	0.00	No
23	Birch St at Bristol St N	0.68	B	0.68	B	0.00	No	0.57	A	0.57	A	0.00	No

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Intersection operation is expressed in volume-to-capacity (v/c) ratio for signalized intersections, and average delay for unsignalized intersections.
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

[1] A 5% capacity credit is applied at this intersection to reflect implementation of the Advanced Transportation Management System (ATMS)

* Level of Service E is acceptable at this intersection.

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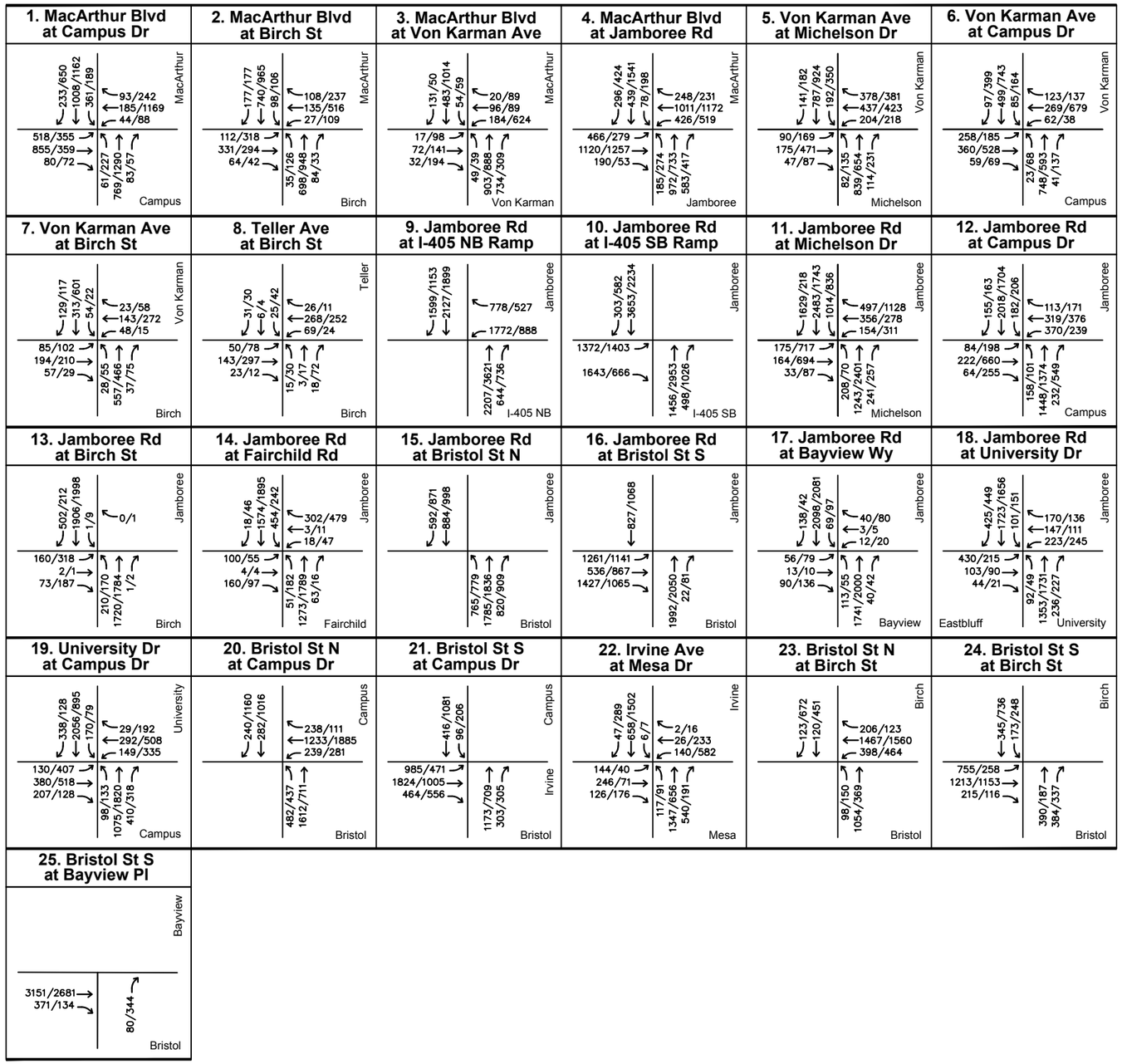

FIGURE 11
TPO ANALYSIS YEAR 2025 WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

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7.2 CEQA Analysis

CEQA requires that a Cumulative Conditions analysis be conducted. The Cumulative Conditions analysis includes traffic from Cumulative Projects in the vicinity of the project site.

Cumulative Projects consist of the Committed Projects (approved projects in the City of Newport Beach), as well as other projects that are in various stages of the application and approval process but have not yet been approved. These projects are considered to be "reasonably foreseeable" projects and must therefore be analyzed for CEQA purposes. The Cumulative Projects list includes the projects identified by the City of Newport Beach as Committed Projects, plus pending projects in the City of Newport Beach, as well as approved and pending projects in the City of Irvine. A summary of Cumulative Projects is provided on Table 7. The location of the Cumulative Projects in relation to the project site is shown on Figure 12. Cumulative Projects information and data provided by the City of Newport Beach and the City of Irvine are provided in Appendix C.

The CEQA Cumulative Conditions analysis was conducted for the following scenarios:

- CEQA Analysis Year 2025 Without Project
- CEQA Analysis Year 2025 With Project

Future Year Cumulative Conditions peak hour traffic volumes for the City of Newport Beach intersections were developed by adding an ambient growth rate of one percent per year to existing volumes on primary roadways and then adding peak hour traffic volumes from both the Committed and Cumulative Projects.

For the City of Irvine intersections, City of Irvine transportation planning staff provided peak hour traffic forecasts from the Irvine Traffic Analysis Model (ITAM) which is maintained and operated by the City of Irvine. The ITAM forecasts include the effects of ambient traffic growth and traffic from Cumulative Projects; the ITAM forecasts are in Appendix C. ITAM forecasts represent year 2023 traffic volumes; therefore, City of Irvine staff recommended applying a growth factor of 2 percent per year to develop Year 2025 forecasts. The westbound approach at the intersection of Jamboree Road at Birch Street will be widened to one left-turn lane, one shared left-through lane, and a dedicated right-turn lane to account for the traffic generated by the UCI North Campus Child Health. The modified westbound approach was a recommended improvement in the UCI North Campus Child Health Traffic Study.

CEQA Analysis Year 2025 Without Project

CEQA Analysis Year 2025 Without Project peak hour traffic volumes for all study intersections are shown on Figure 13. CEQA Analysis Year 2025 Without Project intersection operations are summarized in Table 8. All study intersections are forecasted to operate at an acceptable Level of Service in both peak hours with the exception of the following:

10. Jamboree Road at I-405 SB Ramps: AM – LOS F; PM – LOS F
11. Jamboree Road at Michelson Drive: PM – LOS F

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Table 7: Summary of Cumulative Projects

Proj #	Description	Land Use	Qty	Units	Trip Generation Estimates						
					Daily	AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
City of Newport Beach											
1	Drive Shack	Golf Driving Range	102	Driving Position	1,392	25	16	41	57	70	127
2	Newport Airport Village	Multi-family Housing (Mid-Rise)	329	DU	1,790	31	88	119	88	57	145
3	UCI North Campus Hospital	Hospital (City of Irvine)	350.000	KSF	3,752	212	100	312	109	231	340
4	UCI North Campus Child Health	Medical-Dental Office Building (City of Irvine)	168.000	KSF	5,846	364	103	467	163	418	581
5	Newport Coast	Mixed Residential	1,518	DU	14,778	413	932	1,345	926	557	1,483
6	Westcliff Restaurant	Fast-Food Restaurant w/out drive-through	11.953	KSF	4,002	180	120	300	101	102	203
7	Garden Restaurant	Quality Restaurant	10.987	KSF	971	6	2	8	55	29	84
8	Newport Village	Mixed Use	N/A	N/A	2,832	139	69	207	102	148	251
9	Bayside Family Resort Hotel	Hotel	275	Room	1,796	64	49	113	67	67	134
City of Irvine											
10	Landmark	Hotel	386	Room	3,227	107	74	181	118	113	231
		General Office Building	448.000	KSF	4,364	447	73	520	82	433	515
11	Trilogy Residential	Multi-family Housing (Mid-Rise)	876	DU	4,765	82	233	315	235	151	386
12	Banc & Office Hotel	Hotel	225	Room	1,881	62	43	105	69	66	135
		General Office Building	150.000	KSF	1,461	150	24	174	28	145	173
13	Park Place Office Building	General Office Building	199.000	KSF	1,938	199	32	231	37	192	229
14	Towneplace Hotel	Business Hotel	165	Occupied Room	838	49	43	92	41	33	74
15	17850 Von Karman	General Office Building	240.856	KSF	2,346	240	39	279	44	233	277
16	15 Degrees South	Multi-family Housing (Mid-Rise)	150	DU	816	14	40	54	40	26	66
17	2525 Main Street	Multi-family Housing (Mid-Rise)	272	DU	1,480	26	72	98	73	47	120
18	2055 Main Street	Multi-family Housing (Mid-Rise)	178	DU	968	17	47	64	48	31	79
19	Pistoia Apartments	Multi-family Housing (Mid-Rise)	371	DU	2,018	35	99	134	99	64	163
20	Milani Apartments	Multi-family Housing (Mid-Rise)	287	DU	1,561	27	76	103	77	49	126
21	Central Park West	Multi-family Housing (Mid-Rise)	1,560	DU	8,486	147	415	562	418	268	686
		Shopping Center	10.016	KSF	378	6	4	10	18	20	38
22	Main & Jamboree	Multi-family Housing (Mid-Rise)	288	DU	1,567	27	77	104	77	50	127
23	17821 Gillette	Multi-family Housing (Mid-Rise)	39	DU	212	4	10	14	10	7	17

