Appendix I

Transportation Impact Analysis Report

Appendices

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CITY OF NEWPORT BEACH GENERAL PLAN
LAND USE ELEMENT AMENDMENT
TRAFFIC IMPACT ANALYSIS (TIA)

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CITY OF NEWPORT BEACH GENERAL PLAN
LAND USE ELEMENT AMENDMENT
TRAFFIC IMPACT ANALYSIS (TIA)

ES.0 EXECUTIVE SUMMARY

This report presents the results of the traffic impact analysis (TIA) for the proposed CITY OF NEWPORT BEACH GENERAL PLAN LAND USE ELEMENT (LUE) AMENDMENT ("project" or "General Plan LUE Amendment (proposed project)"), which modifies various land use descriptions and intensities described in the adopted 2006 City of Newport Beach General Plan Land Use Element ("future baseline" or "2006 General Plan").

Within the City of Newport Beach, the Newport Beach Transportation Model (NBTM) is utilized in this study to estimate long range future traffic volumes with and without the General Plan LUE Amendment (proposed project). NBTM has recently been updated to incorporate current land use, socio-economic, trip generation and network data from a variety of sources, including nearby City models (Irvine, Costa Mesa, and Huntington Beach) and the Orange County Transportation Analysis Model (OCTAM). The NBTM 3.4 travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City.

Within the City of Irvine, the Irvine Transportation Analysis Model (ITAM) Version 12 is used to project Post-2035 traffic volumes. Traffic volume changes associated with the General Plan LUE Amendment (proposed project) derived from NBTM are overlaid on ITAM 12 projections in order to evaluate project impacts in the City of Irvine.

ES.1 PROPOSED PROJECT OVERVIEW

The project is an amendment to the Existing 2006 City of Newport Beach General Plan Land Use Element. This proposed LUE Amendment is intended to shape future development within the City and involves the alteration, intensification, and redistribution of land uses in certain subareas of the City, including major areas such as Newport Center/Fashion Island, Newport Coast, and the Airport area near John Wayne Airport. The proposed land use map designation changes include increases and/or reductions in development capacity in these subareas. The General Plan LUE Amendment (proposed project) also includes Land Use Element Policy revisions related to land use changes, in support of recent Neighborhood Revitalization efforts, and, as appropriate, updates/refinements to policies.

Exhibit ES-1 indicates the areas of the City where proposed Land Use Element changes are proposed. These proposed changes will adjust the development potential to eliminate unnecessary development capacity, as well as to create additional development opportunities in areas where there is interest and need.

The following amendments would result in a reduction in development potential in some areas of the city:

Table ES-1: Areas with reduced development capacity – Proposed Project

SF = square feet of building floor area, DUs = dwelling units

Area #	Location	2006 General Plan Designation	Proposed LUE Changes
3	Westcliff Plaza	Neighborhood Commercial (CN)	15,514 SF Reduction
6	Newport Coast Center	Neighborhood Commercial (CN)	37,875 SF Reduction
7	Newport Coast Hotel	Visitor-Serving Commercial (CV)	1,001 rooms Reduction
8	Bayside Center	Neighborhood Commercial (CN)	366 SF Reduction
9	Harbor View Center	Neighborhood Commercial (CN)	1,857 SF Reduction
10	The Bluffs	General Commercial (CG)	3,538 SF Reduction
11	Gateway Park	Commercial Corridor (CC)	Parks and Recreation (PR)
13	Newport Ridge	Multi-Unit Residential (RM) Single Unit Residential Detached RS-D	356 DUs Reduction

The following amendments would result in an increase in development potential in some areas of the city:

EXHIBIT ES-1

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT)
STUDY AREAS REFERENCE MAP

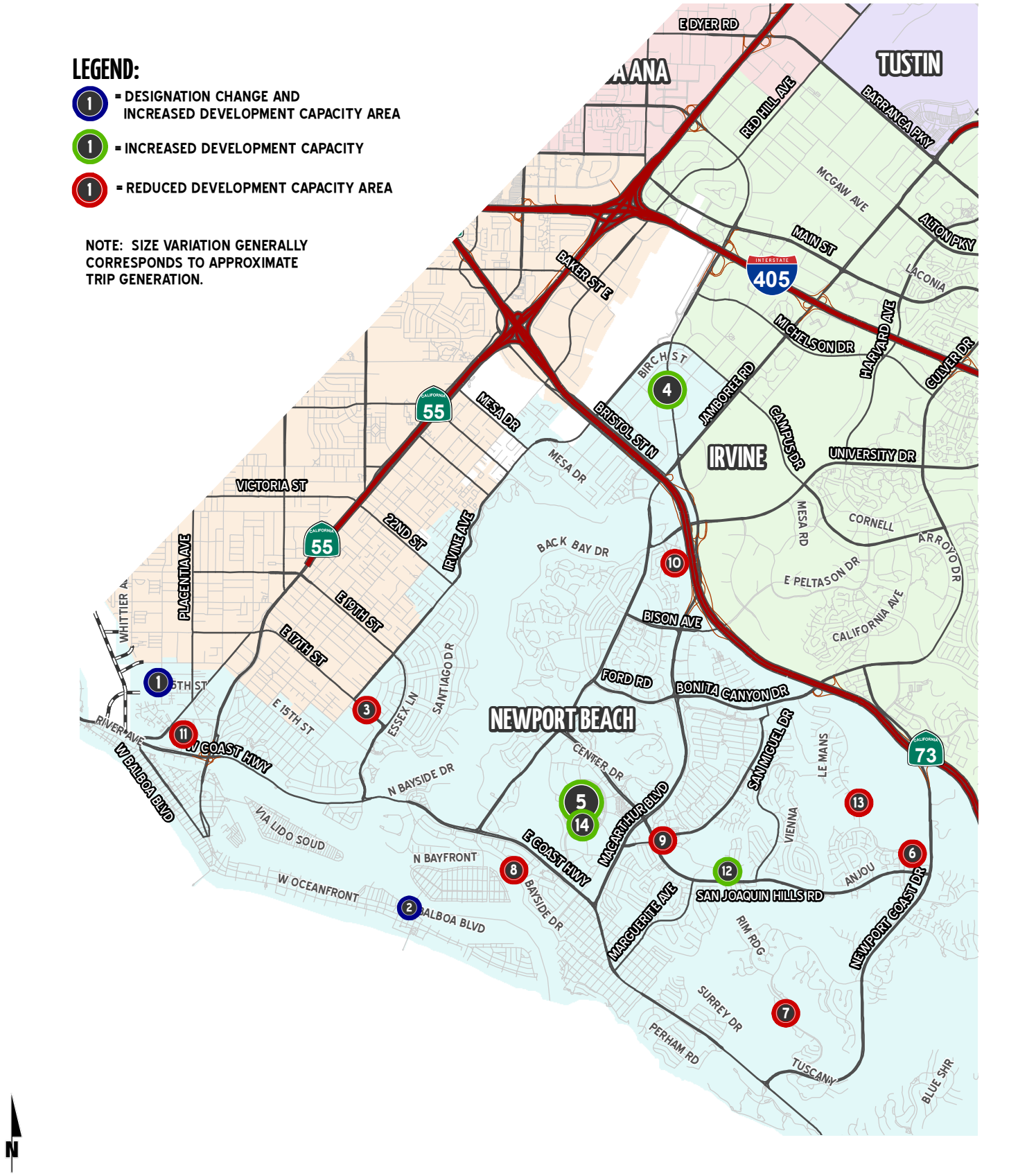


Table ES-2: **Areas with increased development capacity – Proposed Project**

SF = square feet of building floor area, DUs = dwelling units

Area #	Location	2006 General Plan Designation	Proposed Changes
5	Newport Center/ Fashion Island	Regional Commercial (CR), Regional Commercial Office (CO-R), Medical Commercial Office (CO-M), Mixed Use Horizontal (MU-H3), Visitor-Serving Commercial (CV), Multi-Unit Residential (RM)	Regional Office 500,000 SF Increase Regional Commercial50,000 SF Increase Multi-Family 500 DUs Increase
12	Harbor Day School	Private Institutional	72 Students
4	Saunders Properties	Airport Office and Supporting Uses (AO)	Mixed Use Horizontal (MU-H2) 238,077 SF Increase 329 DUs Increase
4	The Hangars	General Commercial Office (CO-G)	General Commercial (CG) 11,800 SF retail Increase (with Office Reduction)
4	Lyon Communities	Mixed Use Horizontal (MU-H2)	Retail: 85K SF Increase, with 150 Hotel Rooms and 850 Replacement DUs
4	UAP Companies	Mixed Use Horizontal (MU-H2)	Revise to allow more FAR for trip neutral congregate care only
14	150 Newport Center Drive	Regional Commercial Office (CO-R)	Mixed-Use Horizontal (MU-H3) 125 hotel rooms Increase
14	100 Newport Center Drive	Regional Commercial Office (CO-R)	15,000 SF Increase

Table ES-3: Areas with designation change and increased development capacity – Proposed Project

Area #	Location	2006 General Plan Designation	Proposed Changes
1	1526 Placentia (King's Liquor)	Multi-Unit Residential (RM)	General Commercial (CG)
2	813 East Balboa Boulevard	Two-Unit Residential (RT)	Mixed-Use Vertical (MU-V)

ES.2 PROJECT ALTERNATIVE OVERVIEW

The project alternative is similar to the City of Newport Beach General Plan Land Use Element Amendment (proposed project), but excludes all proposed projects in the Airport Area. In comparison to the 2006 General Plan, it still involves the alteration, intensification, and redistribution of land uses in other subareas of the City, including major areas such as Newport Center/Fashion Island, and Newport Coast.

A limited study area has been selected for this evaluation, which is intended to determine whether the General Plan LUE Amendment Alternative (project alternative) mitigates impacts identified in the General Plan Land Use Element Amendment (proposed project) analysis.

ES.3 TRAFFIC IMPACT ANALYSIS SUMMARY – PROPOSED PROJECT

Table ES-4 shows the changes in trip generation (reductions and increases) associated with each area of the City where proposed Land Use Element changes will adjust the development potential. The net change is an increase of 260 morning inbound trip ends, 521 morning outbound trip ends, 434 evening inbound trip ends, 324 evening outbound trip ends, and 8,221 daily trip ends (average daily traffic – ADT). Trip reductions occur primarily in the east and west areas of the City, while trip increases are concentrated in Newport Center and the Airport Area.

Traffic operations of roadway facilities are described with the term "Level of Service" (LOS). Based on the intersection LOS performance criteria presented in Section 1.3 of this report, the following study area intersections experienced unacceptable operations during peak hours for General Plan LUE Amendment (proposed project) conditions using existing lanes. With the exception of Von Karman Avenue at Alton Parkway (PM), all of these intersections were already deficient under 2006 General Plan conditions. Von Karman Avenue at Alton Parkway is discussed further later in this section. “General Plan Improvements” include Newport Beach 2006 General Plan recommended improvements and Irvine General Plan improvements. General Plan recommended improvements (see Section 2.6 of this report) mitigate 9 of the 13 deficient intersections. The four locations displayed in **bold** in the list below represent a deficiency which remains after General Plan improvements are added (if there are General Plan improvements at that location):

- Tustin Avenue at Coast Highway (AM)
- Jamboree Road at Campus Drive (PM)
- Irvine Avenue at University Drive (PM)
- MacArthur Boulevard at Ford Drive (PM)
- Von Karman Avenue at Barranca Parkway (AM) (Irvine)

Table ES-4

Proposed Project Trip Generation Summary[1]

Area		Land Use Change[2]	AM In	AM Out	PM In	PM Out	ADT
Reduced Development Capacity							
3	Westcliff Plaza	-15.514 tsf General Commercial	-28	-12	-24	-31	-593
6	Newport Coast Center	-37.875 tsf General Commercial	-67	-30	-58	-77	-1,448
7	Newport Coast Hotel	-1,001 room Hotel	-511	-170	-280	-430	-7,588
8	Bayside Center	-0.366 tsf General Commercial	-1	0	-1	-1	-14
9	Harbor View Center	-1.857 tsf General Commercial	-3	-1	-3	-4	-71
10	The Bluffs	-3.538 tsf General Commercial	-6	-3	-5	-7	-135
11	Gateway Park	-4.356 tsf General Commercial	-8	-3	-7	-9	-167
13	Newport Ridge	-356 Res-Medium (SFA)	-46	-196	-142	-75	-2,371
Increased Development Capacity							
5	Newport Center / Fashion Island	500 du Apt. (Mid-Rise Newport Center) 175 tsf General Office 325 tsf Office (>300k block Newport Center) 50 tsf Regional Commercial	496	336	369	449	8,768
12	Harbor Day School	72 stu Elementary/Private School	13	1	3	5	94
4[3]	Saunders Property	329 du Apartment 238.077 tsf General Office	239	220	211	221	4,651
	The Hangars	11.8 tsf General Commercial -10 tsf General Office	13	6	14	17	340
	Lyon Homes	850 du Apartment (High-Rise) 150 room Hotel 85 tsf General Commercial -250.176 tsf General Office	103	352	321	210	5,780
	UAP Companies	trip neutral land uses	0	0	0	0	0
14	150 Newport Center Dr.	125 room Hotel -8.5 tsf General Commercial	49	14	22	37	623
	100 Newport Center Dr.	15 tsf Regional Commercial	17	7	14	19	352
Designation Change and Increased Development Capacity							
1	1526 Placentia	7.524 tsf General Commercial	12	3	10	14	251
2	813 East Balboa Blvd.	-2 du Res-Medium (SFA) Coastal 2 du Apartment (Res-over-Retail) 1.917 tsf Comm (Res-over-Retail)	3	1	3	3	65
Citywide Total			**260**	**521**	**434**	**324**	**8,221**

[1] AM = AM (morning) Peak Hour
PM = PM (evening) Peak Hour
ADT = Average Daily Traffic

[2] tsf = thousand square feet
du = dwelling units
stu = students

[3] Area 4 is also known as the Airport Area

- Jamboree Road at Barranca Parkway (PM) (Irvine)
- Carlson Avenue at Campus Drive (PM) (Irvine)
- Red Hill Avenue at Alton Parkway (AM & PM) (Irvine)
- University Drive at Campus Drive (AM & PM) (Irvine)
- **Superior Avenue at Coast Highway (AM)**
- **Newport Boulevard (West) at Coast Highway (AM)**
- **Jamboree Road at Michelson Drive (PM) (Irvine)**
- **Von Karman Avenue at Alton Parkway (PM) (Irvine)**

Ten (10) of the above thirteen (13) intersection locations with ICU values greater than the acceptable level of service are not significantly impacted by the Project (project contribution is less than .01 at Newport Beach locations, or less than .02 at locations in the City of Irvine). However, a significant project impact is projected to occur at the following intersections without recommended and planned General Plan buildout lane improvements:

- Irvine Avenue at University Drive (PM)
- MacArthur Boulevard at Ford Drive (PM)
- **Von Karman Avenue at Alton Parkway (PM)**

Exhibit ES-2 summarizes the intersection deficiencies and impacts for General Plan Scenarios.

For the intersection of Von Karman Avenue at Alton Parkway, AM and PM peak hour Intersection Capacity Utilization (ICU) analysis has been performed without and with the Advanced Transportation Management Systems (ATMS) improvements which are already planned by the City of Irvine at this location.

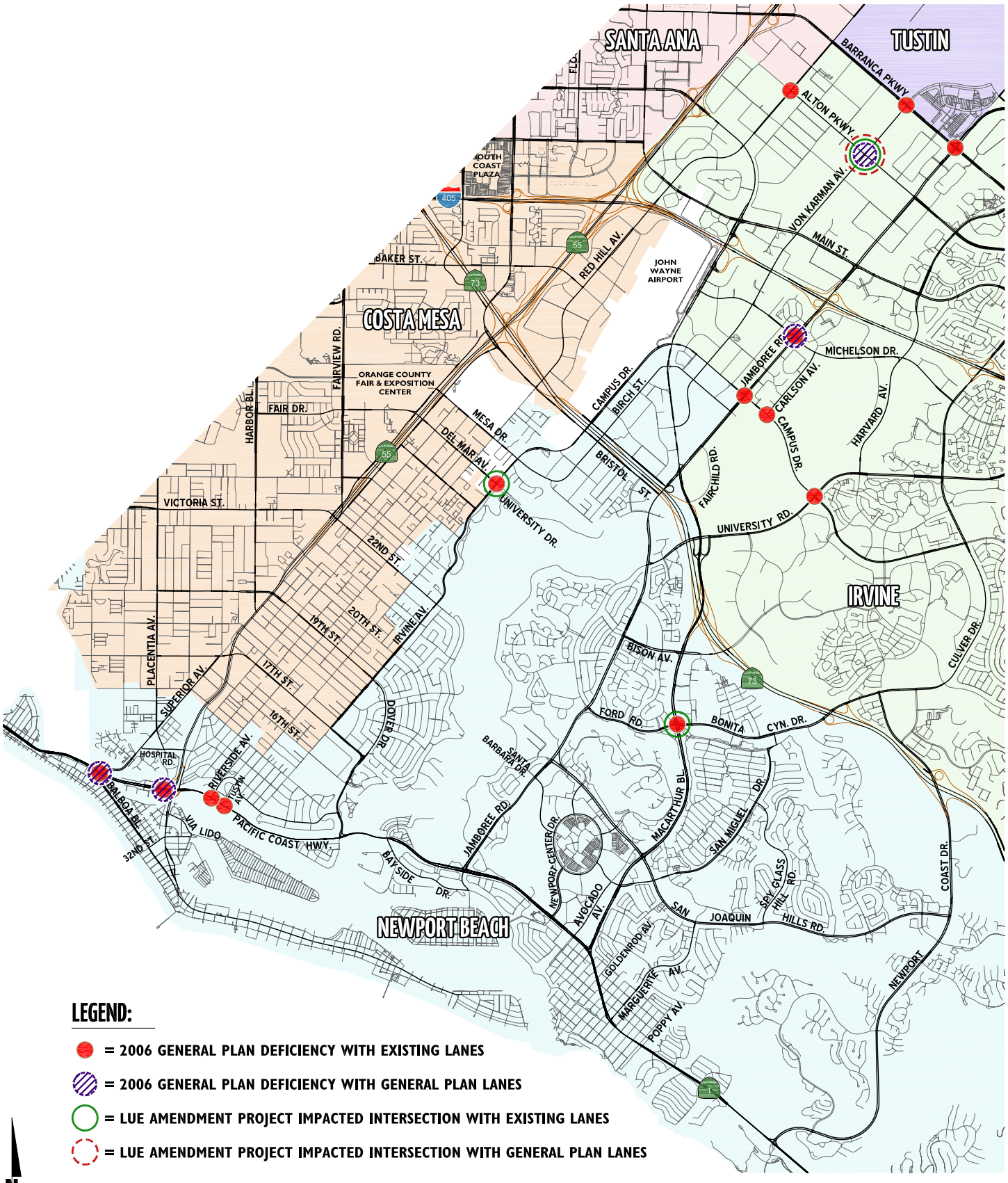
Without ATMS improvements, the intersection is anticipated to experience 0.91 (LOS D) operations in the AM peak hour and 1.02 (LOS F) operations in the PM peak hour. The actual turn volumes and ICU calculation worksheets are included in Appendix 4.2. No General Plan lane improvements are planned for this intersection. Without the additional capacity allowed by the ATMS, there is a PM peak hour impact with the General Plan LUE Amendment (proposed project).

With ATMS improvements, the intersection is anticipated to experience 0.86 (LOS D) operations in the AM peak hour and 0.97 (LOS E) operations in the PM peak hour. The final intersection operation with currently planned improvements is not deficient, and no impact occurs.

At the request of the City or Irvine, an additional scenario has been developed for intersections in Irvine. Urban Crossroads has performed a special model run to develop a cumulative scenario for use in comparison when evaluating the Land Use Element project. The cumulative scenario includes known potential projects in Irvine, including:

EXHIBIT ES-2

DEFICIENCIES AND PROJECT IMPACTS



- Campos Verdes (ITC)
- Milani Apartments
- 2772 Main and 2699 & 2719 White.

For the Irvine cumulative scenario, a similar situation is anticipated to occur at the Von Karman Avenue/Alton Parkway intersection (a project impact if ATMS is not included, but no project impact with ATMS by others).

At the intersection of Von Karman Avenue at Alton Parkway, physical widening of the intersection is infeasible, as the intersection is built out. The City of Irvine allows the application of an Advanced Transportation Management Systems (ATMS) credit to be considered, subject to the following conditions:

1. The Intersection Capacity Utilization (ICU) Level of Service is deficient; and
2. The physical improvements needed to mitigate the ICU value cannot be constructed because of physical or other constraints, which may preclude the construction of the required improvements; and
3. The ATMS fee will allow for a 0.05 mitigation credit to the ICU value of the existing signalized intersection; and
4. An ATMS credit has not been previously approved for the impacted intersection; and
5. The ATMS credit can only be applied to existing signalized intersections.

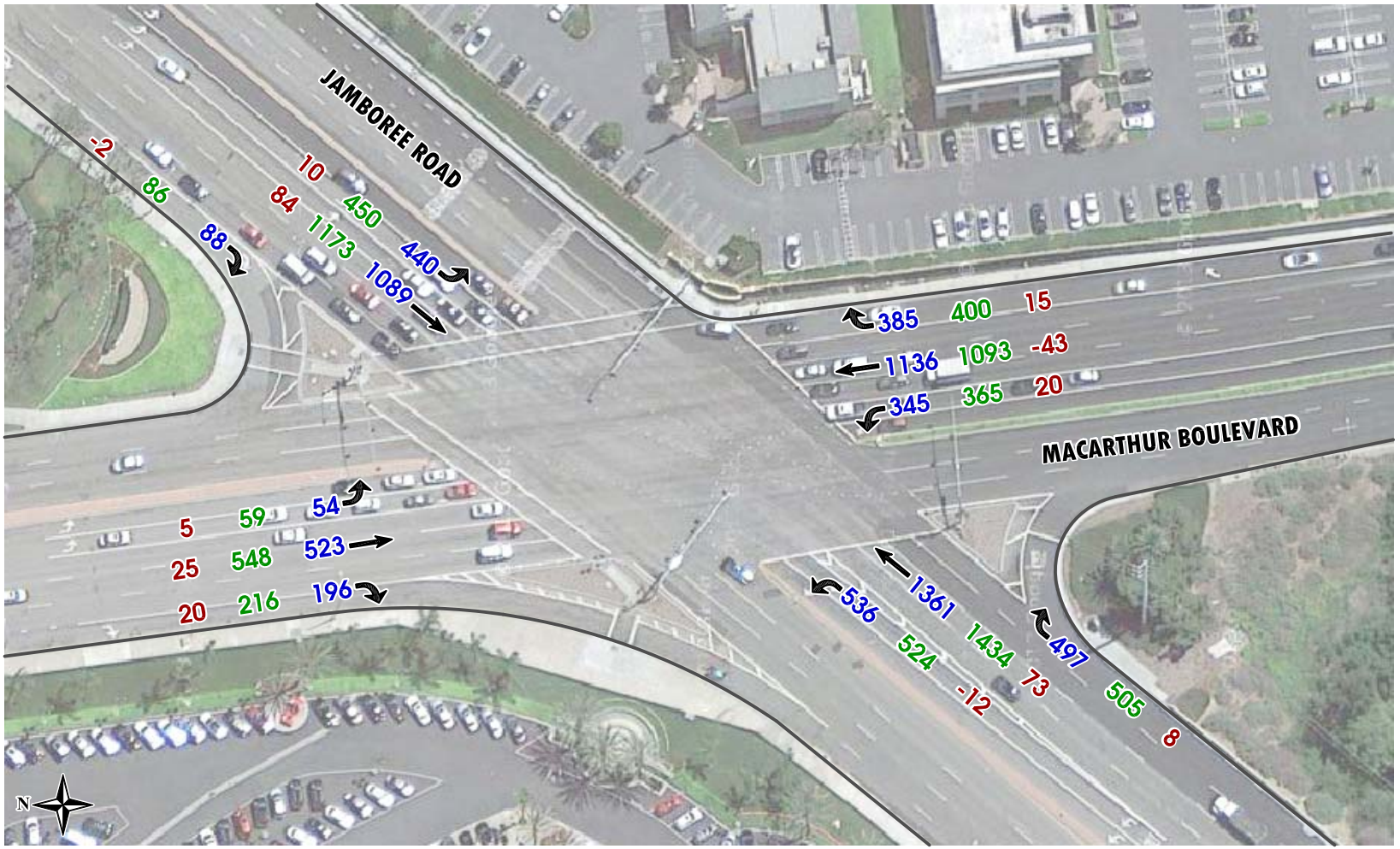
The ATMS fee is not at the option of the developer or property owner and may be imposed at the sole discretion of the City of Irvine Director of Public Works. The City of Irvine has already implemented the ATMS improvement at this location. With this credit already in place, it allows a higher level of service threshold. To show this, the ATMS credit reduces the ICU by 0.05, which brings the intersection into the acceptable (LOS "E") range.

The General Plan LUE Amendment (proposed project) changes result in the redistribution of peak hour directional traffic movements that generally do not degrade roadway system performance in comparison to the 2006 General Plan. In order to provide an example of how peak hour volume shifts occur, Exhibit ES-3 has been developed. Exhibit ES-3 provides an overview of General Plan (future) AM peak hour traffic volumes for the intersection of MacArthur Boulevard at Jamboree Road. Traffic volumes have increased for some movements, but have decreased for other movements. Traffic volume decreases occur for the northbound through movement, the eastbound left turn movement, and the westbound right turn movement.

Replacing planned business uses with residential causes redistribution of travel patterns that results in decreases on some movements. Residential trip generation involves primarily

EXHIBIT ES-3

MACARTHUR BOULEVARD AT JAMBOREE ROAD
GENERAL PLAN AM PEAK HOUR VOLUME OVERVIEW



LEGEND:

100 = AM PEAK HOUR BASELINE
100 = AM PEAK HOUR PROJECT
100 = AM PEAK HOUR CHANGE

outgoing travel in the morning, and inbound travel in the evening, which is opposite the travel patterns for office uses.

The study area freeway mainline locations identified as experiencing deficient operations for the 2006 General Plan continue to experience deficient operations for General Plan LUE Amendment (proposed project) conditions:

- SB I-405, North of SR-55 FWY, (PM Peak Hour Only)
- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (AM and PM Peak Hours)
- NB SR-55, MacArthur Blvd. to I-405 FWY, (AM Peak Hour Only)
- NB SR-55, I-405 FWY to SR-73, (AM Peak Hour Only)
- NB SR-55, SR-73 FWY to Mesa Dr, (AM Peak Hour Only)

The freeway ramp locations identified as experiencing deficient for the 2006 General Plan condition continue to experience deficient operations for General Plan LUE Amendment (proposed project) conditions:

- I-405, SB Loop Off-Ramp at MacArthur Blvd.
- I-405, SB On-Ramp at MacArthur Blvd.
- I-405, SB Off-Ramp at Jamboree Rd.
- I-405, SB Loop On Ramp
- I-405, SB On-Ramp at Jamboree Rd.
- I-405, NB Loop On-Ramp at MacArthur Blvd.
- I-405, NB Off-Ramp at MacArthur Blvd.
- I-405, NB On-Ramp at Jamboree Rd.
- I-405, NB Loop On-Ramp at Jamboree Rd.
- I-405, NB Off-Ramp at Jamboree Rd.

The proposed LUE Amendment results in morning peak hour volume reductions on nine of the 30 study area freeway segments. Morning peak hour volume increases on the remaining segments range from a low of 1 vehicle per hour to a high of 119 vehicles per hour.

The proposed LUE Amendment results in evening peak hour volume reductions on seven of the 30 study area freeway segments. Evening peak hour volume increases on the remaining segments range from a low of 4 vehicles per hour to a high of 81 vehicles per hour.

Vehicle Miles Traveled (VMT) estimates have been prepared for existing (2013), 2006 General Plan, and General Plan LUE Amendment (proposed project) conditions. These estimates have

been stratified into internal-to-internal and internal-to-external traffic. In general, with the project, internal-to-internal VMT decreases slightly in comparison to baseline conditions (only the PM peak period VMT increases with the project). On the other hand, internal-to-external VMT with the project increases for each timeframe in comparison to baseline conditions.

The net result is an increase in daily VMT with the General Plan LUE Amendment (proposed project) which is less than a 1% change (approximately 0.78%) over 2006 General Plan conditions.

ES.4 TRAFFIC IMPACT ANALYSIS SUMMARY – PROJECT ALTERNATIVE

This analysis compares the General Plan LUE Amendment Alternative (project alternative) to the 2006 General Plan, including the number of additional trips (average daily traffic or ADT) associated with the intensification, alteration, and redistribution of land uses, and analyzes the daily and peak hour traffic impact of the General Plan LUE Amendment Alternative (project alternative) to freeways and study-area intersections. Table ES-5 shows the project alternative trip generation. A limited study area has been selected for this evaluation, which is intended to determine whether the General Plan LUE Amendment Alternative (project alternative) mitigates impacts identified in the General Plan Land Use Element Amendment (proposed project) analysis.

With recommended and planned General Plan buildout land improvements, but without ATMS improvements, the Von Karman / Alton intersection is impacted by the Proposed Project. With the Project Alternative, this intersection is anticipated to experience 0.84 (LOS D) operations in the AM peak hour and 1.01 (LOS F) operations in the PM peak hour. The actual turn volumes and ICU calculation worksheets are included in Appendix 5.1. Without the additional capacity allowed by the ATMS, there is also a PM peak hour impact with the General Plan LUE Amendment Alternative (project alternative). In comparison, the General Plan LUE Amendment (proposed project) experiences 1.02 (LOS F) conditions in the PM peak hour. The 2006 General Plan experiences 0.98 (LOS E) conditions in the PM peak hour. The impact of the General Plan LUE Amendment Alternative (project alternative) is less than the impact that occurs with the General Plan LUE Amendment (proposed project).

With the Project Alternative and with ATMS improvements, the intersection is anticipated to experience 0.79 (LOS C) operations in the AM peak hour and 0.96 (LOS E) operations in the PM peak hour. The final intersection operation with the Project Alternative and with currently planned improvements is not deficient, and no impact occurs.

The following study area freeway mainline locations identified previously as experiencing deficient operations for the 2006 General Plan conditions continue to experience deficient operations for General Plan LUE Amendment Alternative (project alternative) conditions:

Table ES-5

General Plan LUE Amendment Alternative (Project Alternative) Trip Generation Summary

Area		Land Use Change[1]	AM In	AM Out	PM In	PM Out	ADT
Reduced Development Capacity							
3	Westcliff Plaza	-15.514 tsf General Commercial	-28	-12	-24	-31	-593
6	Newport Coast Center	-37.875 tsf General Commercial	-67	-30	-58	-77	-1,448
7	Newport Coast Hotel	-1,001 room Hotel	-511	-170	-280	-430	-7,588
8	Bayside Center	-0.366 tsf General Commercial	-1	0	-1	-1	-14
9	Harbor View Center	-1.857 tsf General Commercial	-3	-1	-3	-4	-71
10	The Bluffs	-3.538 tsf General Commercial	-6	-3	-5	-7	-135
11	Gateway Park	-4.356 tsf General Commercial	-8	-3	-7	-9	-167
13	Newport Ridge	-356 Res-Medium (SFA)	-46	-196	-142	-75	-2,371
Increased Development Capacity							
5	Newport Center / Fashion Island	500 du Apt. (Mid-Rise Newport Center) 175 tsf General Office 325 tsf Office (>300k block Newport Center) 50 tsf Regional Commercial	496	336	369	449	8,768
12	Harbor Day School	72 stu Elementary/Private School	13	1	3	5	94
14	150 Newport Center Dr.	125 room Hotel -8.5 tsf General Commercial	49	14	22	37	623
	100 Newport Center Dr.	15 tsf Regional Commercial	17	7	14	19	352
Designation Change and Increased Development Capacity							
1	1526 Placentia	7.524 tsf General Commercial	12	3	10	14	251
2	813 East Balboa Blvd.	-2 du Res-Medium (SFA) Coastal 2 du Apartment (Res-over-Retail) 1.917 tsf Comm (Res-over-Retail)	3	1	3	3	65
Citywide Total			**-95**	**-57**	**-112**	**-124**	**-2,550**

[1] tsf = thousand square feet
du = dwelling units
stu = students

- SB I-405, North of SR-55 FWY, (PM Peak Hour Only)
- NB I-405, South of Jamboree Rd, (AM Peak Hour Only)
- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (PM Peak Hour Only)
- NB SR-55, I-405 FWY to SR-73, (AM Peak Hour Only)
- NB SR-55, SR-73 FWY to Mesa Dr, (AM Peak Hour Only)

One of the freeway ramp locations that was identified as experiencing deficient LOS for the 2006 General Plan conditions is identified as experiencing deficient LOS for the General Plan LUE Amendment Alternative (project alternative), while the other freeway ramp locations that were identified as experiencing deficient LOS for the 2006 General Plan conditions are not identified as experiencing deficient LOS for the General Plan LUE Amendment Alternative (project alternative).

The following freeway ramp location identified previously as experiencing deficient LOS for the 2006 General Plan conditions continues to experience deficient operations for the General Plan LUE Amendment Alternative (project alternative) condition:

- I-405, NB Off-Ramp at MacArthur Blvd.

Estimates of vehicle miles traveled (VMT) provide a travel activity metric which takes into consideration both trip generation and trip length characteristics. In this manner, the interaction of land uses with the surrounding area in addition to roadway system accessibility is taken into account.

VMT estimates have been prepared for existing (2013), 2006 General Plan, General Plan LUE Amendment (proposed project) and General Plan LUE Amendment Alternative (project alternative) conditions (see Table 6-1). These estimates have been stratified into internal-to-internal and internal-to-external traffic. In general, with the proposed project, internal-to-internal VMT decreases slightly in comparison to baseline conditions (only the PM peak period VMT increases with the project). On the other hand, internal-to-external VMT with the proposed project increases for each timeframe in comparison to baseline conditions.

The net result is an increase in daily VMT with the General Plan LUE Amendment (proposed project) which is less than a 1% change (approximately 0.78%) over 2006 General Plan conditions.

With the General Plan LUE Amendment Alternative (project alternative), internal-to-internal VMT decreases slightly in comparison to baseline conditions (only the PM peak period VMT increases with the project alternative). Internal-to-external VMT with the project alternative decreases for the PM peak period but increases for each other timeframe in comparison to baseline conditions (though not as much as for the proposed project). Overall, there is a decrease in VMT from the 2006 General Plan in each timeframe (and the total) except AM peak period. The General Plan LUE Amendment Alternative (project alternative) VMT decreases in each timeframe (except for internal-to-internal VMT) from the General Plan LUE Amendment (proposed project).

The net result is a decrease in daily VMT with the General Plan LUE Amendment Alternative (project alternative) (approximately 0.87%) from 2006 General Plan conditions.

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1.0 INTRODUCTION

The project would allow for alteration, intensification, and redistribution of planned land uses in certain subareas of the City. These changes are expected to result in the redistribution of vehicle trips, which are addressed in this traffic analysis by comparing future traffic conditions under the currently adopted plan (2006 General Plan) and the General Plan LUE Amendment (proposed project).

This analysis includes the number of additional trips (average daily traffic or ADT) associated with the intensification, alteration, and redistribution of land uses, and analyzes the daily and peak hour traffic impact of the General Plan LUE Amendment (proposed project) to roadways and study-area intersections.

Within the City of Newport Beach, the Newport Beach Transportation Model (NBTM) is utilized in this study to estimate long range future traffic volumes with and without the General Plan LUE Amendment (proposed project). NBTM has recently been updated to incorporate current land use, socio-economic, trip generation and network data from a variety of sources, including nearby City models (Irvine, Costa Mesa, and Huntington Beach) and the Orange County Transportation Analysis Model (OCTAM). The NBTM 3.4 travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City.

For analysis locations in the City of Irvine, the Irvine Transportation Analysis Model (ITAM) Version 12 is used to forecast Post-2035 traffic volumes. Traffic volume changes associated with the General Plan LUE Amendment (proposed project) derived from NBTM are overlaid on ITAM 12 projections in order to evaluate project impacts in the City of Irvine.

A project alternative has been identified similar to the City of Newport Beach General Plan Land Use Element Amendment (proposed project), but it excludes all proposed projects in the Airport Area. In comparison to the 2006 General Plan, it still involves the alteration, intensification, and redistribution of land uses in other subareas of the City, including major areas such as Newport Center/Fashion Island, and Newport Coast.

A limited study area has been selected for this evaluation, which is intended to determine whether the General Plan LUE Amendment Alternative (project alternative) mitigates impacts identified in the General Plan Land Use Element Amendment (proposed project) analysis.

1.1 PROJECT CHARACTERISTICS

This traffic study focuses on intersections within the Cities of Newport Beach and Irvine because it is anticipated that the City of Newport Beach General Plan land use changes, on a citywide basis, are generally expected to impact only these transportation systems. In general, significant trip increases are isolated in two pockets: the center of Newport Beach and the northernmost area of Newport Beach (the Airport Area). The scoping of this TIA was finalized once comments on the Initial Study / Notice of Preparation for the General Plan LUE Amendment (proposed project) were received. Intersection analysis locations are depicted on Exhibit 1-A.

Areas with Reduced Development Capacity

The proposed project would reduce allowable square footage, rooms, students or dwelling units in eight different subareas: the Westcliff Plaza, Newport Coast Center, Newport Coast Hotel, Bayside Center, Harbor View Center, The Bluffs, Gateway Park, and Newport Ridge.

The most significant change in development capacity would be the reduction in entitlement for the Newport Coast subarea, which upon approval of the amendment would allow 1,001 fewer hotel units and a reduction 37,875 square feet of neighborhood commercial use. In total, all of the project areas proposed for reduced development capacity would reduce ADTs by 12,387.

Areas with Increased Development Capacity

Areas proposed for increased development capacity through increasing square footage, rooms, students or dwelling units include Newport Center/Fashion Island, Harbor Day School, the Airport Area (consisting of the Saunders Properties, The Hangars, Lyon Communities, and UAP Companies), 150 Newport Center Drive, and 100 Newport Center Drive.

Newport Center/Fashion Island

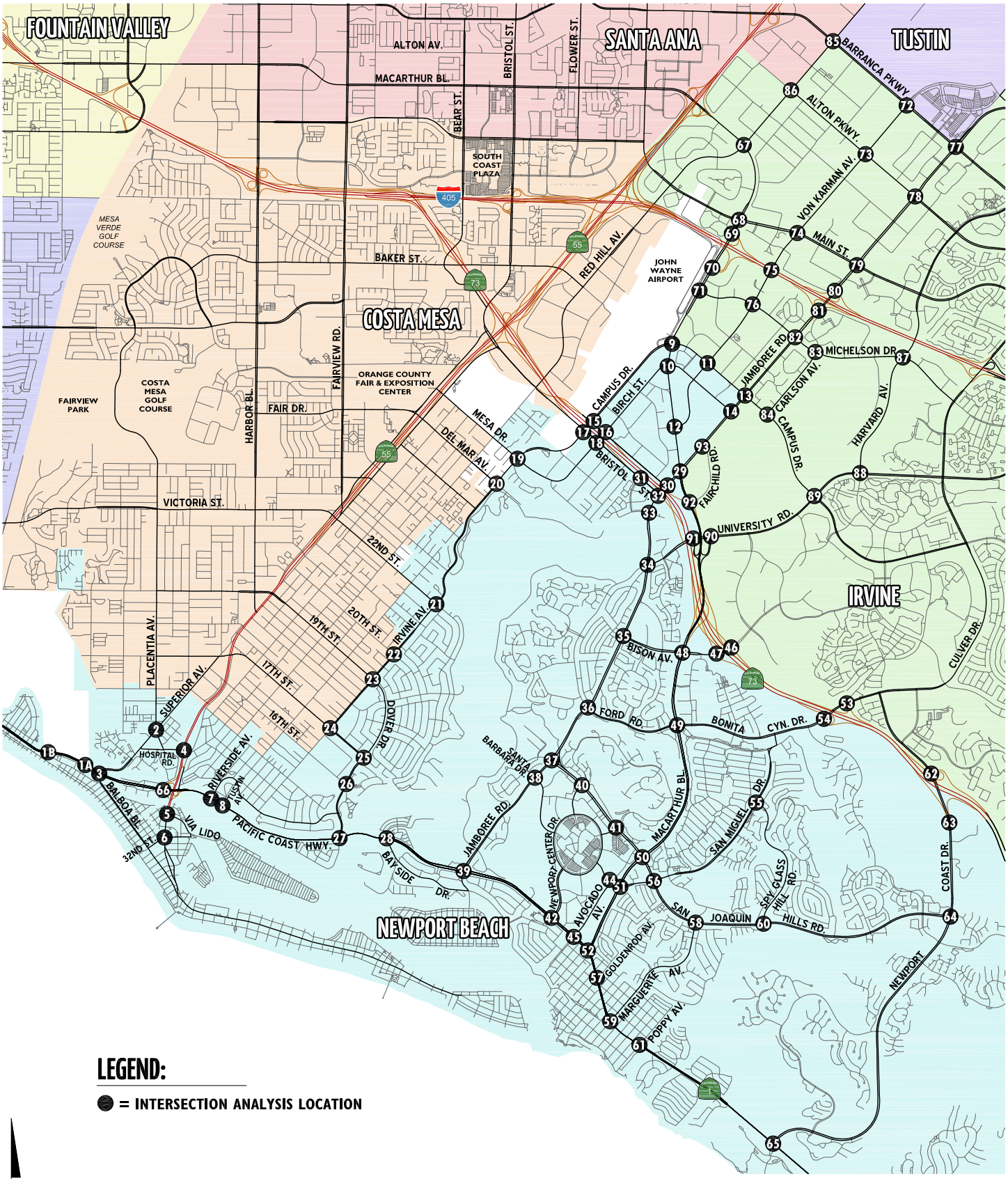
One of the most significant changes from the existing land use plan would be in the Newport Center/Fashion Island subarea. This subarea is currently a major commercial area with a variety of existing retail, office, residential, and hotel uses. The proposed land use element amendment would increase allowable square footage for regional office space (additional 500,000 sf), regional commercial space (additional 50,000 sf), and multifamily dwelling units (additional 500 units). The increase in development capacity would generate an estimated additional 8,768 daily trips.

Airport Area

The Airport Area is another subarea proposed for considerable changes from the existing land use plan. The project proposes changes to four properties within the subarea: Saunders Properties, The Hangars, Lyon Communities, and UAP Companies. Currently, the four properties only consist of office buildings. The proposed project would allow for increased

EXHIBIT 1-A

TIA INTERSECTION ANALYSIS LOCATIONS



square footage for retail and office uses, as well as, residential dwelling units and hotel rooms. As with Newport Center/Fashion Island, the Airport Area would allow for denser infill development and an estimated additional 10,771 daily trips.

Areas with Change of Land Use Designation and Increased Development Capacity
The proposed land use element amendment also proposes a change of land use designation and increased development capacity for two parcels in the City: 1526 Placentia Avenue and 813 East Balboa Boulevard. These parcels are currently designated as residential uses, and the proposed changes are to add general commercial and mixed-use vertical uses to allow for more diverse uses of the parcels. These changes would increase ADTs by 316.

A project alternative has also been defined for evaluation. The project alternative is similar to the City of Newport Beach General Plan Land Use Element Amendment (proposed project), but excludes all proposed projects in the Airport Area, which is the same as the 2006 General Plan. In comparison to the 2006 General Plan, it still involves the alteration, intensification, and redistribution of land uses in other subareas of the City, including major areas such as Newport Center/Fashion Island, and Newport Coast.

1.2 TRANSPORTATION MODEL

The Newport Beach Transportation Model (NBTM) is a focused version of the Orange County Transportation Analysis Model (OCTAM), meaning it is dependent upon and tied to OCTAM. The most current version of the Orange County Transportation Analysis Model is Version 3.4 (OCTAM 3.4). Data and procedures from the OCTAM 3.4 have been incorporated into NBTM. The updated version of the NBTM will be referred to as NBTM 3.4, reflecting the relationship to OCTAM 3.4.

The NBTM 3.4 travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City. Previous versions of the Newport Beach Transportation Model have been found consistent with the Orange County Transportation Analysis Model, and the NBTM 3.4 tool has been updated in accordance with the requirements and recommendations of the Orange County Subarea Modeling Guidelines Manual (December, 2010). The NBTM 3.4 is intended to be used for roadway planning and traffic impact analysis, such as General Plan/Land Use analysis required by the City of Newport Beach.

The NBTM 3.4 is a vehicle trip based modeling tool, and it is intended for evaluating general roadway system supply and demand. The NBTM 3.4 has been calibrated to represent "shoulder season" (spring/fall) conditions in the City of Newport Beach. The basic model

structure is a "focused" modeling approach. This concept is implemented in models throughout Orange County as a three tier system.

The concept of a focused model is to provide the greatest level of detail within the primary analysis or study area (also referred to as “Tier 3”), with the least detail included in those parts of the model which are geographically distant from the primary study area (Tier 1). The intent of the Tier 1 level of definition is to provide the minimum amount of detail necessary to accommodate regional (OCTAM 3.4) traffic as it enters the Tier 2 coverage area. The Tier 1 level of detail is not intended to support detailed analysis within the Tier 1 area.

The Tier 2 level of detail corresponds directly to the parent (OCTAM 3.4) model, while Tier 3 (the primary study area) incorporates more detail than the parent model. Exhibit 1-B presents the limits of each tier or level of detail. While the Tier 3 area incorporates additional detail surrounding the City of Newport Beach, the City will be the primary study area for this work effort.

The primary study area of the NBTM 3.4 is shown on Exhibit 1-C. The primary study area of the NBTM 3.4 is generally bounded by the Brookhurst Street/Santa Ana River on the west, Adams Avenue/Baker Street/Campus Drive/SR-73 on the north, Crystal Cove State Park on the east, and the Pacific Ocean on the south. As described previously, Tier 2 area level of detail and vehicle traffic forecasting capability is equal to that of the parent OCTAM 3.4 travel forecasting tool. The Tier 2 area is generally bounded by the northwest Orange County line, I-5 Freeway, Fairhaven Avenue, Santiago Canyon Road, El Toro Road, Santa Margarita Parkway, Trabuco Creek, and the Pacific Ocean.

1.3 ANALYSIS METHODOLOGY

Traffic operations of roadway facilities are described with the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS “A”, representing completely free-flow conditions, to LOS “F”, representing breakdown in flow resulting in stop-and-go conditions. LOS “E” represents operations at or near capacity, an unstable level, where vehicles are operating with the minimum spacing for maintaining uniform flow.

Intersection Capacity Utilization (ICU) analysis has been performed at study area intersections. The ICU analysis is based on peak hour volumes and use individual turn movements and the corresponding intersection lane geometry to estimate level of service. The ICU value is usually expressed as a decimal percent (e.g., 0.86). The decimal percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

EXHIBIT 1-B

NEWPORT BEACH TRANSPORTATION MODEL (NBTM) 3.4
OVERALL COVERAGE AREA

EXHIBIT 1-C

NBTM 3.4 PRIMARY STUDY AREA

N

The City of Newport Beach level of service standards for intersections includes the following:

- Level of Service LOS "D" throughout the City, unless otherwise noted.
- LOS "E" at any intersection in the Airport Area shared with Irvine.
- LOS "E" at Coast Highway (EW) and Dover Drive (NS) due to right-of-way limitations.
- LOS "E" at Marguerite Avenue (NS) and Coast Highway (EW) in the pedestrian oriented area of Corona del Mar.
- LOS "E" at Goldenrod Avenue (NS) and Coast Highway (EW) in the pedestrian oriented area of Corona del Mar.
- LOS "E" at Riverside Avenue (NS) and Coast Highway (EW) per the 2006 General Plan
- LOS "E" at Campus (NS) and Bristol Street North (EW) per the 2006 General Plan

Levels of service at intersections are based on peak hour intersection capacity utilization (ICU) values calculated using the following assumptions:

- Saturation Flow Rate: 1,600 vehicles/hour/lane for Newport Beach
  1,700 vehicles/ hour/ lane for Irvine
- Clearance Interval: .00 for Newport Beach
  .05 for Irvine
- Right-Turn-On-Red Utilization Factor*: .00 for Newport Beach
  .75 for Irvine

  (*"De-facto" right-turn lane is assumed in the ICU calculation if 19 feet from edge to outside of through-lane exists and parking is prohibited during peak periods.)

Within the City of Irvine, Level of Service E (peak hour ICU less than or equal to 1.00) is considered acceptable for Planning Area 36 (Irvine Business Complex/IBC) intersections. At other study area intersections in the City of Irvine, Level of Service D (peak hour ICU less than or equal to .90) is acceptable.

For ICU greater than the acceptable level of service, mitigation of the project contribution is required to bring intersection back to acceptable level of service or to no project conditions if project contribution is .01 or greater at Newport Beach locations, .02 or greater at locations in the City of Irvine, and .03 or greater at Orange County Congestion Management Program (CMP) locations (the impact threshold specified in the CMP).

Table 1-1 summarizes the volume/capacity (V/C) ranges for LOS "A" through "F" for arterial roads and ICUs for intersections. The V/C ranges listed for arterial roads are designated in the Orange County CMP, as well as, the General Plans for the City of Newport Beach and City of Irvine.

Table 1-1
Volume/Capacity Ratio Level of Service Ranges

Level of Service (LOS)	Volume/Capacity (V/C) Ratio Range
	Arterial Roads / Signalized ICU
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	Above 1.00

Daily roadway segment analysis requires calculating the daily traffic volume divided by the roadway segment capacity. The daily roadway capacities for both City of Newport Beach and the City of Irvine used in this analysis are presented in Table 1-2.

The actual daily capacity of a roadway can vary widely. Although it is primarily based on the number of through lanes, it is also influenced by traffic peaking characteristics, intersection spacing, traffic turning volumes, and the volume of vehicular and pedestrian cross traffic. The typical daily capacities are therefore most appropriately used for as a screening tool to evaluate overall vehicular activity levels, subject to more detailed peak hour analysis at key intersections.

Table 1-2
Daily Roadway Segment Capacities

Classification and Lanes	Capacity
Newport Beach	
Secondary Road (4-lane undivided)	23,000
Primary Road (4-lane divided)	34,000
Major Road (6-lane divided)	51,000
Eight Lane Divided Road	68,000
Irvine	
Major Highway 8-Lanes	72,000
Major Highway 6-Lanes	54,000
Primary Highway (4-lane divided)	32,000
Secondary Highway (4-lane undivided)	28,000

The freeway segments have been evaluated based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in Chapter 23 of the HCM and performed using HCS+ software. The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile per lane.

Freeway segment LOS thresholds for each density range utilized for this analysis are summarized in Table 1-3.

Table 1-3
Freeway Mainline LOS Thresholds

Level of Service	Description	Density Range (pc/mi/ln)[1]
A	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0.0 – 11.0
B	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	11.1 – 18.0
C	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	18.1 – 26.0
D	Speeds begin to decline slightly and flows and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	26.1 – 35.0
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	35.1 – 45.0
F	Breakdown in vehicle flow.	>45.0

[1] *pc/mi/ln = passenger cars per mile per lane. Source: HCM 2000, Chapter 23*

The freeway system in the study area has been broken into segments defined by freeway-to-arterial interchange locations. The merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS+ software.

Measures of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point.

The merge/diverge area level of service thresholds for each density range utilized for this analysis are summarized in Table 1-4.

Table 1-4
Freeway Merge and Diverge LOS Thresholds

Level of Service	Density Range (pc/mi/ln)[1]
A	≤10.0
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand Exceeds Capacity

[1] *pc/mi/ln = passenger cars per mile per lane. Source: HCM 2000, Chapter 25*

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2.0 TRANSPORTATION SETTING

This chapter describes the transportation setting for the General Plan LUE Amendment (proposed project). Existing traffic conditions in the traffic analysis study area are summarized, and the future circulation systems are identified for buildout of the 2006 City of Newport Beach General Plan and City of Irvine General Plan within the study area. At the end of this chapter, a summary List of "General Plan Recommended Improvements" is provided (circulation system recommended improvements identified in the 2006 City of Newport Beach General Plan Circulation Element and City of Irvine General Plan Circulation Element).

2.1 EXISTING AND PLANNED ROADWAY NETWORK

Exhibit 2-A identifies the existing circulation system in the study area together with existing midblock lanes on arterial roadways. The roadway system is generally organized in terms of a roadway classification system. The road classifications used by the City of Newport Beach and City of Irvine are required to be consistent with the County of Orange Master Plan of Arterial Highways, which is administered by the Orange County Transportation Authority (OCTA). OCTA is the regional agency responsible for overseeing the regional transportation system and local agency compliance with regional and statewide programs such as the Congestion Management Program (CMP) and Growth Management Program (GMP). The general roadway classifications and their generalized daily capacities are presented below.

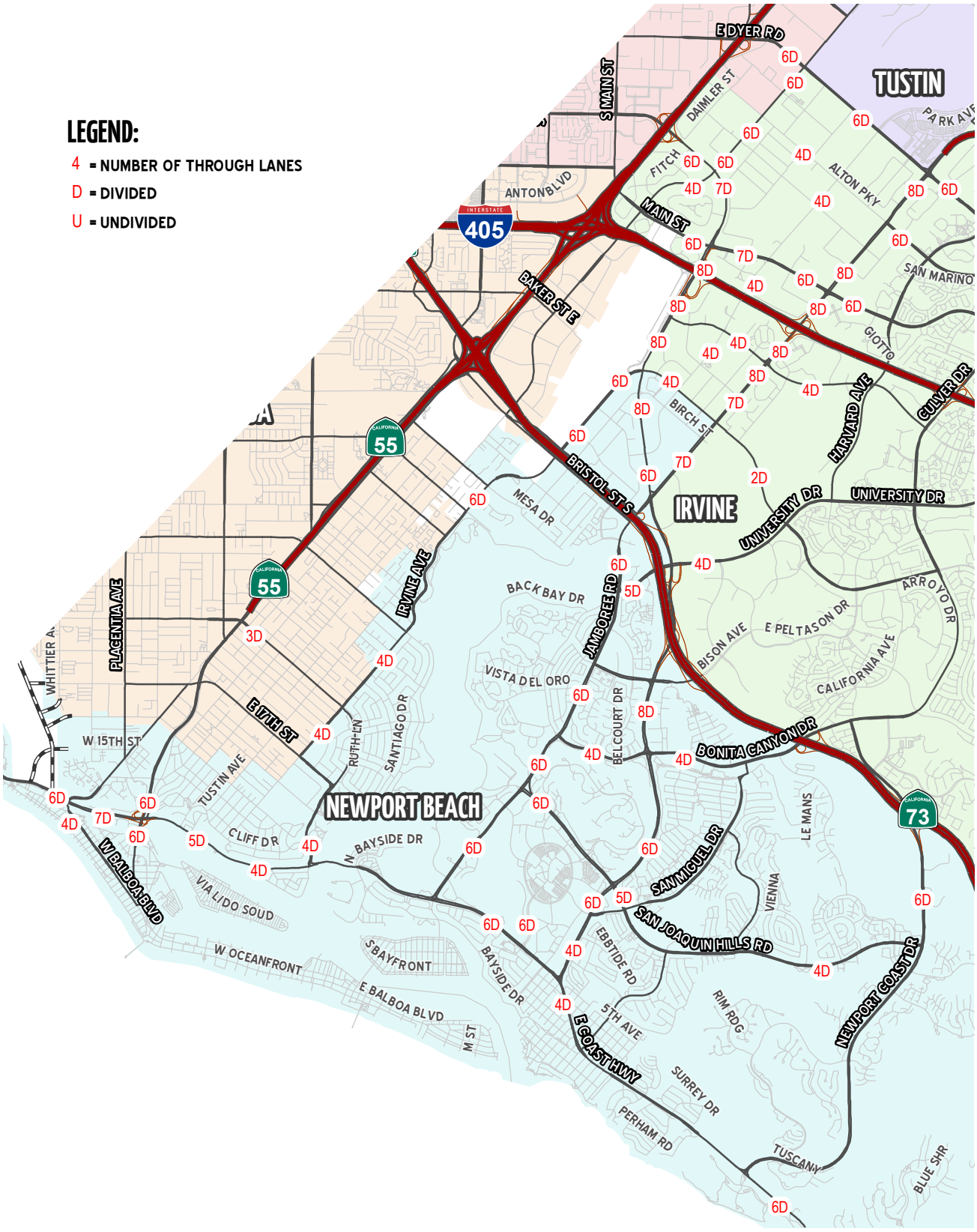
Principal Arterial - A Principal arterial highway is typically an eight-lane divided roadway. A Principal arterial is designed to accommodate a daily capacity ranging from 60,000 to 73,000 with a typical daily capacity of 68,000 vehicles per day (VPD). Principal arterials carry a large volume of regional through traffic not handled by the freeway system.

Major Arterial - A Major arterial highway is typically a six-lane divided roadway. A Major arterial is designed to accommodate a daily capacity ranging from 45,000 to 67,000 with a typical daily capacity of 51,000 VPD. Major arterials carry a large volume of regional through traffic not handled by the freeway system. A Major Augmented is similar to a Major arterial, but may include additional lanes, particularly at intersections, resulting in a daily capacity ranging from 52,000 to 70,000 with a typical daily capacity of 58,000 VPD.

Primary Arterial - A Primary arterial highway is usually a four-lane divided roadway. A Primary arterial is designed to accommodate a daily capacity ranging from 30,000 to 45,000 with a typical daily capacity of 34,000 VPD. A Primary arterial's function is similar to that of a Principal or Major arterial. The chief difference is capacity. A Primary Augmented is similar to a Primary arterial, but may include additional lanes, particularly

EXHIBIT 2-A

EXISTING THROUGH LANES



at intersections, resulting in a daily capacity ranging from 35,000 to 50,000 with a typical daily capacity of 40,000 vehicles per day.

Secondary Arterial - A Secondary arterial highway is a four-lane roadway (often undivided). A Secondary arterial distributes traffic between local streets and Major or Primary arterials. Although some Secondary arterials serve as through routes, most provide more direct access to surrounding land uses than Principal, Major, or Primary arterials. Secondary arterials carry a daily capacity ranging from 20,000 to 30,000 with a typical daily capacity of 23,000 VPD.

Commuter Roadway - A commuter roadway is a two-to-four-lane, unrestricted access roadway with a daily capacity ranging from 7,000 to 11,000 with a typical daily capacity of 10,000 VPD. It differs from a local street in its ability to handle through traffic movements between arterials.

Exhibits 2-B and 2-C display the roadway classifications for City of Newport Beach and City of Irvine networks. In addition to these basic classifications, this Circulation Elements can provide for roadways that can carry traffic above the typical capacity level for the classification, if the standard section is augmented. Examples of augmented sections include additional through and/or turning lanes at some locations and additional turning lanes at signalized street intersections with heavy turning movements.

2.1.1 INDIVIDUAL ROADWAY CLASSIFICATIONS

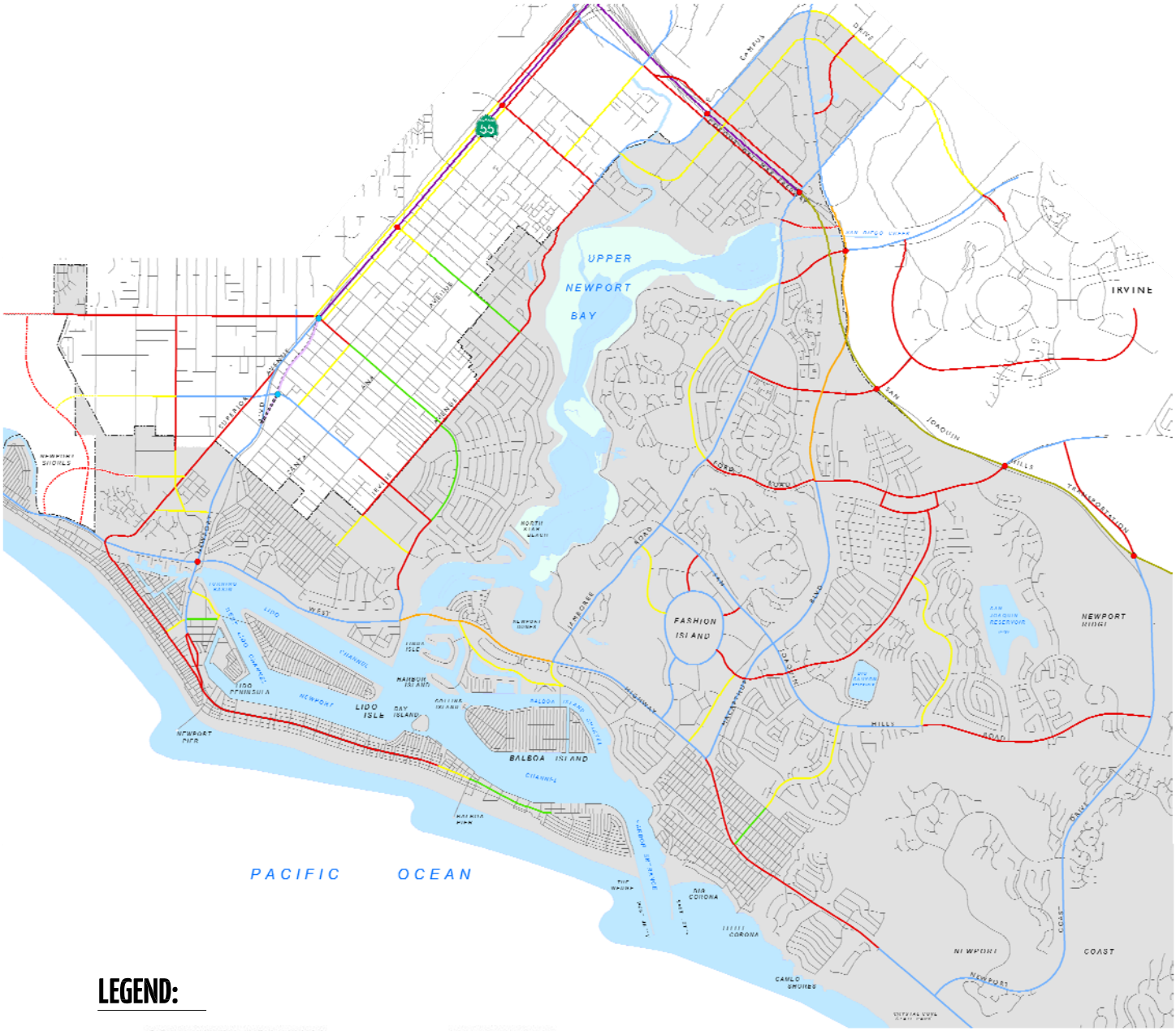
West Coast Highway / East Coast Highway is major east-west 4 to 8-lane roadway, primarily 6-lanes, with a short 8-lane principal arterial segment near Newport Bay. The portion between MacArthur and Newport Coast Drive consists of 4 lanes (Primary Arterial).

Victoria Street / 22nd Street begins as Victoria Avenue, west of State Route 55, as a 4-lane divided primary arterial. To the east, Victoria Street becomes 22nd Street, as a 2-lane undivided commuter roadway, with existing residential along both sides of this roadway.

19th Street/Dover Drive is an undivided 2-lane commuter roadway east of Orange Avenue. 19th Street extends west of State Route 55 to the east to Irvine Avenue then becomes Dover Drive. Dover Drive easterly from Irvine Boulevard to Westcliff Drive is a 2-lane undivided roadway. Continuing southerly past Westcliff Drive, Dover Drive becomes a 4-lane divided primary roadway to West Coast Highway.

EXHIBIT 2-B

CITY OF NEWPORT BEACH
MASTER PLAN OF STREETS AND HIGHWAYS



LEGEND:

- COMMUTER ROADWAY (TWO LANE UNDIVIDED) **3.24 Miles**
- SECONDARY ROAD (FOUR LANE UNDIVIDED) **16.88 Miles**
- SECONDARY (NOT BUILT) **0.28 Miles**
- PRIMARY ROAD (FOUR LANE DIVIDED) **29.62 Miles**
- PRIMARY ROAD (NOT BUILT) **3.05 Miles**
- MAJOR ROAD (SIX LANE DIVIDED) **30.64 Miles**
- EIGHT LANE ROAD (DIVIDED) **2.81 Miles**
- SAN JOAQUIN HILLS TRANSPORTATION CORRIDOR **5.32 Miles**
- ADOPTED FREEWAY ROUTES **4.48 Miles**
- FUTURE FREEWAY EXTENSION **0.75 Miles**

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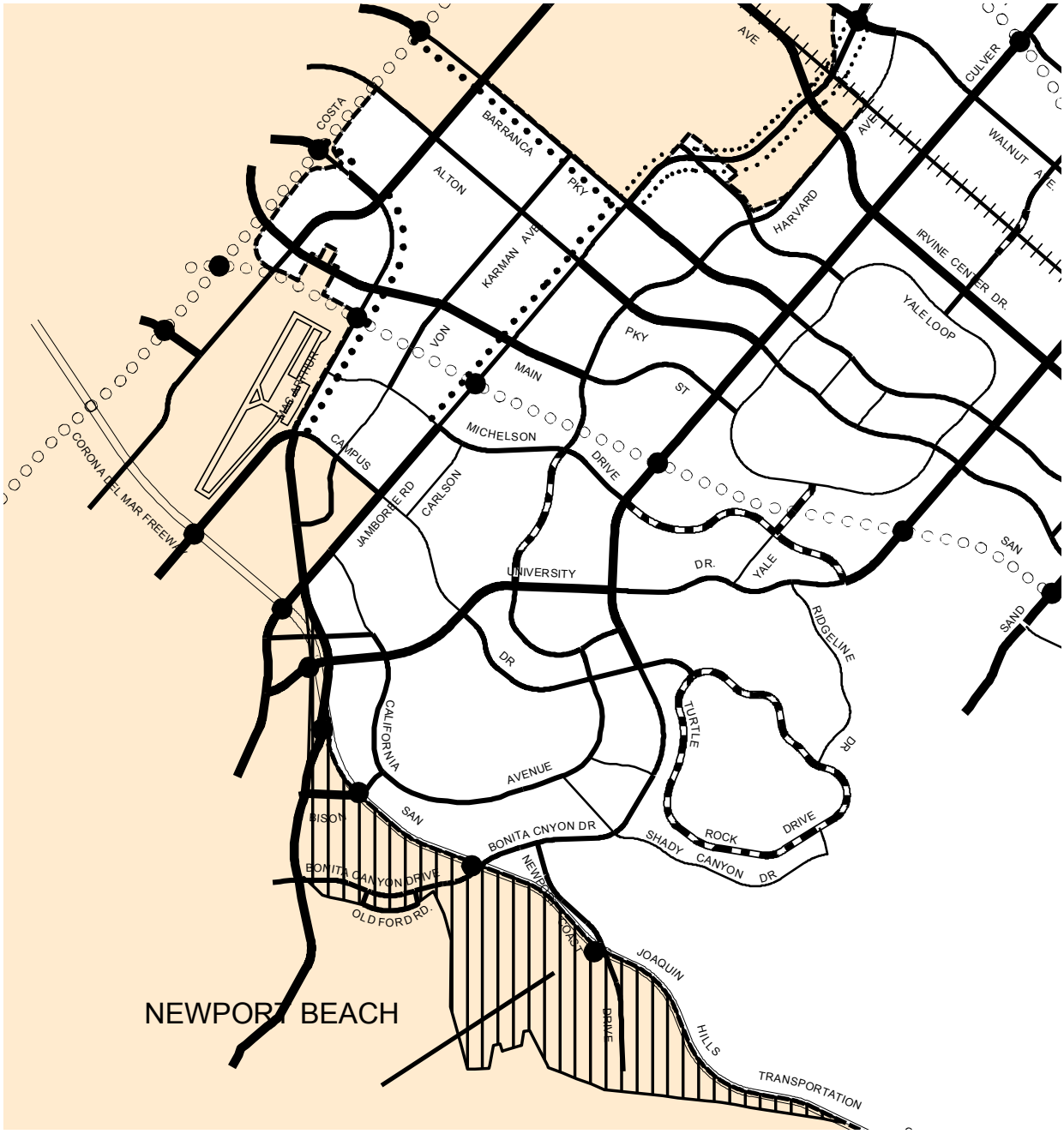
EXHIBIT 2-C

CITY OF IRVINE GENERAL PLAN
MASTER PLAN OF ARTERIAL HIGHWAYS



LEGEND:

- Transportation Corridor
- Expressway
- Major Highway 8-Lanes
- Major Highway 6-Lanes
- Primary Highway
- Secondary Highway
- Commuter Highway

N

17th Street / WestCliff Drive, a 4-lane divided roadway east of Newport Boulevard, is a major road between Newport Boulevard and Tustin Avenue. East of Tustin Avenue, 17th Street is a primary road. From Irvine Avenue easterly, 17th Street becomes Westcliff Drive.

Main Street is a 6-lane divided roadway classified as a Major Highway in City of Irvine's Roadway Classification Network. This portion of the roadway extends easterly from State Route 55 to Harvard Avenue. The roadway changes to a 4-lane Primary Arterial, east of Harvard Avenue.

Bristol Street is an east-west roadway that extends from State Route 55 (SR-55) to Jamboree Road. Between SR-55 and Red Hill Avenue in the City of Newport Beach, the roadway is a 6-lane divided arterial, classified as a Major Road. Between Redhill Avenue and Jamboree Road, the Primary Road fronts the SR-73 freeway, with eastbound traffic fronting the south side (SB freeway) and westbound traffic fronting the north side (northbound freeway). In the eastbound direction, the roadway consists of 2 to 4 lanes. In the westbound direction, the roadway carries 3-lanes through this portion and eventually crosses over State Route/Toll Road 73 (SR-73) right before Red Hill Avenue.

Von Karman Avenue, a north-south 4-lane divided roadway, is classified as a Secondary Highway between Campus Drive and Michelson Avenue. North of Michelson Drive, Von Karman Avenue is classified as a Major Arterial.

Jamboree Road between Barranca Parkway and Michelson Drive has an 8-lane configuration, classified as a Major Arterial. From Michelson to East Coast Highway, Jamboree Road becomes a Major Road. Jamboree Road is currently 6 lanes from Bayview Way to Coast Highway. North of Bayview Way to Birch Street, Jamboree Road is currently 7 lanes.

Irvine Avenue/Campus Drive is a Secondary from MacArthur Boulevard to University Drive. From MacArthur Boulevard to Bristol Street, Campus Drive is a Major Road. At Bristol Street, Campus Drive becomes Irvine Avenue, a Major Road to Mesa Drive. Between Mesa Drive and 16th Street, Irvine Avenue is classified as a Primary Arterial.

Barranca Parkway is an 8-lane Major Highway from Red Hill Avenue to Jamboree Road. East of Jamboree Road, Barranca Parkway becomes a 6-lane Major Highway.

Alton Parkway is an east-west roadway configured as divided section with 4 lanes extending from Red Hill Avenue to Jamboree Road (serving as a Primary Highway in the City of Irvine). East of Jamboree Road, Alton Parkway becomes a 6-lane roadway, classified as a Major Highway.

Red Hill Avenue in the City of Irvine is classified as a 6-lane Major Highway.

MacArthur Boulevard is classified as a Major Road between Coast Highway and Ford Road in the City of Newport Beach. It is also a Major Road between Fairchild Road and Campus Drive in the Airport Area of Newport Beach. Between Ford Road and Fairchild Road, MacArthur Boulevard is classified as an 8-lane road. In the City of Irvine, MacArthur Boulevard is classified as an 8-lane Major Highway.

University Drive is a four- to six-lane divided roadway. University Drive is classified as a Primary Road in the City of Newport Beach and as a Major Roadway (6-lanes divided) in the City of Irvine, within the study area.

Bison Avenue is a Primary Road west of State Route/Toll Road 73 (SR-73) and a divided 4-lane roadway to the east of SR-73. Bison Avenue is classified as a Primary Highway on the City of Irvine Roadway Network Classification.

Ford Road / Bonita Canyon Drive is classified as a Primary Road, and is currently 4-lane divided from Jamboree Road to SR-73. Bonita Canyon Drive is classified as a Primary Highway on the City of Irvine Roadway Classification System.

San Miguel Drive is a divided 4-lane Primary Arterial extending from Newport Center Drive to Ford Road

San Joaquin Hills Road is a 6-lane divided east-west roadway, classified as a Major Road from Jamboree Road to Spyglass Hill Road, and a 4-lane Primary Road from Spyglass Hill Road to Newport Coast Drive.

Spyglass Hill Road is a 4-lane divided roadway, classified as a Secondary Road from San Miguel Drive to San Joaquin Hills Road.

Michelson Drive, east of Jamboree Road is a four-lane divided roadway, classified as a Primary Highway. Michelson Drive is classified as a Secondary Highway between Jamboree Road and MacArthur Boulevard in the City of Irvine Master Plan of Arterial Highways.

Marguerite Avenue is classified as a Secondary Road from San Joaquin Hills Road to 5th Avenue and is currently 4 lanes. From 5th Avenue to Coast Highway, Marguerite Avenue is currently 2 lanes, and is classified as a Commuter Roadway.

Newport Center Drive is currently 6 lanes from Coast Highway to the Newport Center Drive circle, and is 4 lanes on the circle. The north-south road and the circle are both classifies as a Major Road.

Newport Coast Drive is currently 6 lanes from SR-73 to Coast Highway in the City of Newport Beach, and is classified as a Major Road.

Santa Rosa Drive and **Santa Cruz Drive** are both classified as Primary Roads.

Santa Barbara Drive is classified as a Secondary Road.

2.1.2 THE 19TH STREET BRIDGE

The Orange County Transportation Authority (OCTA) maintains the Master Plan of Arterial Highways (MPAH) for Orange County. Similar to the City of Newport Beach General Circulation Element, the MPAH is the planned roadway system for the County of Orange. The MPAH has recently been modified by OCTA to eliminate the 19th Street Bridge over the Santa Ana River, which used to provide a connection from the current 19th Street terminus westerly to Brookhurst Street in Huntington Beach.

The 19th Street Bridge is included in the current Newport Beach Circulation Element. In the future, a complete update to the Circulation Element is expected. In considering Citywide refinements to the roadway system, it is likely that removal of the 19th Street Bridge would be among the changes considered.

Recent Analysis completed for OCTA to evaluate potential elimination of the 19th Street Bridge indicated that impacts in Newport Beach were limited to the intersection of Superior Avenue at Coast Highway. This intersection is deficient for General Plan conditions with and without the General Plan LUE Amendment Project. Because the LUE Amendment Project proposes only reduced development and minor changes in land use designation in the West Newport area, it is likely that there will be no change in the traffic findings should an analysis be completed without the 19th Street Bridge.

These two intersections are deficient for General Plan conditions with and without the Project, but a Project impact has not been identified. It is likely that this finding would remain, if the 19th Street Bridge was not included in this evaluation of the Land Use Element Amendment.

2.1.3 JOHN WAYNE AIRPORT PLANS

Future plans for John Wayne Airport (as known during preparation of this TIA) have been included in the Newport Beach Transportation Model. Recently, preliminary work has been

preliminary work has been done on a newly proposed Airport Settlement Agreement. According to the Notice of Preparation, the Airport currently serves approximately 8.9 million annual passengers (MAP). The Proposed Project is identified as resulting in 12.2 or 12.5 MAP for years 2026 to 2030 (depending on usage for one year between 2021 and 2025). The current limit is 10.8 MAP, but Alternatives range from 12.8 MAP to 16.9 MAP for years 2026 to 2030.

Because the Draft EIR is expected in early 2014, but has not been released, an update to the Airport Settlement Agreement was not assumed in this TIA analysis.

2.2 TRAFFIC COUNT DATA

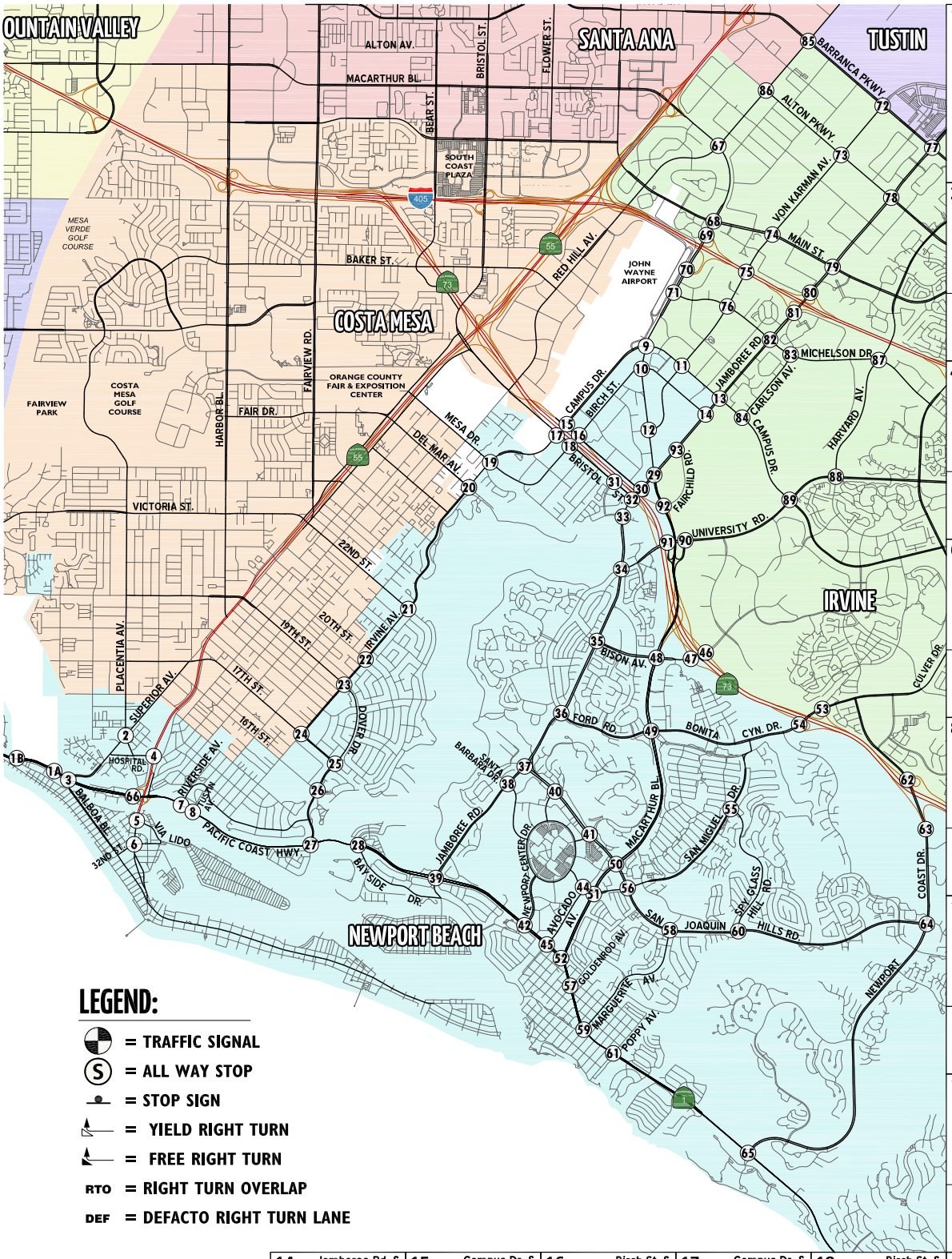
Existing intersection turn lanes and intersection controls are shown on Exhibit 2-D.

Average daily traffic (ADT) counts for midblock arterial roadway segments and AM and PM peak hour turn movement counts at intersection locations in the study area were generally conducted in 2013. ADT volumes are based upon traffic count data provided by the City of Newport Beach and City of Irvine. Table 2-1 summarizes the ADT volumes (rounded to 1000's) on City of Newport Beach roadway segments.

Table 2-1
City of Newport Beach
Roadway Segment Average Daily Traffic (ADT) Counts

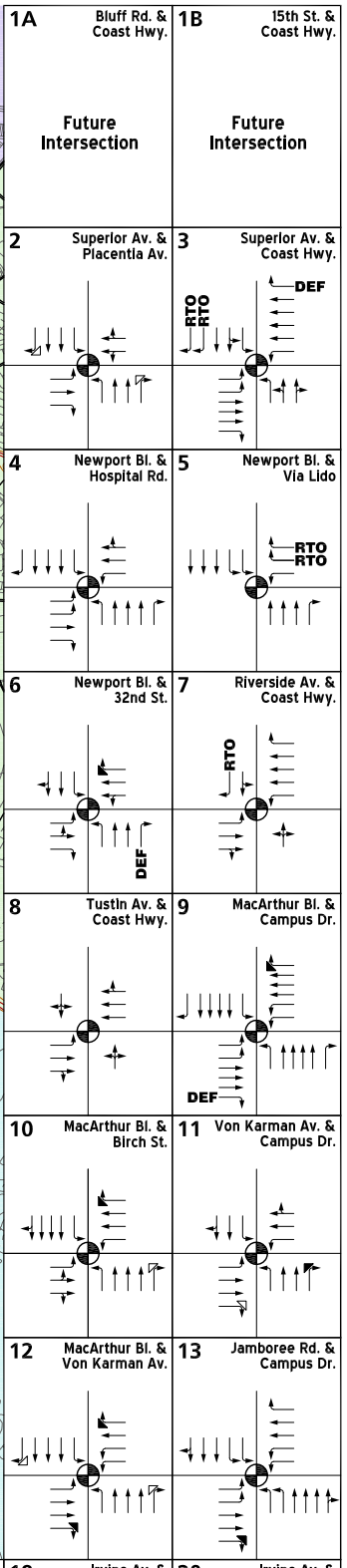
ID	Segment Location	ADT	Year
2	Superior Av n/o Placentia Av	21,000	2013
5	Newport Bl n/o Via Lido	49,000	2013
15	Campus Dr n/o Bristol St (N)	28,000	2013
24	Irvine Av n/o Westcliff Dr	23,000	2013
27	Dover Dr n/o Coast Hw	30,000	2012
34	Jamboree Rd n/o University Dr	45,000	2012
37	Jamboree Rd n/o San Joaquin Hills Rd	50,000	2012
42	Newport Ctr n/o Coast Hw	14,000	2013
45	Avocado Av n/o Coast Hw	11,000	2013
50	MacArthur Bl n/o San Joaquin Hills Rd	61,000	2012
52	MacArthur Bl n/o Coast Hw	34,000	2013
64	Newport Coast n/o San Joaquin Hills Rd	24,000	2013
68	Superior Av s/o Coast Hw	21,000	2013
69	Newport Bl s/o Hospital Rd	52,000	2012
75	MacArthur Bl s/o Birch St	19,000	2013
84	Irvine Av s/o Mesa Dr	25,000	2013
86	Irvine Av s/o Santiago Dr	25,000	2012
100	Jamboree Rd s/o Bison Av	40,000	2013
103	Jamboree Rd s/o Santa Barbara Dr	35,000	2012

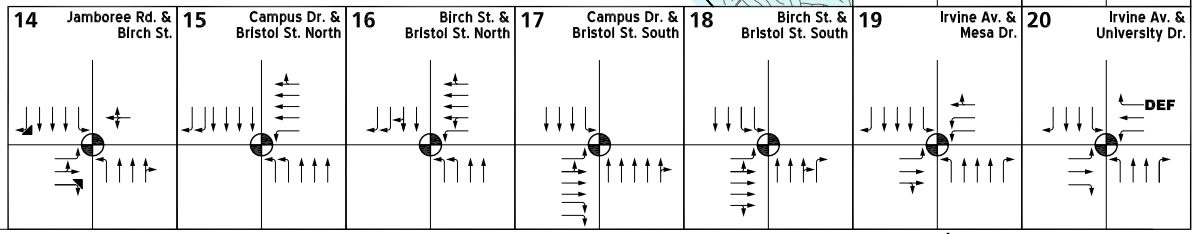
EXISTING LANE CONFIGURATION AND INTERSECTION CONTROLS



LEGEND:

- = TRAFFIC SIGNAL
- = ALL WAY STOP
- = STOP SIGN
- = YIELD RIGHT TURN
- = FREE RIGHT TURN
- RTO = RIGHT TURN OVERLAP
- DEF = DEFACTO RIGHT TURN LANE





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EXISTING LANE CONFIGURATION AND INTERSECTION CONTROLS

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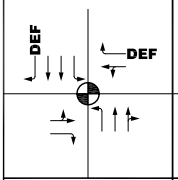
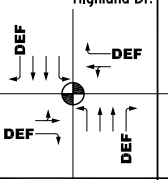
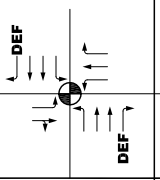


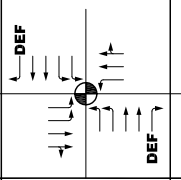
22 Irvine Av. & 20th St./ Highland Dr.



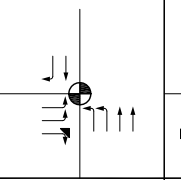
23 Irvine Av. & 19th St./Dover Dr.



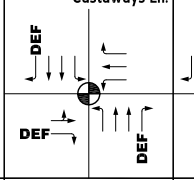
24 Irvine Av. & 17th St./Westcliff Dr.



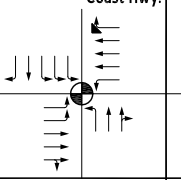
25 Dover Dr. & Westcliff Dr.



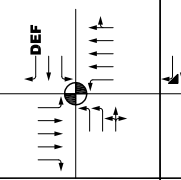
26 Dover Dr. & 16th St./ Castaways Ln.



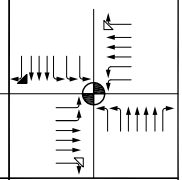
27 Dover Dr./ Bayshore Dr. & Coast Hwy.



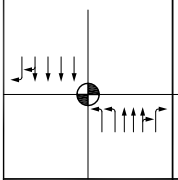
28 Bayside Dr. & Coast Hwy.



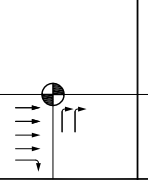
29 MacArthur Bl. & Jamboree Rd.



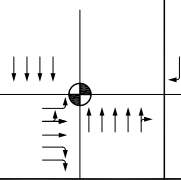
30 Jamboree Rd. & Bristol St. North



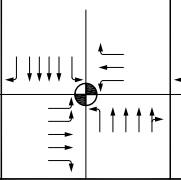
31 Bayview Pl. & Bristol St. South



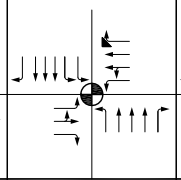
32 Jamboree Rd. & Bristol St. South



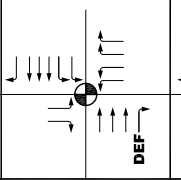
33 Jamboree Rd. & Bayview Wy.



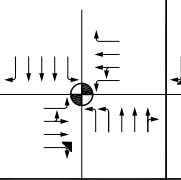
34 Jamboree Rd. & University Dr.



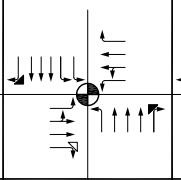
35 Jamboree Rd. & Bison Av.



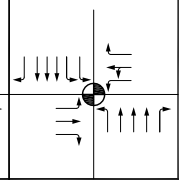
36 Jamboree Rd. & Ford Rd.



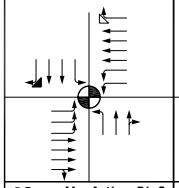
37 Jamboree Rd. & San Joaquin Hills Rd.



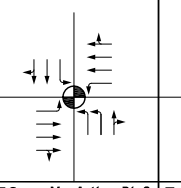
38 Jamboree Rd. & Santa Barbara Dr.



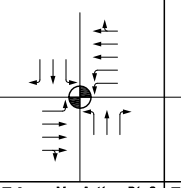
39 Jamboree Rd. & Coast Hwy.



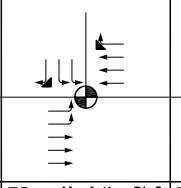
40 Santa Cruz Dr. & San Joaquin Hills Rd.



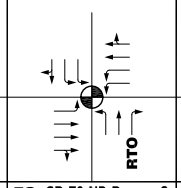
41 Santa Rosa Dr. & San Joaquin Hills Rd.



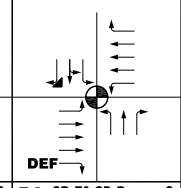
42 Newport Ctr. Dr. & Coast Hwy.



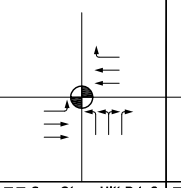
44 Avocado Av. & San Miguel Dr.



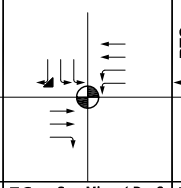
45 Avocado Av. & Coast Hwy.



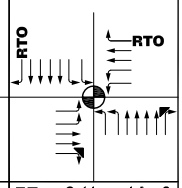
46 SR-73 NB Ramps & Bison Av.



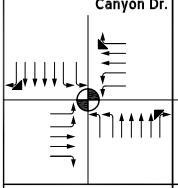
47 SR-73 SB Ramps & Bison Av.



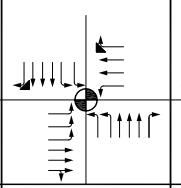
48 MacArthur Bl. & Bison Av.



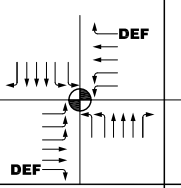
49 MacArthur Bl. & Ford Rd./Bonita Canyon Dr.



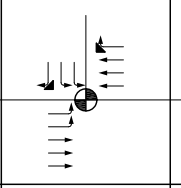
50 MacArthur Bl. & San Joaquin Hills Rd.



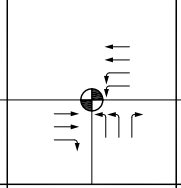
51 MacArthur Bl. & San Miguel Dr.



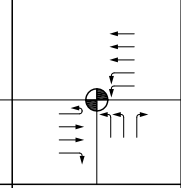
52 MacArthur Bl. & Coast Hwy.



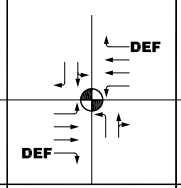
53 SR-73 NB Ramps & Bonita Canyon Dr.



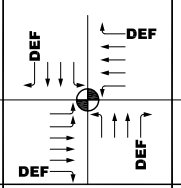
54 SR-73 SB Ramps & Bonita Canyon Dr.



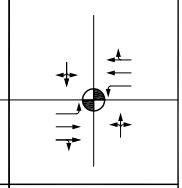
55 Spy Glass Hill Rd. & San Miguel Dr.



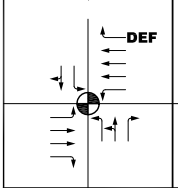
56 San Miguel Dr. & San Joaquin Hills Rd.



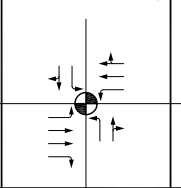
57 Goldenrod Av. & Coast Hwy.



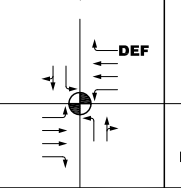
58 Marguerite Av. & San Joaquin Hills Rd.



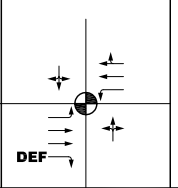
59 Marguerite Av. & Coast Hwy.



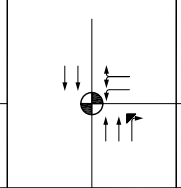
60 Spy Glass Hill Rd. & San Joaquin Hills Rd.



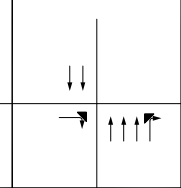
61 Poppy Av. & Coast Hwy.



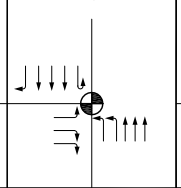
62 Newport Coast Dr. & SR-73 WB Ramps



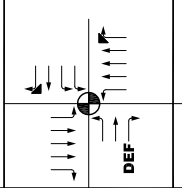
63 Newport Coast Dr. & SR-73 EB Ramps



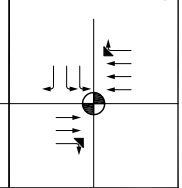
64 Newport Coast Dr. & San Joaquin Hills Dr.



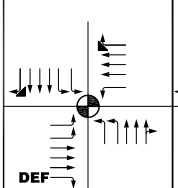
65 Newport Coast Dr. & Coast Hwy.



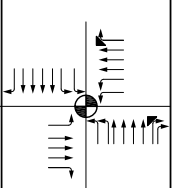
66 Newport Bl. (W) & Coast Hwy.



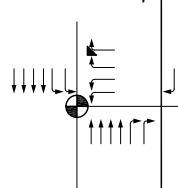
67 Red Hill Av. & MacArthur Bl.



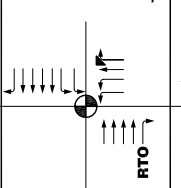
68 MacArthur Bl. & Main St.



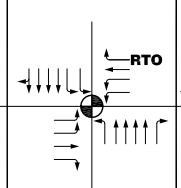
69 MacArthur Bl. & I-405 NB Ramps



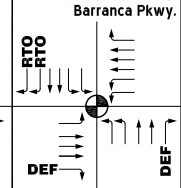
70 MacArthur Bl. & I-405 SB Ramps



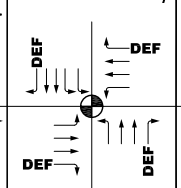
71 MacArthur Bl. & Michelson Dr.



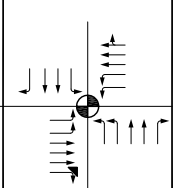
72 Tustin Ranch Rd./ Von Karman Av. & Barranca Pkwy.



73 Von Karman Av. & Alton Pkwy.



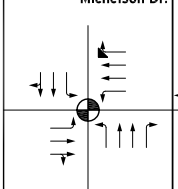
74 Von Karman Av. & Main St.



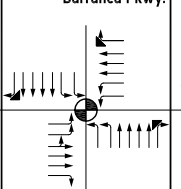
75 Von Karman Av. & I-405 HOV Ramps

Future Intersection

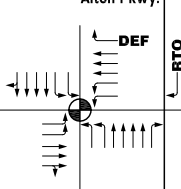
76 Von Karman Av. & Michelson Dr.



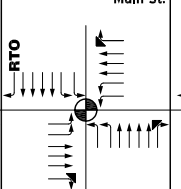
77 Jamboree Rd. & Barranca Pkwy.



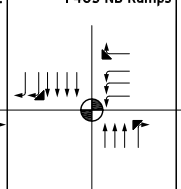
78 Jamboree Rd. & Alton Pkwy.



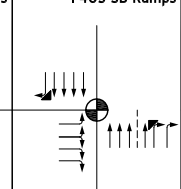
79 Jamboree Rd. & Main St.



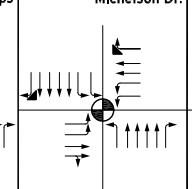
80 Jamboree Rd. & I-405 NB Ramps



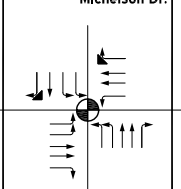
81 Jamboree Rd. & I-405 SB Ramps



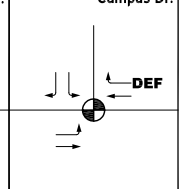
82 Jamboree Rd. & Michelson Dr.



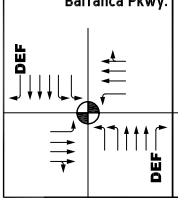
83 Carlson Av. & Michelson Dr.



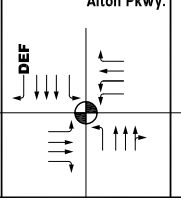
84 Carlson Av. & Campus Dr.



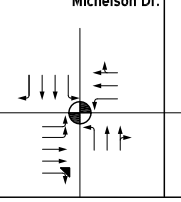
85 Red Hill Av. & Barranca Pkwy.



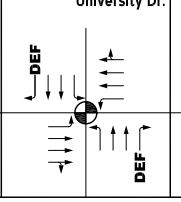
86 Red Hill Av. & Alton Pkwy.



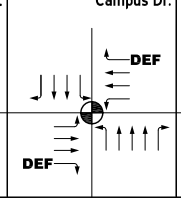
87 Harvard Av. & Michelson Dr.



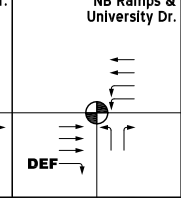
88 Harvard Av. & University Dr.



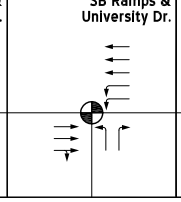
89 University Dr. & Campus Dr.



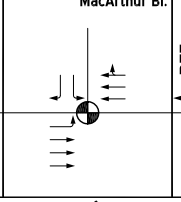
90 MacArthur Bl. NB Ramps & University Dr.