Table 7: Summary of Cumulative Projects

Proj #	Description	Land Use	Qty	Units	Trip Generation Estimates						
					Daily	AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
24	17811 Gillette	Multi-family Housing (Mid-Rise)	44	DU	239	4	12	16	12	8	20
25	17822 Gillette	Multi-family Housing (Mid-Rise)	137	DU	745	13	36	49	37	24	61
26	360 Fusion	Multi-family Housing (Mid-Rise)	280	DU	1,523	26	74	100	75	48	123
27	2602 McGaw	Multi-family Housing (Mid-Rise)	120	DU	653	11	32	43	32	21	53
Total Project Trips					78,625	3,127	3,034	6,160	3,338	3,708	7,047

DU = Dwelling Unit, KSF = 1,000 square feet,

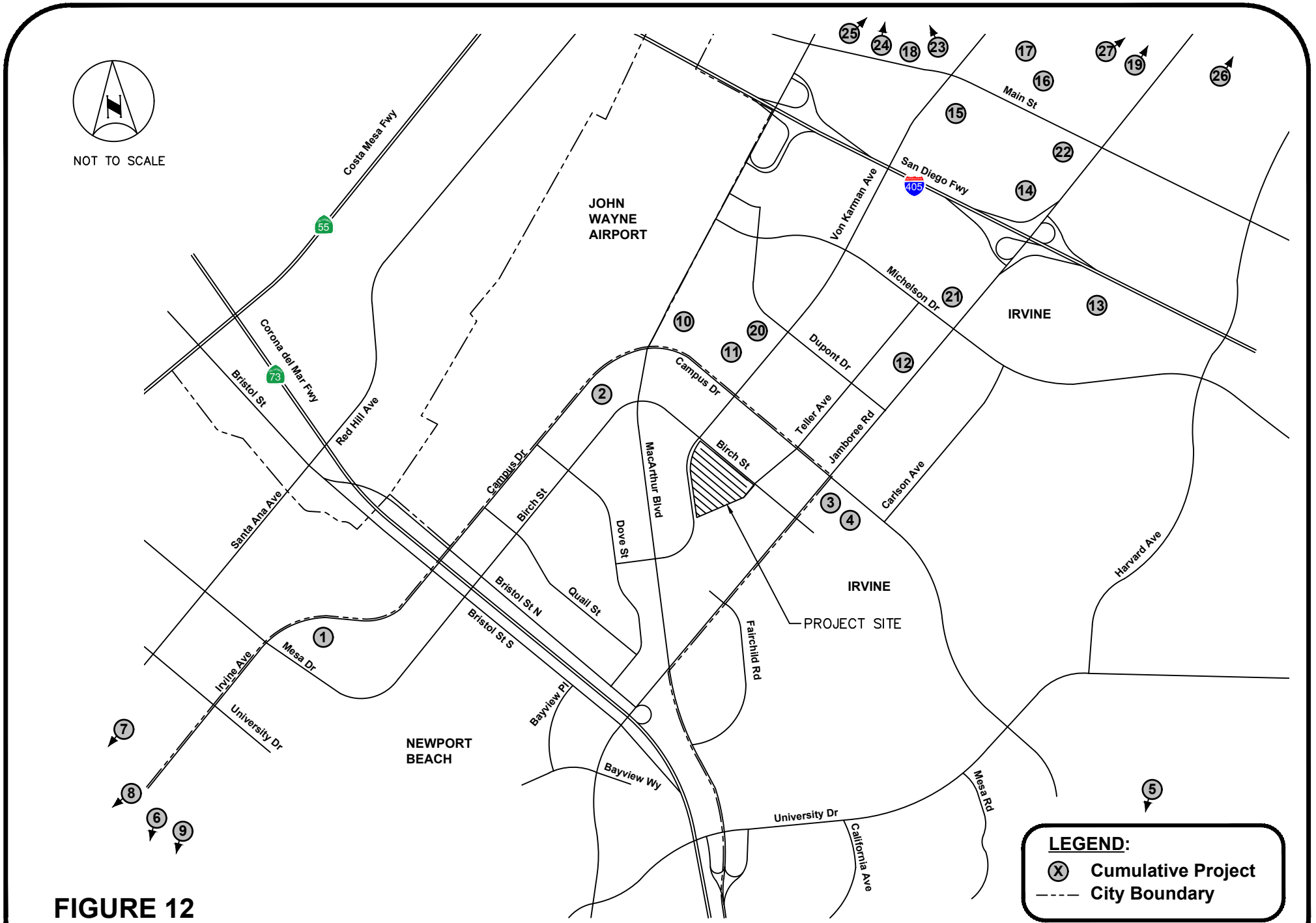

FIGURE 12
LOCATION OF CUMULATIVE PROJECTS

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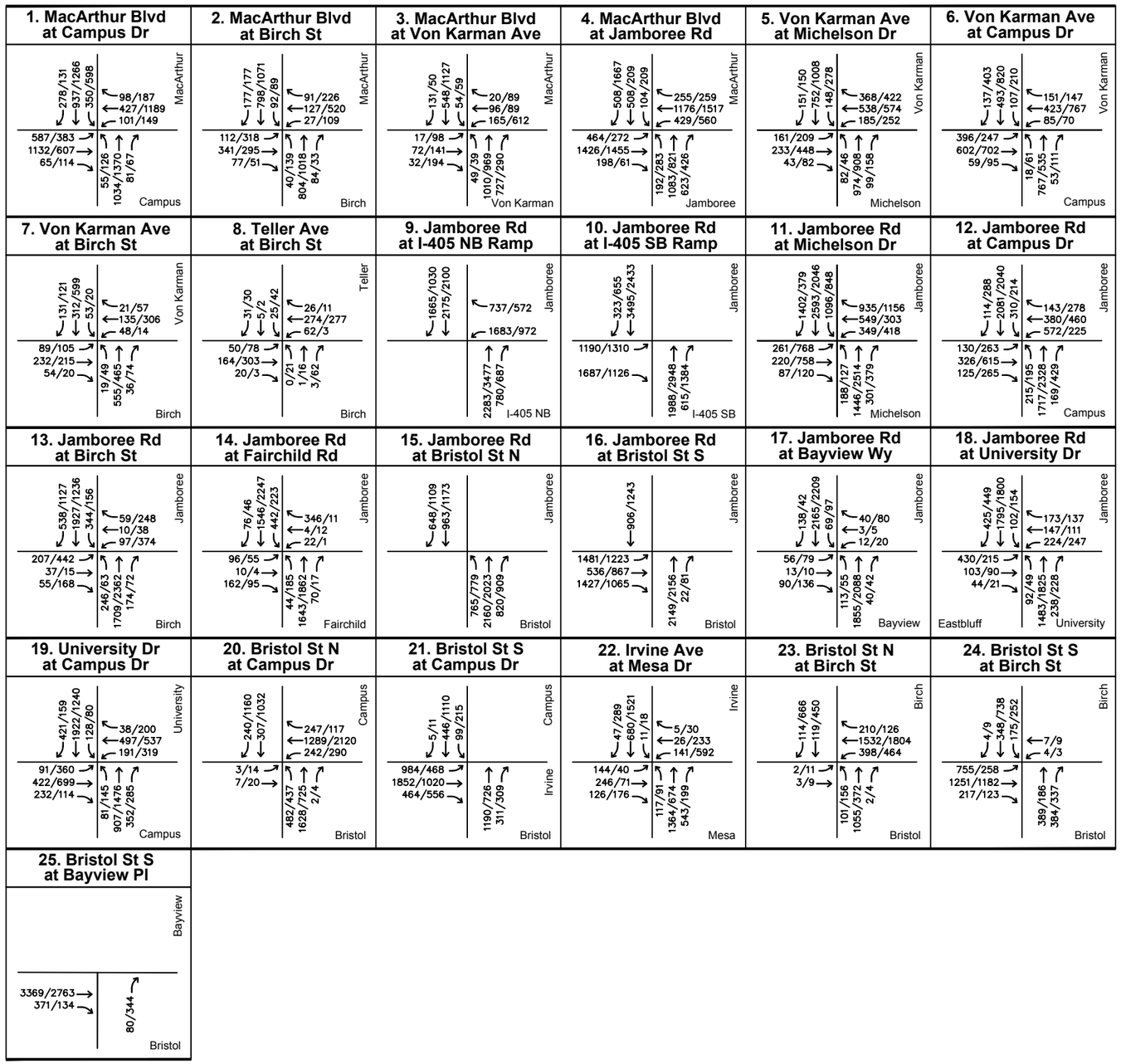