91 MacArthur Bl. SB Ramps & University Dr.



92 Fairchild Rd. & MacArthur Bl.



93 Jamboree Rd. & Fairchild Rd.

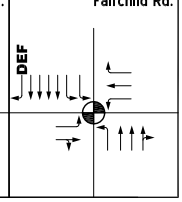


Table 2-1 (Cont'd)

ID	Segment Location	ADT	Year
113	MacArthur Bl s/o Bison Av	69,000	2013
133	Coast Hw e/o Superior Av	39,000	2013
141	Campus Dr e/o Von Karman Av	11,000	2013
149	Mesa Dr e/o Irvine Av	6,000	2013
157	Coast Hw e/o Dover Dr	64,000	2012
164	University Dr e/o Jamboree Rd	9,000	2013
166	Ford Rd e/o Jamboree Rd	10,000	2013
167	San Joaquin Hills Rd e/o Jamboree Rd	21,000	2013
169	Coast Hw e/o Jamboree Rd	41,000	2013
174	San Miguel Dr e/o Avocado Av	24,000	2013
176	Bison Av e/o SR-73 NB	22,000	2013
179	Ford Rd e/o MacArthur Bl	32,000	2013
180	San Joaquin Hills Rd e/o MacArthur Bl	23,000	2012
182	Coast Hw e/o MacArthur Bl	51,000	2012
190	San Joaquin Hills Rd e/o Spyglass Hill Park	17,000	2013
195	Coast Hw e/o Newport Coast	38,000	2012
198	Coast Hw w/o Superior Av	47,000	2013
222	Coast Hw w/o Dover	44,000	2013
269	19th St SR-55-Orange St	29,000	2013

Table 2-2 summarizes the ADT volumes (rounded to 1000's) on City of Irvine roadway segments within the traffic study area.

Table 2-2

City of Irvine - Roadway Segment Average Daily Traffic (ADT) Counts

ID	Segment Location	ADT	Year
31	Red Hill Av., from Deere to Barranca Rd.	27,000	2013
33	Red Hill Av., from McGaw Av. to Alton Pkwy.	28,000	2013
36	Red Hill Av., from MacArthur Bl. to McGaw Av.	36,000	2013
37	Red Hill Av., from Sky Park to MacArthur Bl.	18,000	2013
60	MacArthur Bl., from N/B I-405 to Main St.	51,000	2013
62	MacArthur Bl., from Michelson Dr. to S/B I-405	51,000	2013
98	Von Karman Av., from Alton Pkwy. to Barranca Rd.	21,000	2013
100	Von Karman Av., from McGaw Av. to Alton Pkwy.	19,000	2013
104	Von Karman Av., from Morse to Main St.	20,000	2013
137	Jamboree Rd., from Barranca Rd. to Warner	61,000	2013
138	Jamboree Rd., from Beckman to Barranca Rd.	51,000	2013
144	Jamboree Rd., from Main St. to Kelvin	56,000	2013
145	Jamboree Rd., from S/B I-405 to Main St.	72,000	2013
148	Jamboree Rd., from Michelson Dr. to S/B I-405	71,000	2013
735	Barranca Rd., from Pullman to Red Hill Av.	31,000	2013
739	Barranca Rd., from Armstrong to Von Karman Av.	37,000	2013

Table 2-2 (Cont'd)

ID	Segment Location	ADT	Year
743	Barranca Rd., from Jamboree Rd. to Construction	30,000	2013
776	Alton Pkwy., from Red Hill to Von Karman Av.	13,000	2013
779	Alton Pkwy., from Jamboree Rd. to Murphy	19,000	2013
814	MacArthur Bl., from Red Hill Av. to Fitch	37,000	2013
819	Main St., from Red Hill Av. to MacArthur Bl.	23,000	2013
821	Main St., from MacArthur Bl. to Von Karman Av.	32,000	2013
824	Main St., from Jamboree Rd. to Harvard	23,000	2013
844	Michelson Dr., from Von Karman Av. to Jamboree Rd.	18,000	2013
847	Michelson Dr., from Jamboree Rd. to Harvard	16,000	2013
1432	MacArthur Bl., from Main St. to Red Hill Av.	25,000	2013

Study area ADT midblock traffic counts for key locations analyzed on the arterial roadway system are illustrated on Exhibit 2-E. Existing 24-hour traffic volume count worksheets are included in Appendix 2.1.

Existing AM and PM peak hour intersection volumes in the study area are shown on Exhibit 2-F and Exhibit 2-G, respectively. Sixty-four (64) of the eighty-three (83) existing intersection analysis locations are within the City of Newport Beach. Nineteen (19) of the intersection analysis locations are within the City of Irvine. The peak periods utilized for the intersection traffic counts vary slightly during jurisdictions, as follows:

City of Newport Beach

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

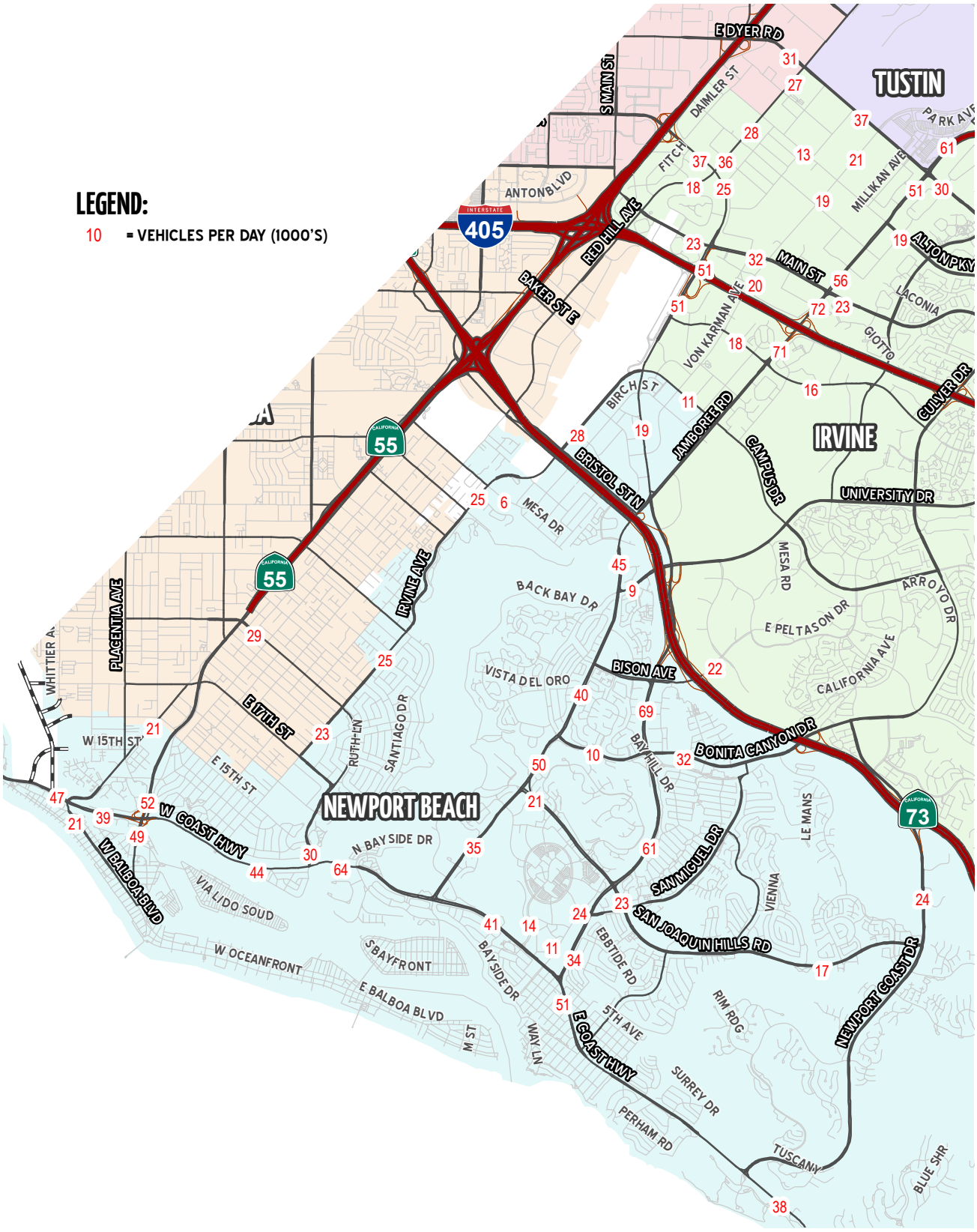
City of Irvine

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:30 PM)

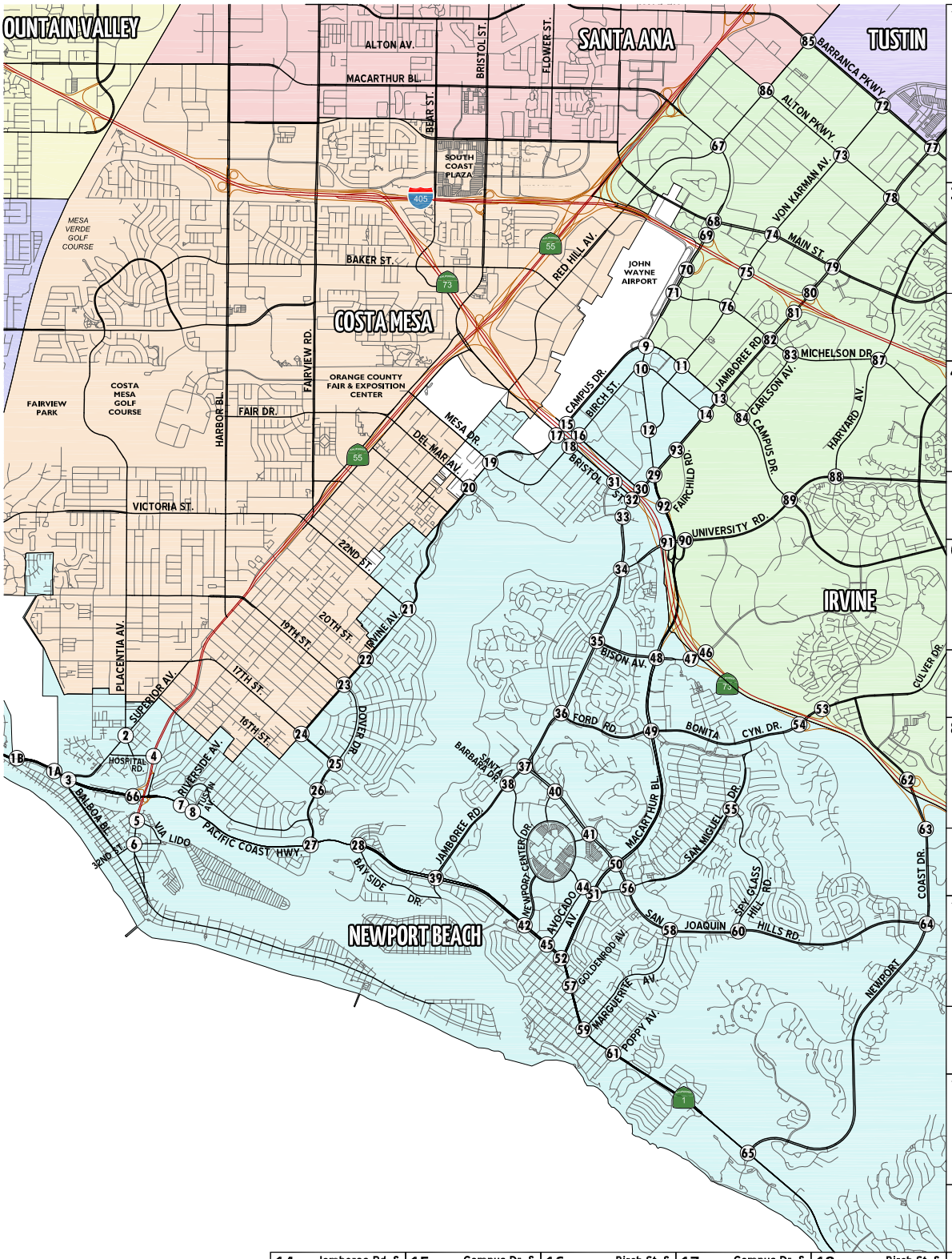
For each intersection analysis location, Table 2-3 indicates the date when peak hour traffic data collection occurred, and the jurisdiction where the intersection is located.

EXHIBIT 2-E

EXISTING CONDITIONS AVERAGE DAILY TRAFFIC (ADT)



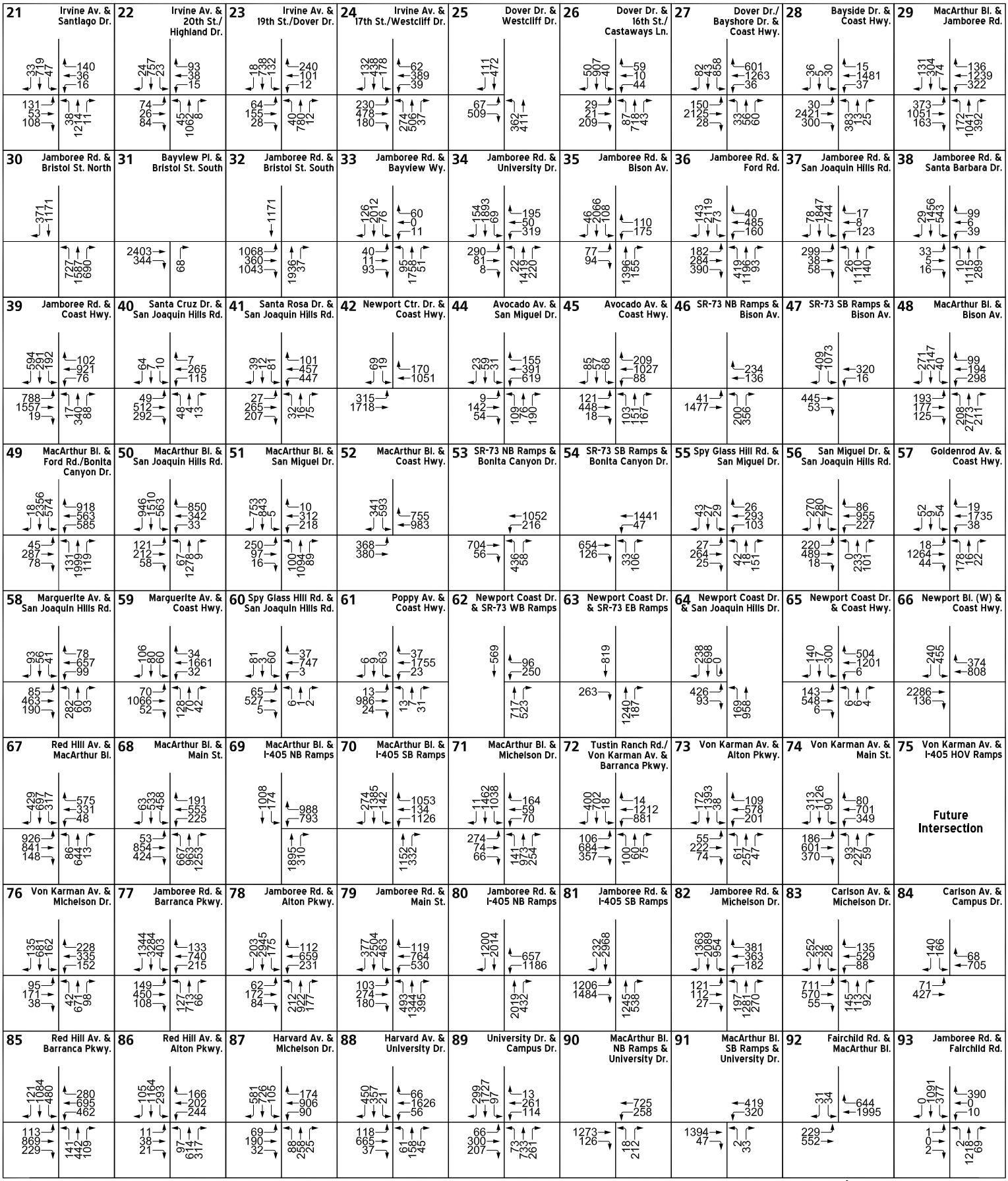
EXISTING CONDITIONS
AM PEAK HOUR INTERSECTION VOLUMES



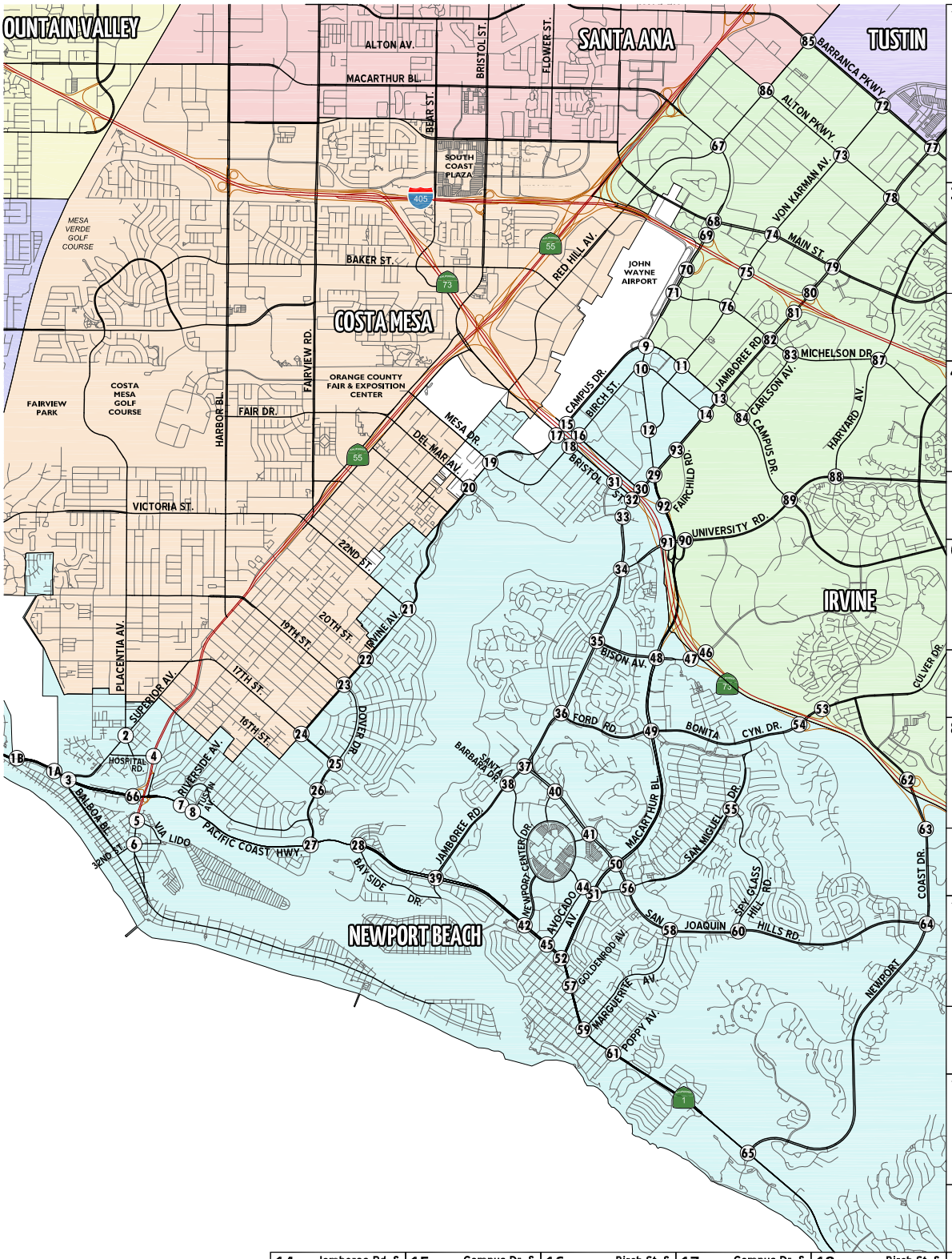
1A Bluff Rd. & Coast Hwy. Future Intersection	**1B** 15th St. & Coast Hwy. Future Intersection	**2** Superior Av. & Placentia Av. 7 281 74 / 83 217 7 33 274 267 / 392 1128 25	**3** Superior Av. & Coast Hwy. 213 152 182 / 199 834 81 1010 2687 165 / 216 330 138
4 Newport Bl. & Hospital Rd. 404 1154 51 / 23 216 50 183 115 197 / 125 1729 85	**5** Newport Bl. & Via Lido 830 284 / 368 18 1236 37	**6** Newport Bl. & 32nd St. 90 577 44 / 32 27 19 316 34 18 / 16 888 30	**7** Riverside Av. & Coast Hwy. 376 0 117 / 79 1147 5 333 2169 6 / 3 0 1
8 Tustin Av. & Coast Hwy. 16 1 46 / 36 1238 21 2271 4 / 1 0 1	**9** MacArthur Bl. & Campus Dr. 273 884 273 / 66 190 40 582 1008 82 / 42 737 60	**10** MacArthur Bl. & Birch St. 217 658 95 / 41 116 16 72 259 44 / 32 671 82	**11** Von Karman Av. & Campus Dr. 76 411 53 / 80 250 75 278 416 59 / 14 597 45
12 MacArthur Bl. & Von Karman Av. 160 436 59 / 24 129 76 11 82 17 / 59 754 699	**13** Jamboree Rd. & Campus Dr. 158 1524 239 / 93 364 290 111 153 23 / 107 1180 115		

14 Jamboree Rd. & Birch St. 451 1476 2 / 12 3 4 139 5 56 / 197 1286 5	**15** Campus Dr. & Bristol St. North 159 230 / 127 938 135 372 1628	**16** Birch St. & Bristol St. North 98 124 / 208 1012 344 96 977	**17** Campus Dr. & Bristol St. South 301 64 1000 1454 497 / 1000 204	**18** Birch St. & Bristol St. South 348 120 691 928 106 / 382 240	**19** Irvine Av. & Mesa Dr. 35 473 4 / 7 18 140 103 135 111 / 76 1108 368	**20** Irvine Av. & University Dr. 85 532 61 / 25 20 27 169 57 107 / 108 1381 54

EXISTING CONDITIONS
AM PEAK HOUR INTERSECTION VOLUMES



EXISTING CONDITIONS
PM PEAK HOUR INTERSECTION VOLUMES

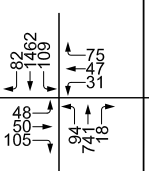


1A Bluff Rd. & Coast Hwy.	1B 15th St. & Coast Hwy.
Future Intersection	Future Intersection
2 Superior Av. & Placentia Av.	3 Superior Av. & Coast Hwy.
10 87 70 / 14 171 319 / 88 339 33 / 216 406 14	920 328 186 / 335 900 219 / 111 2442 203 / 242 213 75
4 Newport Bl. & Hospital Rd.	5 Newport Bl. & Via Lido
185 1575 61 / 320 100 217 / 47 188 127 / 108 1229 61	1340 397 / 969 26 / 305 31
6 Newport Bl. & 32nd St.	7 Riverside Av. & Coast Hwy.
245 924 96 / 167 40 23 / 75 44 25 / 49 636 12	393 2 81 / 250 1475 2 / 51 2219 30 / 8 3 17
8 Tustin Av. & Coast Hwy.	9 MacArthur Bl. & Campus Dr.
38 0 70 / 39 1575 1 / 40 2237 / 1 1 0	561 898 137 / 361 372 83 / 180 1025 74 / 99 1013 29
10 MacArthur Bl. & Birch St.	11 Von Karman Av. & Campus Dr.
192 999 45 / 252 210 37 / 127 382 93 / 120 676 29	342 657 139 / 156 523 68 / 53 559 51 / 51 386 100
12 MacArthur Bl. & Von Karman Av.	13 Jamboree Rd. & Campus Dr.
63 1080 27 / 101 174 172 / 98 97 591 / 40 578 115	228 1614 215 / 239 558 138 / 206 267 147 / 37 1685 275

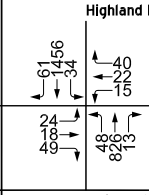
14 Jamboree Rd. & Birch St.	15 Campus Dr. & Bristol St. North	16 Birch St. & Bristol St. North	17 Campus Dr. & Bristol St. South	18 Birch St. & Bristol St. South	19 Irvine Av. & Mesa Dr.	20 Irvine Av. & University Dr.
82 1896 0 / 251 0 124 / 0 0 0 / 33 1529 0	863 968 / 452 694 / 57 2014 232	735 491 / 129 302 / 117 1505 462	1025 175 / 437 845 548 / 709 225	794 159 / 140 1070 78 / 291 136	203 1321 2 / 36 48 152 / 11 145 438 / 65 591 165	165 1626 74 / 96 59 147 / 62 68 73 / 74 697 65

EXISTING CONDITIONS
PM PEAK HOUR INTERSECTION VOLUMES

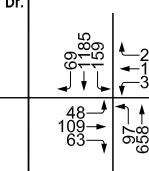
21 Irvine Av. & Santiago Dr.



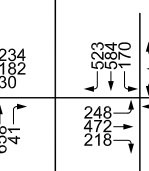
22 Irvine Av. & 20th St./ Highland Dr.



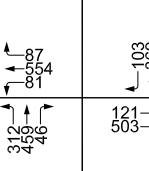
23 Irvine Av. & 19th St./Dover Dr.



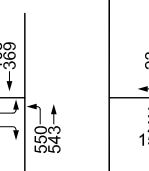
24 Irvine Av. & 17th St./Westcliff Dr.



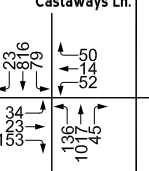
25 Dover Dr. & Westcliff Dr.



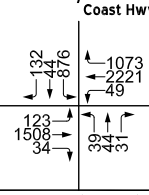
26 Dover Dr. & 16th St./ Castaways Ln.



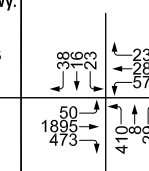
27 Dover Dr./ Bayshore Dr. & Coast Hwy.



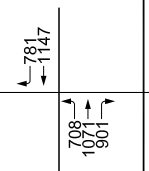
28 Bayside Dr. & Coast Hwy.



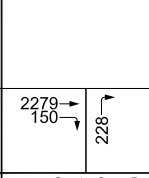
29 MacArthur Bl. & Jamboree Rd.



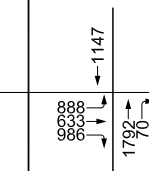
30 Jamboree Rd. & Bristol St. North



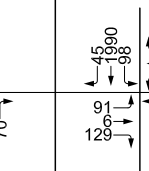
31 Bayview Pl. & Bristol St. South



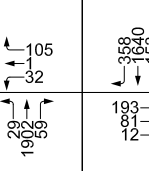
32 Jamboree Rd. & Bristol St. South



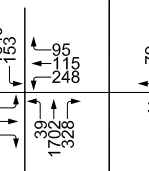
33 Jamboree Rd. & Bayview Wy.



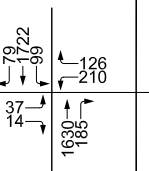
34 Jamboree Rd. & University Dr.



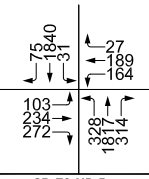
35 Jamboree Rd. & Bison Av.



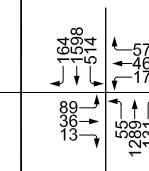
36 Jamboree Rd. & Ford Rd.



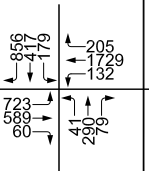
37 Jamboree Rd. & San Joaquin Hills Rd.



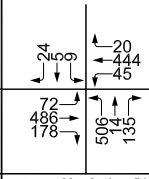
38 Jamboree Rd. & Santa Barbara Dr.



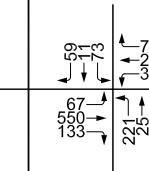
39 Jamboree Rd. & Coast Hwy.



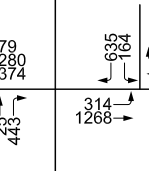
40 Santa Cruz Dr. & San Joaquin Hills Rd.



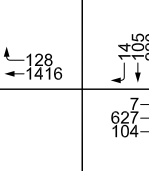
41 Santa Rosa Dr. & San Joaquin Hills Rd.



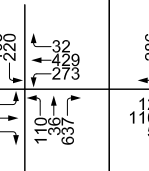
42 Newport Ctr. Dr. & Coast Hwy.



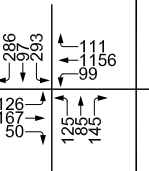
44 Avocado Av. & San Miguel Dr.



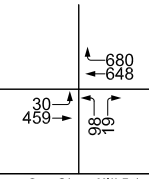
45 Avocado Av. & Coast Hwy.



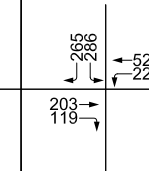
46 SR-73 NB Ramps & Bison Av.



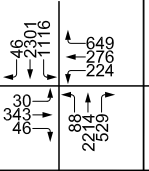
47 SR-73 SB Ramps & Bison Av.



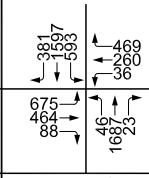
48 MacArthur Bl. & Bison Av.



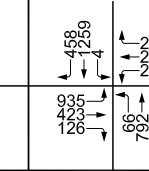
49 MacArthur Bl. & Ford Rd./Bonita Canyon Dr.



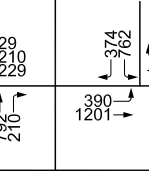
50 MacArthur Bl. & San Joaquin Hills Rd.



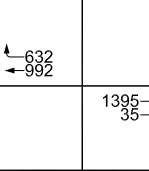
51 MacArthur Bl. & San Miguel Dr.



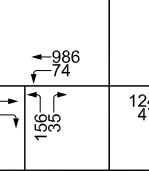
52 MacArthur Bl. & Coast Hwy.



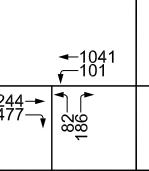
53 SR-73 NB Ramps & Bonita Canyon Dr.



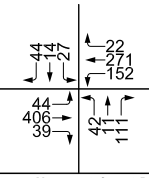
54 SR-73 SB Ramps & Bonita Canyon Dr.



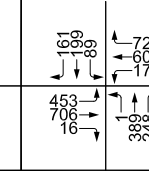
55 Spy Glass Hill Rd. & San Miguel Dr.



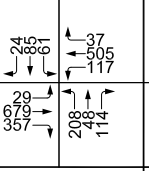
56 San Miguel Dr. & San Joaquin Hills Rd.



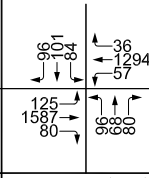
57 Goldenrod Av. & Coast Hwy.



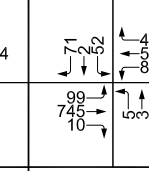
58 Marguerite Av. & San Joaquin Hills Rd.



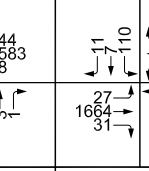
59 Marguerite Av. & Coast Hwy.



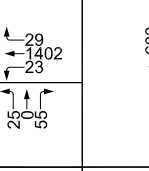
60 Spy Glass Hill Rd. & San Joaquin Hills Rd.



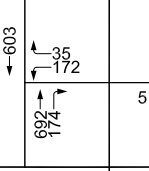
61 Poppy Av. & Coast Hwy.



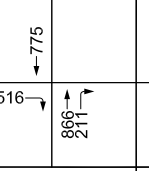
62 Newport Coast Dr. & SR-73 WB Ramps



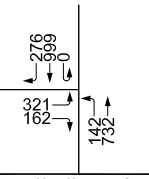
63 Newport Coast Dr. & SR-73 EB Ramps



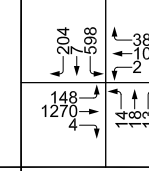
64 Newport Coast Dr. & San Joaquin Hills Dr.



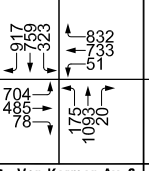
65 Newport Coast Dr. & Coast Hwy.



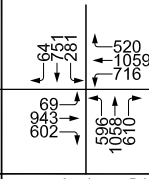
66 Newport Bl. (W) & Coast Hwy.



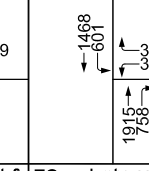
67 Red Hill Av. & MacArthur Bl.



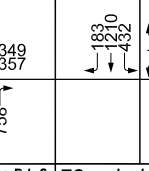
68 MacArthur Bl. & Main St.



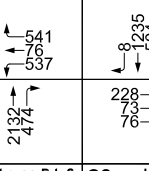
69 MacArthur Bl. & I-405 NB Ramps



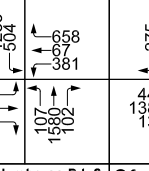
70 MacArthur Bl. & I-405 SB Ramps



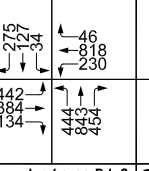
71 MacArthur Bl. & Michelson Dr.



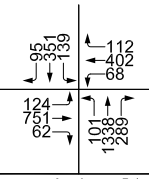
72 Tustin Ranch Rd./ Von Karman Av. & Barranca Pkwy.



73 Von Karman Av. & Alton Pkwy.



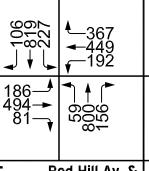
74 Von Karman Av. & Main St.



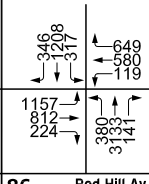
75 Von Karman Av. & I-405 HOV Ramps

Future Intersection

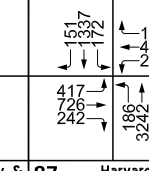
76 Von Karman Av. & Michelson Dr.



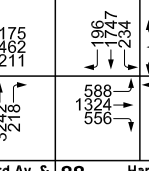
77 Jamboree Rd. & Barranca Pkwy.



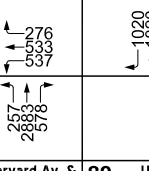
78 Jamboree Rd. & Alton Pkwy.



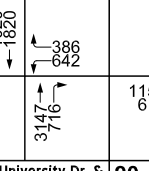
79 Jamboree Rd. & Main St.



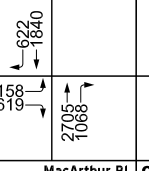
80 Jamboree Rd. & I-405 NB Ramps



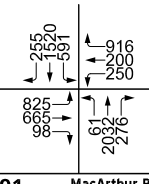
81 Jamboree Rd. & I-405 SB Ramps



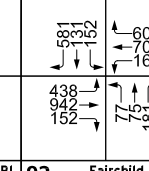
82 Jamboree Rd. & Michelson Dr.



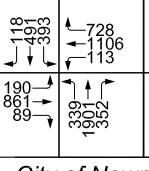
83 Carlson Av. & Michelson Dr.



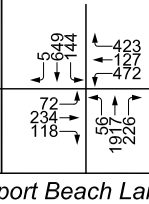
84 Carlson Av. & Campus Dr.



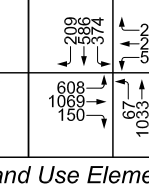
85 Red Hill Av. & Barranca Pkwy.



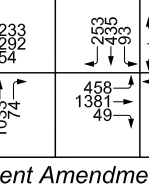
86 Red Hill Av. & Alton Pkwy.



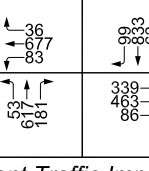
87 Harvard Av. & Michelson Dr.



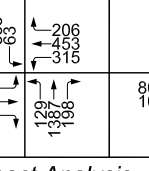
88 Harvard Av. & University Dr.



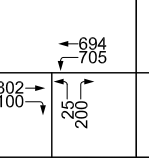
89 University Dr. & Campus Dr.



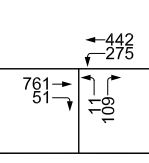
90 MacArthur Bl. NB Ramps & University Dr.



91 MacArthur Bl. SB Ramps & University Dr.



92 Fairchild Rd. & MacArthur Bl.



93 Jamboree Rd. & Fairchild Rd.

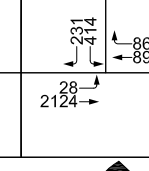


Table 2-3
Existing Intersection Analysis Locations

ID	Intersection Location	Count Date	Jurisdiction
2	Superior Av / Placentia Av.	10/23/2013	Newport Beach
3	Superior Av / Coast Hwy.	10/23/2013	Newport Beach
4	Newport Bl. / Hospital Rd.	10/23/2013	Newport Beach
5	Newport Bl. / Via Lido	10/23/2013	Newport Beach
6	Newport Bl. / 32nd St.	10/23/2013	Newport Beach
7	Riverside Av. / Coast Hwy.	10/23/2013	Newport Beach
8	Tustin Av. / Coast Hwy.	10/23/2013	Newport Beach
9	MacArthur Bl. / Campus Dr.	9/17/2013	Newport Beach / Irvine
10	MacArthur Bl. / Birch St.	4/9/2013	Newport Beach
11	Von Karman Av. / Campus Dr.	9/17/2013	Newport Beach / Irvine
12	MacArthur Bl. / Von Karman Av.	4/9/2013	Newport Beach
13	Jamboree Rd. / Campus Dr.	9/17/2013	Newport Beach / Irvine
14	Jamboree Rd. / Birch St.	3/14/2013	Newport Beach / Irvine
15	Campus Dr. / Bristol St. (N)	3/5/2013	Newport Beach
16	Birch St. / Bristol St. (N)	3/5/2013	Newport Beach
17	Campus Dr. / Bristol St. (S)	3/5/2013	Newport Beach
18	Birch St. / Bristol St. (S)	3/5/2013	Newport Beach
19	Irvine Av. / Mesa Dr.	3/12/2013	Newport Beach
20	Irvine Av. / University Dr.	3/12/2013	Newport Beach
21	Irvine Av. / Santiago Dr.	3/12/2013	Newport Beach
22	Irvine Av. / Highland Dr	3/12/2013	Newport Beach / Costa Mesa
23	Irvine Av. / Dover Dr.	4/24/2012	Newport Beach / Costa Mesa
24	Irvine Av. / Westcliff Dr.	5/3/2012	Newport Beach / Costa Mesa
25	Dover Dr. / Westcliff Dr.	4/25/2012	Newport Beach
26	Dover Dr. / 16th St.	4/25/2012	Newport Beach
27	Dover Dr. / Coast Hwy.	10/23/2013	Newport Beach
28	Bayside Dr / Coast Hwy.	5/1/2012	Newport Beach
29	MacArthur Bl. / Jamboree Rd.	4/10/2013	Newport Beach / Irvine
30	Jamboree Rd. / Bristol St. (N)	4/10/2013	Newport Beach
31	Bayview Pl. / Bristol St. (S)	3/13/2013	Newport Beach
32	Jamboree Rd. / Bristol St. (S)	4/10/2013	Newport Beach
33	Jamboree Rd. / Bayview Wy	11/13/2013	Newport Beach
34	Jamboree Rd. / University Dr.	4/11/2013	Newport Beach
35	Jamboree Rd. / Bison Av.	4/24/2012	Newport Beach
36	Jamboree Rd. / Ford Rd.	3/7/2012	Newport Beach
37	Jamboree Rd. / San Joaquin Hills Rd.	3/13/2012	Newport Beach
38	Jamboree Rd. / Santa Barbara Dr.	3/14/2012	Newport Beach
39	Jamboree Rd. / Coast Hwy.	3/17/2012	Newport Beach
40	Santa Cruz Dr. / San Joaquin Hills Rd.	3/20/2012	Newport Beach
41	Santa Rosa Dr. / San Joaquin Hills Rd.	3/21/2012	Newport Beach
42	Newport Ctr. Dr. / Coast Hwy.	3/20/2012	Newport Beach
44	Avocado Av. / San Miguel Dr.	11/13/2013	Newport Beach
45	Avocado Av. / Coast Hwy.	11/13/2013	Newport Beach
46	SR-73 NB / Bison Av.	11/13/2013	Irvine
47	SR-73 SB / Bison Av.	11/13/2013	Newport Beach
48	MacArthur Bl. / Bison Av.	4/24/2012	Newport Beach
49	N. MacArthur Bl. / Ford Dr.	3/8/2012	Newport Beach
50	MacArthur Bl. / San Joaquin Hills Rd.	11/13/2013	Newport Beach
51	MacArthur Bl. / San Miguel Dr.	11/13/2013	Newport Beach

Table 2-3 (Cont'd)

ID	Intersection Location	Count Date	Jurisdiction
52	N. MacArthur Bl. / Coast Hwy.	11/13/2013	Newport Beach
53	SR-73 NB / Bonita Canyon Dr.	11/13/2013	Irvine
54	SR-73 SB / Bonita Canyon Dr.	11/13/2013	Newport Beach
55	Spy Glass Hill Rd. / San Miguel Dr.	11/13/2013	Newport Beach
56	San Miguel Dr. / San Joaquin Hills Rd.	4/25/2012	Newport Beach
57	Goldenrod Av. / Coast Hwy.	4/26/2012	Newport Beach
58	Marguerite Av. / San Joaquin Hills Rd.	4/26/2012	Newport Beach
59	Marguerite Av. / Coast Hwy.	4/25/2012	Newport Beach
60	Spy Glass Hill Rd. / San Joaquin Hills Rd.	11/13/2013	Newport Beach
61	Poppy Av. / Coast Hwy.	4/24/2012	Newport Beach
62	Newport Coast Dr. / SR-73 NB	11/13/2013	Irvine
63	Newport Coast Dr. / SR-73 SB	11/13/2013	Newport Beach
64	Newport Coast Dr. / San Joaquin Hills Rd.	11/13/2013	Newport Beach
65	Newport Coast Dr. / Coast Hwy.	11/13/2013	Newport Beach
66	Newport Bl. (W) / Coast Hwy.	2/26/2013	Newport Beach
67	Red Hill Av. / MacArthur Bl.	9/17/2013	Irvine
68	MacArthur Bl. / Main St.	9/17/2013	Irvine
69	MacArthur Bl. / I-405 NB Ramps	9/17/2013	Irvine
70	MacArthur Bl. / I-405 SB Ramps	9/17/2013	Irvine
71	MacArthur Bl. / Michelson Dr.	9/17/2013	Irvine
72	Von Karman Av. / Barranca Pkwy.	9/18/2013	Irvine / Tustin
73	Von Karman Av. / Alton Pkwy.	9/18/2013	Irvine
74	Von Karman Av. / Main St.	9/18/2013	Irvine
76	Von Karman Av. / Michelson Dr.	9/18/2013	Irvine
77	Jamboree Rd. / Barranca Pkwy.	9/18/2013	Irvine / Tustin
78	Jamboree Rd. / Alton Pkwy.	9/18/2013	Irvine
79	Jamboree Rd. / Main St.	9/18/2013	Irvine
80	Jamboree Rd. / I-405 NB Ramps	9/17/2013	Irvine
81	Jamboree Rd. / I-405 SB Ramps	9/17/2013	Irvine
82	Jamboree Rd. / Michelson Dr.	9/17/2013	Irvine
83	Carlson Av. / Michelson Dr.	11/14/2013	Irvine
84	Carlson Av. / Campus Dr.	11/14/2013	Irvine
85	Red Hill Av. / Barranca Pkwy.	9/17/2013	Irvine / Tustin
86	Red Hill Av. / Alton Pkwy.	9/17/2013	Irvine
87	Harvard Av. / Michelson Dr.	1/7/2014	Irvine
88	Harvard Av. / University Dr.	1/7/2014	Irvine
89	University Dr. / Campus Dr.	1/7/2014	Irvine
90	MacArthur Bl. NB Ramps / University Dr.	1/7/2014	Irvine
91	Mac Arthur Bl. SB Ramps / University Dr.	1/7/2014	Irvine
92	Fairchild Dr. / MacArthur Bl.	1/7/2014	Irvine
93	Jamboree Rd. & Fairchild Rd.	1/7/2014	Irvine

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 2.2.

Flow conservation has been used as a refinement step, which includes review of initial count data to ensure traffic volumes are consistent between intersections that are adjacent to each other without intervening uses. Raw turning volumes have been analyzed to ensure no traffic is "lost" between intersections along roadway segments with limited access or no access between intersection analysis locations, and where there are currently no uses generating traffic between intersection analysis locations. Examples of flow conserved areas include: freeway interchanges (between directional ramp intersections), segments with little or no in-between driveways and segments with a center median where traffic may not be diverted or lost from one intersection to the next).

Traffic volume adjustments are also included in Appendix 2.2.

2.3 2013 Daily Roadway Segment Analysis

Existing ADT volume/capacity (V/C) ratios on the arterial roadway system in the study area are illustrated on Exhibit 2-H. Based on the ADT V/C level of service (LOS) performance criteria outlined in Section 1.3 of this report, arterials in the study area generally appear to have volume less than theoretical planning level capacity with the exception of the following locations:

- Newport Boulevard north of Coast Highway
- Coast Highway between Newport Boulevard and Dover Drive
- Coast Highway between MacArthur Boulevard and Marguerite Avenue
- 17th Street east of SR-55 Freeway
- MacArthur Boulevard between Bison Avenue and San Joaquin Hills Road

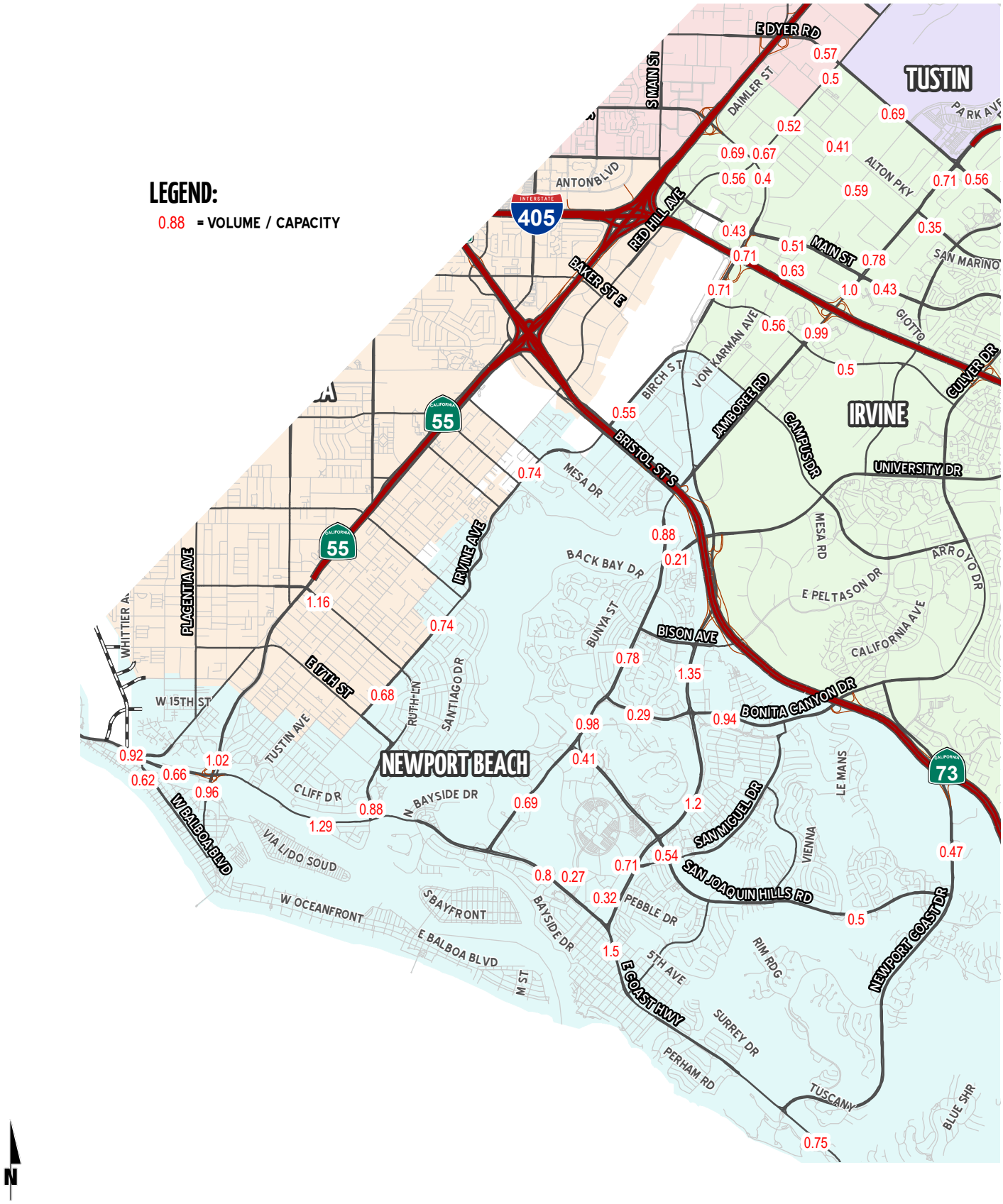
2.4 2013 Peak Hour Intersection Operations

Existing intersection capacity utilization (ICU) values were calculated for the intersections illustrated in Exhibit 1-A using peak hour traffic count data in combination with the existing lane configuration of each location. Existing AM and PM peak hour ICU values are summarized in Table 2-4 (actual turn volumes and ICU calculation worksheets are included in Appendix 2-3). Use of the ICU methodology for each signalized intersection is consistent with the traffic analysis guidelines of the City of Newport Beach, City of Irvine and Orange County Transportation Authority (OCTA) Congestion Management Program (CMP). Table 1-1 (previously presented) summarizes the V/C ranges for LOS "A" through "F" for arterial roads and ICUs for intersections.