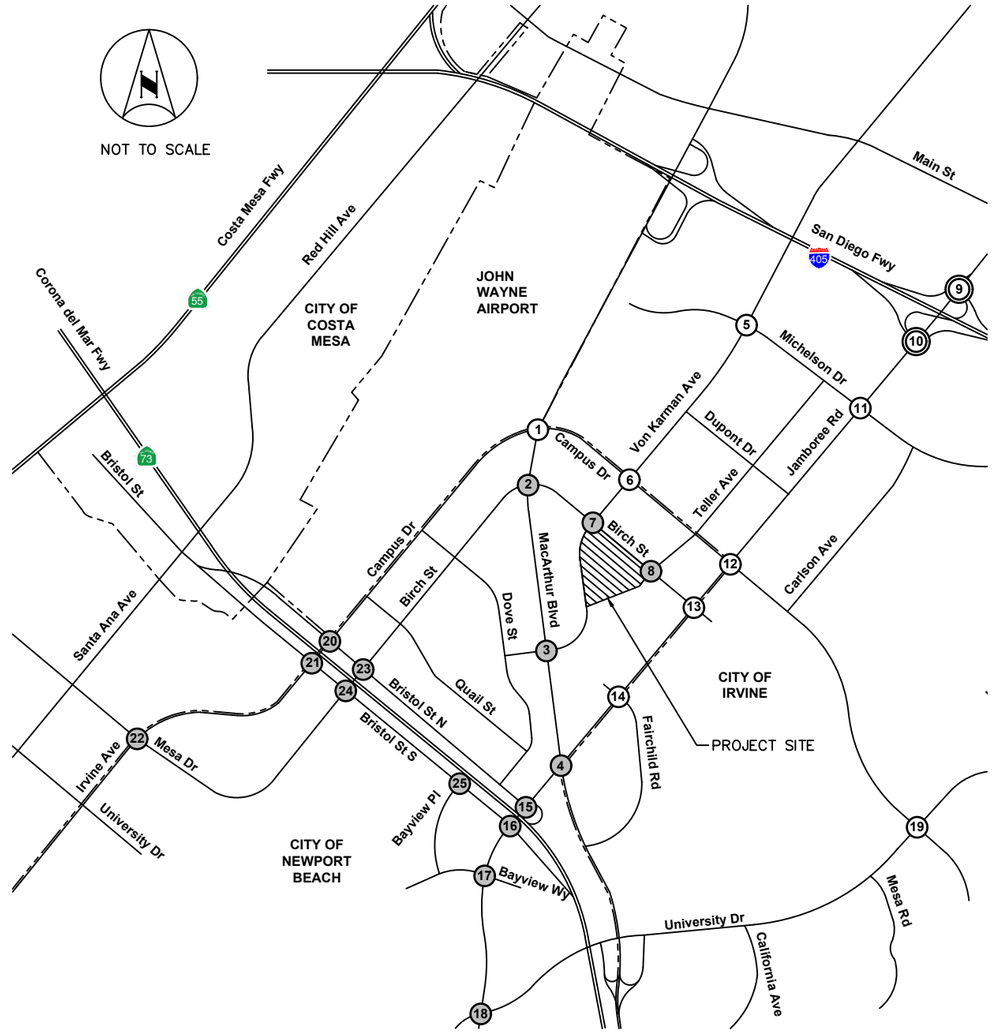

LEGEND:

- (X) Newport Beach Intersection
- (X) Irvine Intersection
- (X) Caltrans Intersection
- ---- City Boundary
- XX/YY AM/PM Peak Hour Turning Movement Volumes

FIGURE 13
CEQA ANALYSIS YEAR 2025 WITHOUT PROJECT PEAK HOUR TRAFFIC VOLUMES

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Table 8: Intersection Operation – CEQA Analysis Year 2025 Without Project Conditions					
		AM Peak Hour		PM Peak Hour	
Int. #	Intersection	ICU/Delay	LOS	ICU/Delay	LOS
1	MacArthur Blvd at Campus Dr*	0.667	B	0.959	E
2	MacArthur Blvd at Birch St	0.401	A	0.583	A
3	MacArthur Blvd at Von Karman Ave	0.572	A	0.572	A
4	MacArthur Blvd at Jamboree Rd*	0.723	C	0.837	D
5	Von Karman Ave at Michelson Dr*	0.676	B	0.785	C
6	Von Karman Ave at Campus Dr*	0.740	C	0.860	D
7	Von Karman Ave at Birch St	0.337	A	0.435	A
8	Teller Ave at Birch St (unsignalized)	12.5	B	14.2	B
9	Jamboree Rd at I-405 NB Ramps*	0.828	D	0.922	E
10	Jamboree Rd at I-405 SB Ramps*	1.060	F	1.013	F
11	Jamboree Rd at Michelson Dr*	0.823	D	1.050	F
12	Jamboree Rd at Campus Dr*	0.808	D	0.811	D
13	Jamboree Rd at Birch St*	0.728	C	0.899	D
14	Jamboree Rd at Fairchild Dr*	0.776	C	0.548	A
15	Jamboree Rd at Bristol St N	0.440	A	0.590	A
16	Jamboree Rd at Bristol St S	0.734	C	0.715	C
17	Jamboree Rd at Bayview Way	0.473	A	0.491	A
18	Jamboree Rd at University Dr	0.675	B	0.601	B
19	University Dr at Campus Dr [1]	0.871	D	0.853	D
20	Bristol St N at Campus Dr	0.581	A	0.737	C
21	Bristol St S at Irvine Ave / Campus Dr	0.691	B	0.560	A
22	Irvine Ave at Mesa Dr	0.507	A	0.669	B
23	Birch St at Bristol St N	0.694	B	0.632	B
24	Birch St at Bristol St S	0.496	A	0.507	A
25	Bayview Pl at Bristol St S	0.551	A	0.539	A

Note:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Intersection operation is expressed in volume-to-capacity (v/c) ratio for signalized intersections, and average delay for unsignalized intersections.
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

* Level of Service E is acceptable at this intersection.

[1] A 5% capacity credit is applied at this intersection to reflect implementation of the Advanced Transportation Management System (ATMS)

CEQA Analysis Year 2025 With Project

In this scenario, project-related peak hour traffic volumes were added to the CEQA Analysis Year 2025 Without Project traffic volumes. The resulting CEQA Analysis Year 2025 With Project peak hour volumes are shown on Figure 14, and the resulting intersection operations are summarized on Table 9. The following intersections would continue to operate at a deficient Level of Service under CEQA Analysis Year 2025 With Project conditions:

10. Jamboree Road at I-405 SB Ramps: AM – LOS F; PM – LOS F
11. Jamboree Road at Michelson Drive: PM – LOS F

Based on the significance criteria set forth in this traffic study, the Project's incremental increase does not exceed the significance threshold at the deficient intersections and would not result in a significant impact with the addition of project trips. All other intersections would operate at an acceptable Level of Service in both peak hours.

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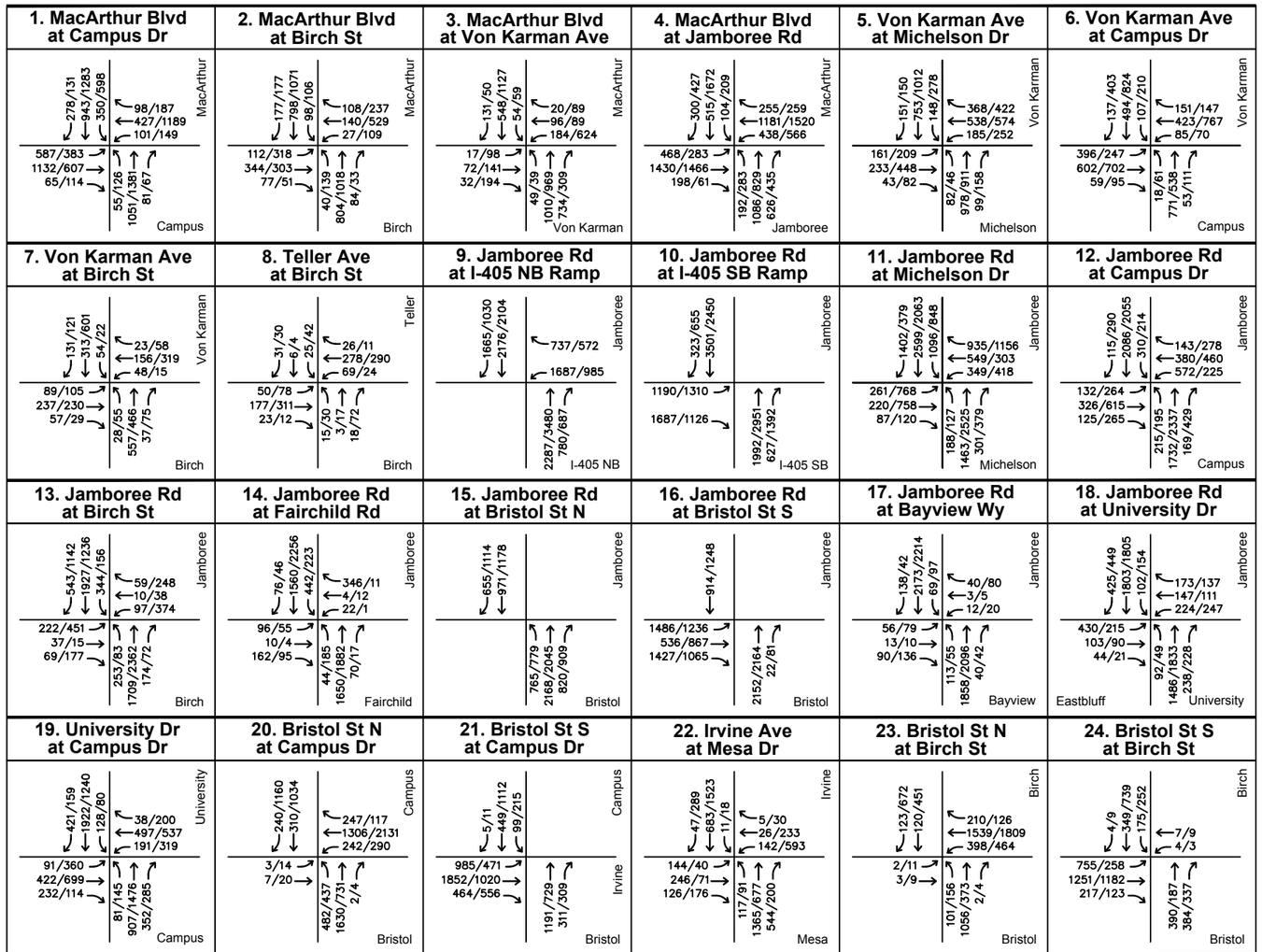

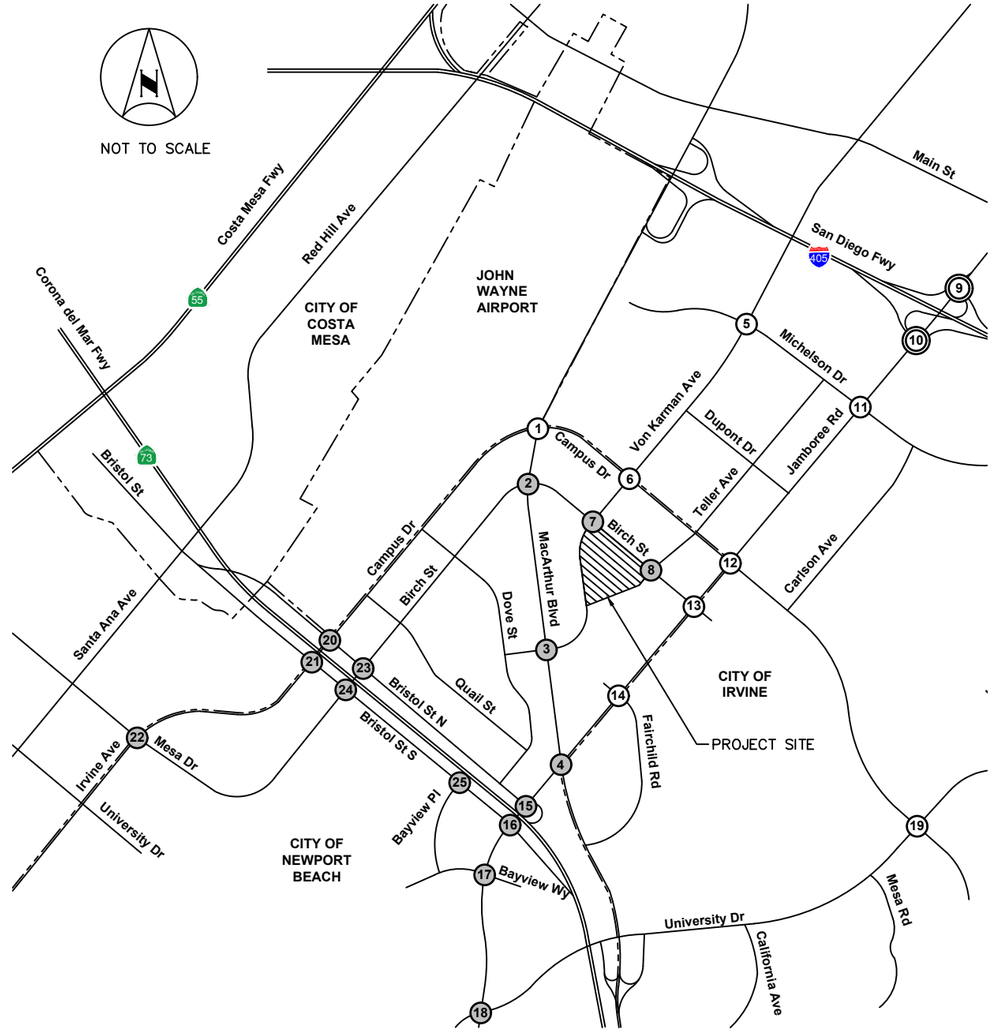

LEGEND:

- (X) Newport Beach Intersection
- (X) Irvine Intersection
- (X) Caltrans Intersection
- ---- City Boundary
- XX/YY AM/PM Peak Hour Turning Movement Volumes

FIGURE 14
CEQA ANALYSIS YEAR 2025 WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

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Table 9: Intersection Operation – CEQA Analysis Year 2025 With Project Conditions

		AM Peak Hour						PM Peak Hour					
		Without Project		With Project				Without Project		With Project			
Int. #	Intersection	ICU/ Delay	LOS	ICU/ Delay	LOS	Change Delay	Sig Impact?	ICU/ Delay	LOS	ICU/ Delay	LOS	Change Delay	Sig Impact?
1	MacArthur Blvd at Campus Dr*	0.667	B	0.669	B	0.002	No	0.959	E	0.961	E	0.002	No
2	MacArthur Blvd at Birch St	0.401	A	0.410	A	0.009	No	0.583	A	0.587	A	0.004	No
3	MacArthur Blvd at Von Karman Ave	0.572	A	0.582	A	0.010	No	0.572	A	0.575	A	0.003	No
4	MacArthur Blvd at Jamboree Rd*	0.723	C	0.725	C	0.002	No	0.837	D	0.842	D	0.005	No
5	Von Karman Ave at Michelson Dr*	0.676	B	0.678	B	0.002	No	0.785	C	0.786	C	0.001	No
6	Von Karman Ave at Campus Dr*	0.740	C	0.741	C	0.001	No	0.860	D	0.861	D	0.001	No
7	Von Karman Ave at Birch St	0.337	A	0.331	A	-0.006	No	0.435	A	0.443	A	0.008	No
8	Teller Ave at Birch St (unsignalized)	12.5	B	13.0	B	0.5	No	14.2	B	15.7	C	1.5	No
9	Jamboree Rd at I-405 NB Ramps*	0.828	D	0.829	D	0.001	No	0.922	E	0.925	E	0.003	No
10	Jamboree Rd at I-405 SB Ramps*	1.060	F	1.061	F	0.001	No	1.013	F	1.014	F	0.001	No
11	Jamboree Rd at Michelson Dr*	0.823	D	0.826	D	0.003	No	1.050	F	1.052	F	0.002	No
12	Jamboree Rd at Campus Dr*	0.808	D	0.809	D	0.001	No	0.811	D	0.814	D	0.003	No
13	Jamboree Rd at Birch St*	0.728	C	0.732	C	0.004	No	0.899	D	0.902	D	0.003	No
14	Jamboree Rd at Fairchild Dr*	0.776	C	0.777	C	0.001	No	0.548	A	0.549	A	0.001	No
15	Jamboree Rd at Bristol St N	0.440	A	0.441	A	0.001	No	0.590	A	0.592	A	0.002	No
16	Jamboree Rd at Bristol St S	0.734	C	0.736	C	0.002	No	0.715	C	0.719	C	0.004	No
17	Jamboree Rd at Bayview Way	0.473	A	0.474	A	0.001	No	0.491	A	0.492	A	0.001	No
18	Jamboree Rd at University Dr	0.675	B	0.677	B	0.002	No	0.601	B	0.603	B	0.002	No
19	University Dr at Campus Dr [1]	0.871	D	0.871	D	0.000	No	0.853	D	0.853	D	0.000	No
20	Bristol St N at Campus Dr	0.581	A	0.585	A	0.004	No	0.737	C	0.738	C	0.001	No
21	Bristol St S at Irvine Ave / Campus Dr	0.691	B	0.691	B	0.000	No	0.560	A	0.560	A	0.000	No
22	Irvine Ave at Mesa Dr	0.507	A	0.508	A	0.001	No	0.669	B	0.669	B	0.000	No
23	Birch St at Bristol St N	0.694	B	0.696	B	0.002	No	0.632	B	0.634	B	0.002	No
24	Birch St at Bristol St S	0.496	A	0.496	A	0.000	No	0.507	A	0.508	A	0.001	No
25	Bayview Pl at Bristol St S	0.551	A	0.552	A	0.001	No	0.539	A	0.541	A	0.002	No

Notes:
- Bold and shaded values indicate intersections operating at an unacceptable Level of Service
- Intersection operation is expressed in volume-to-capacity (v/c) ratio for signalized intersections, and average delay for unsignalized intersections.
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

* Level of Service E is acceptable at this intersection.