Based on the intersection LOS performance criteria outlined in Section 1.3, all study area intersections operate acceptably, but the following study area intersections operate at worse than level of service "D" during existing peak hours:

EXHIBIT 2-H

EXISTING CONDITIONS VOLUME / CAPACITY (V/C) RATIOS



City of Newport Beach Land Use Element Amendment Traffic Impact Analysis
City of Newport Beach, CA (JN - 08911:8.5x11_Exist-VC.mxd)

URBAN CROSSROADS

TABLE 2-4

EXISTING CONDITIONS
INTERSECTION OPERATIONS ANALYSIS SUMMARY

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Superior Av / Placentia Av.	TS	1	2	1	1	2	1	1	1	1	0.5	1	0.5	0.57	0.63	A	B
3	Superior Av / Coast Hwy.	TS	1.5	1	0.5	1.5	1.5	2>	2	3	1	1	4	d	0.82	0.80	D	C
4	Newport Bl. / Hospital Rd.	TS	1	3	1	1	3	1	2	1	1	1	1.5	0.5	0.55	0.61	A	B
5	Newport Bl. / Via Lido	TS	0	3	1	2	3	0	0	0	0	1	0	2>	0.37	0.35	A	A
6	Newport Bl. / 32nd St.	TS	1	2	d	1	1.5	0.5	1.5	0.5	1	0.5	1.5	1>>	0.43	0.48	A	A
7	Riverside Av. / Coast Hwy.	TS	0.33	0.33	0.33	0.5	0.5	1>	1	1.5	0.5	1	3	1	0.76	0.71	C	C
8	Tustin Av. / Coast Hwy.	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	1.5	0.5	0	2.5	0.5	0.75	0.57	C	A
9	MacArthur Bl. / Campus Dr.	TS	1	4	1	1	4	1	2	3	d	2	3	1>>	0.51	0.74	A	C
10	MacArthur Bl. / Birch St.	TS	1	3	1	1	3.5	0.5	1.5	1.0	0.5	1	2	1>>	0.33	0.48	A	A
11	Von Karman Av. / Campus Dr.	TS	1	2	1>>	1	1.5	0.5	1	2	1	1	1.5	0.5	0.50	0.63	A	B
12	MacArthur Bl. / Von Karman Av.	TS	1	3	1	1	3	1	1	2	f	2	1	f	0.56	0.49	A	A
13	Jamboree Rd. / Campus Dr.	TS	2	3.5	0.5	2	2.5	0.5	2	2	1>>	2	2	1	0.53	0.62	A	B
14	Jamboree Rd. / Birch St.	TS	1	2.5	0.5	1	3	1>>	1.5	0.5	1>>	0.33	0.33	0.33	0.49	0.49	A	A
15	Campus Dr. / Bristol St. (N)	TS	2	3	0	0	4	2	0	0	0	1	3.5	0.5	0.51	0.74	A	C
16	Birch St. / Bristol St. (N)	TS	2	2	0	0	1.5	2.5	0	0	0	1.5	3	0.5	0.50	0.49	A	A
17	Campus Dr. / Bristol St. (S)	TS	0	4.5	0.5	1	3	0	1.5	2.5	2	0	0	0	0.57	0.45	A	A
18	Birch St. / Bristol St. (S)	TS	0	2.5	1.5	2	2	0	1.5	3	0.5	0	0	0	0.35	0.43	A	A
19	Irvine Av. / Mesa Dr.	TS	1	3	1	1	3	1	1	1.5	0.5	2	0.5	0.5	0.36	0.55	A	A
20	Irvine Av. / University Dr.	TS	1	2	1	1	2	1	1	1	1	1	1	d	0.59	0.69	A	B
21	Irvine Av. / Santiago Dr.	TS	1	1.5	0.5	1	2	d	0.5	0.5	1	0.5	0.5	d	0.58	0.60	A	A
22	Irvine Av. / Highland Dr	TS	1	2	d	1	2	d	0.5	0.5	d	0.5	0.5	d	0.45	0.53	A	A
23	Irvine Av. / Dover Dr.	TS	1	2	1	1	2	d	1	0.5	0.5	1	1	1	0.52	0.61	A	B
24	Irvine Av. / Westcliff Dr.	TS	2	2	d	2	2	d	2	1.5	0.5	1	1.5	0.5	0.45	0.70	A	B
25	Dover Dr. / Westcliff Dr.	TS	2	2	0	0	1	1	2	0	1>>	0	0	0	0.43	0.44	A	A
26	Dover Dr. / 16th St.	TS	1	2	d	1	2	d	0.5	0.5	d	1	1	1	0.50	0.50	A	A
27	Dover Dr. / Coast Hwy.	TS	1	1.5	0.5	3	1	1	2	2.5	0.5	1	3	1>>	0.69	0.71	B	C
28	Bayside Dr / Coast Hwy.	TS	2.33	0.33	0.33	1	1	d	1	3	1	1	3.5	0.5	0.64	0.60	B	A
29	MacArthur Bl. / Jamboree Rd.	TS	2	4	1	3	3	1	2	3	1>>	2	3	1	0.58	0.71	A	C
30	Jamboree Rd. / Bristol St. (N)	TS	2	2.5	1.5	0	3.5	1.5	0	0	0	0	0	0	0.38	0.47	A	A
31	Bayview Pl. / Bristol St. (S)	TS	0	0	2	0	0	0	0	4	1	0	0	0	0.40	0.43	A	A
32	Jamboree Rd. / Bristol St. (S)	TS	0	4.5	0.5	0	4	0	1.5	1.5	2	0	0	0	0.58	0.55	A	A
33	Jamboree Rd. / Bayview Wy	TS	1	3.5	0.5	1	4	1	2	1	1	1	1	1	0.43	0.53	A	A
34	Jamboree Rd. / University Dr.	TS	1	3	1	2	3	1	1.5	0.5	1	1.5	1.5	1>>	0.56	0.57	A	A
35	Jamboree Rd. / Bison Av.	TS	0	3	d	2	3	1	1	0	1	2	0	2	0.51	0.45	A	A

TABLE 2-4

EXISTING CONDITIONS
INTERSECTION OPERATIONS ANALYSIS SUMMARY

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
36	Jamboree Rd. / Ford Rd.	TS	2	2.5	0.5	1	3	1	1.5	1.5	1>>	1.5	1.5	1	0.76	0.63	C	B
37	Jamboree Rd. / San Joaquin Hills Rd.	TS	1	3	1>>	2	3	1>>	1.5	1.5	1	1.5	1.5	1	0.60	0.82	A	D
38	Jamboree Rd. / Santa Barbara Dr.	TS	1	3	1	2	3	1	1	1	1	1.5	0.5	1	0.49	0.65	A	B
39	Jamboree Rd. / Coast Hwy.	TS	1	1.5	0.5	1	2	1>>	3	3.5	0.5	2	4	1	0.56	0.65	A	B
40	Santa Cruz Dr. / San Joaquin Hills Rd.	TS	2	0.5	0.5	1	1.5	0.5	1	2.5	0.5	1	2.5	0.5	0.31	0.34	A	A
41	Santa Rosa Dr. / San Joaquin Hills Rd.	TS	1	1	1	1	1	1	1	2.5	0.5	2	2.5	0.5	0.37	0.61	A	B
42	Newport Ctr. Dr. / Coast Hwy.	TS	0	0	0	2	0	1>>	2	3	0	0	3	1>>	0.36	0.44	A	A
44	Avocado Av. / San Miguel Dr.	TS	1	1	1>	2	0.5	0.5	1	2.5	0.5	2	1.5	0.5	0.35	0.62	A	B
45	Avocado Av. / Coast Hwy.	TS	1	1	1	1.5	0.5	1>>	1	3	d	1	3	1	0.43	0.53	A	A
46	SR-73 NB / Bison Av.	TS	1.5	0	1.5	0	0	0	1	2	0	0	2	1	0.58	0.48	A	A
47	SR-73 SB / Bison Av.	TS	0	0	0	2	0	1>>	0	2	1	2	2	0	0.48	0.25	A	A
48	MacArthur Bl. / Bison Av.	TS	2	4	1>>	2	4	1>	2	2	1>>	2	2	1>	0.59	0.59	A	A
49	MacArthur Bl. / Ford Dr.	TS	2	4	1>>	2	4	1>>	2	2	1	2	2	1>>	0.76	0.87	C	D
50	MacArthur Bl. / San Joaquin Hills Rd.	TS	2	3	1	2	3	1>>	3	2.5	0.5	1	2	1>>	0.57	0.76	A	C
51	MacArthur Bl. / San Miguel Dr.	TS	2	3	1	2	3	1	3	2	d	2	2	d	0.65	0.57	B	A
52	MacArthur Bl. / Coast Hwy.	TS	0	0	0	2	0	1>>	2	3	0	0	3	1>>	0.51	0.57	A	A
53	SR-73 NB / Bonita Canyon Dr.	TS	2	0	1	0	0	0	0	2	1	2	2	0	0.47	0.51	A	A
54	SR-73 SB / Bonita Canyon Dr.	TS	2	0	1	0	0	0	1	2	1	2	3	0	0.37	0.54	A	A
55	Spy Glass Hill Rd. / San Miguel Dr.	TS	1	0.5	0.5	0.5	0.5	1	1	2	d	1	2	d	0.27	0.32	A	A
56	San Miguel Dr. / San Joaquin Hills Rd.	TS	1	2	d	1	2	d	2	3	d	1	3	d	0.44	0.48	A	A
57	Goldenrod Av. / Coast Hwy.	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	1.5	0.5	1	1.5	0.5	0.74	0.72	C	C
58	Marguerite Av. / San Joaquin Hills Rd.	TS	1.5	0.5	1	1	0.5	0.5	1	2	1	1	3	d	0.41	0.44	A	A
59	Marguerite Av. / Coast Hwy.	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	1.5	0.5	0.77	0.72	C	C
60	Spy Glass Hill Rd. / San Joaquin Hills Rd.	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	2	d	0.33	0.29	A	A
61	Poppy Av. / Coast Hwy.	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	2	d	1	1.5	0.5	0.64	0.65	B	B
62	Newport Coast Dr. / SR-73 NB	TS	0	2	1>>	0	2	0	0	0	0	1.5	0	0.5	0.33	0.28	A	A
63	Newport Coast Dr. / SR-73 SB	TS	0	3	1>>	0	2	0	0	0	1>>	0	0	0	0.26	0.24	A	A
64	Newport Coast Dr. / San Joaquin Hills Rd.	TS	2	3	0	1	3	1	1	0	2	0	0	0	0.47	0.45	A	A
65	Newport Coast Dr. / Coast Hwy.	TS	1	1	d	2	1	1>>	1	3	1	1	3	1>>	0.44	0.50	A	A
66	Newport Bl. (W) / Coast Hwy.	TS	0	0	0	2	0	1	0	2	1>>	0	3	1>>	0.86	0.65	D	B
67	Red Hill Av. / MacArthur Bl.	TS	2	2.5	0.5	2	3	1>>	2	3	d	1	3	1>>	0.60	0.72	A	C
68	MacArthur Bl. / Main St.	TS	2	4	2>>	2	4	1	1	3	1>	2	3	1>>	0.57	0.73	A	C
69	MacArthur Bl. / I-405 NB Ramps	TS	0	4	2	2	4	0	0	0	0	2	0	2	0.63	0.62	B	B
70	MacArthur Bl. / I-405 SB Ramps	TS	0	4	1>	2	4	1	0	0	0	2	1	1>>	0.59	0.65	A	B

TABLE 2-4

EXISTING CONDITIONS
INTERSECTION OPERATIONS ANALYSIS SUMMARY

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
71	MacArthur Bl. / Michelson Dr.	TS	1	4	1	2	3.5	0.5	2	1	1	2	1	1>	0.61	0.74	B	C
72	Von Karman Av. / Barranca Pkwy.	TS	2	2	d	2	2	2>	1	3	d	2	3	1	0.74	0.73	C	C
73	Von Karman Av. / Alton Pkwy.	TS	1	2	d	1	2	d	1	2	d	1	2	d	0.70	0.78	B	C
74	Von Karman Av. / Main St.	TS	2	2	1	1	2	1	2	3	1>>	2	2.5	0.5	0.63	0.77	B	C
76	Von Karman Av. / Michelson Dr.	TS	1	2	1	1	1.5	0.5	1	1.5	0.5	1	2	1>>	0.51	0.70	A	B
77	Jamboree Rd. / Barranca Pkwy.	TS	2	4	1>>	2	4	1>>	2.5	2.5	1	2	3	1>>	0.81	0.94	D	E
78	Jamboree Rd. / Alton Pkwy.	TS	2	4	1	2	3.5	0.5	2	2.5	0.5	2	3	d	0.72	0.83	C	D
79	Jamboree Rd. / Main St.	TS	2	4	1>>	2	4	1>	2	3	1>>	2	3	1>>	0.78	0.96	C	E
80	Jamboree Rd. / I-405 NB Ramps	TS	0	3	1>>	0	4	1>>	0	0	0	3	0	2>>	0.68	0.80	B	C
81	Jamboree Rd. / I-405 SB Ramps	TS	0	4	2>>	0	4	1>>	1.5	0	2.5	0	0	0	0.89	0.79	D	C
82	Jamboree Rd. / Michelson Dr.	TS	1	4	1	2	4	1>>	2	1.5	0.5	2	2	1>>	0.67	0.82	B	D
83	Carlson Av. / Michelson Dr.	TS	2	2	1	2	1	1>>	2	2	1	1	2	1>>	0.48	0.52	A	A
84	Carlson Av. / Campus Dr.	TS	0	0	0	1	0	1	1	1	0	0	1	d	0.60	0.70	A	B
85	Red Hill Av. / Barranca Pkwy.	TS	2	3	d	2	3	d	2	2.5	0.5	1	2.5	0.5	0.79	0.94	C	E
86	Red Hill Av. / Alton Pkwy.	TS	1	2.5	0.5	1	3	d	1	2	1	2	1	1	0.53	0.78	A	C
87	Harvard Av. / Michelson Dr.	TS	1	2	0	1	2	1	2	2	1>>	1	2	0	0.76	0.94	C	E
88	Harvard Av. / University Dr.	TS	1	2	d	1	2	d	1	3	0	1	3	0	0.70	0.69	B	B
89	University Dr. / Campus Dr.	TS	1	3	1	1	2	1	1	2	d	1	2	d	0.76	0.71	C	C
90	MacArthur Bl. (NB) / University Dr.	TS	1	0	1	0	0	0	0	3	d	2	**3**	0	0.44	0.43	A	A
91	MacArthur Bl. (SB) / University Dr.	TS	1	0	1	0	0	0	0	3	0	2	3	0	0.42	0.33	A	A
92	Fairchild Rd. / MacArthur Bl.	TS	0	0	0	1	0	1	1	3	0	0	3	0	0.71	0.70	C	B
93	Jamboree Rd. / Fairchild Rd.	TS	1	3	0	2	4	d	1	1	0	1	1	1	0.63	0.63	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane

[2] V/C = Volume/Capacity Ratio

[3] Level of Service (LOS) is calculated based on the Intersection Capacity Utilization (ICU) method. Note: if a box is shaded, LOS "E" is acceptable.

[4] TS = Traffic Signal

- Jamboree Rd. / Barranca Pkwy. – LOS E, PM Peak Hour Only (acceptable)
- Jamboree Rd. / Main St. – LOS E, PM Peak Hour Only (acceptable)
- Red Hill Av. / Barranca Pkwy. – LOS E, PM Peak Hour Only (acceptable)

2.5 2013 FREEWAY RAMPS AND MAINLINE ANALYSIS

The freeway system in the study area (I-405, SR-73 and SR-55 freeway analysis segments) is defined by ramp-to-ramp directional segments. The freeway segments have been evaluated based upon peak hour directional volumes. The freeway segment analysis methodology has been discussed in Section 1.3. Table 2-5 contains the results of the freeway mainline analysis. Table 2-5 also shows the directional AM and PM peak hour freeway mainline segment volumes for Existing conditions, including each freeway segment lane configuration. Appendix 2.4 contains the existing freeway mainline analysis worksheets.

Freeway mainline locations that experience deficient operations for Existing conditions include:

- SB I-405, SR-55 FWY to Mac Arthur Blvd, (PM Peak Hour Only)
- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (AM and PM Peak Hours)
- NB SR-55, MacArthur Blvd. to I-405 FWY, (AM and PM Peak Hours)

The merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS+ software. Table 2-6 contains the results of the freeway ramp analysis. Table 2-6 also shows the directional AM and PM peak hour freeway on-ramp and off-ramp volumes for Existing conditions, including each freeway segment lane configuration. Appendix 2.5 contains the existing freeway ramp analysis worksheets.

Freeway ramp locations that experience deficient operations for Existing conditions include:

- I-405, SB On-Ramp at MacArthur Blvd. (PM Peak Hour Only)

2.6 GENERAL PLAN IMPROVEMENTS

Individual intersection recommended improvements currently included in the 2006 City of Newport Beach General Plan Circulation Element are documented below. Within the City of Irvine, planned improvements that are recommended to be in place with completion of the General Plan are also documented.

TABLE 2-5

EXISTING CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

FREEWAY	DIRECTION	MAINLINE SEGMENT LOCATION	Lanes[1]	VOLUME		DENSITY[2]		LOS[3]	
				AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	North of SR-55 FWY	5+1H	8,631	9,569	28.9	34.1	D	D
		SR-55 FWY to MacArthur Blvd.	5+1H	10,090	11,296	37.9	**>45.0**	E	**F**
		North of Jamboree Rd.	6+1H	8,251	11,048	21.9	31.9	C	D
		South of Jamboree Rd.	6+1H	6,331	10,961	16.7	31.5	B	D
	NB	North of SR-55 Fwy	4+1H	7,055	5,129	29.8	20.3	D	C
		SR-55 FWY to MacArthur Blvd.	6+1H	7,085	7,478	18.7	24.0	C	C
		North of Jamboree Rd.	5+1H	8,382	6,825	27.7	21.7	D	C
		South of Jamboree Rd.	5+1H	8,593	6,117	28.7	19.4	D	C
SR-73 FREEWAY/TOLL ROAD	SB	North of SR-55 FWY	4	4,976	4,617	19.5	18.1	C	C
		North of Jamboree Rd.	4	7,422	6,885	31.8	28.3	D	D
		South of Jamboree Rd.	3	5,019	4,657	27.2	24.8	D	C
		North of Bonita Canyon Rd.	4	2,862	2,377	11.2	9.3	B	A
		Bonita Canyon Rd. to Newport Coast Dr.	4	2,896	2,687	11.4	10.5	B	A
	NB	North of SR-55 FWY	4	5,197	6,426	20.4	25.9	C	C
		North of Jamboree Rd.	4	7,750	9,584	34.3	**>45.0**	D	**F**
		South of Jamboree Rd.	3	5,242	6,482	28.9	43.6	D	E
		North of Bonita Canyon Rd.	4	2,802	3,658	11.0	14.3	A	B
		Bonita Canyon Rd. to Newport Coast Dr.	4	3,024	3,740	11.9	14.7	B	B
SR-55 FREEWAY	SB	Dyer Rd. to MacArthur Blvd.	5+1H	4,918	6,976	15.6	22.2	B	C
		MacArthur Blvd. to I-405 FWY	5+1H	4,987	7,187	15.8	22.9	B	C
		I-405 FWY to SR-73 FWY	4	3,326	4,743	13.2	18.8	B	C
		SR-73 FWY to Mesa Dr.	4	3,305	4,712	13.1	18.7	B	C
		Mesa Dr. to 22nd St./Victoria St.	3	2,830	4,035	14.9	21.4	B	C
		22nd St./Victoria St. to End	3	2,117	3,018	11.2	15.9	B	B
	NB	Dyer Rd. to MacArthur Blvd.	4+1H	12,462	10,074	**>45.0**	**>45.0**	**F**	**F**
		MacArthur Blvd. to I-405 FWY	4+1H	13,021	10,593	**>45.0**	**>45.0**	**F**	**F**
		I-405 FWY to SR-73 FWY	4	8,455	7,069	42.3	29.9	E	D
		SR-73 FWY to Mesa Dr.	4	8,400	7,023	41.6	29.6	E	D
		Mesa Dr. to 22nd St./Victoria St.	4	7,192	6,013	30.7	24.1	D	C
		22nd St./Victoria St. to End	3	5,380	4,498	30.5	24.1	D	C

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on existing conditions.

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS+: Basic Freeway Segments software, Version 5.21
The maximum density value at which sustained flows at capacity are expected to occur is 45 pc/mi/ln.
Density values higher than 45 pc/mi/ln are given a LOS "**F**".

TABLE 2-6

EXISTING CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

FREEWAY	DIRECTION	MAINLINE SEGMENT LOCATION	Lanes1	VOLUME		DENSITY 2		LOS 3	
				AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	SB Loop Off-Ramp at MacArthur Blvd.	2	2,313	1,154	9.1	12.5	A	B
		SB On-Ramp at MacArthur Blvd.	2	474	906	7.7	**18.2**	A	**F4**
		SB Off-Ramp at Jamboree Rd.	2	2,690	1,777	7.6	5.7	A	A
		SB Loop On Ramp at Jamboree Rd.	1	232	622	18.0	27.5	B	C
		SB On-Ramp at Jamboree Rd.	2	538	1,068	17.1	28.7	B	D
	NB	NB Loop On-Ramp at MacArthur Blvd.	1	484	1,359	23.7	24.4	C	C
		NB Off-Ramp at MacArthur Blvd.	1	1,781	706	28.2	17.2	D	B
		NB On-Ramp at Jamboree Rd.	2	1,200	1,020	23.6	19.6	C	B
		NB Loop On-Ramp at Jamboree Rd.	1	432	716	24.3	23.0	C	C
		NB Off-Ramp at Jamboree Rd.	2	1,843	1,028	22.8	12.9	C	B
SR-73 FREEWAY/TOLL ROAD	SB	SB On-Ramp at Bison Av.	1	69	344	18.2	16.6	B	B
		SB Loop Off-Ramp at Bonita Canyon Rd.	1	139	268	15.2	13.9	B	B
		SB On-Ramp at Bonita Canyon Rd.	1	173	578	14.5	15.6	B	B
		SB Off-Ramp at Newport Coast Dr.	1	263	516	17.6	18.1	B	B
		SB On-Ramp at Newport Coast Dr.	1	187	211	15.0	13.6	B	B
	NB	NB Off-Ramp at Bison Av.	1	556	117	17.5	18.7	B	B
		NB Loop On-Ramp at Bonita Canyon Rd.	1	272	109	14.8	17.0	B	B
		NB Off-Ramp at Bonita Canyon Rd.	1	494	191	8.1	9.4	A	A
		NB On-Ramp at Newport Coast Dr.	1	523	174	14.9	19.1	B	B
		NB Off-Ramp at Newport Coast Dr.	1	346	207	17.8	20.9	B	C

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on existing conditions.

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service (LOS) determined using HCS+ : Ramps and Ramp Junction software, Version 5.21

[4] V/C is greater than 1.00; Level of Service "**F**".

For the City of Irvine intersections, the City of Irvine maintains the Irvine Transportation Analysis Model (ITAM), the current version of which is the ITAM 12. Documentation of the ITAM 12 includes the dataset "ITAM 12- Description of Intersection Lane Configurations in the Post Processor Databases", which includes every intersection included in the ITAM, and lists the number of lanes for each movement by timeframe. This dataset was used to determine existing and General Plan buildout lanes for City of Irvine intersections.

Bluff Road (NS) at Coast Highway (EW)

Bluff Road is a new roadway facility that is currently planned to connect from the northerly City boundary through the Banning Ranch property to Coast Highway. Recommended intersection improvements include two southbound left-turn lanes and two southbound right-turn lanes (with overlap phase) at Coast Highway. In addition, two eastbound left-turn lanes and one westbound right-turn lane are recommended to be provided.

Newport Boulevard (NS) at Hospital Road (EW)

General Plan recommended improvements include a second northbound left-turn lane from Newport Boulevard to Hospital Road.

Newport Boulevard (NS) at 32nd Street (EW)

The Circulation Element recommends restriping the eastbound approach to have two left turn lanes and one shared through-right lane; the westbound approach to have one left turn lane, one through lane, and one free right turn lane; signal modification would also be necessary.

Riverside Avenue (NS) at Coast Highway (EW)

It is in the 2006 General Plan that a third eastbound through travel lane be provided (consistent with the planned widening of Coast Highway through Mariners Mile). To accomplish this, the westbound right-turn lane would be eliminated. A second eastbound left turn lane is also planned.

Tustin Avenue (NS) at Coast Highway (EW)

To improve operations, an additional eastbound through lane on Coast Highway is recommended in the 2006 General Plan, consistent with the planned widening of Coast Highway through Mariners Mile.

MacArthur Boulevard (NS) at Campus Drive (EW)

It is recommended that a second northbound left turn lane be provided and the southbound approach be restriped to provide three (3) through travel lanes, one (1) shared through-right lane, and one (1) right turn lane.

Von Karman Avenue (NS) at Campus Drive (EW)
A second eastbound left turn lane is currently recommended to be provided. To implement this improvement, both the eastbound right turn lane and northbound free right turn lane can be eliminated.

Jamboree Road (NS) at Campus Drive (EW)
It is recommended that a northbound right turn lane (with overlap phase), a fourth southbound through travel lane, and a right-turn overlap phase for the current westbound right turn lane be provided. To implement these improvements, the eastbound free right-turn lane can be eliminated.

Jamboree Road (NS) at Birch Street (EW)
An additional (4th) southbound through lane is recommended on Jamboree Road through the intersection of Birch Street.

Campus Drive (NS) at Bristol Street North (EW)
A fifth westbound through travel lane is recommended at this location. An additional (4th) northbound through lane is recommended. A third southbound right turn lane is also included in the current Circulation Element.

Irvine Avenue (NS) at Mesa Drive (EW)
Recently constructed (complete) improvements include a third northbound through travel lane, a third southbound through travel lane, an eastbound right turn lane and a second westbound left-turn lane. No additional improvements are recommended

Irvine Avenue (NS) at University Drive (EW)
It is recommended that a third northbound through travel lane and a third southbound through travel lane be provided. In addition, the eastbound approach is recommended to be restriped to provide one left turn lane, one shared left-through lane, and one right-turn lane.

MacArthur Boulevard (NS) at Jamboree Road (EW)
The recommended fourth northbound through lane has recently been constructed. A fourth eastbound through lane and third westbound left turn lane are still recommended.

Jamboree Road (NS) at Bristol Street South (EW)
A sixth northbound through travel lane and a fourth southbound through travel lane are recommended in the current Circulation Element.

MacArthur Boulevard (NS) at Ford Road/Bonita Canyon Drive (EW)
A third southbound left turn lane is recommended from MacArthur Boulevard to Ford Road.

MacArthur Boulevard (NS) at San Joaquin Hills Road (EW)
Current recommendations include an additional (4th) northbound through lane, which will eliminate the northbound right turn lane. A third southbound left turn lane is also recommended.

SR-73 NB Ramps (NS) at Bonita Canyon Drive (EW)
A second westbound left turn lane has recently been constructed from Bonita Canyon Drive to the SR-73 NB ramps.

Red Hill Avenue (NS) at Alton Parkway (EW)
Planned improvements due to the Alton / SR-55 overcrossing include a striped southbound right turn lane (currently defacto), a northbound right turn lane, a second westbound through lane, conversion of the westbound right turn lane to a free right turn lane, and a second eastbound left turn lane.

Von Karman Avenue (NS) at Barranca Parkway (EW)
At the intersection of Von Karman Avenue at Barranca Parkway, a fourth westbound through lane is planned. Eastbound, a second left turn lane is planned, as is a striped right turn lane (currently defacto).

Jamboree Road (NS) at Barranca Parkway (EW)
A fifth northbound through lane is planned for Jamboree Road at the intersection of Barranca Parkway. This improvement will also involve converting the existing northbound free right turn lane to a standard right turn lane.

Jamboree Road (NS) at Main Street (EW)
Because of the IBC Vision Plan, the northbound and southbound approaches of Jamboree Road at Main Street will include an additional (5th) through lane. The existing free right turn lanes on the westbound and northbound movements will be converted to standard right turn lanes.

Jamboree Road (NS) at Michelson Drive (EW)
Planned improvements at the intersection of Jamboree Road at Michelson Drive include an eastbound right turn lane, and converting the existing northbound right turn lane to a free right turn lane.

Carlson Avenue (NS) at Campus Drive (EW)
Campus Drive is planned to have a 2nd through lane in both the eastbound and westbound directions at Carlson Avenue.

Harvard Avenue (NS) at Michelson Drive (EW)
A second southbound left turn lane is currently planned for Harvard Avenue to Michelson Drive.

University Drive (NS) at Campus Drive (EW)
At the intersection of University Drive at Campus Drive, a second left turn lane is planned for all four approaches (northbound, southbound, eastbound, and westbound).

MacArthur Boulevard NB (NS) at University Drive (EW)
A third westbound through lane is currently planned for University Drive at MacArthur Boulevard Northbound.

Von Karman Avenue (NS) at I-405 HOV Ramps (EW)
A new intersection is currently proposed to provide access to the I-405 HOV ramps from Von Karman Avenue. The intersection is planned to be constructed with a single left turn lane, three through lanes, and a defacto right turn lane in both the northbound and southbound direction. For each off-ramp (eastbound and westbound movements), a single left and right turn lane is planned.

3.0 2006 GENERAL PLAN

The adopted 2006 City of Newport Beach General Plan Land Use Element ("future baseline" or "2006 General Plan") includes a citywide increase of approximately 9,905 residential units (24% growth over existing).

3.1 VOLUME FORECASTS

NBTM is utilized in this study to estimate long range future traffic volumes with buildout of the adopted 2006 City of Newport Beach General Plan Land Use Element. NBTM has recently been updated to incorporate current land use, socio-economic, trip generation and network data from a variety of sources, including nearby City models (Irvine, Costa Mesa, and Huntington Beach) and the Orange County Transportation Analysis Model (OCTAM). The NBTM 3.4 travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City.

This traffic study focuses on intersections within the Cities of Newport Beach and Irvine because it is anticipated that the City of Newport Beach General Plan land use changes, on a citywide basis, are generally expected to impact only these transportation systems. In general, significant trip increases are isolated in two pockets: the center of Newport Beach and the northernmost area of Newport Beach (the Airport Area). The scoping of this TIA was finalized once comments on the Initial Study / Notice of Preparation for the General Plan LUE Amendment (proposed project) were received.. Intersection analysis locations are depicted on Exhibit 1-A. For analysis locations in the City of Irvine, the Irvine Transportation Analysis Model (ITAM) Version 12 is used to forecast Post-2035 traffic volumes. Traffic volume changes associated with the General Plan LUE Amendment (proposed project) derived from NBTM are overlaid on ITAM 12 projections in order to evaluate project impacts in the City of Irvine.

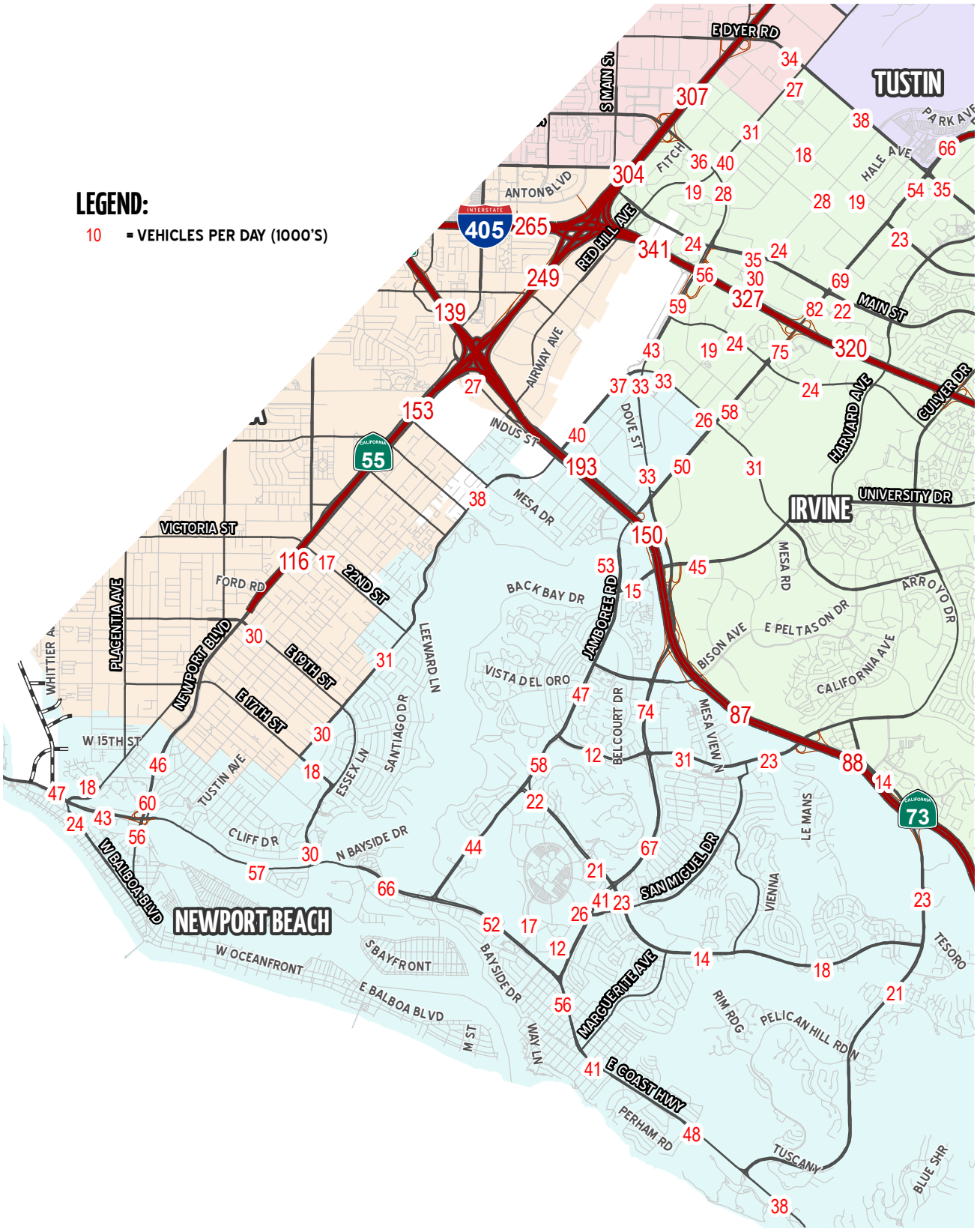
2006 General Plan traffic forecasts for average daily traffic (ADT) volumes are shown on Exhibit 3-A. Peak hour intersection volumes for 2006 General Plan conditions are shown on Exhibits 3-B and 3-C for AM and PM conditions, respectively.

3.2 DAILY ROADWAY SEGMENT ANALYSIS

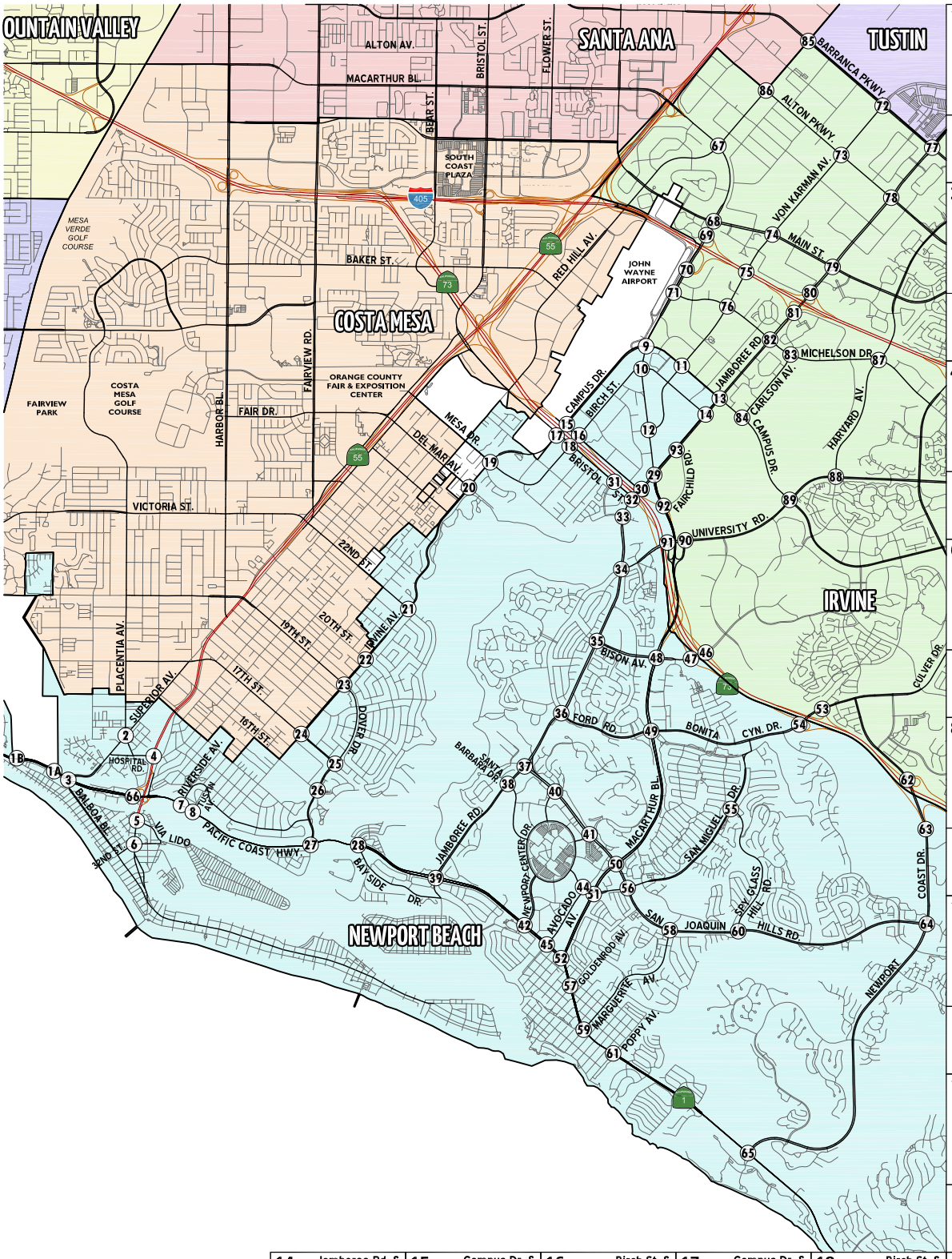
Long range future ADT volume/capacity (V/C) ratios on the arterial roadway system in the study area are illustrated on Exhibit 3-D for 2006 General Plan conditions. Based on the ADT V/C level of service (LOS) performance criteria outlined in Section 1.3 of this report, the following arterial segments, which were identified with existing volumes more than their theoretical planning

EXHIBIT 3-A

2006 GENERAL PLAN AVERAGE DAILY TRAFFIC (ADT)



2006 GENERAL PLAN
AM PEAK HOUR INTERSECTION VOLUMES



1A Bluff Rd. & Coast Hwy.			1B 15th St. & Coast Hwy.		
179	309	107	351	295	181
404		1125	659		1159
3486			3365		

2 Superior Av. & Placentia Av.			3 Superior Av. & Coast Hwy.		
4	275	153	133	188	291
27	92	330	737	246	884
398		1149	3078		170
307		46	173		243
					512
					336

4 Newport Bl. & Hospital Rd.			5 Newport Bl. & Via Lido		
416	1251	29	830	278	443
199	109	259			20
247		63			
216		145	1557		
		2102	42		
		204			

6 Newport Bl. & 32nd St.			7 Riverside Av. & Coast Hwy.		
69	611	46	404	0	97
375	65	40		118	1780
80		39			5
30		21	384		
		1119	2977		3
		175	6		1

8 Tustin Av. & Coast Hwy.			9 MacArthur Bl. & Campus Dr.		
40	1	76	673	925	57
64	70	1740		193	638
2860			546		57
4		1	1057		220
		0	128		987
		1			90

10 MacArthur Bl. & Birch St.			11 Von Karman Av. & Campus Dr.		
265	726	162	201	641	116
190	106	380		93	703
514		47	274		124
87	35		526		
	878		66		39
	81				853
					82

12 MacArthur Bl. & Von Karman Av.			13 Jamboree Rd. & Campus Dr.		
135	573	52	174	1660	241
13	74	171		563	540
89		157			427
19	44		282		
	915		477	87	
	768		33	1668	
				200	

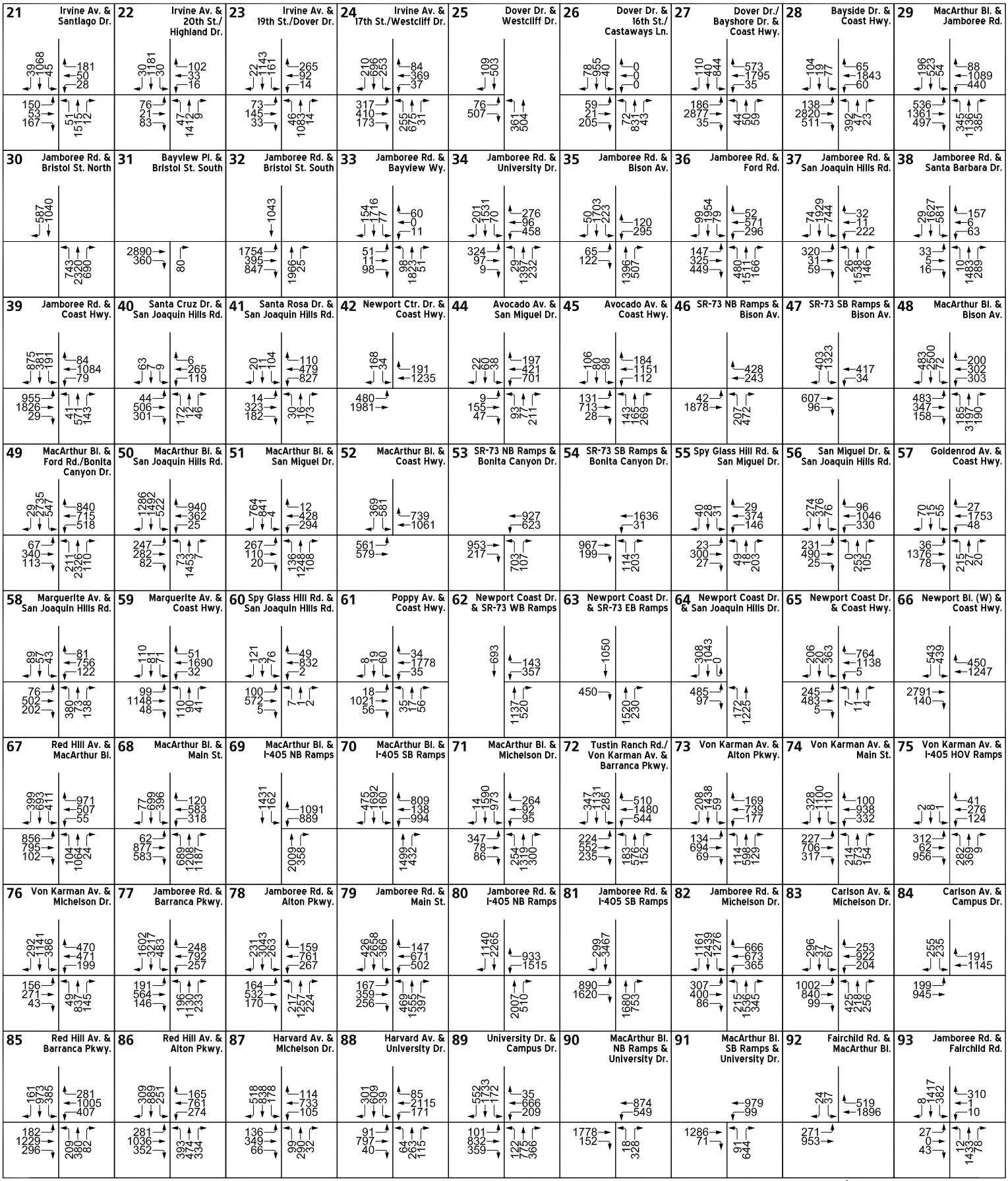
14 Jamboree Rd. & Birch St.			15 Campus Dr. & Bristol St. North		
557	1638	0	229	547	150
403	2	0			1193
5		0			283
112	183		518		
	1567	5	2110		

16 Birch St. & Bristol St. North			17 Campus Dr. & Bristol St. South		
245	264	376	658	171	
		1300	1272		
		376	1914		
	85		534	1362	
	1214			287	

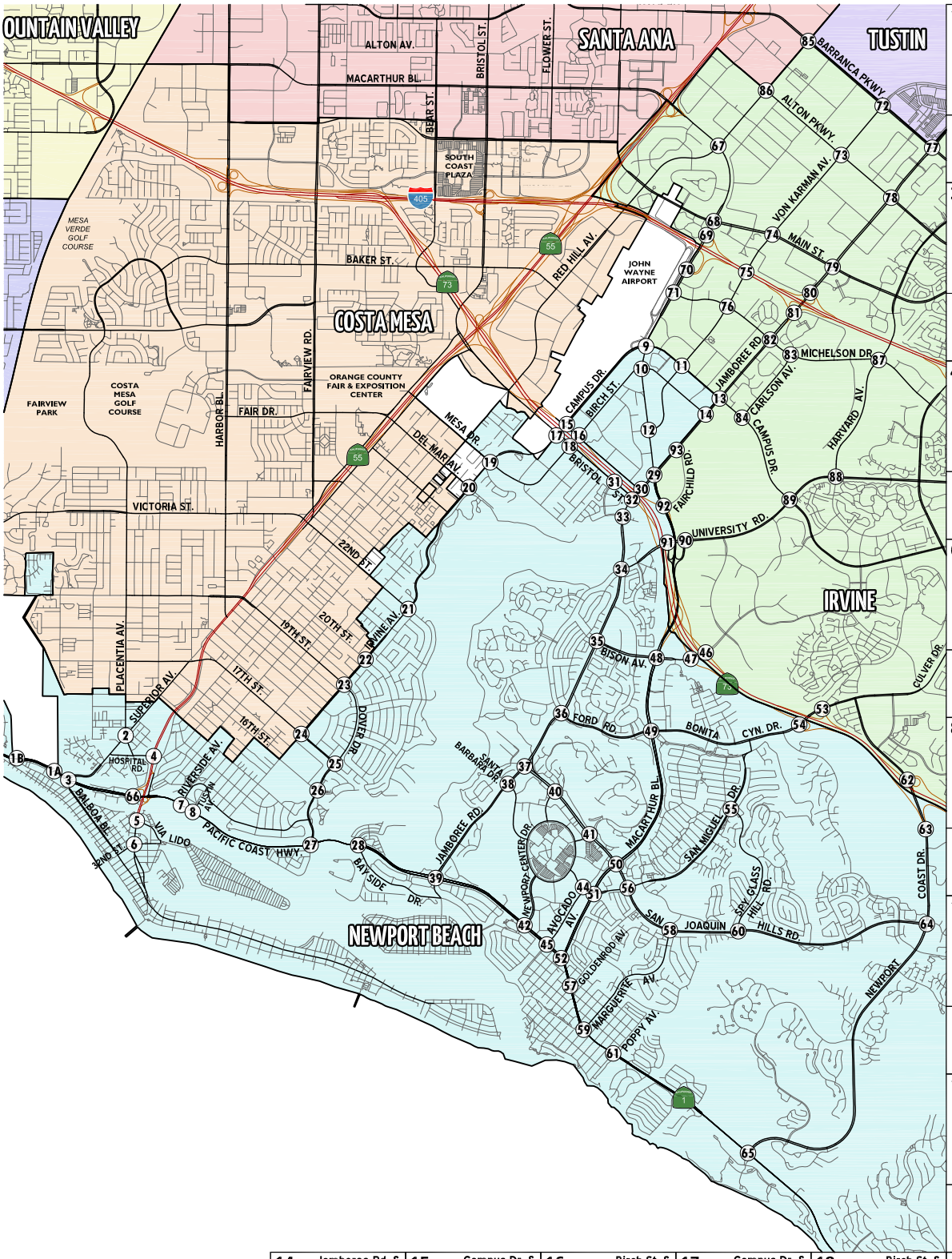
18 Birch St. & Bristol St. South			19 Irvine Av. & Mesa Dr.		
470	170		199	663	24
752			280	17	89
1378			389		171
150			106	132	
	538			1346	
	462			474	

20 Irvine Av. & University Dr.		
68	796	19
158	44	17
55		44
210	155	
	1773	
	71	

2006 GENERAL PLAN
AM PEAK HOUR INTERSECTION VOLUMES



2006 GENERAL PLAN
PM PEAK HOUR INTERSECTION VOLUMES



1A Bluff Rd. & Coast Hwy.			1B 15th St. & Coast Hwy.		
220	170	333	484	187	299
167		3380	307		3347
		1310			1327

2 Superior Av. & Placentia Av.			3 Superior Av. & Coast Hwy.		
6	894	118	667	454	162
894	79	419	454	309	2718
79		70	309		431
8		197	225		242
187		403	1051		279
314		24	214		171

4 Newport Bl. & Hospital Rd.			5 Newport Bl. & Via Lido		
240	1796	75	1537	444	326
1796	111	310	444		33
111		184			
358		121			994
162		1336			26
220		96			

6 Newport Bl. & 32nd St.			7 Riverside Av. & Coast Hwy.		
195	1181	77	427	2	64
1181	121	66	2	93	2919
121		60	93		30
124		79	327		8
68		708	2131		3
40		31	2		17

8 Tustin Av. & Coast Hwy.			9 MacArthur Bl. & Campus Dr.		
86	0	71	697	1106	131
0	103	2734	1106	143	1160
103			143		83
109		0	461		185
1957		0	622		1221
1		0	163		46

10 MacArthur Bl. & Birch St.			11 Von Karman Av. & Campus Dr.		
280	1138	202	368	815	104
1138	114	569	815	224	745
114		108	224		78
314		142	234		50
426		854	791		564
34		60	79		148

12 MacArthur Bl. & Von Karman Av.			13 Jamboree Rd. & Campus Dr.		
68	1248	143	362	2026	554
1248	48	102	2026	362	479
48		663	362		208
103		40	491		30
213		806	813		2040
135		191	149		236

14 Jamboree Rd. & Birch St.			15 Campus Dr. & Bristol St. North		
315	2109	0	1191	1317	104
0	0	0	2671		303
314		85			488
0		1756			1036
101		0			

16 Birch St. & Bristol St. North			17 Campus Dr. & Bristol St. South		
918	562	194	1361	258	
		2058			
		578			1002
		164	518		309
		466	973		
			569		

18 Birch St. & Bristol St. South			19 Irvine Av. & Mesa Dr.		
973	170		431	1417	39
			1417	6	290
			6		443
194		438	190		49
1315		182	200		791
110			230		174

20 Irvine Av. & University Dr.		
162	1854	36
1854	47	78
47		97
68		190
54		906
239		109

2006 GENERAL PLAN
PM PEAK HOUR INTERSECTION VOLUMES

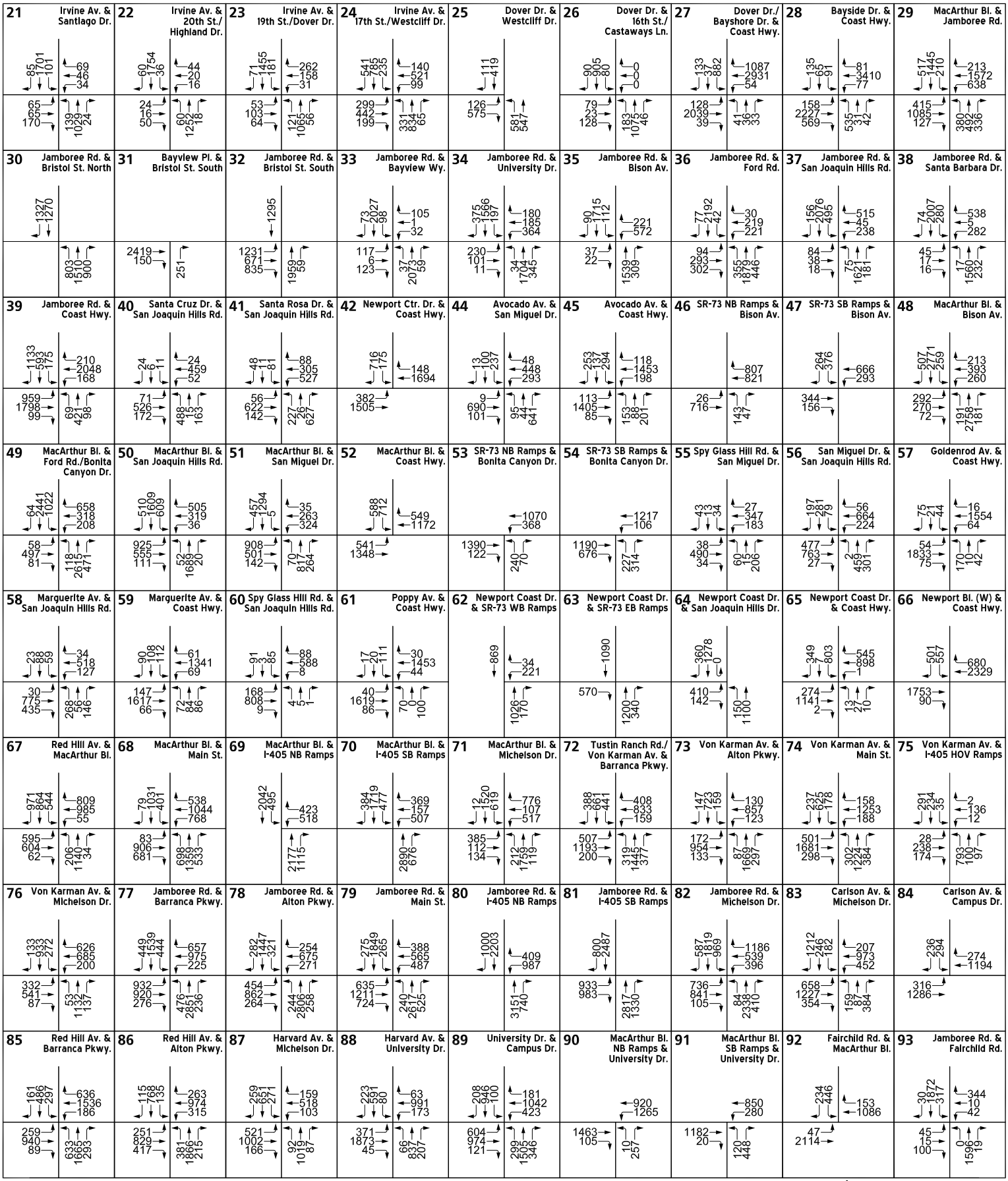
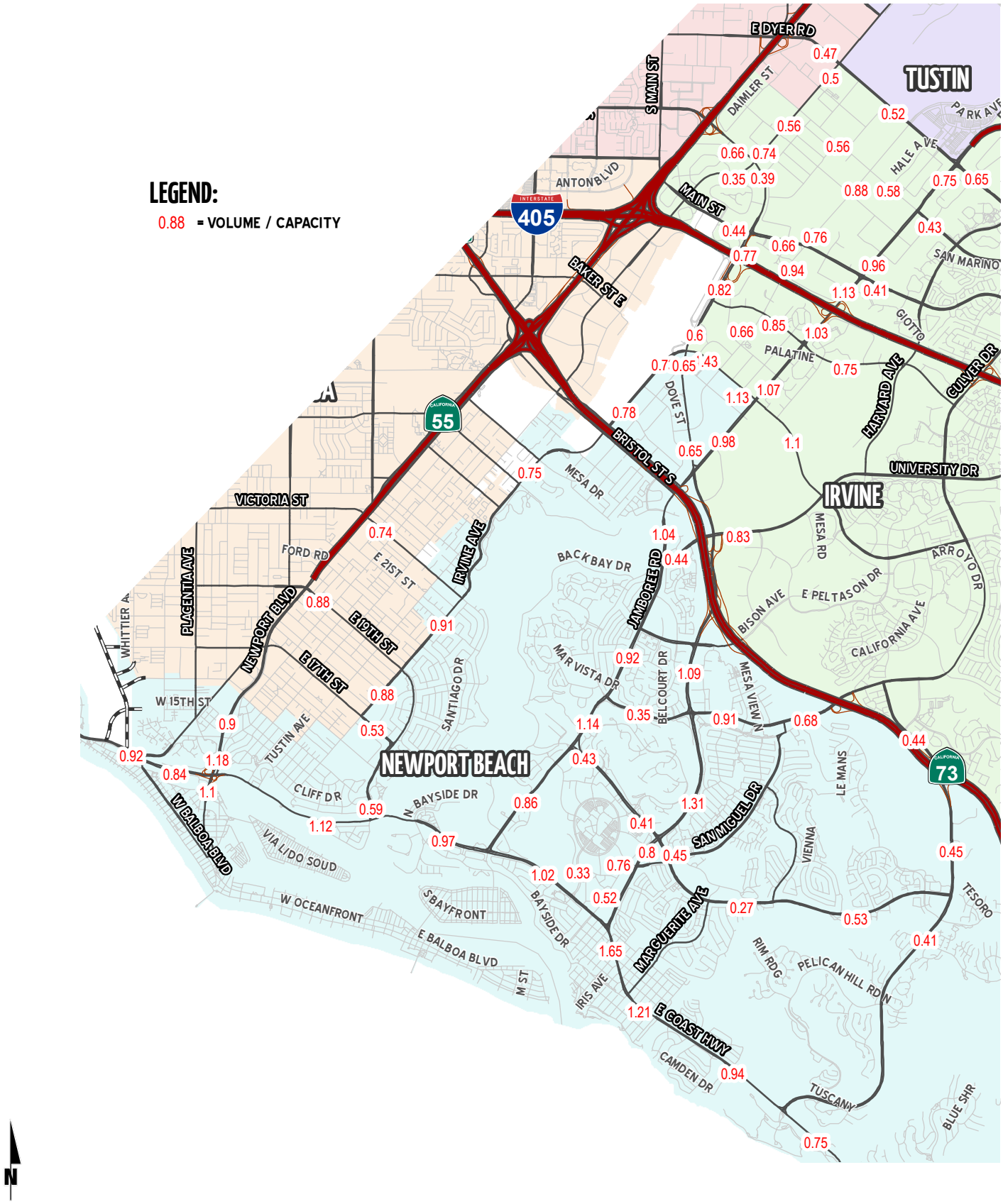


EXHIBIT 3-D

2006 GENERAL PLAN VOLUME / CAPACITY (V/C) RATIOS



level capacity in Section 2.3 of this report, carry additional traffic under 2006 General Plan conditions:

- Newport Boulevard north of Coast Highway
- Coast Highway between Newport Boulevard and Dover Drive
- Coast Highway between MacArthur Boulevard and Marguerite Avenue
- MacArthur Boulevard between Bison Avenue and San Joaquin Hills Road

In addition, these additional arterial segments are estimated to serve future volumes which exceed their theoretical planning level capacity for 2006 General Plan conditions:

- Newport Boulevard, South of Coast Highway
- Jamboree Road, North of University Drive
- Jamboree Road, between Ford Road & San Joaquin Hills Road
- Coast Highway, between Jamboree Road & Marguerite Avenue
- Coast Highway, East of Marguerite Avenue
- Jamboree Road, North of the I-405
- Jamboree Road, between Campus Drive & I-405
- Campus Drive, between MacArthur Boulevard & University Drive
- Jamboree Road, between Bison Avenue & San Joaquin Hills Road

The daily capacity of a roadway correlates to a number of widely varying factors, including traffic peaking characteristics, traffic turning volumes, and the volume of traffic on crossing streets. The actual daily capacity of a roadway can vary widely. The typical daily capacities are therefore most appropriately used for as a screening tool to evaluate overall vehicular activity levels, subject to more detailed peak hour analysis at key intersections.

3.3 PEAK HOUR INTERSECTION OPERATIONS

2006 General Plan intersection operations have been evaluated using the procedures described in Section 1.3. AM and PM peak hour Intersection Capacity Utilization (ICU) analysis has been performed using both existing and currently recommended or planned General Plan intersection lanes. These intersection operations are summarized and presented in Table 3-1 (actual turn volumes and ICU calculation worksheets using existing geometrics are included in Appendix 3.1 and actual turn volumes and ICU calculation worksheets using General Plan improvement geometrics are included in Appendix 3.2).

Based on the intersection LOS performance criteria, the following study area intersections experienced unacceptable operations during peak hours for 2006 General Plan conditions using existing lanes. Anticipated “General Plan Recommended Improvements” (see Section 2.6 of this

TABLE 3-1

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Superior Av / Placentia Av.																	
	Existing Lanes	TS	1	2	1	1	2	1	1	1	1	0.5	1	0.5	0.68	0.64	B	B
3	Superior Av / Coast Hwy.																	
	Existing Lanes	TS	1.5	1	0.5	1.5	1.5	2>	2	3	1	1	4	d	**1.06**	0.80	**F**	C
4	Newport Bl. / Hospital Rd.																	
	Existing Lanes	TS	1	3	1	1	3	1	2	1	1	1	1.5	0.5	0.70	0.70	B	B
	General Plan Recommended Improvements	TS	**2**	3	1	1	3	1	2	1	1	1	1.5	0.5	0.70	0.67	B	B
5	Newport Bl. / Via Lido																	
	Existing Lanes	TS	0	3	1	2	3	0	0	0	0	1	0	2>	0.46	0.37	A	A
6	Newport Bl. / 32nd St.																	
	Existing Lanes	TS	1	2	d	1	1.5	0.5	1.5	0.5	1	0.5	1.5	1>>	0.56	0.58	A	A
	General Plan Recommended Improvements	TS	1	2	d	1	1.5	0.5	**2**	**1**	0	**1**	**1**	1>>	0.53	0.59	A	A
7	Riverside Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.5	0.5	1>	1	1.5	0.5	1	3	1	**1.01**	0.89	**F**	D
	General Plan Recommended Improvements	TS	0.33	0.33	0.33	0.5	0.5	1>	**2**	**2.5**	0.5	1	**2.5**	**0.5**	0.76	0.89	C	D
8	Tustin Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	1.5	0.5	0	2.5	0.5	**0.97**	0.77	**E**	C
	General Plan Recommended Improvements	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	**2.5**	0.5	0	2.5	0.5	0.67	0.77	B	C
9	MacArthur Bl. / Campus Dr.																	
	Existing Lanes	TS	1	4	1	1	4	1	2	3	d	2	3	1>>	0.86	0.94	D	E
	General Plan Recommended Improvements	TS	**2**	4	1	1	**3.5**	**1.5**	2	3	d	2	3	1>>	0.58	0.67	A	B
10	MacArthur Bl. / Birch St.																	
	Existing Lanes	TS	1	3	1	1	3.5	0.5	1.5	1	0.5	1	2	1>>	0.53	0.65	A	B
11	Von Karman Av. / Campus Dr.																	
	Existing Lanes	TS	1	2	1>>	1	1.5	0.5	1	2	1	1	1.5	0.5	0.75	0.81	C	D
	General Plan Recommended Improvements	TS	1	**1.5**	**0.5**	1	1.5	0.5	**2**	**1.5**	**0.5**	1	1.5	0.5	0.69	0.74	B	C

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 3-1

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
12	MacArthur Bl. / Von Karman Av.																	
	Existing Lanes	TS	1	3	1	1	3	1	1	2	1>>	2	1	1>>	0.64	0.56	B	A
13	Jamboree Rd. / Campus Dr.																	
	Existing Lanes	TS	2	3.5	0.5	2	2.5	0.5	2	2	1>>	2	2	1	0.75	**1.01**	C	**F**
	General Plan Recommended Improvements	TS	2	**4**	**1>**	2	**3.5**	0.5	2	**1.5**	**0.5**	2	2	1>	0.73	0.82	C	D
14	Jamboree Rd. / Birch St.																	
	Existing Lanes	TS	1	2.5	0.5	1	3	1>>	1.5	0.5	1>>	0.33	0.33	0.33	0.58	0.59	A	A
	General Plan Recommended Improvements	TS	1	2.5	0.5	1	**4**	1>>	1.5	0.5	1>>	0.33	0.33	0.33	0.50	0.48	A	A
15	Campus Dr. / Bristol St. (N)																	
	Existing Lanes	TS	2	3	0	0	4	2	0	0	0	1	3.5	0.5	0.65	0.96	B	E
	General Plan Recommended Improvements	TS	2	**4**	0	0	4	**3**	0	0	0	1	**4.5**	0.5	0.51	0.75	A	C
16	Birch St. / Bristol St. (N)																	
	Existing Lanes	TS	2	2	0	0	1.5	2.5	0	0	0	1.5	3	0.5	0.64	0.64	B	B
17	Campus Dr. / Bristol St. (S)																	
	Existing Lanes	TS	0	4.5	0.5	1	3	0	1.5	2.5	2	0	0	0	0.81	0.59	D	A
18	Birch St. / Bristol St. (S)																	
	Existing Lanes	TS	0	2.5	1.5	2	2	0	1.5	3	0.5	0	0	0	0.49	0.53	A	A
19	Irvine Av. / Mesa Dr.																	
	Existing Lanes (GP Completed)	TS	1	3	1	1	3	1	1	1.5	0.5	2	0.5	0.5	0.55	0.65	A	B
20	Irvine Av. / University Dr.																	
	Existing Lanes	TS	1	2	1	1	2	1	1	1	1	1	1	d	0.74	**0.91**	C	**E**
	General Plan Recommended Improvements	TS	1	**2.5**	**0.5**	1	**3**	1	**1.5**	**1.5**	1	1	1	d	0.57	0.72	A	C
21	Irvine Av. / Santiago Dr.																	
	Existing Lanes	TS	1	1.5	0.5	1	2	d	0.5	0.5	1	0.5	0.5	d	0.71	0.75	C	C
22	Irvine Av. / Highland Dr																	
	Existing Lanes	TS	1	2	d	1	2	d	0.5	0.5	d	0.5	0.5	d	0.57	0.63	A	B
23	Irvine Av. / Dover Dr.																	
	Existing Lanes	TS	1	2	1	1	2	d	1	0.5	0.5	1	1	1	0.65	0.73	B	C
24	Irvine Av. / Westcliff Dr.																	
	Existing Lanes	TS	2	2	d	2	2	d	2	1.5	0.5	1	1.5	0.5	0.54	0.74	A	C

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 3-1

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
25	Dover Dr. / Westcliff Dr.																	
	Existing Lanes	TS	2	2	0	0	1	1	2	0	1>>	0	0	0	0.45	0.48	A	A
26	Dover Dr. / 16th St.																	
	Existing Lanes	TS	1	2	d	1	2	d	0.5	0.5	d	1	1	1	0.47	0.48	A	A
27	Dover Dr. / Coast Hwy.																	
	Existing Lanes	TS	1	1.5	0.5	3	1	1	2	2.5	0.5	1	3	1>>	0.84	0.86	D	D
28	Bayside Dr / Coast Hwy.																	
	Existing Lanes	TS	2.33	0.33	0.33	1	1	d	1	3	1	1	3.5	0.5	0.79	0.86	C	D
29	MacArthur Bl. / Jamboree Rd.																	
	Existing Lanes	TS	2	4	1>	3	3	1>>	2	3	1	2	3	1	0.70	0.88	B	D
	General Plan Recommended Improvements	TS	2	4	1>	3	3	1>>	2	**4**	1	**3**	3	1	0.62	0.88	B	D
30	Jamboree Rd. / Bristol St. (N)																	
	Existing Lanes	TS	2	2.5	1.5	0	3.5	1.5	0	0	0	0	0	0	0.48	0.67	A	B
31	Bayview Pl. / Bristol St. (S)																	
	Existing Lanes	TS	0	0	2	0	0	0	0	4	1	0	0	0	0.48	0.46	A	A
32	Jamboree Rd. / Bristol St. (S)																	
	Existing Lanes	TS	0	4.5	0.5	0	4	0	1.5	1.5	2	0	0	0	0.80	0.65	C	B
	General Plan Recommended Improvements	TS	0	**5.5**	0.5	0	4	0	1.5	1.5	2	0	0	0	0.76	0.61	C	B
33	Jamboree Rd. / Bayview Wy																	
	Existing Lanes	TS	1	3.5	0.5	1	4	1	2	1	1	1	1	1	0.44	0.56	A	A
34	Jamboree Rd. / University Dr.																	
	Existing Lanes	TS	1	3	1	2	3	1	1.5	0.5	1	1.5	1.5	1>>	0.61	0.63	B	B
35	Jamboree Rd. / Bison Av.																	
	Existing Lanes	TS	0	3	d	2	3	1	1	0	1	2	0	2	0.56	0.55	A	A
36	Jamboree Rd. / Ford Rd.																	
	Existing Lanes	TS	2	2.5	0.5	1	3	1	1.5	1.5	1>>	1.5	1.5	1	0.84	0.75	D	C
37	Jamboree Rd. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	3	1>>	2	3	1>>	1.5	1.5	1	1.5	1.5	1	0.72	0.84	C	D
38	Jamboree Rd. / Santa Barbara Dr.																	
	Existing Lanes	TS	1	3	1	2	3	1	1	1	1	1.5	0.5	1	0.61	0.79	B	C

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 3-1

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
39	Jamboree Rd. / Coast Hwy.																	
	Existing Lanes	TS	1	1.5	0.5	1	2	1>>	3	3.5	0.5	2	4	1	0.71	0.79	C	C
40	Santa Cruz Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	2	0.5	0.5	1	1.5	0.5	1	2.5	0.5	1	2.5	0.5	0.36	0.35	A	A
41	Santa Rosa Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	1	1	1	1	1	1	2.5	0.5	2	2.5	0.5	0.55	0.79	A	C
42	Newport Ctr. Dr. / Coast Hwy.																	
	Existing Lanes	TS	0	0	0	2	0	1>>	2	3	0	0	3	1>>	0.42	0.53	A	A
44	Avocado Av. / San Miguel Dr.																	
	Existing Lanes	TS	1	1	1>	2	0.5	0.5	1	2.5	0.5	2	1.5	0.5	0.37	0.64	A	B
45	Avocado Av. / Coast Hwy.																	
	Existing Lanes	TS	1	1	1	1.5	0.5	1>>	1	3	d	1	3	1	0.55	0.68	A	B
46	SR-73 NB / Bison Av.																	
	Existing Lanes	TS	1.5	0	1.5	0	0	0	1	2	0	0	2	1	0.74	0.57	C	A
47	SR-73 SB / Bison Av.																	
	Existing Lanes	TS	0	0	0	2	0	1>>	0	2	1	2	2	0	0.61	0.33	B	A
48	MacArthur Bl. / Bison Av.																	
	Existing Lanes	TS	2	4	1>>	2	4	1>	2	2	1>>	2	2	1>	0.78	0.73	C	C
49	MacArthur Bl. / Ford Dr.																	
	Existing Lanes	TS	2	4	1>>	2	4	1>>	2	2	1	2	2	1>>	0.80	**0.95**	C	**E**
	General Plan Recommended Improvements	TS	2	4	1>>	**3**	4	1>>	2	2	1	2	2	1>>	0.76	0.84	C	D
50	MacArthur Bl. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	2	3	1	2	3	1>>	3	2.5	0.5	1	2	1>>	0.63	0.84	B	D
	General Plan Recommended Improvements	TS	2	**3.5**	**0.5**	**3**	3	1>>	3	2.5	0.5	1	2	1>>	0.50	0.69	A	B
51	MacArthur Bl. / San Miguel Dr.																	
	Existing Lanes	TS	2	3	1	2	3	1	3	2	d	2	2	d	0.71	0.58	C	A
52	MacArthur Bl. / Coast Hwy.																	
	Existing Lanes	TS	0	0	0	2	0	1>>	2	3	0	0	3	1>>	0.58	0.64	A	B
53	SR-73 NB / Bonita Canyon Dr.																	
	Existing Lanes (GP Completed)	TS	2	0	1	0	0	0	0	2	1	2	2	0	0.71	0.62	C	B

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 3-1

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
54	SR-73 SB / Bonita Canyon Dr.																	
	Existing Lanes	TS	2	0	1	0	0	0	1	2	1	2	3	0	0.47	0.65	A	B
55	Spy Glass Hill Rd. / San Miguel Dr.																	
	Existing Lanes	TS	1	0.5	0.5	0.5	0.5	1	1	2	d	1	2	d	0.34	0.43	A	A
56	San Miguel Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	2	d	1	2	d	2	3	d	1	3	d	0.48	0.54	A	A
57	Goldenrod Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	1.5	0.5	1	1.5	0.5	0.80	0.83	C	D
58	Marguerite Av. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1.5	0.5	1	1	0.5	0.5	1	2	1	1	3	d	0.47	0.52	A	A
59	Marguerite Av. / Coast Hwy.																	
	Existing Lanes	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	1.5	0.5	0.79	0.72	C	C
60	Spy Glass Hill Rd. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	2	d	0.41	0.35	A	A
61	Poppy Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	2	d	1	1.5	0.5	0.68	0.71	B	C
62	Newport Coast Dr. / SR-73 NB																	
	Existing Lanes	TS	0	2	1>>	0	2	0	0	0	0	1.5	0	0.5	0.51	0.40	A	A
63	Newport Coast Dr. / SR-73 SB																	
	Existing Lanes	TS	0	3	1>>	0	2	0	0	0	1>>	0	0	0	0.33	0.34	A	A
64	Newport Coast Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	2	3	0	1	3	1	1	0	2	0	0	0	0.57	0.57	A	A
65	Newport Coast Dr. / Coast Hwy.																	
	Existing Lanes	TS	1	1	d	2	1	1>>	1	3	1	1	3	1>>	0.51	0.63	A	B
66	Newport Bl. (W) / Coast Hwy.																	
	Existing Lanes	TS	0	0	0	2	0	1	0	2	1>>	0	3	1>>	**1.21**	0.86	**F**	D
67	Red Hill Av. / MacArthur Bl. (Irvine)																	
	Existing Lanes	TS	2	2.5	0.5	2	3	1>>	2	3	d	1	3	1>>	0.73	0.81	C	D
68	MacArthur Bl. / Main St. (Irvine)																	
	Existing Lanes	TS	2	4	2>>	2	4	1	1	3	1>	2	3	1>>	0.61	0.83	B	D

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 3-1

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
69	MacArthur Bl. / I-405 NB Ramps (Irvine)																	
	Existing Lanes	TS	0	4	2	2	4	0	0	0	0	2	0	2	0.68	0.67	B	B
70	MacArthur Bl. / I-405 SB Ramps (Irvine)																	
	Existing Lanes	TS	0	4	1>	2	4	1	0	0	0	2	1	1>>	0.61	0.77	B	C
71	MacArthur Bl. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	4	1	2	3.5	0.5	2	1	1	2	1	1>	0.68	0.88	B	D
72	Von Karman Av. / Barranca Pkwy. (Irvine)																	
	Existing Lanes	TS	2	2	d	2	2	2>	1	3	d	2	3	1	0.85	**1.07**	D	**F**
	General Plan Recommended Improvements	TS	2	2	d	2	2	2>	**2**	3	**1**	2	**4**	1	0.72	0.90	C	D
73	Von Karman Av. / Alton Pkwy. (Irvine)																	
	Existing Lanes	TS	1	2	d	1	2	d	1	2	d	1	2	d	0.84	0.98	D	E
74	Von Karman Av. / Main St. (Irvine)																	
	Existing Lanes	TS	2	2	1	1	2	1	2	3	1>>	2	2.5	0.5	0.70	0.94	B	E
76	Von Karman Av. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	2	1	1	1.5	0.5	1	1.5	0.5	1	2	1>>	0.76	0.94	C	E
77	Jamboree Rd. / Barranca Pkwy. (Irvine)																	
	Existing Lanes	TS	2	4	1>>	2	4	1>>	2.5	2.5	1	2	3	1>>	0.85	**1.01**	D	**F**
	General Plan Recommended Improvements	TS	2	**5**	1	2	4	1>>	2.5	2.5	1	2	3	1>>	0.85	0.93	D	E
78	Jamboree Rd. / Alton Pkwy. (Irvine)																	
	Existing Lanes	TS	2	4	1	2	3.5	0.5	2	2.5	0.5	2	3	d	0.81	0.85	D	D
79	Jamboree Rd. / Main St. (Irvine)																	
	Existing Lanes	TS	2	4	1>>	2	4	1>	2	3	1>>	2	3	1>>	0.80	0.89	C	D
	General Plan Recommended Improvements	TS	2	**5**	**1**	2	**5**	1>	2	3	1>>	2	3	1	0.72	0.82	C	D
80	Jamboree Rd. / I-405 NB Ramps (Irvine)																	
	Existing Lanes	TS	0	3	1>>	0	4	1>>	0	0	0	3	0	2>>	0.74	0.86	C	D
81	Jamboree Rd. / I-405 SB Ramps (Irvine)																	
	Existing Lanes	TS	0	4	2>>	0	4	1>>	1.5	0	2.5	0	0	0	0.93	0.73	E	C
82	Jamboree Rd. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	4	1	2	4	1>>	2	1.5	0.5	2	2	1>>	0.95	**1.08**	E	**F**
	General Plan Recommended Improvements	TS	1	4	**1>>**	2	4	1>>	2	**2**	**1**	2	2	1>>	0.95	**1.06**	E	**F**

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 3-1

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
83	Carlson Av. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	2	2	1	2	1	1>>	2	2	1	1	2	1>>	0.76	0.87	C	D
84	Carlson Av. / Campus Dr. (Irvine)																	
	Existing Lanes	TS	0	0	0	1	0	1	1	1	0	0	1	d	0.98	**1.11**	E	**F**
	General Plan Recommended Improvements	TS	0	0	0	1	0	1	1	**2**	0	0	**2**	d	0.65	0.76	B	C
85	Red Hill Av. / Barranca Pkwy. (Irvine)																	
	Existing Lanes	TS	2	3	d	2	3	d	2	2.5	0.5	1	2.5	0.5	0.59	0.76	A	C
	General Plan Recommended Improvements	TS	2	**4**	d	2	**4**	d	2	**4**	**0**	**2**	**4**	**1**	0.59	0.76	A	C
86	Red Hill Av. / Alton Pkwy. (Irvine)																	
	Existing Lanes	TS	1	2.5	0.5	1	3	d	1	2	1	2	1	1	**1.07**	**1.26**	**F**	**F**
	General Plan Recommended Improvements	TS	1	**3**	**1**	1	3	**1**	**2**	2	1	2	**2**	**1>>**	0.83	0.86	D	D
87	Harvard Av. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	2	0	1	2	1	2	2	1>>	1	2	0	0.67	0.89	B	D
	General Plan Recommended Improvements	TS	1	2	0	**2**	2	1	2	2	1>>	1	2	0	0.67	0.81	B	D
88	Harvard Av. / University Dr. (Irvine)																	
	Existing Lanes	TS	1	2	d	1	2	d	1	3	0	1	3	0	0.75	0.83	C	D
89	University Dr. / Campus Dr.																	
	Existing Lanes	TS	1	3	1	1	2	1	1	2	d	1	2	d	**0.99**	**1.18**	**E**	**F**
	General Plan Recommended Improvements	TS	**2**	3	1	**2**	3	1	**2**	2	d	**2**	2	d	0.73	0.87	C	D
90	MacArthur Bl. (NB) / University Dr. (Irvine)																	
	Existing Lanes	TS	1	0	1	0	0	0	0	3	d	2	3	0	0.63	0.72	B	C
91	MacArthur Bl. (SB) / University Dr. (Irvine)																	
	Existing Lanes	TS	1	0	1	0	0	0	0	3	0	2	3	0	0.71	0.62	C	B
92	Fairchild Rd. / MacArthur Bl. (Irvine)																	
	Existing Lanes	TS	0	0	0	1	0	1	1	3	0	0	3	0	0.69	0.72	B	C
93	Jamboree Rd. / Fairchild Rd. (Irvine)																	
	Existing Lanes	TS	1	3	0	2	4	d	1	1	0	1	1	1	0.64	0.69	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane; 1 = Improvements

[2] V/C = Volume/Capacity Ratio

[3] Level of Service (LOS) is calculated based on the Intersection Capacity Utilization (ICU) method.

[4] TS = Traffic Signal

Note: If a box is shaded, LOS "E" is acceptable.

report) mitigate 10 of the 13 deficient intersections. The three locations displayed in **bold** in the list below represent a deficiency which remains after defined General Plan improvements are added to 2006 General Plan conditions (if there are General Plan improvements at that location):

- Riverside Avenue at Coast Highway (AM)
- Tustin Avenue at Coast Highway (AM)
- Jamboree Road at Campus Drive (PM)
- Irvine Avenue at University Drive (PM)
- MacArthur Boulevard at Ford Drive (PM)
- Von Karman Avenue at Barranca Parkway (AM) (Irvine)
- Jamboree Road at Barranca Parkway (PM) (Irvine)
- Carlson Avenue at Campus Drive (PM) (Irvine)
- Red Hill Avenue at Alton Parkway (AM & PM) (Irvine)
- University Drive at Campus Drive (AM & PM) (Irvine)
- **Superior Avenue at Coast Highway (AM)**
- **Newport Boulevard (West) at Coast Highway (AM)**
- **Jamboree Road at Michelson Drive (PM) (Irvine)**

For the intersections of Superior Avenue at Coast Highway and Newport Boulevard at Coast Highway, there were no recommended improvements included in the 2006 General Plan. However, an extended ICU analysis was performed (*Section 6.2.1)* using alternative geometric improvements in order to potentially bring the deficient intersections back to acceptable LOS.

3.4 FREEWAY RAMP AND MAINLINE ANALYSIS

The freeway system in the study area (I-405, SR-73 and SR-55 freeway analysis segments) is defined by ramp-to-ramp directional segments. The freeway segments have been evaluated based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in Chapter 23 of the HCM and performed using HCS+ software. The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile per lane. Freeway segment LOS thresholds for each density range utilized for this analysis is summarized below. Appendix 3.3 contains freeway mainline analysis worksheets. Table 3-2 contains the results of the freeway mainline analysis.

Freeway mainline locations that experience deficient operations for 2006 General Plan conditions include:

- SB I-405, North of SR-55 FWY, (PM Peak Hour Only)
- SB I-405, SR-55 FWY to Macarthur Blvd, (AM Peak Hour Only)
- NB I-405, South of Jamboree Rd, (AM Peak Hour Only)

TABLE 3-2

2006 GENERAL PLAN CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

FREEWAY	DIRECTION	MAINLINE SEGMENT LOCATION	Lanes[1]	VOLUME		DENSITY[2]		LOS[3]	
				AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	North of SR-55 FWY	5+1H	10,361	10,950	40.2	**>45.0**	E	**F**
		SR-55 FWY to MacArthur Blvd.	6+1H	13,302	11,136	**>45.0**	31.4	**F**	D
		North of Jamboree Rd.	7+1H	12,323	11,502	29.7	27.0	D	D
		South of Jamboree Rd.	7+1H	10,656	11,392	24.5	26.6	C	D
	NB	North of SR-55 Fwy	5+1H	8,828	6,579	29.8	20.9	D	C
		SR-55 FWY to MacArthur Blvd.	6+1H	11,864	12,031	36.3	37.4	E	E
		North of Jamboree Rd.	6+1H	12,640	11,431	41.9	33.8	E	D
		South of Jamboree Rd.	6+1H	13,101	10,459	**>45.0**	29.3	**F**	D
SR-73 FREEWAY/TOLL ROAD	SB	North of SR-55 FWY	4+1H	6,631	5,638	26.9	22.2	D	C
		North of Jamboree Rd.	4+1H	8,322	7,793	39.7	34.6	E	D
		South of Jamboree Rd.	4	7,204	6,706	30.3	27.3	D	D
		North of Bonita Canyon Rd.	5	4,291	3,896	13.5	12.2	B	B
		Bonita Canyon Rd. to Newport Coast Dr.	4	4,204	4,137	16.5	16.2	B	B
	NB	North of SR-55 FWY	4+1H	5,949	7,715	23.6	34.0	C	D
		North of Jamboree Rd.	4+1H	8,660	10,320	43.8	**>45.0**	E	**F**
		South of Jamboree Rd.	4	7,451	8,222	32.0	38.6	D	E
		North of Bonita Canyon Rd.	5	4,514	5,085	14.2	15.9	B	B
		Bonita Canyon Rd. to Newport Coast Dr.	4	4,484	4,905	17.6	19.2	B	C
SR-55 FREEWAY	SB	Dyer Rd. to MacArthur Blvd.	6+1H	6,325	8,392	16.7	22.3	B	C
		MacArthur Blvd. to I-405 FWY	6+1H	5,317	8,273	14.0	21.9	B	C
		I-405 FWY to SR-73 FWY	4	3,409	5,294	13.5	21.0	B	C
		SR-73 FWY to Mesa Dr.	4	3,709	5,430	14.7	21.6	B	C
		Mesa Dr. to 22nd St./Victoria St.	4	3,337	4,811	13.2	19.0	B	C
		22nd St./Victoria St. to End	3	2,561	3,619	13.5	19.1	B	C
	NB	Dyer Rd. to MacArthur Blvd.	5+1H	14,008	11,536	**>45.0**	**>45.0**	**F**	**F**
		MacArthur Blvd. to I-405 FWY	6+1H	13,835	11,083	**>45.0**	32.1	**F**	D
		I-405 FWY to SR-73 FWY	4	9,569	7,376	**>45.0**	32.0	**F**	D
		SR-73 FWY to Mesa Dr.	4	9,384	7,628	**>45.0**	33.9	**F**	D
		Mesa Dr. to 22nd St./Victoria St.	4	8,316	6,745	40.6	27.9	E	D
		22nd St./Victoria Av. to End	3	6,254	4,912	40.8	26.8	E	D

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on the Orange County Transportation Analysis Model (OCTAM)

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS+: Basic Freeway Segments software, Version 5.21

The maximum density value at which sustained flows at capacity are expected to occur is 45 pc/mi/ln.

Density values higher than 45 pc/mi/ln are given a LOS "**F**".

- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (AM and PM Peak Hours)
- NB SR-55, MacArthur Blvd. to I-405 FWY, (AM Peak Hour Only)
- NB SR-55, I-405 FWY to SR-73, (AM Peak Hour Only)
- NB SR-55, SR-73 FWY to Mesa Dr, (AM Peak Hour Only)

The merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS+ software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. The merge/diverge area level of service thresholds for each density range utilized for this analysis are summarized below. Appendix 3.4 contains freeway ramp analysis worksheets and Table 3-3 contains the results of the freeway ramp analysis.

Freeway ramp locations that experience deficient operations for 2006 General Plan conditions include:

- I-405, SB Loop Off-Ramp at MacArthur Blvd.
- I-405, NB Off-Ramp at MacArthur Blvd.

3.5 CITY OF IRVINE SENSITIVITY ANALYSIS

At the request of the City or Irvine, an additional scenario has been developed for intersections in Irvine. Urban Crossroads has performed a special model run to develop a cumulative scenario for use in comparison when evaluating the Land Use Element project with cumulative projects. The cumulative scenario includes known potential projects in Irvine, including:

- Campos Verdes (ITC)
- Milani Apartments
- 2772 Main and 2699 & 2719 White.

City of Irvine cumulative AM and PM peak hour ICU values are summarized in Table 3-4 (actual turn volumes and ICU calculation worksheets are included in Appendix 3.5). For the Irvine cumulative scenario, only the intersection of Jamboree Road at Michelson Drive (in the PM peak hour) experiences unacceptable operations.

TABLE 3-3

2006 GENERAL PLAN CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

FREEWAY	DIRECTION	RAMP LOCATION	Lanes[1]	VOLUME		DENSITY[2]		LOS[3]	
				AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	SB Loop Off-Ramp at MacArthur Blvd.	2	1,941	1,033	**9.0**	0.4	**F4**	A
		SB On-Ramp at MacArthur Blvd.	2	592	1,153	9.8	15.3	A	B
		SB Off-Ramp at Jamboree Rd.	2	2,510	1,916	9.7	4.4	A	A
		SB Loop On Ramp at Jamboree Rd.	1	299	800	23.4	26.6	C	C
		SB On-Ramp at Jamboree Rd.	2	753	1,330	23.8	28.1	C	D
	NB	NB Loop On-Ramp at MacArthur Blvd.	1	520	1,610	33.1	31.3	D	D
		NB Off-Ramp at MacArthur Blvd.	1	1,980	941	**35.7**	26.8	**F**	C
		NB On-Ramp at Jamboree Rd.	2	1,140	1,000	18.7	23.4	B	C
		NB Loop On-Ramp at Jamboree Rd.	1	510	740	29.7	27.6	D	C
		NB Off-Ramp at Jamboree Rd.	2	2,448	1,396	31.2	19.5	D	B
SR-73 FREEWAY/TOLL ROAD	SB	SB On-Ramp at Bison Av.	1	130	449	19.0	19.1	B	B
		SB Loop Off-Ramp at Bonita Canyon Rd.	1	317	541	22.0	20.0	C	B
		SB On-Ramp at Bonita Canyon Rd.	1	230	782	19.2	19.0	B	B
		SB Off-Ramp at Newport Coast Dr.	1	450	570	24.0	24.3	C	C
		SB On-Ramp at Newport Coast Dr.	1	230	340	19.1	19.4	B	B
	NB	NB Off-Ramp at Bison Av.	1	679	190	25.2	21.8	C	C
		NB Loop On-Ramp at Bonita Canyon Rd.	1	840	490	23.3	20.2	C	C
		NB Off-Ramp at Bonita Canyon Rd.	1	810	310	13.9	14.8	B	B
		NB On-Ramp at Newport Coast Dr.	1	520	170	22.6	25.7	C	C
		NB Off-Ramp at Newport Coast Dr.	1	500	255	25.3	26.1	C	C

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on existing conditions.

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service (LOS) determined using HCS+ : Ramps and Ramp Junction software, Version 5.21

[4] V/C is greater than 1.00; Level of Service "**F**".

TABLE 3-4

CITY OF IRVINE CUMULATIVE
PEAK HOUR INTERSECTION ANALYSIS

ID	Intersection	Traffic Control4	Intersection Approach Lanes1												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)2		LOS3	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
67	Red Hill Av. / MacArthur Bl.	TS	2	2.5	0.5	2	3	1>>	2	3	d	1	3	1>>	0.73	0.81	C	D
68	MacArthur Bl. / Main St.	TS	2	4	2>>	2	4	1	1	3	1>	2	3	1>>	0.63	0.85	B	D
69	MacArthur Bl. / I-405 NB Ramps	TS	0	4	2	2	4	0	0	0	0	2	0	2	0.68	0.68	B	B
70	MacArthur Bl. / I-405 SB Ramps	TS	0	4	1>	2	4	1	0	0	0	2	1	1>>	0.61	0.77	B	C
71	MacArthur Bl. / Michelson Dr.	TS	1	4	1	2	3.5	0.5	2	1	1	2	1	1>	0.68	0.89	B	D
72	Von Karman Av. / Barranca Pkwy.	TS	2	2	d	2	2	2>	**2**	3	**1**	2	**4**	1	0.73	0.89	C	D
73	Von Karman Av. / Alton Pkwy.	TS	1	2	d	1	2	d	1	2	d	1	2	d	0.86	0.99	D	E
74	Von Karman Av. / Main St.	TS	2	2	1	1	2	1	2	3	1>>	2	2.5	0.5	0.72	0.95	C	E
75	Von Karman Av. / I-405 HOV Ramps	TS	**1**	**3**	**d**	**1**	**3**	**d**	**1**	**0**	**1**	**1**	**0**	**1**	0.74	0.68	C	B
76	Von Karman Av. / Michelson Dr.	TS	1	2	1	1	1.5	0.5	1	1.5	0.5	1	2	1>>	0.75	0.95	C	E
77	Jamboree Rd. / Barranca Pkwy.	TS	2	**5**	**1**	2	4	1>>	2.5	2.5	1	2	3	1>>	0.85	0.92	D	E
78	Jamboree Rd. / Alton Pkwy.	TS	2	4	1	2	3.5	0.5	2	2.5	0.5	2	3	d	0.80	0.86	C	D
79	Jamboree Rd. / Main St.	TS	2	**5**	**1**	2	**5**	1>	2	3	1>>	2	3	**1**	0.72	0.82	C	D
80	Jamboree Rd. / I-405 NB Ramps	TS	0	3	1>>	0	4	1>>	0	0	0	3	0	2>>	0.75	0.87	C	D
81	Jamboree Rd. / I-405 SB Ramps	TS	0	4	2>>	0	4	1>>	1.5	0	2.5	0	0	0	0.93	0.74	E	C
82	Jamboree Rd. / Michelson Dr.	TS	1	4	**1>>**	2	4	1>>	2	**2**	**1**	2	2	1>>	0.95	**1.07**	E	**F**
83	Carlson Av. / Michelson Dr.	TS	2	2	1	2	1	1>>	2	2	1	1	2	1>>	0.77	0.87	C	D
84	Carlson Av. / Campus Dr.	TS	0	0	0	1	0	1	1	**2**	0	0	**2**	d	0.63	0.76	B	C
85	Red Hill Av. / Barranca Pkwy.	TS	2	4	d	2	4	d	2	4	0	2	4	1	0.59	0.77	A	C
86	Red Hill Av. / Alton Pkwy.	TS	1	**3**	**1**	1	3	**1**	**2**	2	1	2	**2**	**1>>**	0.83	0.86	D	D
87	Harvard Av. / Michelson Dr.	TS	1	2	0	**2**	2	1	2	2	1>>	1	2	0	0.68	0.82	B	D
88	Harvard Av. / University Dr.	TS	1	2	d	1	2	d	1	3	0	1	3	0	0.76	0.83	C	D
89	University Dr. / Campus Dr.	TS	**2**	3	1	**2**	**3**	1	**2**	2	d	**2**	2	d	0.74	0.87	C	D
90	MacArthur Bl. (NB) / University Dr.	TS	1	0	1	0	0	0	0	3	d	2	**3**	0	0.63	0.72	B	C
91	MacArthur Bl. (SB) / University Dr.	TS	1	0	1	0	0	0	0	3	0	2	3	0	0.71	0.63	C	B
92	Fairchild Rd. / MacArthur Bl.	TS	0	0	0	1	0	1	1	3	0	0	3	0	0.70	0.72	B	C
93	Jamboree Rd. / Fairchild Rd.	TS	1	3	0	2	4	d	1	1	0	1	1	1	0.65	0.69	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane, 1 = improvement

[2] V/C = Volume/Capacity Ratio

[3] Level of Service (LOS) is calculated based on the Intersection Capacity Utilization (ICU) method. Bold indicates unacceptable LOS.

Note: if a box is shaded, LOS "E" is acceptable.

[4] TS = Traffic Signal

4.0 GENERAL PLAN LUE AMENDMENT - PROPOSED PROJECT

The project is an amendment to the City of Newport Beach General Plan Land Use Element. The amendment is intended to shape future development within the City and involves the alteration, intensification, and redistribution of land uses in certain subareas of the City, including major areas such as Newport Center/Fashion Island, Newport Coast, and the Airport area near John Wayne Airport. The proposed land use map designation changes include increases and/or reductions in development capacity in these subareas. The General Plan LUE Amendment (proposed project) also includes Land Use Element Policy revisions related to land use changes, in support of recent Neighborhood Revitalization efforts, and, as appropriate, updates/refinements to policies.

This analysis includes the number of additional trips (average daily traffic or ADT) associated with the intensification, alteration, and redistribution of land uses, and analyzes the daily and peak hour traffic impact of the General Plan LUE Amendment (proposed project) to roadways and study-area intersections.

Within the City of Newport Beach, the Newport Beach Transportation Model (NBTM 3.4) is utilized to estimated long range future traffic volumes with the General Plan LUE Amendment (proposed project). NBTM 3.4 has recently been updated to incorporate current land use, socio-economic, trip generation and network data from a variety of sources, including nearby City models (Irvine, Costa Mesa, and Huntington Beach) and the Orange County Transportation Analysis Model (OCTAM).

For analysis locations in the City of Irvine, the Irvine Transportation Analysis Model (ITAM) Version 12 is used to forecast Post-2035 traffic volumes. Traffic volume changes associated with the General Plan LUE Amendment (proposed project) derived from NBTM are overlaid on ITAM 12 projections in order to evaluate project impacts in the City of Irvine.

4.1 LAND USE CHANGES

Table 4-1 provides a citywide summary of land use statistics, with the changes to land use types and intensities in various areas throughout the City of Newport Beach which are currently being evaluated. In general, land use changes occur in residential, commercial, and office categories, hotel, and an elementary / private school, as further described below.