[1] A 5% capacity credit is applied at this intersection to reflect implementation of the Advanced Transportation Management System (ATMS)

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8 GENERAL PLAN COMPARISON

A comparison analysis has been conducted to determine whether the proposed Residences at 4400 Von Karman ("Project") would result in any new or substantially more significant environmental impacts as compared to the conclusions discussed in the City of Newport Beach General Plan Transportation Study (March 2006). The project is located in traffic analysis zone (TAZ) 1405 of the Newport Beach Traffic Model (NBTM), used in the 2006 General Plan traffic analysis. The NBTM TAZ 1405 consists of 128 Apartment units, 128,610 square feet of general commercial and 695,157 square feet of office. The "Residences at 4400 Von Karman" project proposes 312 apartment units. To provide a conservative analysis, the traffic from the additional 184 units (312 units–128 units) were added on to Post-2030 General Plan Buildout traffic to determine 2030 General Plan Buildout With Project traffic. The following study scenarios were analyzed for the comparison analysis:

- Post-2030 General Plan Buildout [1]
- Post-2030 General Plan Buildout With Project [2]

[1] This scenario assumes the following quantities for NBTM TAZ 1405, where the project site is located: 128 apartment units, 128,610 square feet of general commercial use, and 695,137 square feet of office use
[2] This "With Project" scenario assumes an additional 184 dwelling units (delta) to NBTM TAZ 1405, for a total of 312 dwelling units, as proposed by the Project.

The Post-2030 General Plan Buildout With Project ICU was compared with the Post-2030 General Plan Buildout ICU at the following study intersections analyzed in the 2006 General Plan Transportation Study:

1	MacArthur Boulevard at Campus Drive
2	MacArthur Boulevard at Birch Street
3	MacArthur Boulevard at Von Karman Avenue
4	MacArthur Boulevard at Jamboree Road
6	Von Karman Avenue at Campus Drive
12	Jamboree Road at Campus Drive
13	Jamboree Road at Birch Street
15	Jamboree Road at Bristol Street N
16	Jamboree Road at Bristol Street S
17	Jamboree Road at Bayview Way
18	Jamboree Road at University Drive
20	Bristol Street N at Campus Drive
21	Bristol Street S at Irvine Avenue / Campus Drive
22	Irvine Avenue at Mesa Drive
23	Birch Street at Bristol Street N
24	Birch Street at Bristol Street S
25	Bayview Place at Bristol Street S

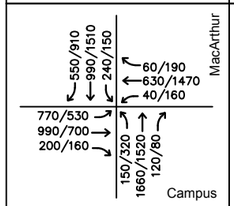
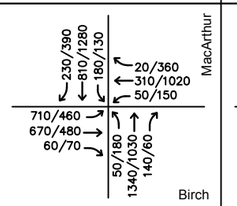
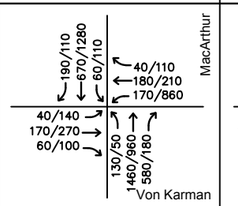
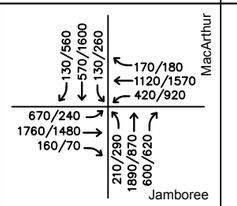
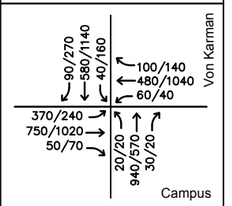
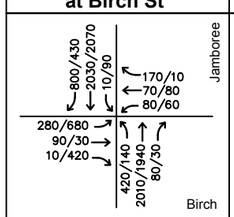
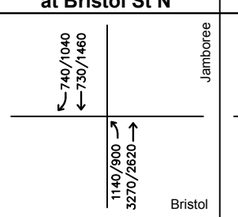
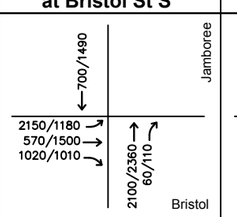
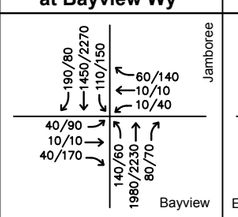
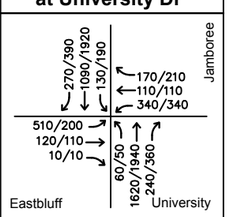
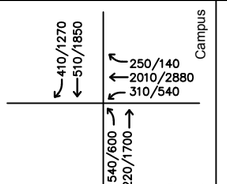
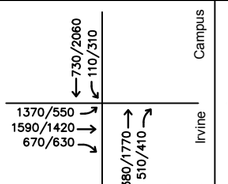
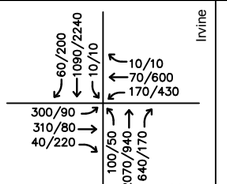
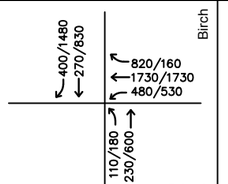
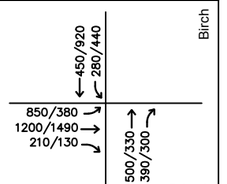
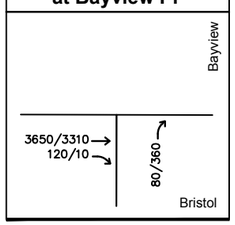
Daily, morning peak hour, and evening peak hour trip generation estimates for the proposed Project are shown on Table 10. The Project (184 additional units) would generate approximately 1,001 daily trips, with 66 morning peak hour trips (17 inbound and 49 outbound) and 81 evening peak hour trips (49 inbound and 32 outbound).

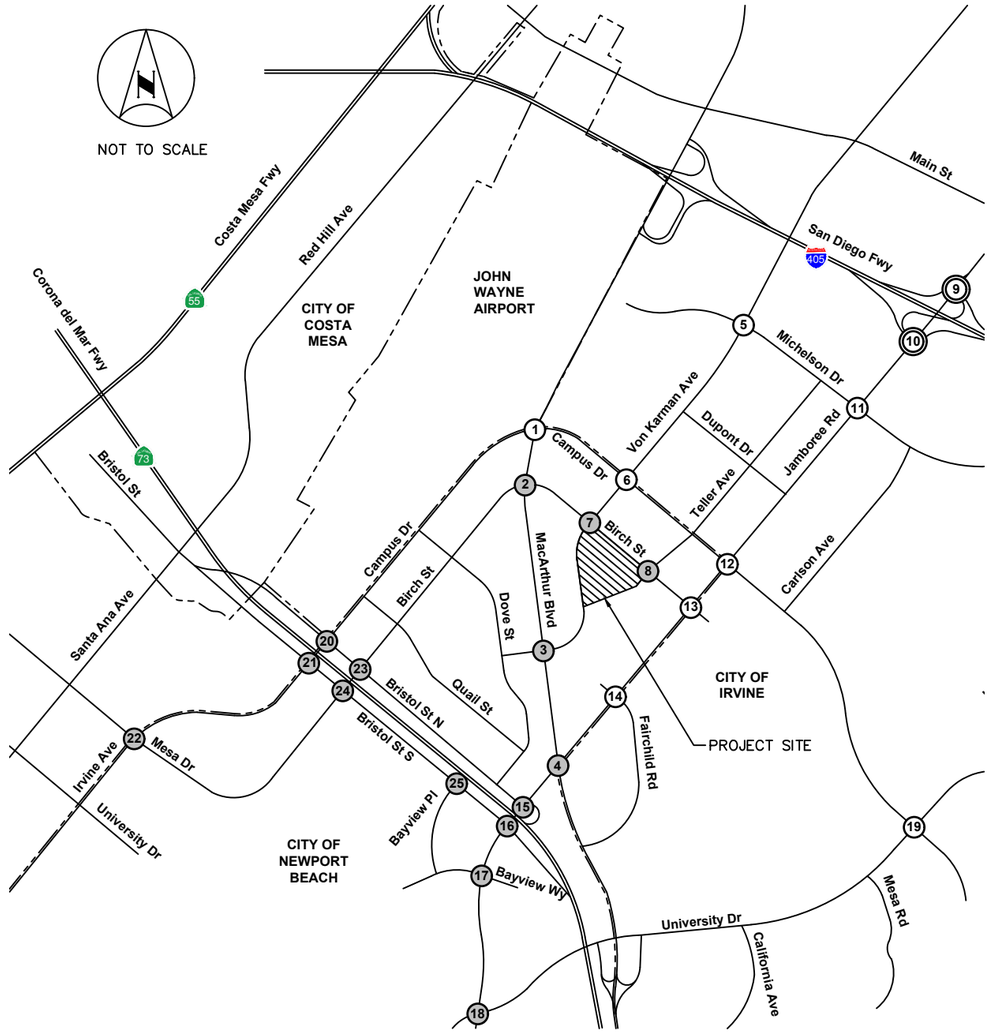
Table 10: Summary of Delta Project Trip Generation

Land Use	ITE Code	Unit	Trip Generation Rates [1]						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise)	221	DU	5.44	0.094	0.266	0.36	0.268	0.172	0.44
Land Use	**Quantity**	**Unit**	**Trip Generation Estimates**						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise) [2]	184	DU	1,001	17	49	66	49	32	81
Total Delta Project Trips			1,001	17	49	66	49	32	81

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition
[2] This "With Project" scenario assumes an additional 184 dwelling units (delta) to NBTM TAZ 1405, for a total of 312 dwelling units, as proposed by the Project.

The Post-2030 General Plan Buildout and Post-2030 General Plan Buildout With Project volumes are shown on Figure 15 and Figure 16, respectively. Excerpts from the 2006 General Plan Transportation Study are provided in Appendix H. The results of the Post-2030 General Plan Buildout Plus Project ICU compared to the Post-2030 General Plan Buildout ICU shown in the General Plan Transportation Study and are shown on Table 11. Based on this comparison, the proposed Project would not result in any new traffic related impacts compared to those identified in the 2006 City of Newport Beach General Plan Transportation Study. The proposed Project would not result in a significant Project impact at the study locations; therefore, no mitigation measures at the study locations are required.

1. MacArthur Blvd at Campus Dr	2. MacArthur Blvd at Birch St	3. MacArthur Blvd at Von Karman Ave	4. MacArthur Blvd at Jamboree Rd	5. Von Karman Ave at Michelson Dr	6. Von Karman Ave at Campus Dr
				NOT ANALYZED FOR THIS SCENARIO Von Karman Michelson	
7. Von Karman Ave at Birch St	**8. Teller Ave at Birch St**	**9. Jamboree Rd at I-405 NB Ramp**	**10. Jamboree Rd at I-405 SB Ramp**	**11. Jamboree Rd at Michelson Dr**	**12. Jamboree Rd at Campus Dr**
NOT ANALYZED FOR THIS SCENARIO Von Karman Birch	NOT ANALYZED FOR THIS SCENARIO Teller Birch	NOT ANALYZED FOR THIS SCENARIO Jamboree I-405 NB	NOT ANALYZED FOR THIS SCENARIO Jamboree I-405 SB	NOT ANALYZED FOR THIS SCENARIO Jamboree Michelson	
13. Jamboree Rd at Birch St	**14. Jamboree Rd at Fairchild Rd**	**15. Jamboree Rd at Bristol St N**	**16. Jamboree Rd at Bristol St S**	**17. Jamboree Rd at Bayview Wy**	**18. Jamboree Rd at University Dr**
	NOT ANALYZED FOR THIS SCENARIO Jamboree Fairchild				
19. University Dr at Campus Dr	**20. Bristol St N at Campus Dr**	**21. Bristol St S at Campus Dr**	**22. Irvine Ave at Mesa Dr**	**23. Bristol St N at Birch St**	**24. Bristol St S at Birch St**
NOT ANALYZED FOR THIS SCENARIO University Campus					
25. Bristol St S at Bayview Pl					
					



LEGEND:

- (X) Newport Beach Intersection
- (X) Irvine Intersection
- (X) Caltrans Intersection
- ---- City Boundary
- XX/YY AM/PM Peak Hour Turning Movement Volumes

FIGURE 15
POST-2030 GENERAL PLAN BUILD-OUT PEAK HOUR TRAFFIC VOLUMES

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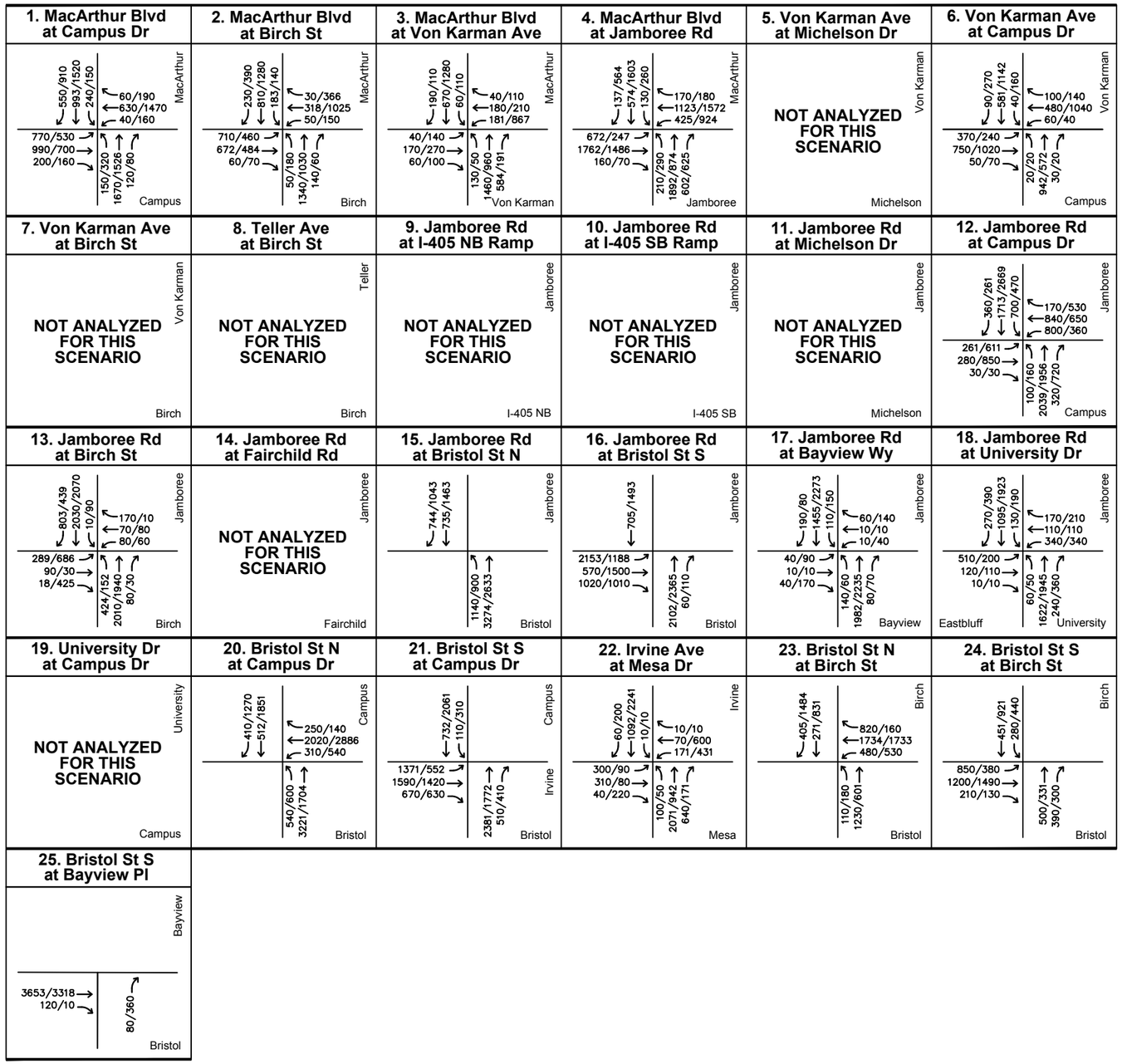

FIGURE 16
POST-2030 GENERAL PLAN BUILD-OUT WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

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Table 11: Intersection Operation – Post-2030 General Plan Buildout With Project Conditions

Int. #	Intersection	AM Peak Hour						PM Peak Hour					
		2006 General Plan Buildout [2,3]		2006 General Plan Buildout With Project [4]		Change in ICU	New Impact?	2006 General Plan Buildout [2,3]		2006 General Plan Buildout With Project [4]		Change in ICU	New Impact?
		ICU	LOS	ICU	LOS			ICU	LOS	ICU	LOS		
1	MacArthur Blvd at Campus Dr*	0.81	D	0.81	D	0.00	No	1.24	F	1.24	F	0.00	No
2	MacArthur Blvd at Birch St	0.79	C	0.80	C	0.01	No	0.90	D	0.90	D	0.00	No
3	MacArthur Blvd at Von Karman Ave	0.54	A	0.54	A	0.00	No	0.65	B	0.65	B	0.00	No
4	MacArthur Blvd at Jamboree Rd*	0.93	E	0.94	E	0.01	No	1.02	F	1.02	F	0.00	No
6	Von Karman Ave at Campus Dr*	0.73	C	0.73	C	0.00	No	0.97	E	0.97	E	0.00	No
12	Jamboree Rd at Campus Dr*	0.93	E	0.93	E	0.00	No	1.18	F	1.18	F	0.00	No
13	Jamboree Rd at Birch St*	1.00	F	1.01	F	0.01	No	0.83	D	0.84	D	0.01	No
15	Jamboree Rd at Bristol St N	0.68	B	0.68	B	0.00	No	0.67	B	0.67	B	0.00	No
16	Jamboree Rd at Bristol St S	0.94	E	0.94	E	0.00	No	0.87	D	0.87	D	0.00	No
17	Jamboree Rd at Bayview Way	0.45	A	0.45	A	0.00	No	0.66	B	0.66	B	0.00	No
18	Jamboree Rd at University Dr	0.68	B	0.68	B	0.00	No	0.67	B	0.67	B	0.00	No
20	Bristol St N at Campus Dr	1.02	F	1.03	F	0.01	No	1.06	F	1.06	F	0.00	No
21	Bristol St S at Irvine Ave / Campus Dr	0.89	D	0.89	D	0.00	No	0.77	C	0.78	C	0.01	No
22	Irvine Ave at Mesa Dr	0.98	E	0.98	E	0.00	No	1.19	F	1.19	F	0.00	No
23	Birch St at Bristol St N	0.92	E	0.92	E	0.00	No	0.81	D	0.81	D	0.00	No
24	Birch St at Bristol St S	0.55	A	0.55	A	0.00	No	0.54	A	0.54	A	0.00	No
25	Bayview Pl at Bristol St S	0.60	A	0.60	A	0.00	No	0.63	B	0.63	B	0.00	No

Notes:
- Bold and shaded values indicate intersections operating at an unacceptable Level of Service
- Intersection operation is expressed in volume-to-capacity (v/c) ratio for signalized intersections, and average delay for unsignalized intersections.
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

* Level of Service E is acceptable at this intersection.