As compared to the 2006 General Plan scenario, the General Plan LUE Amendment (proposed project) comprises an additional 2,098 dwelling units.

Table 4-1

City of Newport Beach General Plan Buildout
Land Use Comparison

Land Use Code	Description	Units[1]	GP Baseline Quantity	GP Project Quantity	Change	% Change
1a	Res-Low (SFD)-Coastal	DU	3,390	3,390	-	0%
1b	Res-Low (SFD)	DU	13,276	13,606	330	2%
2a	Res-Medium (SFA)-Coastal	DU	7,817	7,815	(2)	0%
2b	Res-Medium (SFA)	DU	10,742	10,471	(271)	-3%
3a	Apartment-Coastal	DU	1,793	1,795	2	0%
3b	Apartment	DU	9,254	9,276	22	0%
3c	Apartment (High-Rise)	DU	2,950	4,467	1,517	51%
3d	Apartment (Res-over-Retail)	DU	453	453	-	0%
3e	Apartment (Mid-Rise Newport Center)	DU	769	1,269	500	65%
4	Elderly Residential	DU	320	320	-	0%
5a	Mobile Home-Coastal	DU	-		-	N/A
5b	Mobile Home	DU	397	397	-	0%
6	Motel	ROOM	139	139	-	0%
7	Hotel	ROOM	5,561	4,860	(701)	-13%
9	Regional Commercial	TSF	1,636.025	1,686.025	50.000	3%
10a	General Commercial	TSF	4,775.910	4,795.103	19.193	0%
10b	Comm (Res-over-Retail)	TSF	868.999	870.916	1.917	0%
11	Comm./Recreation	ACRE	5.1	5.1	-	0%
13	Restaurant	TSF	154.510	154.510	-	0%
15	Fast Food Restaurant	TSF	8.130	8.130	-	0%
16	Auto Dealer/Sales	TSF	244.650	244.650	-	0%
17	Yacht Club	TSF	70.310	70.310	-	0%
18	Health Club	TSF	61.330	61.330	-	0%
19	Tennis Club	CRT	43	43	-	0%
20	Marina	SLIP	1,078	1,078	-	0%
21	Theater	SEAT	4,445	4,445	-	0%
22	Newport Dunes	ACRE	64	64	-	0%
23a	General Office	TSF	8,634.270	8,432.054	(202.216)	-2%
23b	Office (>300K block Newport Center)	TSF	2,645.696	3,341.589	695.893	26%
24	Medical/Govt. Office	TSF	1,452.952	1,452.952	-	0%
25	R & D	TSF	81.730	81.730	-	0%
26	Industrial	TSF	773.919	773.919	-	0%
27	Mini-Storage/Warehouse	TSF	196.420	196.420	-	0%
28	Pre-school/Day Care	TSF	77.969	77.969	-	0%
29	Elementary/Private School	STU	6,511	6,583	72	1%
30	Junior/High School	STU	5,215	5,215	-	0%
31	Cultural/Learning Center	TSF	112.208	112.208	-	0%
32	Library	TSF	90.962	90.962	-	0%
33	Post Office	TSF	63.800	63.800	-	0%
34	Hospital	BED	2,001	2,001	-	0%
35	Nursing/Conv. Home	BEDS	433	433	-	0%
36	Church	TSF	522.478	522.478	-	0%
37	Youth Ctr/Service	TSF	198.810	198.810	-	0%
38	Park	ACRE	218.730	218.730	-	0%
39	Regional Park	ACRE	-	-	-	N/A
40	Golf Course	ACRE	338.640	338.640	-	0%
41	Resort Golf Course	ACRE	392.880	392.880	-	0%

[1] Units Abbreviations:
DU = Dwelling Units
TSF = Thousand Square Feet
CRT = Court
STU = Students

Areas with Reduced Development Capacity

The proposed project would reduce allowable square footage, rooms, or dwelling units in eight different subareas: the Westcliff Plaza, Newport Coast Center, Newport Coast Hotel, Bayside Center, Harbor View Center, The Bluffs, Gateway Park, and Newport Ridge.

The most significant change in development capacity would be the reduction in entitlement for the Newport Coast subarea, which upon approval of the amendment would allow 1,001 fewer hotel units and a reduction 37,875 square feet of neighborhood commercial use.

Areas with Increased Development Capacity

Areas proposed for increased development capacity through increasing square footage, rooms, or dwelling units include Newport Center/Fashion Island, Harbor Day School, the Airport Area (consisting of the Saunders Properties, The Hangars, Lyon Communities, and UAP Companies), 150 Newport Center Drive, and 100 Newport Center Drive.

Newport Center/Fashion Island

One of the most significant changes from the existing land use plan would be in the Newport Center/Fashion Island subarea. This subarea is currently a major commercial area with a variety of existing retail, office, residential, and hotel uses. The proposed land use element amendment would increase allowable square footage for regional office space (additional 500,000 sf), regional commercial space (additional 50,000 sf), and multifamily dwelling units (additional 500 units).

Airport Area

The Airport Area is another subarea proposed for considerable changes from the existing land use plan. The project proposes changes to four properties within the subarea: Saunders Properties, The Hangars, Lyon Communities, and UAP Companies. Currently, the four properties only consist of office buildings. The proposed project would allow for increased square footage for retail and office uses as well as residential dwelling units and hotel rooms. As with Newport Center/Fashion Island, the Airport Area would allow for denser infill development.

Areas with Change of Land Use Designation and Increased Development Capacity

The proposed land use element amendment also proposes a change of land use designation and increased development capacity for two parcels in the City: 1526 Placentia Avenue and 813 East Balboa Boulevard. These parcels are currently designated as residential uses, and the proposed changes are to general commercial and mixed-use vertical uses to allow for more diverse uses of the parcels.

4.2 TRIP GENERATION

Trip generation in the City of Newport Beach has been calculated and is summarized in Table 4-2. Appendix 4.1 contains individual trip generation change worksheets for each project area. As shown in Table 4-3, trip generation increases by 8,221 ADT Citywide with the General Plan LUE Amendment (proposed project). AM and PM peak hour trip generation increases Citywide by a total of 781 trips in the AM peak hour and 758 trips in the PM peak hour.

Westcliff Plaza experiences a reduction of 593 daily trips. Newport Coast Center trip generation decreases by 1,448 ADT. Daily traffic generation for Newport Coast Hotel is reduced by 7,588 ADT. For Bayside Center, the daily trip generation decreases by 14 vehicles. Harbor View Center experiences a reduction of 71 ADT. The Bluffs trip generation decreases by 135 ADT. Trip generation for Gateway Park is reduced by 167 ADT. For Newport Ridge, the daily trip generation decreases by 2,370 ADT.

For Newport Center/Fashion Island, the increase in development capacity generates an estimated 8,768 additional daily trips. The Airport Area land use changes generate an estimated additional 10,771 daily trips.

The changes for 1526 Placentia Avenue and 813 East Balboa Boulevard increase ADTs by 316. Harbor Day School experiences an increase in daily trip generation of 94 ADT.

4.3 VOLUME FORECASTS

The General Plan LUE Amendment (proposed project) traffic volume forecasts have been developed based on the Newport Beach Transportation Model version 3.4 (NBTM 3.4), which was recently updated. Draft average daily traffic (ADT) volumes have been produced for General Plan LUE Amendment (proposed project) conditions, and are shown on Exhibit 4-A.

Peak hour intersection volumes for the General Plan LUE Amendment (proposed project) condition are also included. Exhibits 4-B and 4-C show AM and PM peak hour volumes at study area intersections, respectively. The volume exhibits were transmitted previously, but have been updated recently to include additional intersections in the City of Irvine (east of Jamboree Road and south of the I-405 Freeway).

Table 4-3 shows the directional AM and PM peak hour freeway mainline segment volumes for both 2006 General Plan and General Plan LUE Amendment (proposed project) conditions. Because the proposed LUE Amendment changes the types of use along with quantity, the directionality of peak travel has been affected.

Table 4-2
Trip Generation Summary

Area		Land Use Change[1]	AM In	AM Out	PM In	PM Out	ADT
Reduced Development Capacity							
3	Westcliff Plaza	-15.514 tsf General Commercial	-28	-12	-24	-31	-593
6	Newport Coast Center	-37.875 tsf General Commercial	-67	-30	-58	-77	-1,448
7	Newport Coast Hotel	-1,001 room Hotel	-511	-170	-280	-430	-7,588
8	Bayside Center	-0.366 tsf General Commercial	-1	0	-1	-1	-14
9	Harbor View Center	-1.857 tsf General Commercial	-3	-1	-3	-4	-71
10	The Bluffs	-3.538 tsf General Commercial	-6	-3	-5	-7	-135
11	Gateway Park	-4.356 tsf General Commercial	-8	-3	-7	-9	-167
13	Newport Ridge	-356 Res-Medium (SFA)	-46	-196	-142	-75	-2,371
Increased Development Capacity							
5	Newport Center / Fashion Island	500 du Apt. (Mid-Rise Newport Center) 175 tsf General Office 325 tsf Office (>300k block Newport Center) 50 tsf Regional Commercial	496	336	369	449	8,768
12	Harbor Day School	72 stu Elementary/Private School	13	1	3	5	94
4[2]	Saunders Property	329 du Apartment 238.077 tsf General Office	239	220	211	221	4,651
	The Hangars	11.8 tsf General Commercial -10 tsf General Office	13	6	14	17	340
	Lyon Homes	850 du Apartment (High-Rise) 150 room Hotel 85 tsf General Commercial -250.176 tsf General Office	103	352	321	210	5,780
	UAP Companies	trip neutral land uses	0	0	0	0	0
14	150 Newport Center Dr.	125 room Hotel -8.5 tsf General Commercial	49	14	22	37	623
	100 Newport Center Dr.	15 tsf Regional Commercial	17	7	14	19	352
Designation Change and Increased Development Capacity							
1	1526 Placentia	7.524 tsf General Commercial	12	3	10	14	251
2	813 East Balboa Blvd.	-2 du Res-Medium (SFA) Coastal 2 du Apartment (Res-over-Retail) 1.917 tsf Comm (Res-over-Retail)	3	1	3	3	65
Citywide Total			**260**	**521**	**434**	**324**	**8,221**

[1] tsf = thousand square feet
du = dwelling units
stu = students

[2] Area 4 is also known as the Airport Area

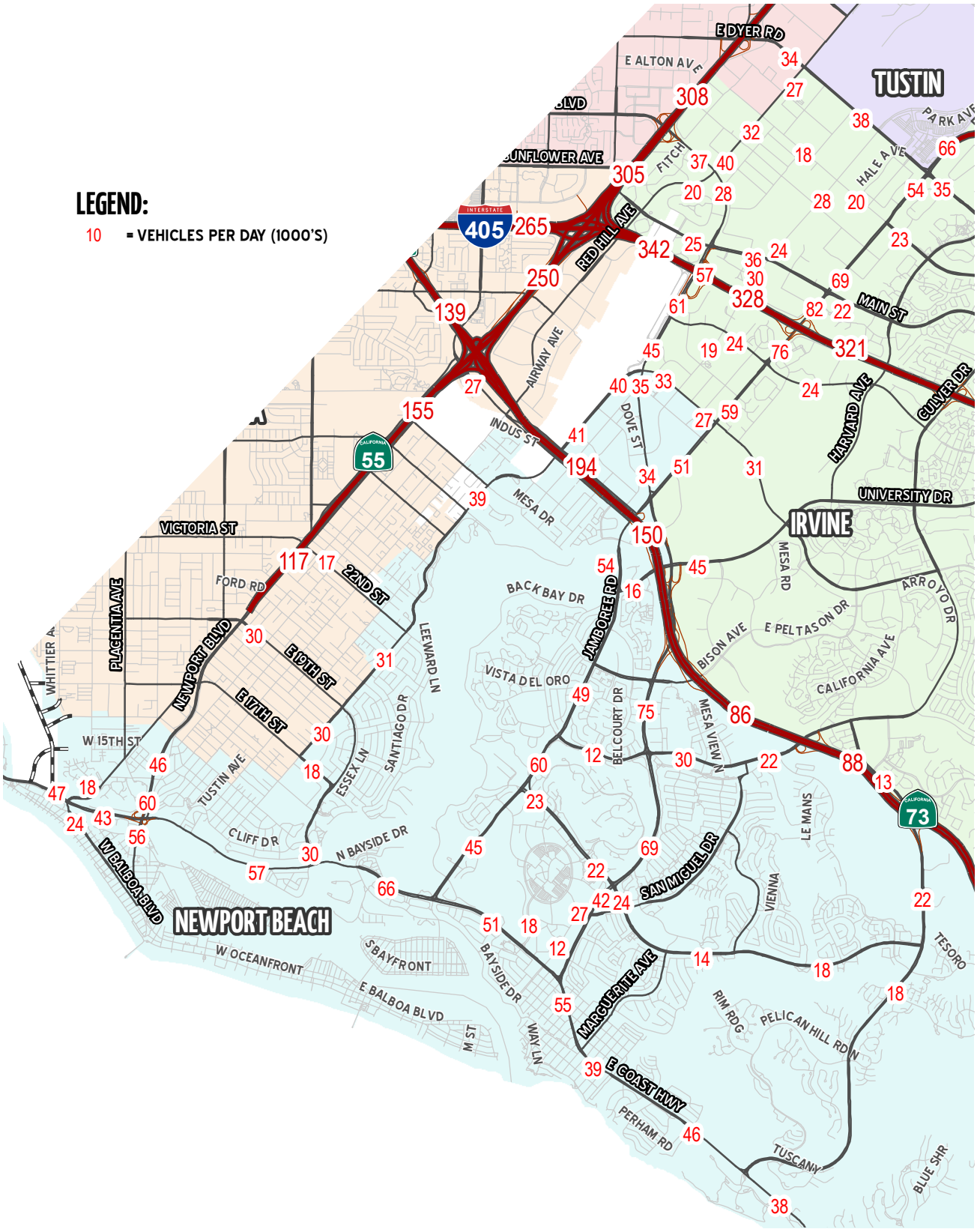
TABLE 4-3

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT)
PEAK HOUR FREEWAY MAINLINE SEGMENT VOLUME PROJECTIONS

FREEWAY	DIRECTION	MAINLINE SEGMENT LOCATION	2006 GENERAL PLAN VOLUME		GP LUE AMENDMENT VOLUME		VOLUME Δ	
			AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	North of SR-55 FWY	10,361	10,950	10,396	11,015	35	65
		SR-55 FWY to MacArthur Blvd.	13,302	11,136	13,294	11,239	-8	103
		North of Jamboree Rd.	12,323	11,502	12,367	11,507	44	5
		South of Jamboree Rd.	10,656	11,392	10,722	11,452	66	60
	NB	North of SR-55 Fwy	8,828	6,579	8,883	6,603	55	24
		SR-55 FWY to MacArthur Blvd.	11,864	12,031	11,921	12,066	57	35
		North of Jamboree Rd.	12,640	11,431	12,729	11,447	89	16
		South of Jamboree Rd.	13,101	10,459	13,031	10,511	-70	52
SR-73 FREEWAY/TOLL ROAD	SB	North of SR-55 FWY	6,631	5,638	6,750	5,647	119	9
		North of Jamboree Rd.	8,322	7,793	8,403	7,812	81	19
		South of Jamboree Rd.	7,204	6,706	7,289	6,720	85	14
		North of Bonita Canyon Rd.	4,291	3,896	4,289	3,857	-2	-39
		Bonita Canyon Rd. to Newport Coast Dr.	4,204	4,137	4,191	4,107	-13	-30
	NB	North of SR-55 FWY	5,949	7,715	5,972	7,677	23	-38
		North of Jamboree Rd.	8,660	10,320	8,658	10,363	-2	43
		South of Jamboree Rd.	7,451	8,222	7,442	8,244	-9	22
		North of Bonita Canyon Dr.	4,514	5,085	4,407	5,003	-107	-82
		Bonita Canyon Rd. to Newport Coast Dr.	4,484	4,905	4,413	4,915	-71	10
SR-55 FREEWAY	SB	Dyer Rd. to MacArthur Blvd.	6,325	8,392	6,355	8,391	30	-1
		MacArthur Blvd. to I-405 FWY	5,317	8,273	5,339	8,314	22	41
		I-405 FWY to SR-73 FWY	3,409	5,294	3,404	5,358	-5	64
		SR-73 FWY to Mesa Dr.	3,709	5,430	3,736	5,505	27	75
		Mesa Dr. to 22nd St./Victoria St.	3,337	4,811	3,341	4,867	4	56
		22nd St./Victoria St. to End	2,561	3,619	2,553	3,671	-8	52
	NB	Dyer Rd. to MacArthur Blvd.	14,008	11,536	14,054	11,570	46	34
		MacArthur Blvd. to I-405 FWY	13,835	11,083	13,849	11,068	14	-15
		I-405 FWY to SR-73 FWY	9,569	7,376	9,619	7,384	50	8
		SR-73 FWY to Mesa Dr.	9,384	7,628	9,398	7,672	14	44
		Mesa Dr. to 22nd St./Victoria St.	8,316	6,745	8,346	6,759	30	14
		22nd St./Victoria St. to End	6,254	4,912	6,283	4,929	29	17

EXHIBIT 4-A

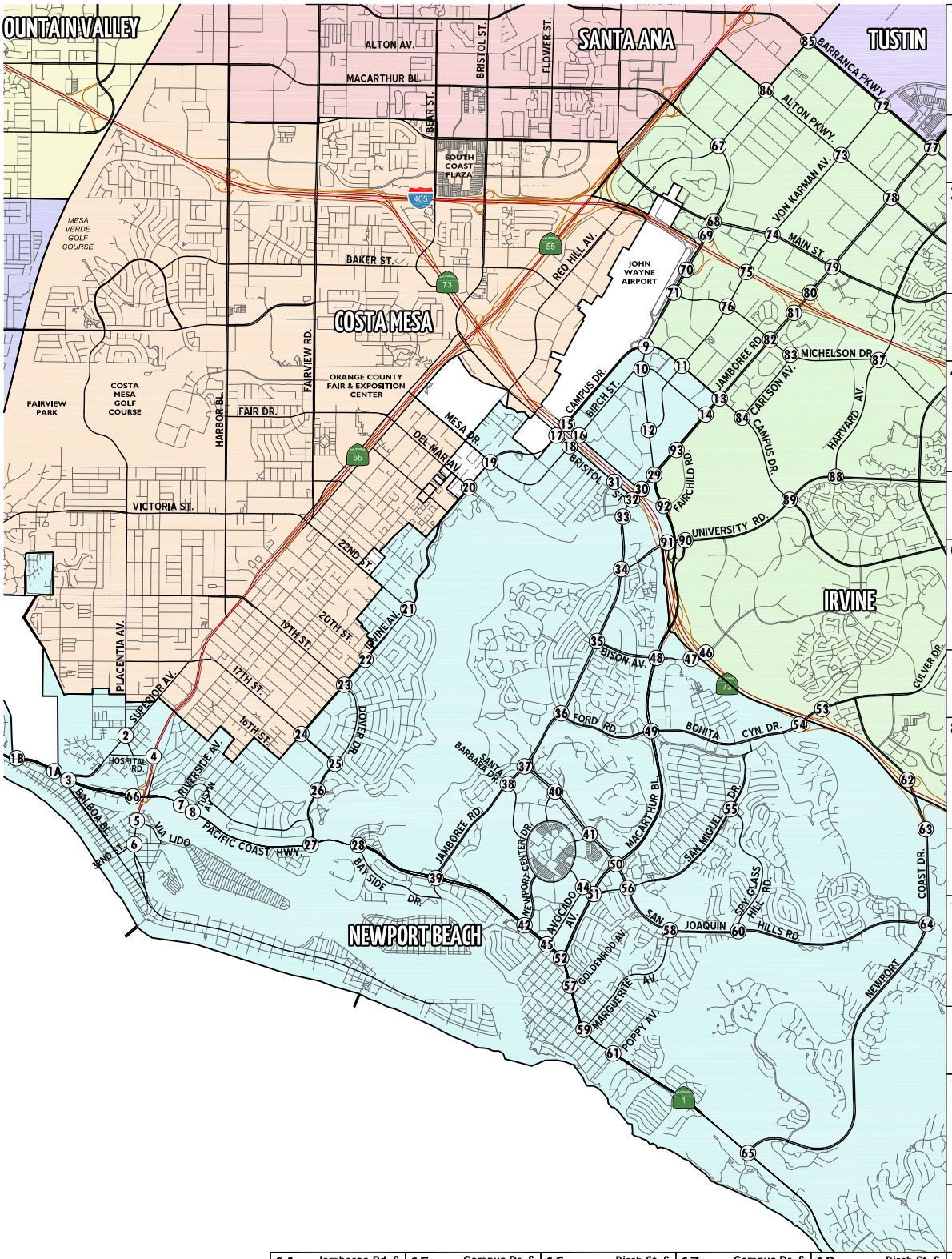
GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) AVERAGE DAILY TRAFFIC (ADT)



City of Newport Beach Land Use Element Amendment Traffic Impact Analysis
City of Newport Beach, CA (JN - 08911:8.5x11_Project2-ADT.mxd)

URBAN CROSSROADS

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT)
AM PEAK HOUR INTERSECTION VOLUMES



1A Bluff Rd. & Coast Hwy.

	180 309	111 1122
410 3479		

1B 15th St. & Coast Hwy.

	325 315	203 1145
647 3345		

2 Superior Av. & Placentia Av.

5 272 89		117 278 11
31 382 298		360 1138 37

3 Superior Av. & Coast Hwy.

141 190 232		264 857 157
761 3026 182		261 515 322

4 Newport Bl. & Hospital Rd.

390 1344 103		32 240 67
212 225 222		121 2090 173

5 Newport Bl. & Via Lido

830 277		430 20
		1540 43

6 Newport Bl. & 32nd St.

69 602 69		52 42 40
368 78 27		19 1110 73

7 Riverside Av. & Coast Hwy.

405 0 116		93 1565 5
407 2854 6		3 0 1

8 Tustin Av. & Coast Hwy.

36 1 64		73 1524
67 2746 4		1 0 1

9 MacArthur Bl. & Campus Dr.

718 849 170		47 547 42
670 1106 139		245 1072 83

10 MacArthur Bl. & Birch St.

255 687 85		188 420 51
261 567 112		34 911 67

11 Von Karman Av. & Campus Dr.

196 724 91		82 586 120
263 597 87		47 885 101

12 MacArthur Bl. & Von Karman Av.

128 601 64		51 176 179
23 151 40		46 906 735

13 Jamboree Rd. & Campus Dr.

128 1603 495		253 435 449
324 501 38		67 1684 184

14 Jamboree Rd. & Birch St.

594 1591 2		0 0 0
412 5 159		276 1538 5

15 Campus Dr. & Bristol St. North

244 552		148 1281 288
		546 2042

16 Birch St. & Bristol St. North

314 315		353 1326 357
		84 1111

17 Campus Dr. & Bristol St. South

669 170		
1204 1825 521		1386 295

18 Birch St. & Bristol St. South

501 170		
666 1374 159		524 506

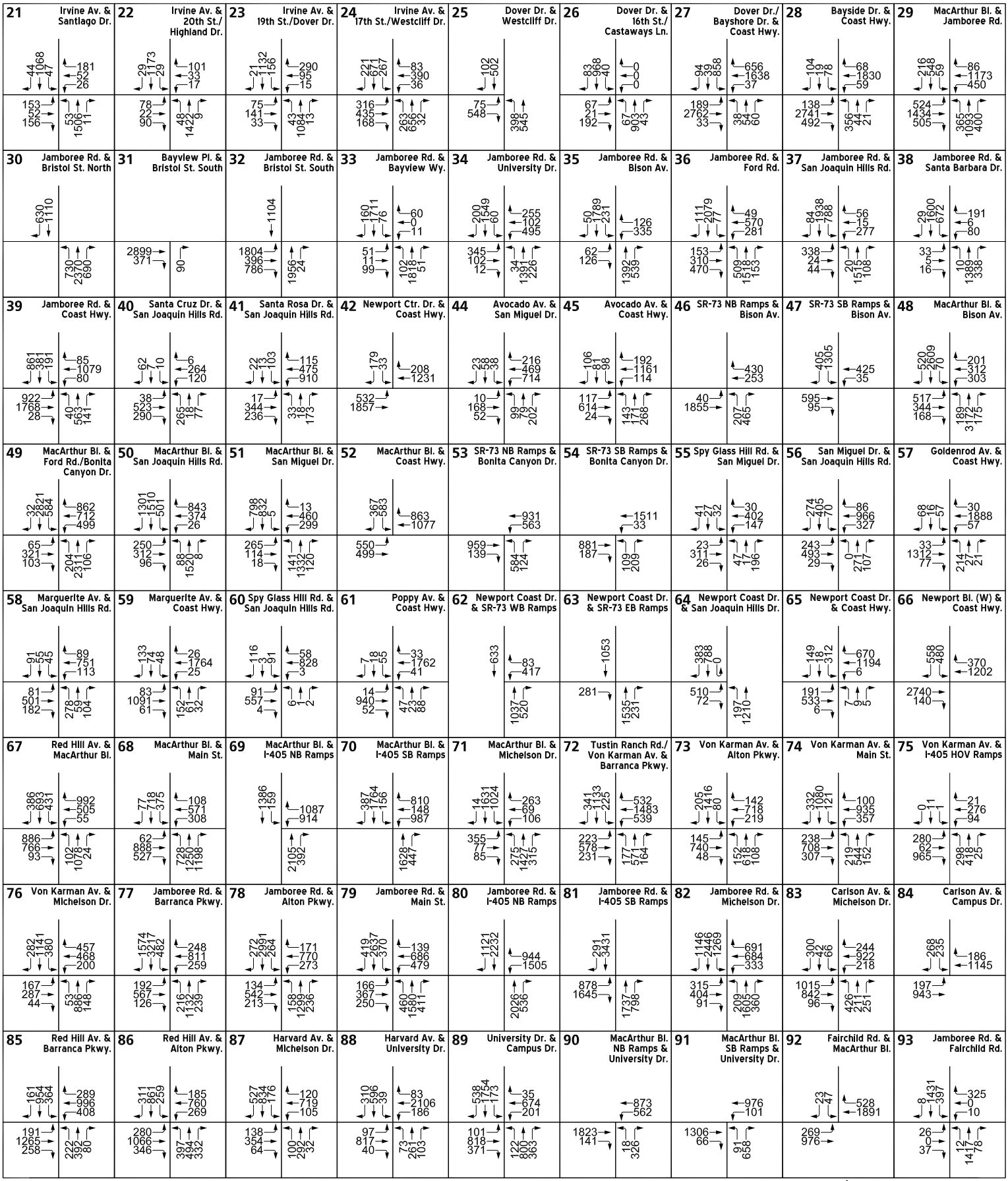
19 Irvine Av. & Mesa Dr.

212 654 17		28 107 190
283 401 105		141 1369 491

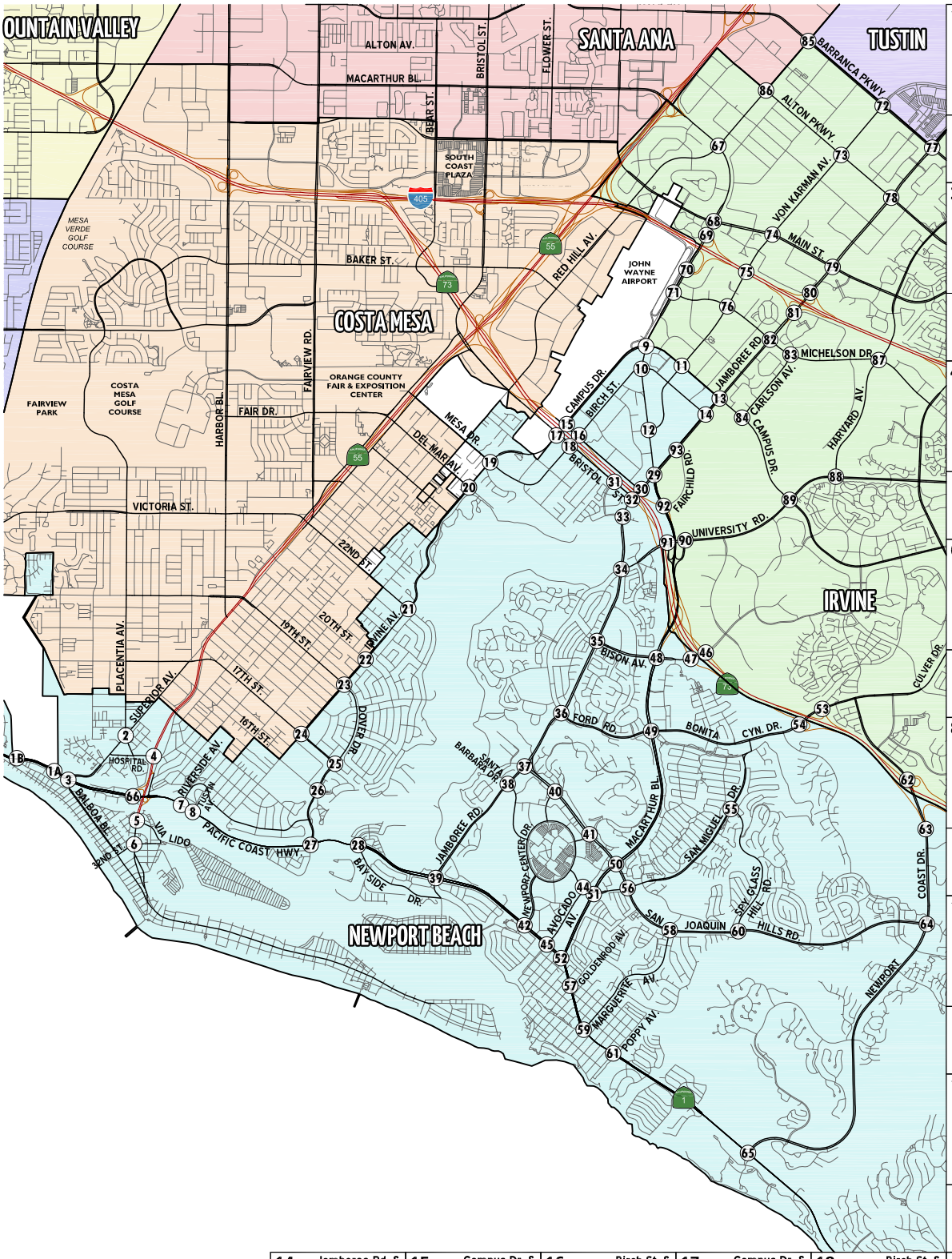
20 Irvine Av. & University Dr.

81 783 47		22 19 40
203 61 218		150 1755 61

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT)
AM PEAK HOUR INTERSECTION VOLUMES

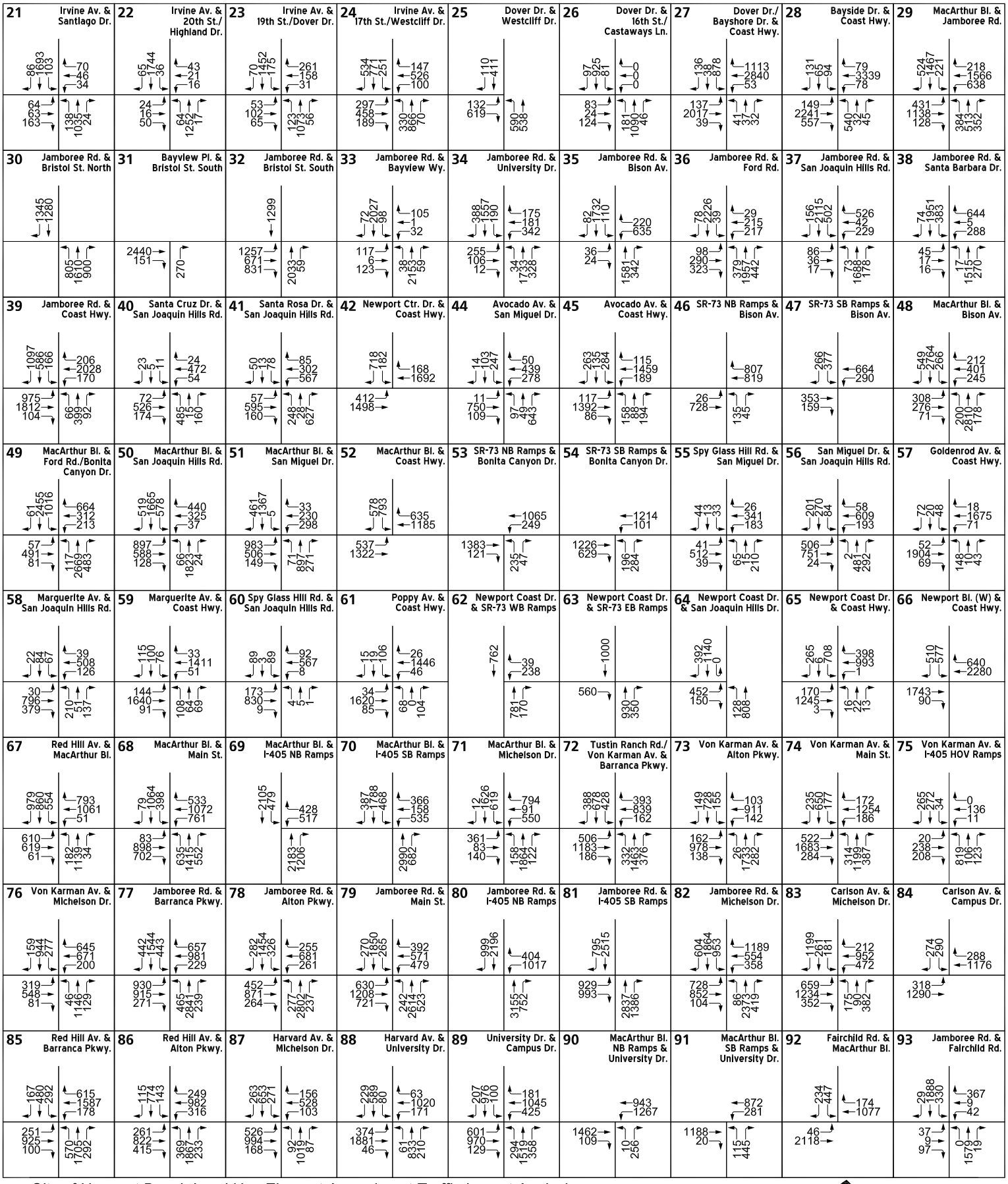


GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT)
PM PEAK HOUR INTERSECTION VOLUMES



1A Bluff Rd. & Coast Hwy.	220 157 / 319 3380 / 171 1293	**1B** 15th St. & Coast Hwy.	472 208 / 321 3315 / 286 1309						
2 Superior Av. & Placentia Av.	6 884 88 / 117 441 69 / 8 201 299 / 205 394 26	**3** Superior Av. & Coast Hwy.	684 453 293 / 154 2667 411 / 227 1014 216 / 249 279 163						
4 Newport Bl. & Hospital Rd.	244 1808 106 / 74 326 192 / 366 167 240 / 130 1331 97	**5** Newport Bl. & Via Lido	1527 444 / 317 33 / 983 26						
6 Newport Bl. & 32nd St.	190 1185 118 / 74 67 63 / 121 70 42 / 83 705 32	**7** Riverside Av. & Coast Hwy.	427 2 93 / 65 2833 30 / 335 2087 2 / 8 3 17						
8 Tustin Av. & Coast Hwy.	100 0 119 / 55 2640 / 85 1941 1 / 0 0 0	**9** MacArthur Bl. & Campus Dr.	752 1283 157 / 130 1129 87 / 482 646 180 / 189 1268 47						
10 MacArthur Bl. & Birch St.	336 1249 136 / 210 613 107 / 338 472 34 / 151 872 63	**11** Von Karman Av. & Campus Dr.	335 845 216 / 104 735 88 / 228 809 87 / 50 567 155						
12 MacArthur Bl. & Von Karman Av.	84 1282 49 / 141 125 672 / 102 212 137 / 51 833 201	**13** Jamboree Rd. & Campus Dr.	376 2003 349 / 550 475 196 / 502 767 145 / 31 2103 225						
14 Jamboree Rd. & Birch St.	328 2071 0 / 0 0 0 / 354 0 129 / 102 1766 0	**15** Campus Dr. & Bristol St. North	1141 1269 / 110 2632 301 / 467 1060	**16** Birch St. & Bristol St. North	880 560 / 195 2062 602 / 174 496	**17** Campus Dr. & Bristol St. South	1314 255 / 532 992 566 / 988 303	**18** Birch St. & Bristol St. South	983 177 / 208 1315 107 / 462 178
19 Irvine Av. & Mesa Dr.	391 1395 6 / 35 284 470 / 156 196 225 / 54 789 208	**20** Irvine Av. & University Dr.	160 1864 45 / 36 77 98 / 76 58 268 / 193 938 107						

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT)
PM PEAK HOUR INTERSECTION VOLUMES



The General Plan LUE Amendment (proposed project) results in morning peak hour volume reductions on ten (10) of the thirty (30) study area freeway segments. Morning peak hour volume increases on the remaining segments and ranges from 4 vehicles per hour to a high of 119 vehicles per hour.

The General Plan LUE Amendment (proposed project) results in evening peak hour volume reductions on six (6) of the thirty (30) study area freeway segments. Evening peak hour volume increases on the remaining segments and range from 5 vehicles per hour to a high of 103 vehicles per hour.

Table 4-4 shows the AM and PM peak hour freeway on-ramp and off-ramp volumes for both 2006 General Plan and General Plan LUE Amendment (proposed project) conditions.

4.4 DAILY ROADWAY SEGMENT ANALYSIS

Volume to capacity (V/C) analysis of roadway segments has been performed for General Plan LUE Amendment (proposed project) conditions. Buildout of the City's current General Plan circulation system has been assumed. Exhibit 4-D contains the results of this analysis.

Based on the ADT V/C level of service (LOS) performance criteria outlined in Section 1.3 of this report, the following arterial segments, which were identified with existing volumes more than their theoretical planning level capacity in Section 2.3 of this report, also exceed their theoretical planning level capacity under General Plan LUE Amendment (proposed project) conditions:

- Newport Boulevard north of Coast Highway
- Coast Highway between Newport Boulevard and Dover Drive
- Coast Highway between MacArthur Boulevard and Marguerite Avenue
- MacArthur Boulevard between Bison Avenue and San Joaquin Hills Road

The same additional arterial segments which were estimated to serve future 2006 General Plan volumes which exceed their theoretical planning level capacity in Section 3.2 of this report, also exceed their theoretical planning level capacity under General Plan LUE Amendment (proposed project) conditions:

- Newport Boulevard, South of Coast Highway
- Jamboree Road, North of University Drive
- Jamboree Road, between Ford Road & San Joaquin Hills Road
- Coast Highway, between Jamboree Road & Marguerite Avenue
- Coast Highway, East of Marguerite Avenue
- Jamboree Road, North of the I-405

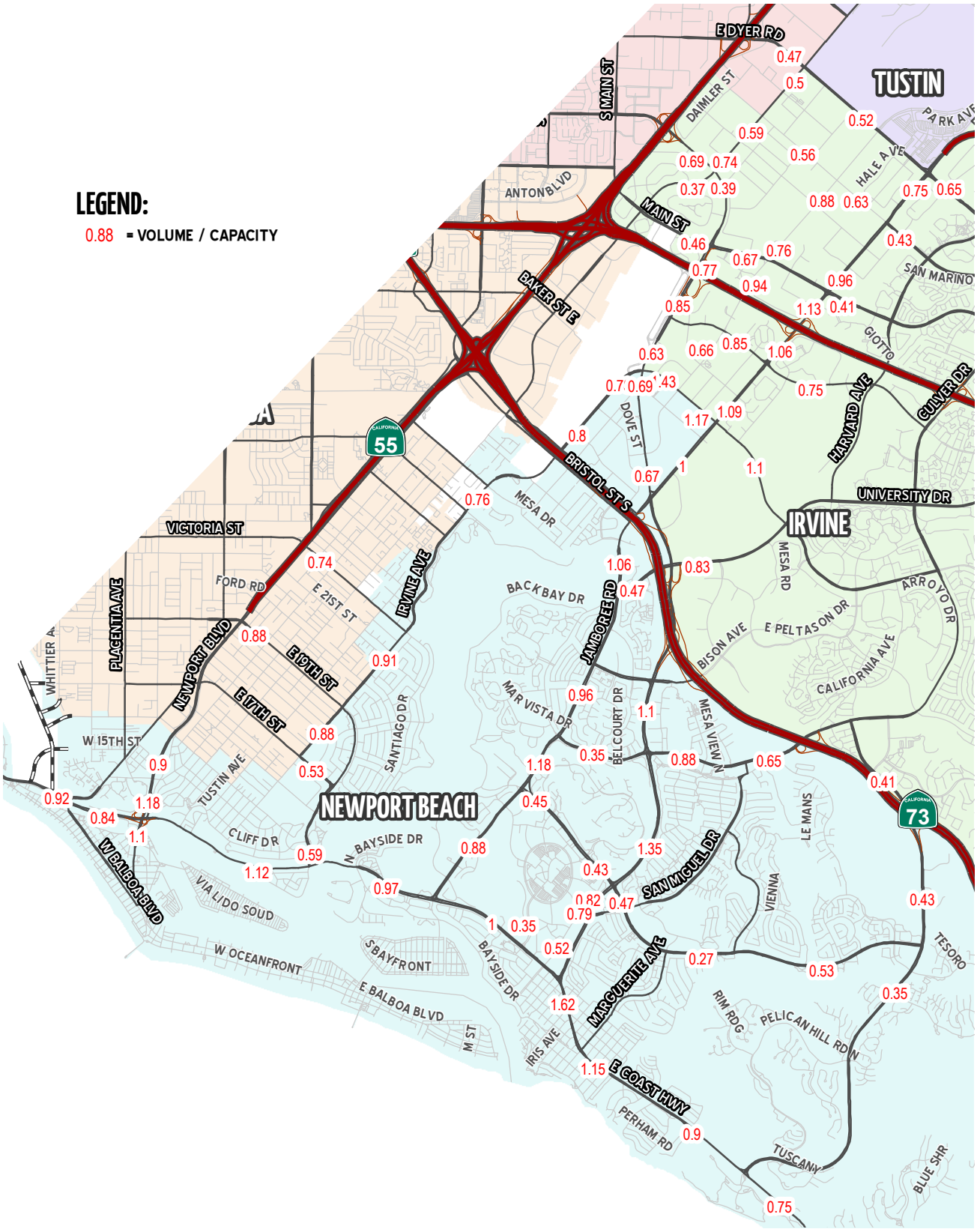
TABLE 4-4

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT)
PEAK HOUR FREEWAY RAMP VOLUME PROJECTIONS

FREEWAY	DIRECTION	RAMP LOCATION	2006 GENERAL PLAN VOLUME		GP LUE AMENDMENT VOLUME		VOLUME Δ	
			AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	SB Loop Off-Ramp at MacArthur Blvd.	1,941	1,033	1,945	1,059	4	26
		SB On-Ramp at MacArthur Blvd.	592	1,153	603	1,150	11	-3
		SB Off-Ramp at Jamboree Rd.	2,510	1,916	2,523	1,922	13	6
		SB Loop On Ramp at Jamboree Rd.	299	800	291	795	-8	-5
		SB On-Ramp at Jamboree Rd.	753	1,330	798	1,386	45	56
	NB	NB Loop On-Ramp at MacArthur Blvd.	520	1,610	551	1,685	31	75
		NB Off-Ramp at MacArthur Blvd.	1,980	941	2,001	945	21	4
		NB On-Ramp at Jamboree Rd.	1,140	1,000	1,121	999	-19	-1
		NB Loop On-Ramp at Jamboree Rd.	510	740	536	752	26	12
		NB Off-Ramp at Jamboree Rd.	2,448	1,396	2,449	1,421	1	25
SR-73 FREEWAY/TOLL ROAD	SB	SB On-Ramp at Bison Av.	130	449	130	449	0	0
		SB Loop Off-Ramp at Bonita Canyon Rd.	317	541	318	480	1	-61
		SB On-Ramp at Bonita Canyon Rd.	230	782	220	730	-10	-52
		SB Off-Ramp at Newport Coast Dr.	450	570	281	560	-169	-10
		SB On-Ramp at Newport Coast Dr.	230	340	231	350	1	10
	NB	NB Off-Ramp at Bison Av.	679	190	672	180	-7	-10
		NB Loop On-Ramp at Bonita Canyon Rd.	840	490	702	370	-138	-120
		NB Off-Ramp at Bonita Canyon Rd.	810	310	708	282	-102	-28
		NB On-Ramp at Newport Coast Dr.	520	170	520	170	0	0
		NB Off-Ramp at Newport Coast Dr.	500	255	500	277	0	22

EXHIBIT 4-D

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) VOLUME / CAPACITY (V/C) RATIOS



- Jamboree Road, between Campus Drive & I-405
- Campus Drive, between MacArthur Boulevard & University Drive
- Jamboree Road, between Bison Avenue & San Joaquin Hills Road

The daily capacity of a roadway correlates to a number of widely varying factors, including traffic peaking characteristics, traffic turning volumes, and the volume of traffic on crossing streets. The actual daily capacity of a roadway can vary widely. The typical daily capacities are therefore most appropriately used for as a screening tool to evaluate overall vehicular activity levels, subject to more detailed peak hour analysis at key intersections.

4.5 PEAK HOUR INTERSECTION OPERATIONS

General Plan LUE Amendment (proposed project) intersection operations have been evaluated using the procedures described in section 1.3. AM and PM peak hour Intersection Capacity Utilization (ICU) analysis has been performed using both existing and currently planned General Plan intersection lanes.

The study area intersection operations are summarized and presented in Table 4-5 (actual turn volumes and ICU calculation worksheets using existing geometrics are included in Appendix 4.2 and actual turn volumes and ICU calculation worksheets using General Plan recommended improvement geometrics are included in Appendix 4.3).