[1] A 5% capacity credit is applied at this intersection to reflect implementation of the Advanced Transportation Management System (ATMS)

[2] Source: 2006 General Plan Transportation Study. Excerpts are provided in Appendix H of this report.

[3] This scenario assumes the following uses for NBTM TAZ 1405, where the project site is located: 128 apartment units, 128,610 square feet of general commercial use, and 695,137 square feet of office use

[4] This "With Project" scenario assumes an additional 184 dwelling units (delta), for a total of 312 dwelling units, as proposed by the Project.

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9 OTHER ISSUES

9.1 ANALYSIS OF INTERSTATE HIGHWAY FACILITIES

Intersections on Interstate Highway Facilities

Intersections on Interstate Highway facilities, which are controlled by Caltrans, are also analyzed using the Highway Capacity Manual (HCM) methodology, as required by the *Caltrans Guide for the Preparation of Traffic Impact Studies* (State of California Department of Transportation, December 2002). In the vicinity of the project, the I-405 and SR-73 freeways are Caltrans facilities. Therefore, the following study were analyzed using the HCM intersection analysis methodology:

9. Jamboree Road at I-405 NB Ramps
10. Jamboree Road at I-405 SB Ramps

The HCM methodology measures average seconds of delay per vehicle based on a number of technical parameters, such as peak hourly traffic volumes, number of lanes, type of signal operation, signal timing, and signal phasing in the calculations. A description of each Level of Service, based on delay parameters, per the Highway Capacity Manual (HCM) is provided in the chart on the following page.

For State-controlled intersections, Level of Service standards and impact criteria specified by Caltrans will apply. The *Caltrans Guide for the Preparation of Traffic Impact Studies* states that "Caltrans endeavors to maintain a target Level of Service at the transition between LOS C and LOS D on State highway facilities. If an existing Interstate highway facility is operating at less than the target LOS, the existing Level of Service is to be maintained."

Traffic Impact Criteria

The *Caltrans Guide for the Preparation of Traffic Impact Studies* does not establish a threshold of significance for Interstate Highway intersections. This traffic analysis uses the following traffic threshold of significance:

- A significant project impact occurs at an Interstate Highway study intersection when the addition of project-generated trips causes the peak hour level of service of the study intersection to change from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E, or F).

LEVEL OF SERVICE DESCRIPTIONS		
Level of Service	Signalized Intersection Delay (sec)	Description
A	≤10	LOS A describes operations with a control delay of 10 seconds per vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable, or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	> 10 and ≤ 20	LOS B describes operations with control delay between 10 and 20 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable, or the cycle length is short. More vehicles stop than with LOS A.
C	> 20 and ≤ 35	LOS C describes operations with control delay between 20 and 35 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the progression is favorable, and the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	> 35 and ≤ 55	LOS D describes operations with control delay between 35 and 55 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective, or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	> 55 and ≤ 80	LOS E describes operations with control delay between 55 and 80 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
Source: Highway Capacity Manual, 6th Edition		

Interstate Highway Intersection Analysis

Peak hour intersection analysis was conducted using the HCM methodology for the following Interstate Highway study intersections:

9. Jamboree Road at I-405 NB Ramps
10. Jamboree Road at I-405 SB Ramps

Intersection analysis worksheets for all HCM analysis of Interstate Highway intersections are provided in *Appendix E*.

Existing Conditions

Existing peak hour intersection operations for the Interstate Highway study intersections are summarized on Table 11. Each of the Interstate Highway study intersections currently operates at an acceptable Level of Service using the HCM delay analysis methodology.

CEQA Analysis Year 2025 Without Project

CEQA Analysis Year 2025 Without Project peak hour operation for the Interstate Highway study intersections are summarized on Table 11, previously referenced. The intersection of Jamboree Road at the I-405 Southbound Ramps would operate at LOS D in the morning peak hour under CEQA Analysis Year 2025 Without Project conditions.

CEQA Analysis Year 2025 With Project

CEQA Analysis Year 2025 With Project peak hour operation for the Interstate Highway study intersections are summarized on Table 11, previously referenced. With the addition of project traffic, the intersection of Jamboree Road at the I-405 Southbound Ramps would continue to operate at LOS D in the morning peak hour. The project traffic would not cause the Level of Service at this intersection to worsen, and therefore would not result in a significant impact. The intersection of Jamboree Road at the I-405 Northbound Ramps would continue to operate at an acceptable Level of Service.

Table 12: Summary of Interstate Highway Intersection Operations

Int. #	Intersection	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
Existing Conditions					
9	Jamboree Rd at I-405 NB Ramps	18.3	B	10.9	B
10	Jamboree Rd at I-405 SB Ramps	25.6	C	20.9	C
CEQA Analysis Year 2025 Without Project					
9	Jamboree Rd at I-405 NB Ramps	19.5	B	13.7	B
10	Jamboree Rd at I-405 SB Ramps	54.0	D	22.9	C
CEQA Analysis Year 2025 With Project					
9	Jamboree Rd at I-405 NB Ramps	19.5	B	13.9	B
10	Jamboree Rd at I-405 SB Ramps	54.2	D	23.0	C

Note:
- Bold values indicate intersections operating at an unacceptable Level of Service
- Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

9.2 CONGESTION MANAGEMENT PROGRAM COMPLIANCE

The Orange County Congestion Management Program (CMP) was established in 1991, to reduce traffic congestion and to provide a mechanism for coordinating land use and development decisions. Compliance with CMP requirements ensures a city's eligibility to compete for State gas tax funds for local transportation projects.

A copy of the County of Orange CMP Highway System is provided in *Appendix F*. Within the project study area, the CMP Highway System includes two arterials: Jamboree Road north of MacArthur Boulevard, and MacArthur Boulevard south of Jamboree Road. CMP intersections in the vicinity of the Project consist of:

4. MacArthur Boulevard at Jamboree Road
9. Jamboree Road at I-405 Northbound Ramps
10. Jamboree Road at I-405 Southbound Ramps

The Orange County CMP states that "a TIA will be required for CMP purposes for all proposed developments generating 2,400 or more daily trips," and that "for developments which will directly access a CMP Highway System link, the threshold for requiring a TIA should be reduced to 1,600 or more trips per day.

The Project is estimated to generate approximately 1,697 daily trips but does not directly access a CMP Highway System Link. Base on CMP criteria, a separate CMP analysis is not required of the Project.

9.3 SITE ACCESS AND SITE CIRCULATION

Vehicular access to Koll Center Newport is currently provided by three driveways on Birch Street, and two driveways on Von Karman Avenue. Cross access throughout the site currently allows drivers to access any parking area within Koll Center Newport from any of the site driveways. All driveways are unsignalized and gated. Drivers access the site either by a key card or by pressing the button and pulling a parking ticket. To exit the site, key card users use their card to raise the gate. Visitors must insert a validated ticket or pay at the gate in order to exit.

For discussion purposes, the driveways have been numbered 1 through 5, as shown on Figure 17. The following provides a brief description of each of the existing driveways.

Existing Driveway 1: The westernmost driveway on Birch Street is located approximately 300 feet east of Von Karman Avenue, and is a full-movement driveway. It is 30 feet wide and provides one inbound lane and one outbound lane. The entry gate on Driveway 1 is set back approximately 95 feet from Birch Street. This driveway leads directly to a surface parking area at the north end of the Koll Center Newport site.

Existing Driveway 2: The middle driveway on Birch Street is located approximately 600 feet east of Von Karman Avenue, and is a full-movement driveway. It is 36 feet wide, and provides one inbound lane and one outbound lane, with a narrow, raised median. The entry gate is set back approximately 165 feet from Birch Street. This driveway intersects with the spine street that runs through the Koll Center Newport site and connects Von Karman Avenue and Birch Street in an east-west orientation.

Existing Driveway 3: The eastern driveway on Birch Street is located approximately 1,100 feet east of Von Karman Avenue and approximately 750 feet west of Jamboree Road and is a full-movement driveway. It is 36 feet wide and provides one inbound lane and one outbound lane. Driveway 3 is connected to Teller Avenue. This driveway connects in a T-intersection to the spine street approximately 85 feet from Birch Street. Entry gates are located on the main spine street, approximately 50 feet to the west, and approximately 100 feet to the east of the T-intersection.

Existing Driveway 4: The northern driveway on Von Karman Avenue is located approximately 350 feet south of Birch Street and is an exit-only driveway. It is approximately 15 feet wide, and provides one outbound lane only, from which drivers can make both left and right turns.

Existing Driveway 5: The southern driveway on Von Karman Avenue is located approximately 900 feet south of Birch Street and is a full-movement driveway. It is 36 feet wide and provides one inbound and one outbound lane. The entry gate is set back approximately 90 feet from Von Karman Avenue. This driveway is the western end of the spine street that connects Von Karman Avenue and Birch Street in an east-west orientation.