Table 4-6 provides a comparison of ICU results between the General Plan LUE Amendment (proposed project) and 2006 General Plan Scenarios. Based on the intersection LOS performance criteria, the following study area intersections experienced unacceptable operations during peak hours for General Plan LUE Amendment (proposed project) conditions using existing lanes. With the exception of Von Karman Avenue at Alton Parkway (PM), all of these intersections were already deficient under 2006 General Plan conditions. Recommended or planned General Plan improvements (see *Section 2.6* of this report) mitigate 9 of the 13 deficient intersections. The four locations displayed in **bold** in the list below represent a deficiency which remains after General Plan Recommended Improvements are added:

- **(#3) - Superior Avenue at Coast Highway (AM**)
- (#8) - Tustin Avenue at Coast Highway (AM)
- (#13) - Jamboree Road at Campus Drive (PM)
- (#20) - Irvine Avenue at University Drive (PM)
- (#49) - MacArthur Boulevard at Ford Drive (PM)
- **(#66) – Newport Boulevard (West) at Coast Highway (AM)**
- (#72) - Von Karman Avenue at Barranca Parkway (AM)

TABLE 4-5

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Superior Av / Placentia Av.																	
	Existing Lanes	TS	1	2	1	1	2	1	1	1	1	0.5	1	0.5	0.66	0.63	B	B
3	Superior Av / Coast Hwy.																	
	Existing Lanes	TS	1.5	1	0.5	1.5	1.5	2>	2	3	1	1	4	d	**1.05**	0.79	**F**	C
4	Newport Bl. / Hospital Rd.																	
	Existing Lanes	TS	1	3	1	1	3	1	2	1	1	1	1.5	0.5	0.68	0.73	B	C
	General Plan Recommended Improvements	TS	**2**	3	1	1	3	1	2	1	1	1	1.5	0.5	0.68	0.69	B	B
5	Newport Bl. / Via Lido																	
	Existing Lanes	TS	0	3	1	2	3	0	0	0	0	1	0	2>	0.46	0.37	A	A
6	Newport Bl. / 32nd St.																	
	Existing Lanes Lanes	TS	1	2	d	1	1.5	0.5	1.5	0.5	1	0.5	1.5	1>>	0.56	0.58	A	A
	General Plan Recommended Improvements	TS	1	2	d	1	1.5	0.5	**2**	**1**	0	**1**	**1**	1>>	0.53	0.59	A	A
7	Riverside Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.5	0.5	1>	1	1.5	0.5	1	3	1	0.97	0.88	E	D
	General Plan Recommended Improvements	TS	0.33	0.33	0.33	0.5	0.5	1>	**2**	**2.5**	0.5	1	**2.5**	**0.5**	0.73	0.88	C	D
8	Tustin Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	1.5	0.5	0	2.5	0.5	**0.92**	0.75	**E**	C
	General Plan Recommended Improvements	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	**2.5**	0.5	0	2.5	0.5	0.64	0.75	B	C
9	MacArthur Bl. / Campus Dr.																	
	Existing Lanes	TS	1	4	1	1	4	1	2	3	d	2	3	1>>	0.93	0.97	E	E
	General Plan Recommended Improvements	TS	**2**	4	1	1	**3.5**	**1.5**	2	3	d	2	3	1>>	0.62	0.70	B	B
10	MacArthur Bl. / Birch St.																	
	Existing Lanes	TS	1	3	1	1	3.5	0.5	1.5	1	0.5	1	2	1>>	0.57	0.71	A	C
11	Von Karman Av. / Campus Dr.																	
	Existing Lanes	TS	1	2	1>>	1	1.5	0.5	1	2	1	1	1.5	0.5	0.71	0.81	C	D
	General Plan Recommended Improvements	TS	1	**1.5**	**0.5**	1	1.5	0.5	**2**	**1.5**	**0.5**	1	1.5	0.5	0.66	0.74	B	C
12	MacArthur Bl. / Von Karman Av.																	
	Existing Lanes	TS	1	3	1	1	3	1	1	2	1>>	2	1	1>>	0.62	0.58	B	A
13	Jamboree Rd. / Campus Dr.																	
	Existing Lanes	TS	2	3.5	0.5	2	2.5	0.5	2	2	1>>	2	2	1	0.74	**1.01**	C	**F**
	General Plan Recommended Improvements	TS	2	**4**	**1>**	2	**3.5**	0.5	2	**1.5**	**0.5**	2	2	**1>**	0.73	0.83	C	D
14	Jamboree Rd. / Birch St.																	
	Existing Lanes	TS	1	2.5	0.5	1	3	1>>	1.5	0.5	1>>	0.33	0.33	0.33	0.63	0.61	B	B
	General Plan Recommended Improvements	TS	1	2.5	0.5	1	**4**	1>>	1.5	0.5	1>>	0.33	0.33	0.33	0.55	0.50	A	A

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 4-5

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
15	Campus Dr. / Bristol St. (N)																	
	Existing Lanes	TS	2	3	0	0	4	2	0	0	0	1	3.5	0.5	0.65	0.93	B	E
	General Plan Recommended Improvements	TS	2	**4**	0	0	4	**3**	0	0	0	1	**4.5**	0.5	0.50	0.73	A	C
16	Birch St. / Bristol St. (N)																	
	Existing Lanes	TS	2	2	0	0	1.5	2.5	0	0	0	1.5	3	0.5	0.60	0.64	A	B
17	Campus Dr. / Bristol St. (S)																	
	Existing Lanes	TS	0	4.5	0.5	1	3	0	1.5	2.5	2	0	0	0	0.79	0.59	C	A
18	Birch St. / Bristol St. (S)																	
	Existing Lanes	TS	0	2.5	1.5	2	2	0	1.5	3	0.5	0	0	0	0.49	0.53	A	A
19	Irvine Av. / Mesa Dr.																	
	Existing Lanes	TS	1	3	1	1	3	1	1	1.5	0.5	2	0.5	0.5	0.58	0.62	A	B
20	Irvine Av. / University Dr.																	
	Existing Lanes	TS	1	2	1	1	2	1	1	1	1	1	1	d	0.74	**0.93**	C	**E**
	General Plan Recommended Improvements	TS	1	**2.5**	**0.5**	1	**3**	1	**1.5**	**1.5**	1	1	1	d	0.57	0.74	A	C
21	Irvine Av. / Santiago Dr.																	
	Existing Lanes	TS	1	1.5	0.5	1	2	d	0.5	0.5	1	0.5	0.5	d	0.71	0.74	C	C
22	Irvine Av. / Highland Dr																	
	Existing Lanes	TS	1	2	d	1	2	d	0.5	0.5	d	0.5	0.5	d	0.58	0.63	A	B
23	Irvine Av. / Dover Dr.																	
	Existing Lanes	TS	1	2	1	1	2	d	1	0.5	0.5	1	1	1	0.67	0.73	B	C
24	Irvine Av. / Westcliff Dr.																	
	Existing Lanes	TS	2	2	d	2	2	d	2	1.5	0.5	1	1.5	0.5	0.54	0.74	A	C
25	Dover Dr. / Westcliff Dr.																	
	Existing Lanes	TS	2	2	0	0	1	1	2	0	1>>	0	0	0	0.46	0.48	A	A
26	Dover Dr. / 16th St.																	
	Existing Lanes	TS	1	2	d	1	2	d	0.5	0.5	d	1	1	1	0.47	0.48	A	A
27	Dover Dr. / Coast Hwy.																	
	Existing Lanes	TS	1	1.5	0.5	3	1	1	2	2.5	0.5	1	3	1>>	0.82	0.84	D	D
28	Bayside Dr / Coast Hwy.																	
	Existing Lanes	TS	2.33	0.33	0.33	1	1	d	1	3	1	1	3.5	0.5	0.76	0.84	C	D
29	MacArthur Bl. / Jamboree Rd.																	
	Existing Lanes	TS	2	4	1>	3	3	1>>	2	3	1	2	3	1	0.72	0.89	C	D
	General Plan Recommended Improvements	TS	2	4	1>	3	3	1>>	2	**4**	1	**3**	3	1	0.64	0.89	B	D
30	Jamboree Rd. / Bristol St. (N)																	
	Existing Lanes	TS	2	2.5	1.5	0	3.5	1.5	0	0	0	0	0	0	0.49	0.67	A	B

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TABLE 4-5

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
31	Bayview Pl. / Bristol St. (S)																	
	Existing Lanes	TS	0	0	2	0	0	0	0	4	1	0	0	0	0.48	0.47	A	A
32	Jamboree Rd. / Bristol St. (S)																	
	Existing Lanes	TS	0	4.5	0.5	0	4	0	1.5	1.5	2	0	0	0	0.81	0.66	D	B
	General Plan Recommended Improvements	TS	0	**5.5**	0.5	0	4	0	1.5	1.5	2	0	0	0	0.77	0.62	C	B
33	Jamboree Rd. / Bayview Wy																	
	Existing Lanes	TS	1	3.5	0.5	1	4	1	2	1	1	1	1	1	0.44	0.57	A	A
34	Jamboree Rd. / University Dr.																	
	Existing Lanes	TS	1	3	1	2	3	1	1.5	0.5	1	1.5	1.5	1>>	0.64	0.64	B	B
35	Jamboree Rd. / Bison Av.																	
	Existing Lanes	TS	0	3	d	2	3	1	1	0	1	2	0	2	0.59	0.58	A	A
36	Jamboree Rd. / Ford Rd.																	
	Existing Lanes	TS	2	2.5	0.5	1	3	1	1.5	1.5	1>>	1.5	1.5	1	0.87	0.76	D	C
37	Jamboree Rd. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	3	1>>	2	3	1>>	1.5	1.5	1	1.5	1.5	1	0.76	0.87	C	D
38	Jamboree Rd. / Santa Barbara Dr.																	
	Existing Lanes	TS	1	3	1	2	3	1	1	1	1	1.5	0.5	1	0.64	0.87	B	D
39	Jamboree Rd. / Coast Hwy.																	
	Existing Lanes	TS	1	1.5	0.5	1	2	1>>	3	3.5	0.5	2	4	1	0.70	0.78	B	C
40	Santa Cruz Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	2	0.5	0.5	1	1.5	0.5	1	2.5	0.5	1	2.5	0.5	0.38	0.35	A	A
41	Santa Rosa Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	1	1	1	1	1	1	2.5	0.5	2	2.5	0.5	0.60	0.80	A	C
42	Newport Ctr. Dr. / Coast Hwy.																	
	Existing Lanes	TS	0	0	0	2	0	1>>	2	3	0	0	3	1>>	0.43	0.54	A	A
44	Avocado Av. / San Miguel Dr.																	
	Existing Lanes	TS	1	1	1>	2	0.5	0.5	1	2.5	0.5	2	1.5	0.5	0.38	0.66	A	B
45	Avocado Av. / Coast Hwy.																	
	Existing Lanes	TS	1	1	1	1.5	0.5	1>>	1	3	d	1	3	1	0.54	0.66	A	B
46	SR-73 NB / Bison Av.																	
	Existing Lanes	TS	1.5	0	1.5	0	0	0	1	2	0	0	2	1	0.73	0.56	C	A
47	SR-73 SB / Bison Av.																	
	Existing Lanes	TS	0	0	0	2	0	1>>	0	2	1	2	2	0	0.61	0.33	B	A
48	MacArthur Bl. / Bison Av.																	
	Existing Lanes	TS	2	4	1>>	2	4	1>	2	2	1>>	2	2	1>	0.78	0.74	C	C

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TABLE 4-5

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
49	MacArthur Bl. / Ford Dr.																	
	Existing Lanes	TS	2	4	1>>	2	4	1>>	2	2	1	2	2	1>>	0.80	**0.96**	C	**E**
	General Plan Recommended Improvements	TS	2	4	1>>	**3**	4	1>>	2	2	1	2	2	1>>	0.76	0.85	C	D
50	MacArthur Bl. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	2	3	1	2	3	1>>	3	2.5	0.5	1	2	1>>	0.64	0.85	B	D
	General Plan Recommended Improvements	TS	2	**3.5**	**0.5**	**3**	3	1>>	3	2.5	0.5	1	2	1>>	0.51	0.70	A	B
51	MacArthur Bl. / San Miguel Dr.																	
	Existing Lanes	TS	2	3	1	2	3	1	3	2	d	2	2	d	0.74	0.59	C	A
52	MacArthur Bl. / Coast Hwy.																	
	Existing Lanes	TS	0	0	0	2	0	1>>	2	3	0	0	3	1>>	0.58	0.66	A	B
53	SR-73 NB / Bonita Canyon Dr.																	
	Existing Lanes (GP Completed)	TS	2	0	1	0	0	0	0	2	1	2	2	0	0.66	0.58	B	A
54	SR-73 SB / Bonita Canyon Dr.																	
	Existing Lanes	TS	2	0	1	0	0	0	1	2	1	2	3	0	0.45	0.60	A	A
55	Spy Glass Hill Rd. / San Miguel Dr.																	
	Existing Lanes	TS	1	0.5	0.5	0.5	0.5	1	1	2	d	1	2	d	0.34	0.44	A	A
56	San Miguel Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	2	d	1	2	d	2	3	d	1	3	d	0.48	0.52	A	A
57	Goldenrod Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	1.5	0.5	1	1.5	0.5	0.84	0.84	D	D
58	Marguerite Av. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1.5	0.5	1	1	0.5	0.5	1	2	1	1	3	d	0.42	0.48	A	A
59	Marguerite Av. / Coast Hwy.																	
	Existing Lanes	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	1.5	0.5	0.84	0.75	D	C
60	Spy Glass Hill Rd. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	1	0.5	0.5	1	0.5	0.5	1	2	1	1	2	d	0.39	0.35	A	A
61	Poppy Av. / Coast Hwy.																	
	Existing Lanes	TS	0.33	0.33	0.33	0.33	0.33	0.33	1	2	d	1	1.5	0.5	0.70	0.71	B	C
62	Newport Coast Dr. / SR-73 NB																	
	Existing Lanes	TS	0	2	1>>	0	2	0	0	0	0	1.5	0	0.5	0.48	0.33	A	A
63	Newport Coast Dr. / SR-73 SB																	
	Existing Lanes	TS	0	3	1>>	0	2	0	0	0	1>>	0	0	0	0.33	0.31	A	A
64	Newport Coast Dr. / San Joaquin Hills Rd.																	
	Existing Lanes	TS	2	3	0	1	3	1	1	0	2	0	0	0	0.62	0.57	B	A

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TABLE 4-5

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
65	Newport Coast Dr. / Coast Hwy.																	
	Existing Lanes	TS	1	1	d	2	1	1>>	1	3	1	1	3	1>>	0.47	0.55	A	A
66	Newport Bl. (W) / Coast Hwy.																	
	Existing Lanes	TS	0	0	0	2	0	1	0	2	1>>	0	3	1>>	**1.21**	0.86	**F**	D
67	Red Hill Av. / MacArthur Bl. (Irvine)																	
	Existing Lanes	TS	2	2.5	0.5	2	3	1>>	2	3	d	1	3	1>>	0.76	0.83	C	D
68	MacArthur Bl. / Main St. (Irvine)																	
	Existing Lanes	TS	2	4	2>>	2	4	1	1	3	1>	2	3	1>>	0.63	0.84	B	D
69	MacArthur Bl. / I-405 NB Ramps (Irvine)																	
	Existing Lanes	TS	0	4	2	2	4	0	0	0	0	2	0	2	0.69	0.66	B	B
70	MacArthur Bl. / I-405 SB Ramps (Irvine)																	
	Existing Lanes	TS	0	4	1>	2	4	1	0	0	0	2	1	1>>	0.63	0.79	B	C
71	MacArthur Bl. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	4	1	2	3.5	0.5	2	1	1	2	1	1>	0.70	0.90	B	D
72	Von Karman Av. / Barranca Pkwy. (Irvine)																	
	Existing Lanes	TS	2	2	d	2	2	2>	1	3	d	2	3	1	0.85	**1.07**	D	**F**
	General Plan Recommended Improvements	TS	2	2	d	2	2	2>	**2**	3	**1**	2	**4**	1	0.72	0.89	C	D
73	Von Karman Av. / Alton Pkwy. (Irvine)																	
	Existing Lanes	TS	1	2	d	1	2	d	1	2	d	1	2	d	0.91	**1.02**	E	**F**
	General Plan Recommended Improvements	TS	1	2	d	1	2	d	1	2	d	1	2	d	0.91	**1.02**	E	**F**
	With ATMS Improvements (by others)	**TS**	1	2	d	1	2	d	1	2	d	1	2	d	0.86	**0.97**	D	E
74	Von Karman Av. / Main St. (Irvine)																	
	Existing Lanes	TS	2	2	1	1	2	1	2	3	1>>	2	2.5	0.5	0.70	0.93	B	E
76	Von Karman Av. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	2	1	1	1.5	0.5	1	1.5	0.5	1	2	1>>	0.77	0.94	C	E
77	Jamboree Rd. / Barranca Pkwy. (Irvine)																	
	Existing Lanes	TS	2	4	1>>	2	4	1>>	2.5	2.5	1	2	3	1>>	0.85	**1.01**	D	**F**
	General Plan Recommended Improvements	TS	2	**5**	1	2	4	1>>	2.5	2.5	1	2	3	1>>	0.85	0.92	D	E
78	Jamboree Rd. / Alton Pkwy. (Irvine)																	
	Existing Lanes	TS	2	4	1	2	3.5	0.5	2	2.5	0.5	2	3	d	0.81	0.86	D	D
79	Jamboree Rd. / Main St. (Irvine)																	
	Existing Lanes	TS	2	4	1>>	2	4	1>	2	3	1>>	2	3	1>>	0.79	0.89	C	D
	General Plan Recommended Improvements	TS	2	**5**	**1**	2	**5**	1>	2	3	1>>	2	3	**1**	0.71	0.82	C	D

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TABLE 4-5

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
80	Jamboree Rd. / I-405 NB Ramps (Irvine)																	
	Existing Lanes	TS	0	3	1>>	0	4	1>>	0	0	0	3	0	2>>	0.75	0.87	C	D
81	Jamboree Rd. / I-405 SB Ramps (Irvine)																	
	Existing Lanes	TS	0	4	2>>	0	4	1>>	1.5	0	2.5	0	0	0	0.92	0.74	E	C
82	Jamboree Rd. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	4	1	2	4	1>>	2	1.5	0.5	2	2	1>>	0.95	**1.07**	E	**F**
	General Plan Recommended Improvements	TS	1	4	**1>>**	2	4	1>>	2	**2**	**1**	2	2	1>>	0.95	**1.05**	E	**F**
83	Carlson Av. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	2	2	1	2	1	1>>	2	2	1	1	2	1>>	0.77	0.89	C	D
84	Carlson Av. / Campus Dr. (Irvine)																	
	Existing Lanes	TS	0	0	0	1	0	1	1	1	0	0	1	d	0.98	**1.10**	E	**F**
	General Plan Recommended Improvements	TS	0	0	0	1	0	1	1	**2**	0	0	**2**	d	0.65	0.76	B	C
85	Red Hill Av. / Barranca Pkwy. (Irvine)																	
	Existing Lanes	TS	2	3	d	2	3	d	2	2.5	0.5	1	2.5	0.5	0.60	0.75	A	C
	General Plan Recommended Improvements	TS	2	**4**	d	2	**4**	d	2	**4**	**0**	**2**	**4**	**1**	0.60	0.75	A	C
86	Red Hill Av. / Alton Pkwy. (Irvine)																	
	Existing Lanes	TS	1	2.5	0.5	1	3	d	1	2	1	2	1	1	**1.06**	**1.27**	**F**	**F**
	General Plan Recommended Improvements	TS	1	**3**	**1**	1	3	**1**	**2**	2	1	2	**2**	**1>>**	0.84	0.87	D	D
87	Harvard Av. / Michelson Dr. (Irvine)																	
	Existing Lanes	TS	1	2	0	1	2	1	2	2	1>>	1	2	0	0.68	0.89	B	D
	General Plan Recommended Improvements	TS	1	2	0	**2**	2	1	2	2	1>>	1	2	0	0.68	0.81	B	D
88	Harvard Av. / University Dr. (Irvine)																	
	Existing Lanes	TS	1	2	d	1	2	d	1	3	0	1	3	0	0.76	0.83	C	D
89	University Dr. / Campus Dr.																	
	Existing Lanes	TS	1	3	1	1	2	1	1	2	d	1	2	d	**1.00**	**1.17**	**E**	**F**
	General Plan Recommended Improvements	TS	**2**	3	1	**2**	**3**	1	**2**	2	d	**2**	2	d	0.73	0.87	C	D
90	MacArthur Bl. (NB) / University Dr. (Irvine)																	
	Existing Lanes	TS	1	0	1	0	0	0	0	3	d	2	3	0	0.64	0.72	B	C
91	MacArthur Bl. (SB) / University Dr. (Irvine)																	
	Existing Lanes	TS	1	0	1	0	0	0	0	3	0	2	3	0	0.73	0.62	C	B
92	Fairchild Rd. / MacArthur Bl. (Irvine)																	
	Existing Lanes	TS	0	0	0	1	0	1	1	3	0	0	3	0	0.70	0.72	B	C

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TABLE 4-5

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GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) - PEAK HOUR INTERSECTION OPERATIONS ANALYSIS

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
93	Jamboree Rd. / Fairchild Rd. (Irvine)																	
	Existing Lanes	TS	1	3	0	2	4	d	1	1	0	1	1	1	0.65	0.68	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane; 1 = Improvements

[2] V/C = Volume/Capacity Ratio

[3] Level of Service (LOS) is calculated based on the Intersection Capacity Utilization (ICU) method.

[4] TS = Traffic Signal

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2	Superior Av / Placentia Av.												
	Existing Lanes	0.68	0.64	B	B	0.66	0.63	B	B	-0.02	-0.01	--	--
3	Superior Av / Coast Hwy.												
	Existing Lanes	**1.06**	0.80	**F**	C	**1.05**	0.79	**F**	C	-0.01	-0.01	--	--
4	Newport Bl. / Hospital Rd.												
	Existing Lanes	0.70	0.70	B	B	0.68	0.73	B	C	-0.02	0.03	--	Yes
	General Plan Recommended Improvements	0.70	0.67	B	B	0.68	0.69	B	B	-0.02	0.02	--	--
5	Newport Bl. / Via Lido												
	Existing Lanes	0.46	0.37	A	A	0.46	0.37	A	A	0.00	0.00	--	--
6	Newport Bl. / 32nd St.												
	Existing Lanes	0.56	0.58	A	A	0.56	0.58	A	A	0.00	0.00	--	--
	General Plan Recommended Improvements	0.53	0.59	A	A	0.53	0.59	A	A	0.00	0.00	--	--
7	Riverside Av. / Coast Hwy.												
	Existing Lanes	**1.01**	0.89	**F**	D	0.97	0.88	E	D	-0.04	-0.01	Yes	--
	General Plan Recommended Improvements	0.76	0.89	C	D	0.73	0.88	C	D	-0.03	-0.01	--	--
8	Tustin Av. / Coast Hwy.												
	Existing Lanes	**0.97**	0.77	**E**	C	**0.92**	0.75	**E**	C	-0.05	-0.02	--	--
	General Plan Recommended Improvements	0.67	0.77	B	C	0.64	0.75	B	C	-0.03	-0.02	--	--
9	MacArthur Bl. / Campus Dr.												
	Existing Lanes	0.86	0.94	D	E	0.93	0.97	E	E	0.07	0.03	Yes	--
	General Plan Recommended Improvements	0.58	0.67	A	B	0.62	0.70	B	B	0.04	0.03	Yes	--
10	MacArthur Bl. / Birch St.												
	Existing Lanes	0.53	0.65	A	B	0.57	0.71	A	C	0.04	0.06	--	Yes
11	Von Karman Av. / Campus Dr.												
	Existing Lanes	0.75	0.81	C	D	0.71	0.81	C	D	-0.04	0.00	--	--
	General Plan Recommended Improvements	0.69	0.74	B	C	0.66	0.74	B	C	-0.03	0.00	--	--
12	MacArthur Bl. / Von Karman Av.												
	Existing Lanes	0.64	0.56	B	A	0.62	0.58	B	A	-0.02	0.02	--	--

Note: If box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
13	Jamboree Rd. / Campus Dr.												
	Existing Lanes	0.75	**1.01**	C	**F**	0.74	**1.01**	C	**F**	-0.01	0.00	--	--
	General Plan Recommended Improvements	0.73	0.82	C	D	0.73	0.83	C	D	0.00	0.01	--	--
14	Jamboree Rd. / Birch St.												
	Existing Lanes	0.58	0.59	A	A	0.63	0.61	B	B	0.05	0.02	Yes	Yes
	General Plan Recommended Improvements	0.50	0.48	A	A	0.55	0.50	A	A	0.05	0.02	--	--
15	Campus Dr. / Bristol St. (N)												
	Existing Lanes	0.65	0.96	B	E	0.65	0.93	B	E	0.00	-0.03	--	--
	General Plan Recommended Improvements	0.51	0.75	A	C	0.50	0.73	A	C	-0.01	-0.02	--	--
16	Birch St. / Bristol St. (N)									0.00	0.00		
	Existing Lanes	0.64	0.64	B	B	0.60	0.64	A	B	-0.04	0.00	Yes	--
17	Campus Dr. / Bristol St. (S)												
	Existing Lanes	0.81	0.59	D	A	0.79	0.59	C	A	-0.02	0.00	Yes	--
18	Birch St. / Bristol St. (S)												
	Existing Lanes	0.49	0.53	A	A	0.49	0.53	A	A	0.00	0.00	--	--
19	Irvine Av. / Mesa Dr.												
	Existing Lanes	0.55	0.65	A	B	0.58	0.62	A	B	0.03	-0.03	--	--
20	Irvine Av. / University Dr.												
	Existing Lanes	0.74	**0.91**	C	**E**	0.74	**0.93**	C	**E** *	0.00	0.02	--	--
	General Plan Recommended Improvements	0.57	0.72	A	C	0.57	0.74	A	C	0.00	0.02	--	--
21	Irvine Av. / Santiago Dr.												
	Existing Lanes	0.71	0.75	C	C	0.71	0.74	C	C	0.00	-0.01	--	--
22	Irvine Av. / Highland Dr												
	Existing Lanes	0.57	0.63	A	B	0.58	0.63	A	B	0.01	0.00	--	--
	General Plan Recommended Improvements	0.57	0.63	A	B	0.57	0.63	A	B	0.00	0.00	--	--
23	Irvine Av. / Dover Dr.												
	Existing Lanes	0.65	0.73	B	C	0.67	0.73	B	C	0.02	0.00	--	--
24	Irvine Av. / Westcliff Dr.												
	Existing Lanes	0.54	0.74	A	C	0.54	0.74	A	C	0.00	0.00	--	--

Note: If box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
25	Dover Dr. / Westcliff Dr.												
	Existing Lanes	0.45	0.48	A	A	0.46	0.48	A	A	0.01	0.00	--	--
26	Dover Dr. / 16th St.												
	Existing Lanes	0.47	0.48	A	A	0.47	0.48	A	A	0.00	0.00	--	--
27	Dover Dr. / Coast Hwy.												
	Existing Lanes	0.84	0.86	D	D	0.82	0.84	D	D	-0.02	-0.02	--	--
28	Bayside Dr / Coast Hwy.												
	Existing Lanes	0.79	0.86	C	D	0.76	0.84	C	D	-0.03	-0.02	--	--
29	MacArthur Bl. / Jamboree Rd.												
	Existing Lanes	0.70	0.88	B	D	0.72	0.89	C	D	0.02	0.01	Yes	--
	General Plan Recommended Improvements	0.62	0.88	B	D	0.64	0.89	B	D	0.02	0.01	--	--
30	Jamboree Rd. / Bristol St. (N)												
	Existing Lanes	0.48	0.67	A	B	0.49	0.67	A	B	0.01	0.00	--	--
31	Bayview Pl. / Bristol St. (S)												
	Existing Lanes	0.48	0.46	A	A	0.48	0.47	A	A	0.00	0.01	--	--
32	Jamboree Rd. / Bristol St. (S)												
	Existing Lanes	0.80	0.65	C	B	0.81	0.66	D	B	0.01	0.01	Yes	--
	General Plan Recommended Improvements	0.76	0.61	C	B	0.77	0.62	C	B	0.01	0.01	--	--
33	Jamboree Rd. / Bayview Wy												
	Existing Lanes	0.44	0.56	A	A	0.44	0.57	A	A	0.00	0.01	--	--
34	Jamboree Rd. / University Dr.												
	Existing Lanes	0.61	0.63	B	B	0.64	0.64	B	B	0.03	0.01	--	--
35	Jamboree Rd. / Bison Av.												
	Existing Lanes	0.56	0.55	A	A	0.59	0.58	A	A	0.03	0.03	--	--
36	Jamboree Rd. / Ford Rd.												
	Existing Lanes	0.84	0.75	D	C	0.87	0.76	D	C	0.03	0.01	--	--
37	Jamboree Rd. / San Joaquin Hills Rd.												
	Existing Lanes	0.72	0.84	C	D	0.76	0.87	C	D	0.04	0.03	--	--

Note: If box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
38	Jamboree Rd. / Santa Barbara Dr.												
	Existing Lanes	0.61	0.79	B	C	0.64	0.87	B	D	0.03	0.08	--	Yes
39	Jamboree Rd. / Coast Hwy.												
	Existing Lanes	0.71	0.79	C	C	0.70	0.78	B	C	-0.01	-0.01	Yes	--
40	Santa Cruz Dr. / San Joaquin Hills Rd.												
	Existing Lanes	0.36	0.35	A	A	0.38	0.35	A	A	0.02	0.00	--	--
41	Santa Rosa Dr. / San Joaquin Hills Rd.												
	Existing Lanes	0.55	0.79	A	C	0.60	0.80	A	C	0.05	0.01	--	--
42	Newport Ctr. Dr. / Coast Hwy.												
	Existing Lanes	0.42	0.53	A	A	0.43	0.54	A	A	0.01	0.01	--	--
44	Avocado Av. / San Miguel Dr.												
	Existing Lanes	0.37	0.64	A	B	0.38	0.66	A	B	0.01	0.02	--	--
45	Avocado Av. / Coast Hwy.												
	Existing Lanes	0.55	0.68	A	B	0.54	0.66	A	B	-0.01	-0.02	--	--
46	SR-73 NB / Bison Av.												
	Existing Lanes	0.74	0.57	C	A	0.73	0.56	C	A	-0.01	-0.01	--	--
47	SR-73 SB / Bison Av.												
	Existing Lanes	0.61	0.33	B	A	0.61	0.33	B	A	0.00	0.00	--	--
48	MacArthur Bl. / Bison Av.												
	Existing Lanes	0.78	0.73	C	C	0.78	0.74	C	C	0.00	0.01	--	--
49	MacArthur Bl. / Ford Dr.												
	Existing Lanes	0.80	**0.95**	C	**E**	0.80	**0.96**	C	**E ***	0.00	0.01	--	--
	General Plan Recommended Improvements	0.76	0.84	C	D	0.76	0.85	C	D	0.00	0.01	--	--
50	MacArthur Bl. / San Joaquin Hills Rd.												
	Existing Lanes	0.63	0.84	B	D	0.64	0.85	B	D	0.01	0.01	--	--
	General Plan Recommended Improvements	0.50	0.69	A	B	0.51	0.70	A	B	0.01	0.01	--	--
51	MacArthur Bl. / San Miguel Dr.												
	Existing Lanes	0.71	0.58	C	A	0.74	0.59	C	A	0.03	0.01	--	--

Note: If box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
52	MacArthur Bl. / Coast Hwy.												
	Existing Lanes	0.58	0.64	A	B	0.58	0.66	A	B	0.00	0.02	--	--
53	SR-73 NB / Bonita Canyon Dr.												
	Existing Lanes	0.71	0.62	C	B	0.66	0.58	B	A	-0.05	-0.04	Yes	Yes
54	SR-73 SB / Bonita Canyon Dr.												
	Existing Lanes	0.47	0.65	A	B	0.45	0.60	A	A	-0.02	-0.05	--	Yes
55	Spy Glass Hill Rd. / San Miguel Dr.												
	Existing Lanes	0.34	0.43	A	A	0.34	0.44	A	A	0.00	0.01	--	--
56	San Miguel Dr. / San Joaquin Hills Rd.												
	Existing Lanes	0.48	0.54	A	A	0.48	0.52	A	A	0.00	-0.02	--	--
57	Goldenrod Av. / Coast Hwy.												
	Existing Lanes	0.80	0.83	C	D	0.84	0.84	D	D	0.04	0.01	Yes	--
58	Marguerite Av. / San Joaquin Hills Rd.												
	Existing Lanes	0.47	0.52	A	A	0.42	0.48	A	A	-0.05	-0.04	--	--
59	Marguerite Av. / Coast Hwy.												
	Existing Lanes	0.79	0.72	C	C	0.84	0.75	D	C	0.05	0.03	Yes	--
60	Spy Glass Hill Rd. / San Joaquin Hills Rd.												
	Existing Lanes	0.41	0.35	A	A	0.39	0.35	A	A	-0.02	0.00	--	--
61	Poppy Av. / Coast Hwy.												
	Existing Lanes	0.68	0.71	B	C	0.70	0.71	B	C	0.02	0.00	--	--
62	Newport Coast Dr. / SR-73 NB												
	Existing Lanes	0.51	0.40	A	A	0.48	0.33	A	A	-0.03	-0.07	--	--
63	Newport Coast Dr. / SR-73 SB												
	Existing Lanes	0.33	0.34	A	A	0.33	0.31	A	A	0.00	-0.03	--	--
64	Newport Coast Dr. / San Joaquin Hills Rd.												
	Existing Lanes	0.57	0.57	A	A	0.62	0.57	B	A	0.05	0.00	Yes	--
65	Newport Coast Dr. / Coast Hwy.												
	Existing Lanes	0.51	0.63	A	B	0.47	0.55	A	A	-0.04	-0.08	--	Yes

Note: If box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
66	Newport Bl. (W) / Coast Hwy.												
	Existing Lanes	**1.21**	0.86	**F**	D	**1.21**	0.86	**F**	D	0.00	0.00	--	--
67	Red Hill Av. / MacArthur Bl.												
	Existing Lanes	0.73	0.81	C	D	0.76	0.83	C	D	0.03	0.02	--	--
68	MacArthur Bl. / Main St.												
	Existing Lanes	0.61	0.83	B	D	0.63	0.84	B	D	0.02	0.01	--	--
69	MacArthur Bl. / I-405 NB Ramps												
	Existing Lanes	0.68	0.67	B	B	0.69	0.66	B	B	0.01	-0.01	--	--
70	MacArthur Bl. / I-405 SB Ramps												
	Existing Lanes	0.61	0.77	B	C	0.63	0.79	B	C	0.02	0.02	--	--
71	MacArthur Bl. / Michelson Dr.												
	Existing Lanes	0.68	0.88	B	D	0.70	0.90	B	D	0.02	0.02	--	--
72	Von Karman Av. / Barranca Pkwy.												
	Existing Lanes	0.85	**1.07**	D	**F**	0.85	**1.07**	D	**F**	0.00	0.00	--	--
	General Plan Recommended Improvements	0.72	0.90	C	D	0.72	0.89	C	D	0.00	-0.01	--	--
73	Von Karman Av. / Alton Pkwy.												
	Existing Lanes	0.84	0.98	D	E	0.91	**1.02**	E	**F** *	0.07	0.04	Yes	Yes
	With ATMS Improvements (by others)	0.79	0.93	C	E	0.86	0.97	D	E	0.07	0.04	Yes	--
74	Von Karman Av. / Main St.												
	Existing Lanes	0.70	0.94	B	E	0.70	0.93	B	E	0.00	-0.01	--	--
76	Von Karman Av. / Michelson Dr.												
	Existing Lanes	0.76	0.94	C	E	0.77	0.94	C	E	0.01	0.00	--	--
77	Jamboree Rd. / Barranca Pkwy.												
	Existing Lanes	0.85	**1.01**	D	**F**	0.85	**1.01**	D	**F**	0.00	0.00	--	--
	General Plan Recommended Improvements	0.85	0.93	D	E	0.85	0.92	D	E	0.00	-0.01	--	--
78	Jamboree Rd. / Alton Pkwy.												
	Existing Lanes	0.81	0.85	D	D	0.81	0.86	D	D	0.00	0.01	--	--

Note: If box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
79	Jamboree Rd. / Main St.												
	Existing Lanes	0.80	0.89	C	D	0.79	0.89	C	D	-0.01	0.00	--	--
	General Plan Recommended Improvements	0.72	0.82	C	D	0.71	0.82	C	D	-0.01	0.00	--	--
80	Jamboree Rd. / I-405 NB Ramps												
	Existing Lanes	0.74	0.86	C	D	0.75	0.87	C	D	0.01	0.01	--	--
81	Jamboree Rd. / I-405 SB Ramps												
	Existing Lanes	0.93	0.73	E	C	0.92	0.74	E	C	-0.01	0.01	--	--
82	Jamboree Rd. / Michelson Dr.												
	Existing Lanes	0.95	**1.08**	E	**F**	0.95	**1.07**	E	**F**	0.00	-0.01	--	--
	General Plan Recommended Improvements	0.95	**1.06**	E	**F**	0.95	**1.05**	E	**F**	0.00	-0.01	--	--
83	Carlson Av. / Michelson Dr.												
	Existing Lanes	0.76	0.87	C	D	0.77	0.89	C	D	0.01	0.02	--	--
84	Carlson Av. / Campus Dr.												
	Existing Lanes	0.98	**1.11**	E	**F**	0.98	**1.10**	E	**F**	0.00	-0.01	--	--
	General Plan Recommended Improvements	0.65	0.76	B	C	0.65	0.76	B	C	0.00	0.00	--	--
85	Red Hill Av. / Barranca Pkwy.												
	Existing Lanes	0.59	0.76	A	C	0.60	0.75	A	C	0.01	-0.01	--	--
86	Red Hill Av. / Alton Pkwy.												
	Existing Lanes	**1.07**	**1.26**	**F**	**F**	**1.06**	**1.27**	**F**	**F**	-0.01	0.01	--	--
	General Plan Recommended Improvements	0.83	0.86	D	D	0.84	0.87	D	D	0.01	0.01	--	--
87	Harvard Av. / Michelson Dr.												
	Existing Lanes	0.67	0.89	B	D	0.68	0.89	B	D	0.01	0.00	--	--
	General Plan Recommended Improvements	0.67	0.81	B	D	0.68	0.81	B	D	0.01	0.00	--	--
88	Harvard Av. / University Dr.												
	Existing Lanes	0.75	0.83	C	D	0.76	0.83	C	D	0.01	0.00	--	--
89	University Dr. / Campus Dr.												
	Existing Lanes	**0.99**	**1.18**	**E**	**F**	**1.00**	**1.17**	**E**	**F**	0.01	-0.01	--	--
	General Plan Recommended Improvements	0.73	0.87	C	D	0.73	0.87	C	D	0.00	0.00	--	--

Note: If box is shaded, LOS "E" is acceptable.

TABLE 4-6

EXISTING & GENERAL PLAN RECOMMENDED IMPROVEMENT GEOMETRICS
COMPARISON OF ICU RESULTS

ID	Intersection	2006 GP Peak Hour				GP LUE Peak Hour				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
90	MacArthur Bl. (NB) / University Dr.												
	Existing Lanes	0.63	0.72	B	C	0.64	0.72	B	C	0.01	0.00	--	--
91	MacArthur Bl. (SB) / University Dr.												
	Existing Lanes	0.71	0.62	C	B	0.73	0.62	C	B	0.02	0.00	--	--
92	Fairchild Rd. / MacArthur Bl.												
	Existing Lanes	0.69	0.72	B	C	0.70	0.72	B	C	0.01	0.00	--	--
93	Jamboree Rd. / Fairchild Rd.												
	Existing Lanes	0.64	0.69	B	B	0.65	0.68	B	B	0.01	-0.01	--	--

[1] V/C = Volume/Capacity Ratio

[2] Level of Service (LOS) is calculated based on the Intersection Capacity Utilization (ICU) method.

Bold indicates unacceptable LOS.

* Project Impact

Note: If box is shaded, LOS "E" is acceptable.

- **(#73) - Von Karman Avenue at Alton Parkway (PM)**
- (#77) - Jamboree Road at Barranca Parkway (PM)
- **(#82) – Jamboree Road at Michelson Drive**
- (#84) - Carlson Avenue at Campus Drive (PM)
- (#86) - Red Hill Avenue at Alton Parkway (AM & PM)
- (#89) - University Drive at Campus Drive (AM & PM)

Ten (10) of the above thirteen (13) intersection locations with ICU values greater than the acceptable level of service are not significantly impacted by the Project (project contribution is less than .01 at Newport Beach locations, or less than .02 at locations in the City of Irvine). However, as shown in Table 4-6, a significant project impact is projected to occur at the following intersections without General Plan buildout recommended improvements:

- Irvine Avenue at University Drive (PM)
- MacArthur Boulevard at Ford Drive (PM)
- Von Karman Avenue at Alton Parkway (PM)

From those impacted intersections, Von Karman at Alton Parkway continued to experience unacceptable operations during the PM peak hours with General Plan Recommended Improvements.

For the intersection of Von Karman Avenue at Alton Parkway, AM and PM peak hour Intersection Capacity Utilization (ICU) analysis has been performed without and with the Advanced Transportation Management Systems (ATMS) improvements which are already planned by the City of Irvine at this location.

Without ATMS improvements, the intersection is anticipated to experience 0.91 (LOS D) operations in the AM peak hour and 1.02 (LOS F) operations in the PM peak hour. The actual turn volumes and ICU calculation worksheets are included in Appendix 4.2. No General Plan lane improvements are planned for this intersection. Without the additional capacity allowed by the ATMS, there is a PM peak hour impact with the General Plan LUE Amendment (proposed project).

With ATMS improvements, the intersection is anticipated to experience 0.86 (LOS D) operations in the AM peak hour and 0.97 (LOS E) operations in the PM peak hour. The final intersection operation with currently planned improvements is not deficient, and no impact occurs.

4.6 FREEWAY SYSTEM ANALYSIS

As presented previously in the 2006 General Plan freeway mainline analysis, the freeway system in the study area (I-405, SR-73 and SR-55 freeway analysis segments) is defined by

ramp-to-ramp directional segments. The freeway segments have been evaluated based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in Section 1.3. Appendix 4.4 contains freeway mainline analysis worksheets, and Table 4-7 contains the results of the freeway mainline analysis for the General Plan LUE Amendment (proposed project).

The study area freeway mainline locations identified as experiencing deficient operations for the 2006 General Plan continue to experience deficient operations for General Plan LUE Amendment (proposed project) conditions:

- SB I-405, North of SR-55 FWY, (PM Peak Hour Only)
- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (AM and PM Peak Hours)
- NB SR-55, MacArthur Blvd. to I-405 FWY, (AM Peak Hour Only)
- NB SR-55, I-405 FWY to SR-73, (AM Peak Hour Only)
- NB SR-55, SR-73 FWY to Mesa Dr, (AM Peak Hour Only)

Ramp merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS+ software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. Appendix 4.5 contains freeway ramp analysis worksheets, and Table 4-8 contains the results of the freeway ramp analysis for the General Plan LUE Amendment (proposed project).

The freeway ramp locations identified as experiencing deficient for the 2006 General Plan condition continue to experience deficient operations for General Plan LUE Amendment (proposed project) conditions:

- I-405, SB Loop Off-Ramp at MacArthur Blvd.
- I-405, NB Off-Ramp at MacArthur Blvd.

Table 4-8 also includes the volume and performance comparison between 2006 General Plan and General Plan LUE Amendment (proposed project) (LUE Amendment) conditions for freeway ramps.

A change in volume does not necessarily correlate directly to the density and LOS results. The capacity of a merge or diverge area is influenced by the volume and capacity of adjacent

TABLE 4-7

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS SUMMARY

FREEWAY	DIRECTION	MAINLINE SEGMENT LOCATION	Lanes[1]	VOLUME Δ		2006 GENERAL PLAN				GP LUE AMENDMENT			
						DENSITY [2]		LOS [3]		DENSITY [2]		LOS [3]	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	North of SR-55 FWY	5+1H	35	65	40.2	**>45.0**	E	**F**	40.6	**>45.0**	E	**F**
		SR-55 FWY to MacArthur Blvd.	6+1H	-8	103	**>45.0**	31.4	**F**	D	**>45.0**	31.9	**F**	D
		North of Jamboree Rd.	7+1H	44	5	29.7	27.0	D	D	29.9	27.0	D	D
		South of Jamboree Rd.	7+1H	66	60	24.5	26.6	C	D	24.7	26.8	C	D
	NB	North of SR-55 Fwy	5+1H	55	24	30.1	20.9	D	C	30.1	20.9	D	C
		SR-55 FWY to MacArthur Blvd.	6+1H	57	35	36.3	37.4	E	E	36.7	37.7	E	E
		North of Jamboree Rd.	6+1H	89	16	41.9	33.8	E	D	42.6	33.9	E	D
		South of Jamboree Rd.	6+1H	-70	52	**>45.0**	29.3	**F**	D	**>45.0**	29.5	**F**	D
SR-73 FREEWAY/TOLL ROAD	SB	North of SR-55 FWY	4+1H	119	9	26.9	22.2	D	C	27.6	22.3	D	C
		North of Jamboree Rd.	4+1H	81	19	39.7	34.6	E	D	40.6	34.8	E	D
		South of Jamboree Rd.	4	85	14	30.3	27.3	D	D	30.9	27.4	D	D
		North of Bonita Canyon Rd.	5	-2	-39	13.5	12.2	B	B	13.5	12.1	B	B
		Bonita Canyon Rd. to Newport Coast Dr.	4	-13	-30	16.5	16.2	B	B	16.4	16.1	B	B
	NB	North of SR-55 FWY	4+1H	23	-38	23.6	34.0	C	D	23.7	33.7	C	D
		North of Jamboree Rd.	4+1H	-2	43	43.8	**>45.0**	E	**F**	43.8	**>45.0**	E	**F**
		South of Jamboree Rd.	4	-9	22	32.0	38.6	D	E	31.9	38.9	D	E
		North of Bonita Canyon Rd.	5	-107	-82	14.2	15.9	B	B	13.8	15.7	B	B
		Bonita Canyon Rd. to Newport Coast Dr.	4	-71	10	17.6	19.2	B	C	17.3	19.3	B	C
SR-55 FREEWAY	SB	Dyer Rd. to MacArthur Blvd.	6+1H	30	-1	16.7	22.3	B	C	16.8	22.3	B	C
		MacArthur Blvd. to I-405 FWY	6+1H	22	41	14.0	21.9	B	C	14.1	22.0	B	C
		I-405 FWY to SR-73 FWY	4	-5	64	13.5	21.0	B	C	13.5	21.3	B	C
		SR-73 FWY to Mesa Dr.	4	27	75	14.7	21.6	B	C	14.8	21.9	B	C
		Mesa Dr. to 22nd St./Victoria St.	4	4	56	13.2	19.0	B	C	13.2	19.3	B	C
		22nd St./Victoria St. to End	3	-8	52	13.5	19.1	B	C	13.5	19.4	B	C
	NB	Dyer Rd. to MacArthur Blvd.	5+1H	46	34	**>45.0**	**>45.0**	**F**	**F**	**>45.0**	**>45.0**	**F**	**F**
		MacArthur Blvd. to I-405 FWY	6+1H	14	-15	**>45.0**	32.1	**F**	D	**>45.0**	32.0	**F**	D
		I-405 FWY to SR-73 FWY	4	50	8	**>45.0**	32.0	**F**	D	**>45.0**	32.0	**F**	D
		SR-73 FWY to Mesa Dr.	4	14	44	**>45.0**	33.9	**F**	D	**>45.0**	34.2	**F**	D
		Mesa Dr. to 22nd St./Victoria St.	4	30	14	40.6	27.9	E	D	40.9	28.0	E	D
		22nd St./Victoria St. to End	3	29	17	40.8	26.8	E	D	41.3	27.0	E	D

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on the Orange County Transportation Analysis Model (OCTAM)

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln). The maximum density value at which sustained flows at capacity are expected to occur is 45 pc/mi/ln. Density values higher than 45 pc/mi/ln are given a LOS "F".

[3] Level of service determined using HCS+: Basic Freeway Segments software, Version 5.21.

TABLE 4-8

GENERAL PLAN LUE AMENDMENT (PROPOSED PROJECT) CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS SUMMARY

FREEWAY	DIRECTION	RAMP LOCATION	Lanes[1]	VOLUME[5] Δ		2006 GENERAL PLAN				GP LUE AMENDMENT			
						DENSITY[2]		LOS[3]		DENSITY[2]		LOS[3]	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	SB Loop Off-Ramp at MacArthur Blvd.	2	4	26	**9.0**	0.4	**F[4]**	A	**9.0**	0.7	**F[4]**	A
		SB On-Ramp at MacArthur Blvd.	2	11	-3	9.8	15.3	A	B	9.6	15.2	A	B
		SB Off-Ramp at Jamboree Rd.	2	13	6	9.7	4.4	A	A	9.8	4.4	A	A
		SB Loop On Ramp at Jamboree Rd.	1	-8	-5	23.4	26.6	C	C	23.4	26.7	C	C
		SB On-Ramp at Jamboree Rd.	2	45	56	23.8	28.1	C	D	24.2	28.7	C	D
	NB	NB Loop On-Ramp at MacArthur Blvd.	1	31	75	33.1	31.3	D	D	33.1	31.3	D	D
		NB Off-Ramp at MacArthur Blvd.	1	21	4	**35.7**	26.8	**F**	C	**36.0**	26.9	**F**	C
		NB On-Ramp at Jamboree Rd.	2	-19	-1	18.7	23.4	B	C	21.3	23.4	C	C
		NB Loop On-Ramp at Jamboree Rd.	1	26	12	29.7	27.6	D	C	29.9	27.7	D	C
		NB Off-Ramp at Jamboree Rd.	2	1	25	31.2	19.5	D	B	31.1	19.7	D	B
SR-73 FREEWAY/TOLL ROAD	SB	SB On-Ramp at Bison Av.	1	0	0	19.0	19.1	B	B	18.9	18.9	B	B
		SB Loop Off-Ramp at Bonita Canyon Rd.	1	1	-61	22.0	20.0	C	B	20.3	19.5	C	B
		SB On-Ramp at Bonita Canyon Rd.	1	-10	-52	19.2	19.0	B	B	16.1	18.6	B	B
		SB Off-Ramp at Newport Coast Dr.	1	-169	-10	24.0	24.3	C	C	23.0	24.1	C	C
		SB On-Ramp at Newport Coast Dr.	1	1	10	19.1	19.4	B	B	19.7	19.4	B	B
	NB	NB Off-Ramp at Bison Av.	1	-7	-10	25.2	21.8	C	C	22.9	22.5	C	C
		NB Loop On-Ramp at Bonita Canyon Rd.	1	-138	-120	23.3	20.2	C	C	19.5	19.3	B	B
		NB Off-Ramp at Bonita Canyon Rd.	1	-102	-28	13.9	14.8	B	B	14.9	14.7	B	B
		NB On-Ramp at Newport Coast Dr.	1	0	0	22.6	25.7	C	C	22.2	25.8	C	C
		NB Off-Ramp at Newport Coast Dr.	1	0	22	25.3	26.1	C	C	25.0	26.4	C	C

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on existing conditions.