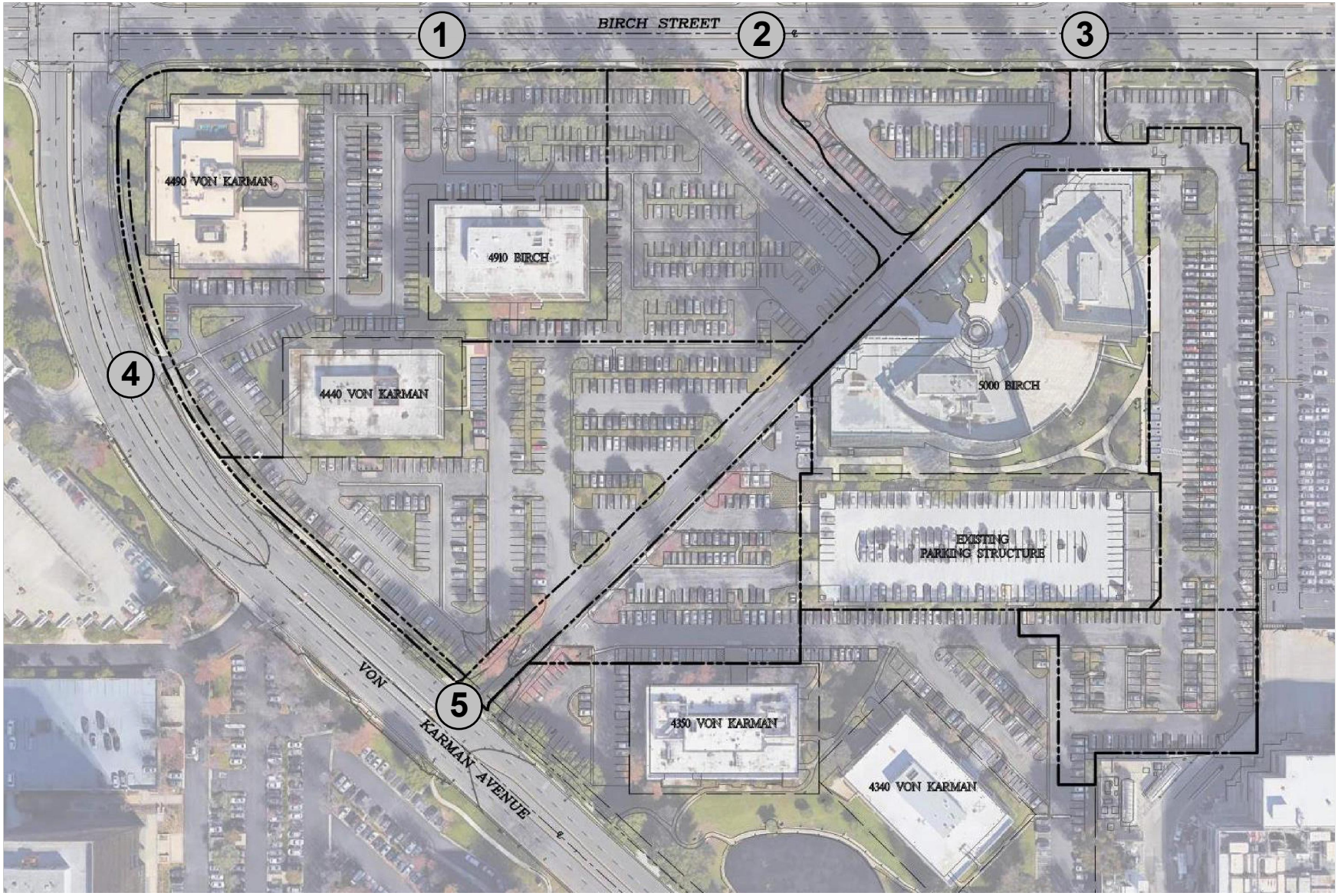
As part of the proposed Project, the five existing site driveways for Koll Center Newport will remain in their current locations, with several changes to the access provisions for the site, as follows:

- The main drive aisle that runs from Von Karman Avenue to Birch Street will become an open-access internal street through the site. All gates to the Koll Center Newport parking areas and to the new residential buildings will be located off the internal street.
- A free-standing parking structure will be constructed prior to construction of the residential building. This parking structure will be provided for office users because of surface parking removed as a part of the Project. When completed, the parking structure will provide 275 spaces for office uses.
- Access to the residential parking will be via a gated entrance directly off the spine street, which will be accessible from Driveways 2, 3, and 5.

The following addresses any changes proposed as a part of the Project:

Driveway 1 With Project: No changes are proposed for Driveway 1. However, as a part of the Project, office parking displaced by the Project would be provided in the residential building's parking structure, in a new, free-standing parking structure, and in surface parking areas. An entry to the residential parking structure for office parking would be provided near the 4910 Birch Street office building using this driveway.

Driveway 2 With Project: The entry gate on Driveway 2 will be removed. A gated entry to the residential portion of the residential development parking structure will be provided off Driveway 2. Drivers entering Driveway 2 will be able to access all parking areas of Koll Center Newport, except the surface parking areas immediately accessed by Driveway 1. Driveway 2 will be reconfigured to provide one inbound lane and two outbound lanes, with one left-turn and one right-turn lane.



NOT TO SCALE

FIGURE 17
EXISTING SITE ACCESS

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Driveway 3 With Project*:* The Koll Center Newport entry gates on the main drive aisle on either side of Driveway 3 will be removed. A new office parking gate for the parking areas to the east of the driveway will be provided approximately 80 feet to the southeast. Drivers entering Driveway 3 will be able to access all parking areas of Koll Center Newport, except the surface parking areas immediately accessed by Driveway 1..

Driveway 4 With Project*:* Driveway 4 will remain an exit-only driveway and will be accessible only from the surface parking areas immediately accessed by Driveway 1. Outbound movements will be restricted to right turns only.

Driveway 5 With Project*:* The entry gate on Driveway 5 will be removed. A new office parking gate for the parking areas to the east of the driveway will be provided on the first intersecting drive aisle. Driveway 5 will be reconfigured to provide one inbound lane and two outbound lanes, with one left-turn and one right-turn lane.

9.4 CONSTRUCTION TRAFFIC

Construction of the proposed Project would add construction-related trips to and from the site during construction activities. These trips are associated with construction activities, including construction workers, grading, and construction of structures and site features.

Large construction equipment such as bulldozers, loaders, scrapers, and pavers would be required during various construction phases. Large equipment is generally brought to the site at the start of the construction phase and kept on site until its term of use ends. A staging area would be designated on-site to store construction equipment and supplies during construction.

Throughout construction, the size of the work crew reporting to the site each day would vary depending on the construction phase and the different activities taking place at the time. Parking for workers would be provided on-site during all phases of construction. Construction workers will not be allowed to park on local streets. If needed during the peak construction periods, off-site parking will be provided, and workers will carpool or be shuttled to the worksite. The Applicant will be required to prepare a Parking Management Plan for construction parking.

The Applicant will be required to prepare a construction management plan to identify the timing of construction activities, and the movement of construction vehicles. There will be no dirt hauling activities allowed to and from the site during the peak hours during any of the construction phases.

Construction Phasing

Free-Standing Parking Structure

Construction of the free-standing parking structure requires the demolition of approximately 106 surface parking spaces and associated landscaping. A free-standing, 275-stall parking structure would be constructed prior to breaking ground on the remainder of the Project in order to replace surface parking temporarily and permanently displaced by site development. The parking structure would have three levels of above-ground parking, including rooftop parking. Construction activities are anticipated to occur over an approximate six-month timeframe.

Residential Structure

Upon completion of the free-standing parking structure, approximately 443 surface parking spaces would be demolished to allow for the construction of the Project. At the completion of this phase of the Project, there would be 1,645 parking spaces with parking for the Project residences and guests, as well as 275 spaces in the structure for office users.

The proposed Project's site grading and foundation excavation would require the removal of approximately 112,000 cubic yards (cy) of material. It is anticipated that all 112,000 cy will be exported from the site. Construction activities are anticipated to occur over a 24-month time period.

The Project includes the demolition of 75 additional surface parking spaces to allow for the reconfiguration of on-site surface parking and access. No grading is assumed. Construction activities would run concurrently with the residential structure over an approximate 3-month time period.

Construction Traffic Management

Heavy vehicles associated with construction of the Project would use the existing regional and local truck route network to approach the site, getting as close to the destination site as possible before turning off the designated truck route. Impacts from construction traffic would be occasional and temporary delays to traffic, during the movement of heavy equipment or transport of heavy loads to and from the site.

The Applicant will be required to provide a construction management plan, and to identify planned travel patterns for haul vehicles, and obtain a Haul Route Permit from the City. Approach and departure routes for construction vehicles will be via Jamboree Road, MacArthur Boulevard, Von Karman Avenue and Birch Street. Depending on the origin/destination (the nearest landfill, or the deposit site identified for cut material), trucks will either arrive and depart via I-405, to the north of the site; or via SR-73, to the south of the site. No heavy vehicle traffic will be permitted during peak commute hours.

10 CONCLUSIONS

A comparison analysis has been conducted to determine whether the proposed Residences at 4400 Von Karman (Project) would result in any new significant environmental impacts as compared to the conclusions discussed in the City of Newport Beach General Plan Transportation Study (March 2006). Based on the comparison analysis, the proposed Project would not result in any new traffic-related impacts compared to those identified in the City of Newport Beach 2006 General Plan Transportation Study. The Traffic Impact Study finds that the traffic-related potential impacts associated with the proposed Project would either be the same or not substantially greater than those described in the 2006 General Plan Update EIR.