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service (LOS) determined using HCS+ : Ramps and Ramp Junction software, Version 5.21

[4] V/C is greater than 1.00; Level of Service "**F**".

5 The change in volume does not necessarily affect the Density and LOS results accordingly. The capacity of a merge or diverge area is always controlled by the capacity of its freeway segments, upstream and downstream of the ramps, or by the capacity of the ramp itself. The volumes at the freeway segments could differ from General Plan Baseline to General Plan Project conditions.

freeway segments (upstream and downstream of the ramp), and by the capacity of the ramp. As a result, an increase in volume on the ramps sometimes results in a decrease in density.

4.7 CITY OF IRVINE SENSITIVITY ANALYSIS

At the request of the City or Irvine, an additional scenario has been developed for intersections in Irvine. Urban Crossroads has performed a special model run to develop a cumulative scenario for use in comparison when evaluating the Land Use Element project. The cumulative scenario includes known potential projects in Irvine, including:

- Campos Verdes (ITC)
- Milani Apartments
- 2772 Main and 2699 & 2719 White.

City of Irvine cumulative AM and PM peak hour ICU values are summarized in Table 4-9 (actual turn volumes and ICU calculation worksheets are included in Appendix 4.6). Table 4-10 presents the comparison of 2006 General Plan and General Plan Project AM and PM peak hour ICU values.

For the Irvine cumulative scenario, a similar situation is anticipated to occur at the Von Karman Avenue/Alton Parkway intersection (a project impact if ATMS is not included, but no project impact with ATMS by others).

4.8 HCM ANALYSIS AT RAMP INTERSECTIONS

In addition to the Intersection Capacity Utilization (ICU) analysis performed at study area intersections, intersections at State highway freeway ramp were also analyzed using HCM intersection analysis, in accordance with Caltrans standards. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The *Highway Capacity Manual* (HCM) (Transportation Research Board 2000) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches.

Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described below.

TABLE 4-9

CTY OF IRVINE CUMULATIVE WITH PROJECT CONDITIONS
INTERSECTION OPERATIONS ANALYSIS SUMMARY

ID	Intersection	Traffic Control[4]	Intersection Approach Lanes[1]												Peak Hour			
			Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
67	Red Hill Av. / MacArthur Bl.	TS	2	2.5	0.5	2	3	1>>	2	3	d	1	3	1>>	0.75	0.84	C	D
68	MacArthur Bl. / Main St.	TS	2	4	2>>	2	4	1	1	3	1>	2	3	1>>	0.64	0.86	B	D
69	MacArthur Bl. / I-405 NB Ramps	TS	0	4	2	2	4	0	0	0	0	2	0	2	0.69	0.67	B	B
70	MacArthur Bl. / I-405 SB Ramps	TS	0	4	1>	2	4	1	0	0	0	2	1	1>>	0.63	0.79	B	C
71	MacArthur Bl. / Michelson Dr.	TS	1	4	1	2	3.5	0.5	2	1	1	2	1	1>	0.70	0.90	B	D
72	Von Karman Av. / Barranca Pkwy.	TS	2	2	d	2	2	2>	**2**	3	**1**	2	**4**	1	0.72	0.90	C	D
73	Von Karman Av. / Alton Pkwy.	TS	1	2	d	1	2	d	1	2	d	1	2	d	0.90	**1.04**	D	**F**
74	Von Karman Av. / Main St.	TS	2	2	1	1	2	1	2	3	1>>	2	2.5	0.5	0.72	0.94	C	E
75	Von Karman Av. / I-405 HOV Ramps	TS	**1**	**3**	**d**	**1**	**3**	**d**	**1**	**0**	**1**	**1**	**0**	**1**	0.72	0.69	C	B
76	Von Karman Av. / Michelson Dr.	TS	1	2	1	1	1.5	0.5	1	1.5	0.5	1	2	1>>	0.77	0.95	C	E
77	Jamboree Rd. / Barranca Pkwy.	TS	2	**5**	**1**	2	4	1>>	2.5	2.5	1	2	3	1>>	0.86	0.92	D	E
78	Jamboree Rd. / Alton Pkwy.	TS	2	4	1	2	3.5	0.5	2	2.5	0.5	2	3	d	0.81	0.87	D	D
79	Jamboree Rd. / Main St.	TS	2	**5**	**1**	2	**5**	1>	2	3	1>>	2	3	**1**	0.72	0.82	C	D
80	Jamboree Rd. / I-405 NB Ramps	TS	0	3	1>>	0	4	1>>	0	0	0	3	0	2>>	0.75	0.87	C	D
81	Jamboree Rd. / I-405 SB Ramps	TS	0	4	2>>	0	4	1>>	1.5	0	2.5	0	0	0	0.93	0.74	E	C
82	Jamboree Rd. / Michelson Dr.	TS	1	4	**1>>**	2	4	1>>	2	**2**	**1**	2	2	1>>	0.95	**1.06**	E	**F**
83	Carlson Av. / Michelson Dr.	TS	2	2	1	2	1	1>>	2	2	1	1	2	1>>	0.78	0.90	C	D
84	Carlson Av. / Campus Dr.	TS	0	0	0	1	0	1	1	**2**	0	0	**2**	d	0.63	0.76	B	C
85	Red Hill Av. / Barranca Pkwy.	TS	2	4	d	2	4	d	2	4	0	2	4	1	0.60	0.75	A	C
86	Red Hill Av. / Alton Pkwy.	TS	1	**3**	**1**	1	3	**1**	**2**	2	1	2	**2**	**1>>**	0.85	0.87	D	D
87	Harvard Av. / Michelson Dr.	TS	1	2	0	**2**	2	1	2	2	1>>	1	2	0	0.68	0.82	B	D
88	Harvard Av. / University Dr.	TS	1	2	d	1	2	d	1	3	0	1	3	0	0.77	0.83	C	D
89	University Dr. / Campus Dr.	TS	**2**	3	1	**2**	**3**	1	**2**	2	d	**2**	2	d	0.74	0.87	C	D
90	MacArthur Bl. (NB) / University Dr.	TS	1	0	1	0	0	0	0	3	d	2	**3**	0	0.64	0.73	B	C
91	MacArthur Bl. (SB) / University Dr.	TS	1	0	1	0	0	0	0	3	0	2	3	0	0.72	0.63	C	B
92	Fairchild Rd. / MacArthur Bl.	TS	0	0	0	1	0	1	1	3	0	0	3	0	0.71	0.72	C	C
93	Jamboree Rd. / Fairchild Rd.	TS	1	3	0	2	4	d	1	1	0	1	1	1	0.66	0.70	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane, 1 = improvement

[2] V/C = Volume/Capacity Ratio

[3] Level of Service (LOS) is calculated based on the Intersection Capacity Utilization (ICU) method. Bold indicates unacceptable LOS.

[4] TS = Traffic Signal

Note: If a box is shaded, LOS "E" is acceptable.

TABLE 4-10

CITY OF IRVINE CUMULATIVE
COMPARISON OF ICU RESULTS

ID	Intersection	Cumulative				Cumulative With Project				Difference			
		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]		ICU (V/C)[1]		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
67	Red Hill Av. / MacArthur Bl.	0.73	0.81	C	D	0.75	0.84	C	D	0.02	0.03	--	--
68	MacArthur Bl. / Main St.	0.63	0.85	B	D	0.64	0.86	B	D	0.01	0.01	--	--
69	MacArthur Bl. / I-405 NB Ramps	0.68	0.68	B	B	0.69	0.67	B	B	0.01	-0.01	--	--
70	MacArthur Bl. / I-405 SB Ramps	0.61	0.77	B	C	0.63	0.79	B	C	0.02	0.02	--	--
71	MacArthur Bl. / Michelson Dr.	0.68	0.89	B	D	0.70	0.90	B	D	0.02	0.01	--	--
72	Von Karman Av. / Barranca Pkwy.	0.73	0.89	C	D	0.72	0.90	C	D	-0.01	0.01	--	--
73	Von Karman Av. / Alton Pkwy.	0.86	0.99	D	E	0.90	**1.04**	D	**F**	0.04	**0.05**	--	Yes
74	Von Karman Av. / Main St.	0.72	0.95	C	E	0.72	0.94	C	E	0.00	-0.01	--	--
75	Von Karman Av. / I-405 HOV Ramps	0.74	0.68	C	B	0.72	0.69	C	B	-0.02	0.01	--	--
76	Von Karman Av. / Michelson Dr.	0.75	0.95	C	E	0.77	0.95	C	E	0.02	0.00	--	--
77	Jamboree Rd. / Barranca Pkwy.	0.85	0.92	D	E	0.86	0.92	D	E	0.01	0.00	--	--
78	Jamboree Rd. / Alton Pkwy.	0.80	0.86	C	D	0.81	0.87	D	D	0.01	0.01	Yes	--
79	Jamboree Rd. / Main St.	0.72	0.82	C	D	0.72	0.82	C	D	0.00	0.00	--	--
80	Jamboree Rd. / I-405 NB Ramps	0.75	0.87	C	D	0.75	0.87	C	D	0.00	0.00	--	--
81	Jamboree Rd. / I-405 SB Ramps	0.93	0.74	E	C	0.93	0.74	E	C	0.00	0.00	--	--
82	Jamboree Rd. / Michelson Dr.	0.95	**1.07**	E	**F**	0.95	**1.06**	E	**F**	0.00	**-0.01**	--	**--**
83	Carlson Av. / Michelson Dr.	0.77	0.87	C	D	0.78	0.90	C	D	0.01	0.03	--	--
84	Carlson Av. / Campus Dr.	0.63	0.76	B	C	0.63	0.76	B	C	0.00	0.00	--	--
85	Red Hill Av. / Barranca Pkwy.	0.59	0.77	A	C	0.60	0.75	A	C	0.01	-0.02	--	--
86	Red Hill Av. / Alton Pkwy.	0.83	0.86	D	D	0.85	0.87	D	D	0.02	0.01	--	--
87	Harvard Av. / Michelson Dr.	0.68	0.82	B	D	0.68	0.82	B	D	0.00	0.00	--	--
88	Harvard Av. / University Dr.	0.76	0.83	C	D	0.77	0.83	C	D	0.01	0.00	--	--
89	University Dr. / Campus Dr.	0.74	0.87	C	D	0.74	0.87	C	D	0.00	0.00	--	--
90	MacArthur Bl. (NB) / University Dr.	0.63	0.72	B	C	0.64	0.73	B	C	0.01	0.01	--	--
91	MacArthur Bl. (SB) / University Dr.	0.71	0.63	C	B	0.72	0.63	C	B	0.01	0.00	--	--
92	Fairchild Rd. / MacArthur Bl.	0.70	0.72	B	C	0.71	0.72	C	C	0.01	0.00	Yes	--
93	Jamboree Rd. / Fairchild Rd.	0.65	0.69	B	B	0.66	0.70	B	B	0.01	0.01	--	--

[1] V/C = Volume/Capacity Ratio

[2] Level of Service (LOS) is calculated based on the Intersection Capacity Utilization (ICU) method. Bold indicates unacceptable LOS.
Note: if a box is shaded, LOS "E" is acceptable.

Note: If a box is shaded, LOS "E" is acceptable.

Signalized Intersection LOS Thresholds

Level of Service	Description	Average Control Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up

Source: HCM 2000, Chapter 16

The traffic analysis software package Traffix (Version 8.0 R1, 2008) has been utilized to analyze freeway ramp intersections under Caltrans' jurisdiction. Traffix is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in Chapter 16 of the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. The level of service and capacity analysis performed by Traffix takes into consideration optimization.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for the existing conditions analysis. A PHF of 0.92 has been used for all intersections along the I-405 FWY for existing conditions and for 2006 General Plan and General Plan LUE

Amendment (Proposed Project) conditions for intersections whose Existing PHF is less than 0.92.

The following signalized freeway ramp intersections have been analyzed:

ID	Intersection Location
46	SR-73 NB / Bison Av.
47	SR-73 SB / Bison Av.
53	SR-73 NB / Bonita Canyon Dr.
54	SR-73 SB / Bonita Canyon Dr.
62	Newport Coast Dr. / SR-73 NB
63	Newport Coast Dr. / SR-73 SB
69	MacArthur Bl. / I-405 NB Ramps
70	MacArthur Bl. / I-405 SB Ramps
75	Von Karman Av. / I-405 HOV Ramps
80	Jamboree Rd. / I-405 NB Ramps
81	Jamboree Rd. / I-405 SB Ramps

HCM Intersection Analysis Results

Existing peak hour traffic operations have been evaluated for the freeway study area intersections based on the analysis methodologies presented previously. The intersection operations analysis results are summarized in Table 4-11. The Existing (2013) conditions operations analysis shows that all of the freeway study area intersections operate at acceptable LOS (i.e., LOS "D" or better) during the peak hours. Intersection #75 does not show results since it does not exist until 2006 General Plan and General Plan LUE Amendment (Proposed Project) conditions.

The intersection operations analysis worksheets are included in Appendix "3.2" of this TIA.

Level of service calculations were conducted for the study intersections to evaluate their operations under 2006 General Plan conditions consistent with Exhibit 2-D. The intersection analysis results are summarized in Table 4-11 which indicates that the following intersections are anticipated to experience unacceptable LOS (i.e., LOS "E" or worse) during the AM peak hours for 2006 General Plan traffic conditions:

- Von Karman Av. / I-405 HOV Ramps
- Jamboree Rd. / I-405 SB Ramps

Level of service calculations were also conducted for the study intersections to evaluate their operations under General Plan LUE Amendment (Proposed Project) conditions. The

TABLE 4-11

FWY RAMP INTERSECTION OPERATIONS ANALYSIS SUMMARY

ID	Intersection	Existing Peak Hour				2006 General Plan Peak Hour				LUE Amendment Peak Hour			
		Delay[1] (Secs)		LOS[2]		Delay[1] (Secs)		LOS[2]		Delay[1] (Secs)		LOS[2]	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
46	SR-73 NB / Bison Av.	12.2	7.4	B	A	18.3	8.3	B	A	17.6	8.1	B	A
47	SR-73 SB / Bison Av.	17.4	11.6	B	B	20.6	12.1	C	B	20.2	12.2	C	B
53	SR-73 NB / Bonita Canyon Dr.	11.7	8.3	B	A	18.0	11.3	B	B	15.6	10.1	B	B
54	SR-73 SB / Bonita Canyon Dr.	9.0	11.2	A	B	10.6	15.9	B	B	10.6	13.9	B	B
62	Newport Coast Dr. / SR-73 NB	8.4	5.7	A	A	9.2	5.3	A	A	9.0	6.5	A	A
63	Newport Coast Dr. / SR-73 SB[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
69	MacArthur Bl. / I-405 NB Ramps	14.5	12.2	B	B	15.3	12.9	B	B	16.1	13.1	B	B
70	MacArthur Bl. / I-405 SB Ramps	17.6	12.7	B	B	16.1	13.6	B	B	16.0	14.5	B	B
75	Von Karman Av. / I-405 HOV Ramps	Does Not Exist				**70.2**	35.9	**E**	D	**69.6**	45.8	**E**	D
80	Jamboree Rd. / I-405 NB Ramps	10.8	8.0	B	A	13.2	12.8	B	B	13.1	13.5	B	B
81	Jamboree Rd. / I-405 SB Ramps	33.1	16.6	C	B	**>200.0**	15.5	**F**	B	**>200.0**	15.6	**F**	B

[1] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control.

[2] Level of Service (LOS) is calculated based on the signalized intersection capacity analysis methodology as specified in Chapter 16 of the HCM.

[3] Intersection #63 is uncontrolled. Delay is negligible.

intersection analysis results are summarized in Table 4-11 which indicates that the following intersections continue to experience unacceptable LOS (i.e., LOS "E" or worse) during the AM peak hours for 2006 General Plan traffic conditions:

- Von Karman Av. / I-405 HOV Ramps
- Jamboree Rd. / I-405 SB Ramps

For each of these intersections that are anticipated to experience a potential deficiency for General Plan scenarios, there is a reduction in delay with the General Plan LUE Amendment (Proposed Project), in comparison with the 2006 General Plan conditions. Therefore, the intersections are not significantly impacted by the General Plan LUE Amendment (Proposed Project).

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5.0 GENERAL PLAN LUE AMENDMENT – PROJECT ALTERNATIVE

The project alternative is similar to the City of Newport Beach General Plan Land Use Element Amendment (proposed project), but excludes all proposed projects in the Airport Area. In comparison to the 2006 General Plan, it still involves the alteration, intensification, and redistribution of land uses in other subareas of the City, including major areas such as Newport Center/Fashion Island, and Newport Coast.

This analysis compares the General Plan LUE Amendment Alternative (project alternative) to the 2006 General Plan, including the number of additional trips (average daily traffic or ADT) associated with the intensification, alteration, and redistribution of land uses, and analyzes the daily and peak hour traffic impact of the General Plan LUE Amendment Alternative (project alternative) to roadways and study-area intersections. A limited study area has been selected for this evaluation, which is intended to determine whether the General Plan LUE Amendment Alternative (project alternative) mitigates impacts identified in the General Plan Land Use Element Amendment (proposed project) analysis.

The same methodologies and impact criteria have been used to evaluate the General Plan LUE Amendment Alternative (project alternative) as were used to evaluate the General Plan Land Use Element Amendment (proposed project).

5.1 LAND USE CHANGES

Table 5-1 provides a citywide summary of land use statistics, with the changes to land use types and intensities in various areas throughout the City of Newport Beach which are associated with the Project Alternative. As compared to the 2006 General Plan scenario, the General Plan LUE Amendment Alternative (project alternative) comprises an additional 137 dwelling units. Note that the change from the General Plan LUE Amendment (proposed project) scenario is the elimination of the land use changes in the Airport Area.

Areas with Reduced Development Capacity

The proposed project would reduce allowable square footage, rooms, or dwelling units in eight different subareas: the Westcliff Plaza, Newport Coast Center, Newport Coast Hotel, Bayside Center, Harbor View Center, The Bluffs, Gateway Park, and Newport Ridge.

The most significant change in development capacity would be the reduction in entitlement for the Newport Coast subarea, which upon approval of the amendment would allow 1,001 fewer hotel units and a reduction 37,875 square feet of neighborhood commercial use.

Table 5-1

City of Newport Beach General Plan Buildout Project Alternative
Land Use Comparison

Land Use Code	Description	Units[1]	2006 GP Quantity	GP Project Alt Quantity	Change	% Change
1a	Res-Low (SFD)-Coastal	DU	3,390	3,390	-	0%
1b	Res-Low (SFD)	DU	13,276	13,606	330	2%
2a	Res-Medium (SFA)-Coastal	DU	7,817	7,815	(2)	0%
2b	Res-Medium (SFA)	DU	10,742	10,471	(271)	-3%
3a	Apartment-Coastal	DU	1,793	1,795	2	0%
3b	Apartment	DU	9,254	8,832	(422)	-5%
3c	Apartment (High-Rise)	DU	2,950	2,950	-	0%
3d	Apartment (Res-over-Retail)	DU	453	453	-	0%
3e	Apartment (Mid-Rise Newport Center)	DU	769	1,269	500	65%
4	Elderly Residential	DU	320	320	-	0%
5a	Mobile Home-Coastal	DU	-		-	N/A
5b	Mobile Home	DU	397	397	-	0%
6	Motel	ROOM	139	139	-	0%
7	Hotel	ROOM	5,561	4,710	(851)	-15%
9	Regional Commercial	TSF	1,636.025	1,686.025	50.000	3%
10a	General Commercial	TSF	4,775.910	4,749.303	(26.607)	-1%
10b	Comm (Res-over-Retail)	TSF	868.999	870.916	1.917	0%
11	Comm./Recreation	ACRE	5.1	5.1	-	0%
13	Restaurant	TSF	154.510	154.510	-	0%
15	Fast Food Restaurant	TSF	8.130	8.130	-	0%
16	Auto Dealer/Sales	TSF	244.650	244.650	-	0%
17	Yacht Club	TSF	70.310	70.310	-	0%
18	Health Club	TSF	61.330	61.330	-	0%
19	Tennis Club	CRT	43	43	-	0%
20	Marina	SLIP	1,078	1,078	-	0%
21	Theater	SEAT	4,445	4,445	-	0%
22	Newport Dunes	ACRE	64	64	-	0%
23a	General Office	TSF	8,634.270	8,453.377	(180.893)	-2%
23b	Office (>300K block Newport Center)	TSF	2,645.696	3,341.589	695.893	26%
24	Medical/Govt. Office	TSF	1,452.952	1,452.952	-	0%
25	R & D	TSF	81.730	81.730	-	0%
26	Industrial	TSF	773.919	773.919	-	0%
27	Mini-Storage/Warehouse	TSF	196.420	196.420	-	0%
28	Pre-school/Day Care	TSF	77.969	77.969	-	0%
29	Elementary/Private School	STU	6,511	6,583	72	1%
30	Junior/High School	STU	5,215	5,215	-	0%
31	Cultural/Learning Center	TSF	112.208	112.208	-	0%
32	Library	TSF	90.962	90.962	-	0%
33	Post Office	TSF	63.800	63.800	-	0%
34	Hospital	BED	2,001	2,001	-	0%
35	Nursing/Conv. Home	BEDS	433	433	-	0%
36	Church	TSF	522.478	522.478	-	0%
37	Youth Ctr/Service	TSF	198.810	198.810	-	0%
38	Park	ACRE	218.730	218.730	-	0%
39	Regional Park	ACRE	-	-	-	N/A
40	Golf Course	ACRE	338.640	338.640	-	0%
41	Resort Golf Course	ACRE	392.880	392.880	-	0%

[1] Units Abbreviations:
DU = Dwelling Units
TSF = Thousand Square Feet
CRT = Court
STU = Students

Areas with Increased Development Capacity

Areas proposed for increased development capacity through increasing square footage, rooms, or dwelling units include Newport Center/Fashion Island, Harbor Day School, 150 Newport Center Drive, and 100 Newport Center Drive.

Newport Center/Fashion Island

One of the most significant changes from the existing land use plan would be in the Newport Center/Fashion Island subarea. This subarea is currently a major commercial area with a variety of existing retail, office, residential, and hotel uses. The proposed land use element amendment would increase allowable square footage for regional office space (additional 500,000 sf), regional commercial space (additional 50,000 sf), and multifamily dwelling units (additional 500 units).

Areas with Change of Land Use Designation and Increased Development Capacity

The proposed land use element amendment also proposes a change of land use designation and increased development capacity for two parcels in the City: 1526 Placentia Avenue and 813 East Balboa Boulevard. These parcels are currently designated as residential uses, and the proposed changes are to general commercial and mixed-use vertical uses to allow for more diverse uses of the parcels.

5.2 TRIP GENERATION

Trip generation in the City of Newport Beach has been calculated and is summarized in Table 5-2. As shown in Table 5-2, trip generation decreases by 2,550 ADT Citywide with the General Plan LUE Amendment Alternative (project alternative). AM and PM peak hour trip generation decrease Citywide by a total of 152 trips in the AM peak hour and 236 trips in the PM peak hour.

Westcliff Plaza experiences a reduction of 593 daily trips. Newport Coast Center trip generation decreases by 1,448 ADT. Daily traffic generation for Newport Coast Hotel is reduced by 7,588 ADT. For Bayside Center, the daily trip generation decreases by 14 vehicles. Harbor View Center experiences a reduction of 71 ADT. The Bluffs trip generation decreases by 135 ADT. Trip generation for Gateway Park is reduced by 167 ADT. For Newport Ridge, the daily trip generation decreases by 2,371 ADT.

For Newport Center/Fashion Island, the increase in development capacity generates an estimated 8,768 additional daily trips.

The changes for 1526 Placentia Avenue and 813 East Balboa Boulevard increase ADTs by 316. Harbor Day School experiences an increase in daily trip generation of 94 ADT.

Table 5-2

General Plan LUE Amendment Alternative (Project Alternative) Trip Generation Summary

Area		Land Use Change[1]	AM In	AM Out	PM In	PM Out	ADT
Reduced Development Capacity							
3	Westcliff Plaza	-15.514 tsf General Commercial	-28	-12	-24	-31	-593
6	Newport Coast Center	-37.875 tsf General Commercial	-67	-30	-58	-77	-1,448
7	Newport Coast Hotel	-1,001 room Hotel	-511	-170	-280	-430	-7,588
8	Bayside Center	-0.366 tsf General Commercial	-1	0	-1	-1	-14
9	Harbor View Center	-1.857 tsf General Commercial	-3	-1	-3	-4	-71
10	The Bluffs	-3.538 tsf General Commercial	-6	-3	-5	-7	-135
11	Gateway Park	-4.356 tsf General Commercial	-8	-3	-7	-9	-167
13	Newport Ridge	-356 Res-Medium (SFA)	-46	-196	-142	-75	-2,371
Increased Development Capacity							
5	Newport Center / Fashion Island	500 du Apt. (Mid-Rise Newport Center) 175 tsf General Office 325 tsf Office (>300k block Newport Center) 50 tsf Regional Commercial	496	336	369	449	8,768
12	Harbor Day School	72 stu Elementary/Private School	13	1	3	5	94
14	150 Newport Center Dr.	125 room Hotel -8.5 tsf General Commercial	49	14	22	37	623
	100 Newport Center Dr.	15 tsf Regional Commercial	17	7	14	19	352
Designation Change and Increased Development Capacity							
1	1526 Placentia	7.524 tsf General Commercial	12	3	10	14	251
2	813 East Balboa Blvd.	-2 du Res-Medium (SFA) Coastal 2 du Apartment (Res-over-Retail) 1.917 tsf Comm (Res-over-Retail)	3	1	3	3	65
Citywide Total			**-95**	**-57**	**-112**	**-124**	**-2,550**

[1] tsf = thousand square feet
du = dwelling units
stu = students

5.3 VOLUME FORECASTS

The General Plan LUE Amendment Alternative (project alternative) traffic volume forecasts have been developed based on the Newport Beach Transportation Model version 3.4 (NBTM 3.4), similar to the other scenarios evaluated in this traffic impact analysis (TIA).

Table 5-3 shows the directional AM and PM peak hour freeway mainline segment volumes for both 2006 General Plan and General Plan LUE Amendment Alternative (project alternative) conditions. Because the proposed LUE Amendment Alternative changes the types of use along with quantity, the directionality of peak travel has been affected.

The General Plan LUE Amendment Alternative (project alternative) results in morning peak hour volume reductions on seventeen (17) of the thirty (30) study area freeway segments. Morning peak hour volume increases on the remaining segments range from a low of six (6) vehicles per hour to a high of ninety-one (91) vehicles per hour.

The General Plan LUE Amendment Alternative (project alternative) results in evening peak hour volume reductions on eleven (11) of the thirty (30) study area freeway segments. Evening peak hour volume increases on the remaining segments range from a low of three (3) vehicles per hour to a high of eighty-three (83) vehicles per hour.

Table 5-4 shows the AM and PM peak hour freeway on-ramp and off-ramp volumes for both 2006 General Plan and General Plan LUE Amendment Alternative (project alternative) conditions.

5.4 PEAK HOUR INTERSECTION OPERATIONS

With recommended and planned General Plan buildout land improvements, but without ATMS improvements, the Von Karman / Alton intersection is impacted by the Proposed Project. With the Project Alternative, this intersection is anticipated to experience 0.84 (LOS D) operations in the AM peak hour and 1.01 (LOS F) operations in the PM peak hour. The actual turn volumes and ICU calculation worksheets are included in Appendix 5.1. Without the additional capacity allowed by the ATMS, there is also a PM peak hour impact with the General Plan LUE Amendment Alternative (project alternative). In comparison, the General Plan LUE Amendment (proposed project) experiences 1.02 (LOS F) conditions in the PM peak hour. The 2006 General Plan experiences 0.98 (LOS E) conditions in the PM peak hour. The impact of the General Plan LUE Amendment Alternative (project alternative) is less than the impact that occurs with the General Plan LUE Amendment (proposed project).

With the Project Alternative and with ATMS improvements, the intersection is anticipated to experience 0.79 (LOS C) operations in the AM peak hour and 0.96 (LOS E) operations in the PM

TABLE 5-3

GENERAL PLAN LUE AMENDMENT (PROJECT ALTERNATIVE)
PEAK HOUR FREEWAY MAINLINE SEGMENT VOLUME PROJECTIONS

FREEWAY	DIRECTION	MAINLINE SEGMENT LOCATION	2006 GENERAL PLAN VOLUME		GP LUE AMENDMENT ALT VOLUME		VOLUME Δ	
			AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	North of SR-55 FWY	10,361	10,950	10,358	10,962	-3	12
		SR-55 FWY to MacArthur Blvd.	13,302	11,136	13,257	11,131	-45	-5
		North of Jamboree Rd.	12,323	11,502	12,362	11,494	39	-8
		South of Jamboree Rd.	10,656	11,392	10,604	11,429	-52	37
	NB	North of SR-55 Fwy	8,828	6,579	8,819	6,617	-9	38
		SR-55 FWY to MacArthur Blvd.	11,864	12,031	11,854	12,044	-10	13
		North of Jamboree Rd.	12,640	11,431	12,688	11,427	48	-4
		South of Jamboree Rd.	13,101	10,459	13,107	10,404	6	-55
SR-73 FREEWAY/TOLL ROAD	SB	North of SR-55 FWY	6,631	5,638	6,722	5,622	91	-16
		North of Jamboree Rd.	8,322	7,793	8,389	7,801	67	8
		South of Jamboree Rd.	7,204	6,706	7,276	6,716	72	10
		North of Bonita Canyon Rd.	4,291	3,896	4,276	3,869	-15	-27
		Bonita Canyon Rd. to Newport Coast Dr.	4,204	4,137	4,178	4,109	-26	-28
	NB	North of SR-55 FWY	5,949	7,715	5,878	7,699	-71	-16
		North of Jamboree Rd.	8,660	10,320	8,636	10,356	-24	36
		South of Jamboree Rd.	7,451	8,222	7,427	8,242	-24	20
		North of Bonita Canyon Dr.	4,514	5,085	4,417	4,997	-97	-88
		Bonita Canyon Rd. to Newport Coast Dr.	4,484	4,905	4,453	4,909	-31	4
SR-55 FREEWAY	SB	Dyer Rd. to MacArthur Blvd.	6,325	8,392	6,381	8,385	56	-7
		MacArthur Blvd. to I-405 FWY	5,317	8,273	5,298	8,242	-19	-31
		I-405 FWY to SR-73 FWY	3,409	5,294	3,392	5,323	-17	29
		SR-73 FWY to Mesa Dr.	3,709	5,430	3,716	5,502	7	72
		Mesa Dr. to 22nd St./Victoria St.	3,337	4,811	3,343	4,858	6	47
		22nd St./Victoria St. to End	2,561	3,619	2,551	3,663	-10	44
	NB	Dyer Rd. to MacArthur Blvd.	14,008	11,536	13,995	11,619	-13	83
		MacArthur Blvd. to I-405 FWY	13,835	11,083	13,802	11,102	-33	19
		I-405 FWY to SR-73 FWY	9,569	7,376	9,608	7,379	39	3
		SR-73 FWY to Mesa Dr.	9,384	7,628	9,397	7,659	13	31
		Mesa Dr. to 22nd St./Victoria St.	8,316	6,745	8,322	6,765	6	20
		22nd St./Victoria St. to End	6,254	4,912	6,273	4,937	19	25

TABLE 5-4

GENERAL PLAN LUE AMENDMENT (PROJECT ALTERNATIVE)
PEAK HOUR FREEWAY RAMP VOLUME PROJECTIONS

FREEWAY	DIRECTION	RAMP LOCATION	2006 GENERAL PLAN VOLUME		GP LUE AMENDMENT ALT VOLUME VOLUME		VOLUME Δ	
			AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	SB Loop Off-Ramp at MacArthur Blvd.	1,941	1,033	1,922	1,029	-19	-4
		SB On-Ramp at MacArthur Blvd.	592	1,153	594	1,137	2	-16
		SB Off-Ramp at Jamboree Rd.	2,510	1,916	2,528	1,915	18	-1
		SB Loop On Ramp at Jamboree Rd.	299	800	294	787	-5	-13
		SB On-Ramp at Jamboree Rd.	753	1,330	766	1,329	13	-1
	NB	NB Loop On-Ramp at MacArthur Blvd.	520	1,610	528	1,657	8	47
		NB Off-Ramp at MacArthur Blvd.	1,980	941	1,995	948	15	7
		NB On-Ramp at Jamboree Rd.	1,140	1,000	1,133	1,000	-7	0
		NB Loop On-Ramp at Jamboree Rd.	510	740	520	745	10	5
		NB Off-Ramp at Jamboree Rd.	2,448	1,396	2,467	1,404	19	8
SR-73 FREEWAY/TOLL ROAD	SB	SB On-Ramp at Bison Av.	130	449	130	450	0	1
		SB Loop Off-Ramp at Bonita Canyon Rd.	317	541	318	500	1	-41
		SB On-Ramp at Bonita Canyon Rd.	230	782	220	740	-10	-42
		SB Off-Ramp at Newport Coast Dr.	450	570	279	562	-171	-8
		SB On-Ramp at Newport Coast Dr.	230	340	231	341	1	1
	NB	NB Off-Ramp at Bison Av.	679	190	672	180	-7	-10
		NB Loop On-Ramp at Bonita Canyon Rd.	840	490	702	370	-138	-120
		NB Off-Ramp at Bonita Canyon Rd.	810	310	738	282	-72	-28
		NB On-Ramp at Newport Coast Dr.	520	170	520	170	0	0
		NB Off-Ramp at Newport Coast Dr.	500	255	468	275	-32	20

peak hour. The final intersection operation with the Project Alternative and with currently planned improvements is not deficient, and no impact occurs..

5.5 FREEWAY SYSTEM ANALYSIS

As presented previously in the 2006 General Plan freeway mainline analysis, the freeway system in the study area (I-405, SR-73 and SR-55 freeway analysis segments) is defined by ramp-to-ramp directional segments. The freeway segments have been evaluated based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in Section 1.3. Appendix 5.2 contains freeway mainline analysis worksheets, and Table 5-5 contains the results of the freeway mainline analysis for the General Plan LUE Amendment Alternative (project alternative).

The following study area freeway mainline locations identified previously as experiencing deficient operations for the 2006 General Plan conditions continue to experience deficient operations for General Plan LUE Amendment Alternative (project alternative) conditions:

- SB I-405, North of SR-55 FWY, (PM Peak Hour Only)
- NB I-405, South of Jamboree Rd, (AM Peak Hour Only)
- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (PM Peak Hour Only)
- NB SR-55, I-405 FWY to SR-73, (AM Peak Hour Only)
- NB SR-55, SR-73 FWY to Mesa Dr, (AM Peak Hour Only)

Ramp merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS+ software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. Appendix 5.3 contains freeway ramp analysis worksheets, and Table 5-6 contains the results of the freeway ramp analysis for the General Plan LUE Amendment Alternative (project alternative).

One of the freeway ramp locations that was identified as experiencing deficient LOS for the 2006 General Plan conditions is identified as experiencing deficient LOS for the General Plan LUE Amendment Alternative (project alternative), while the other freeway ramp locations that was identified as experiencing deficient LOS for the 2006 General Plan conditions is not identified as experiencing deficient LOS for the General Plan LUE Amendment Alternative (project alternative).

TABLE 5-5

GENERAL PLAN LUE AMENDMENT (PROJECT)ALTERNATIVE
BASIC FREEWAY SEGMENT ANALYSIS SUMMARY

FREEWAY	DIRECTION	MAINLINE SEGMENT LOCATION	Lanes[1]	VOLUME Δ		2006 GENERAL PLAN				GP LUE AMENDMENT ALT VOLUME			
						DENSITY [2]		LOS [3]		DENSITY [2]		LOS [3]	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	North of SR-55 FWY	5+1H	-3	12	40.2	**>45.0**	E	**F**	40.2	**>45.0**	E	**F**
		SR-55 FWY to MacArthur Blvd.	6+1H	-45	-5	**>45.0**	31.4	**F**	D	**>45.0**	31.4	**F**	D
		North of Jamboree Rd.	7+1H	39	-8	29.7	27.0	D	D	29.8	26.9	D	D
		South of Jamboree Rd.	7+1H	-52	37	24.5	26.6	C	D	24.4	26.7	C	D
	NB	North of SR-55 Fwy	5+1H	-9	38	29.8	20.9	D	C	29.8	21.0	D	C
		SR-55 FWY to MacArthur Blvd.	6+1H	-10	13	36.3	37.4	E	E	36.3	37.5	E	E
		North of Jamboree Rd.	6+1H	48	-4	41.9	33.8	E	D	42.3	33.8	E	D
		South of Jamboree Rd.	6+1H	6	-55	**>45.0**	29.3	**F**	D	**>45.0**	29.0	**F**	D
SR-73 FREEWAY/TOLL ROAD	SB	North of SR-55 FWY	4+1H	91	-16	26.9	22.2	D	C	27.4	22.1	D	C
		North of Jamboree Rd.	4+1H	67	8	39.7	34.6	E	D	40.4	34.7	E	D
		South of Jamboree Rd.	4	72	10	30.3	27.3	D	D	30.8	27.4	D	D
		North of Bonita Canyon Rd.	5	-15	-27	13.5	12.2	B	B	13.4	12.1	B	B
		Bonita Canyon Rd. to Newport Coast Dr.	4	-26	-28	16.5	16.2	B	B	16.4	16.1	B	B
	NB	North of SR-55 FWY	4+1H	-71	-16	23.6	34.0	C	D	23.3	33.9	C	D
		North of Jamboree Rd.	4+1H	-24	36	43.8	**>45.0**	E	**F**	43.5	**>45.0**	E	**F**
		South of Jamboree Rd.	4	-24	20	32.0	38.6	D	E	31.8	38.8	D	E
		North of Bonita Canyon Rd.	5	-97	-88	14.2	15.9	B	B	13.9	15.7	B	B
		Bonita Canyon Rd. to Newport Coast Dr.	4	-31	4	17.6	19.2	B	C	17.5	19.2	B	C
SR-55 FREEWAY	SB	Dyer Rd. to MacArthur Blvd.	6+1H	56	-7	16.7	22.3	B	C	16.8	22.2	B	C
		MacArthur Blvd. to I-405 FWY	6+1H	-19	-31	14.0	21.9	B	C	14.0	21.8	B	C
		I-405 FWY to SR-73 FWY	4	-17	29	13.5	21.0	B	C	13.4	21.1	B	C
		SR-73 FWY to Mesa Dr.	4	7	72	14.7	21.6	B	C	14.7	21.9	B	C
		Mesa Dr. to 22nd St./Victoria St.	4	6	47	13.2	19.0	B	C	13.2	19.2	B	C
		22nd St./Victoria St. to End	3	-10	44	13.5	19.1	B	C	13.5	19.3	B	C
	NB	Dyer Rd. to MacArthur Blvd.	5+1H	-13	83	**>45.0**	**>45.0**	**F**	**F**	**>45.0**	**>45.0**	**F**	**F**
		MacArthur Blvd. to I-405 FWY	6+1H	-33	19	**>45.0**	32.1	**F**	D	**>45.0**	32.1	**F**	D
		I-405 FWY to SR-73 FWY	4	39	3	**>45.0**	32.0	**F**	D	**>45.0**	32.0	**F**	D
		SR-73 FWY to Mesa Dr.	4	13	31	**>45.0**	33.9	**F**	D	**>45.0**	34.2	**F**	D
		Mesa Dr. to 22nd St./Victoria St.	4	6	20	40.6	27.9	E	D	40.6	28.0	E	D
		22nd St./Victoria St. to End	3	19	25	40.8	26.8	E	D	41.1	27.0	E	D

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on the Orange County Transportation Analysis Model (OCTAM)

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln). The maximum density value at which sustained flows at capacity are expected to occur is 45 pc/mi/ln. Density values higher than 45 pc/mi/ln are given a LOS "F".

[3] Level of service determined using HCS+: Basic Freeway Segments software, Version 5.21.

TABLE 5-6

GENERAL PLAN LUE AMENDMENT ALTERNATIVE
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS SUMMARY

FREEWAY	DIRECTION	RAMP LOCATION	Lanes[1]	VOLUME Δ[5]		2006 GENERAL PLAN				GP LUE AMENDMENT ALT VOLUME			
						DENSITY[2]		LOS[3]		DENSITY[2]		LOS[3]	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-405 FREEWAY	SB	SB Loop Off-Ramp at MacArthur Blvd.	2	-19	-4	**9.0**	0.4	**F**[4]	A	8.7	0.4	A	A
		SB On-Ramp at MacArthur Blvd.	2	2	-16	9.8	15.3	A	B	10.4	15.2	B	B
		SB Off-Ramp at Jamboree Rd.	2	18	-1	9.7	4.4	A	A	9.9	4.4	A	A
		SB Loop On Ramp at Jamboree Rd.	1	-5	-13	23.4	26.6	C	C	23.3	26.7	C	C
		SB On-Ramp at Jamboree Rd.	2	13	-1	23.8	28.1	C	D	23.8	28.3	C	D
	NB	NB Loop On-Ramp at MacArthur Blvd.	1	8	47	33.1	31.3	D	D	32.9	31.3	D	D
		NB Off-Ramp at MacArthur Blvd.	1	15	7	**35.7**	26.8	**F**	C	**35.9**	26.8	**F**	C
		NB On-Ramp at Jamboree Rd.	2	-7	0	18.7	23.4	B	C	21.0	23.4	C	C
		NB Loop On-Ramp at Jamboree Rd.	1	10	5	29.7	27.6	D	C	29.7	27.6	D	C
		NB Off-Ramp at Jamboree Rd.	2	19	8	31.2	19.5	D	B	31.4	19.4	D	B
SR-73 FREEWAY/TOLL ROAD	SB	SB On-Ramp at Bison Av.	1	0	1	19.0	19.1	B	B	18.9	19.0	B	B
		SB Loop Off-Ramp at Bonita Canyon Rd.	1	1	-41	22.0	20.0	C	B	20.2	19.7	C	B
		SB On-Ramp at Bonita Canyon Rd.	1	-10	-42	19.2	19.0	B	B	16.1	18.7	B	B
		SB Off-Ramp at Newport Coast Dr.	1	-171	-8	24.0	24.3	C	C	22.9	24.2	C	C
		SB On-Ramp at Newport Coast Dr.	1	1	1	19.1	19.4	B	B	19.7	19.3	B	B
	NB	NB Off-Ramp at Bison Av.	1	-7	-10	25.2	21.8	C	C	22.9	22.5	C	C
		NB Loop On-Ramp at Bonita Canyon Rd.	1	-138	-120	23.3	20.2	C	C	19.5	19.3	B	B
		NB Off-Ramp at Bonita Canyon Rd.	1	-72	-28	13.9	14.8	B	B	15.3	14.7	B	B
		NB On-Ramp at Newport Coast Dr.	1	0	0	22.6	25.7	C	C	22.4	25.8	C	C
		NB Off-Ramp at Newport Coast Dr.	1	-32	20	25.3	26.1	C	C	24.9	26.4	C	C

BOLD = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on existing conditions.

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service (LOS) determined using HCS+ : Ramps and Ramp Junction software, Version 5.21

[4] V/C is greater than 1.00; Level of Service "F".

[5] The change in volume does not necessarily affect the Density and LOS results accordingly. The capacity of a merge or diverge area is always controlled by the capacity of its freeway segments, upstream and downstream of the ramps, or by the capacity of the ramp itself. The volumes at the freeway segments could differ from General Plan Baseline to General Plan Project conditions.

The following freeway ramp location identified previously as experiencing deficient LOS for the 2006 General Plan conditions continues to experience deficient operations for the General Plan LUE Amendment Alternative (project alternative) condition:

- I-405, NB Off-Ramp at MacArthur Blvd.

Table 5-6 also includes the volume and performance comparison between 2006 General Plan and General Plan LUE Amendment Alternative (project alternative) conditions for freeway ramps.

A change in volume does not necessarily correlate directly to the density and LOS results. The capacity of a merge or diverge area is influenced by the volume and capacity of adjacent freeway segments (upstream and downstream of the ramp), and by the capacity of the ramp. As a result, an increase in volume on the ramps sometimes results in a decrease in density.

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6.0 CONCLUSIONS AND MITIGATION MEASURES

The General Plan LUE Amendment (proposed project) changes the trip generation characteristics in each area of the City where proposed Land Use Element changes adjust the development potential. Trip reductions occur primarily in the east and west areas of the City, while trip increases are concentrated in Newport Center and the Airport Area. The overall net change is an increase of 260 morning inbound trip ends, 521 morning outbound trip ends, 434 evening inbound trip ends, 324 evening outbound trip ends, and 8,221 daily trip ends.

Within the City of Newport Beach, the Newport Beach Transportation Model (NBTM 3.4) is utilized in this study to estimate long range future traffic volumes with and without the General Plan LUE Amendment (proposed project). NBTM 3.4 has recently been updated to incorporate current land use, socio-economic, trip generation and network data from a variety of sources, including nearby City models (Irvine, Costa Mesa, and Huntington Beach) and the Orange County Transportation Analysis Model (OCTAM). The NBTM 3.4 travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City.

Within the City of Irvine, the Irvine Transportation Analysis Model (ITAM) Version 12 is used to project Post-2035 traffic volumes. Traffic volume changes associated with the General Plan LUE Amendment (proposed project) derived from NBTM are overlaid on ITAM 12 projections in order to evaluate project impacts in the City of Irvine.

6.1 VEHICLE MILES TRAVELED

Estimates of vehicle miles traveled (VMT) provide a travel activity metric which takes into consideration both trip generation and trip length characteristics. In this manner, the interaction of land uses with the surrounding area in addition to roadway system accessibility is taken into account.

VMT estimates have been prepared for existing (2013), 2006 General Plan, General Plan LUE Amendment (proposed project) and General Plan LUE Amendment Alternative (project alternative) conditions (see Table 6-1). These estimates have been stratified into internal-to-internal and internal-to-external traffic. In general, with the proposed project, internal-to-internal VMT decreases slightly in comparison to baseline conditions (only the PM peak period VMT increases with the project). On the other hand, internal-to-external VMT with the proposed project increases for each timeframe in comparison to baseline conditions.

TABLE 6-1

Vehicle Miles Traveled (VMT) Estimates

Scenario	Existing (2013) VMT	2006 GENERAL PLAN		GENERAL PLAN LUE PROJECT			GENERAL PLAN PROJECT ALT			
		VMT	%Δ from Existing	VMT	%Δ from Existing	%Δ from Baseline	VMT	%Δ from Existing	%Δ from Baseline	%Δ from Project
Internal-Internal										
AM	47,219	53,676	12.03%	52,820	10.60%	-1.62%	52,872	10.69%	-1.52%	0.10%
PM	256,708	273,191	6.03%	279,728	8.23%	2.34%	280,402	8.45%	2.57%	0.24%
MD	115,273	126,832	9.11%	122,361	5.79%	-3.65%	122,634	6.00%	-3.42%	0.22%
NT	84,947	91,021	6.67%	87,694	3.13%	-3.79%	88,028	3.50%	-3.40%	0.38%
Daily	504,147	544,720	7.45%	542,603	7.09%	-0.39%	543,936	7.32%	-0.14%	0.25%
Internal-External (and External-Internal)										
AM	1,377,656	1,591,917	13.46%	1,605,469	14.19%	0.84%	1,598,003	13.79%	0.38%	-0.47%
PM	1,630,169	1,942,546	16.08%	1,949,223	16.37%	0.34%	1,927,897	15.44%	-0.76%	-1.11%
MD	1,637,974	1,955,366	16.23%	1,978,448	17.21%	1.17%	1,957,918	16.34%	0.13%	-1.05%
NT	950,105	1,117,431	14.97%	1,132,796	16.13%	1.36%	1,118,685	15.07%	0.11%	-1.26%
Daily	5,595,904	6,607,260	15.31%	6,665,936	16.05%	0.88%	6,602,503	15.25%	-0.07%	-0.96%
TOTAL										
AM	1,424,875	1,645,593	13.41%	1,658,289	14.08%	0.77%	1,650,875	13.69%	0.32%	-0.45%
PM	1,886,877	2,215,737	14.84%	2,228,951	15.35%	0.59%	2,208,299	14.56%	-0.34%	-0.94%
MD	1,753,247	2,082,198	15.80%	2,100,809	16.54%	0.89%	2,080,552	15.73%	-0.08%	-0.97%
NT	1,035,052	1,208,452	14.35%	1,220,490	15.19%	0.99%	1,206,713	14.23%	-0.14%	-1.14%
Daily	6,100,051	7,151,980	14.71%	7,208,539	15.38%	0.78%	7,146,439	14.64%	-0.08%	-0.87%

The net result is an increase in daily VMT with the General Plan LUE Amendment (proposed project) which is less than a 1% change (approximately 0.78%) over 2006 General Plan conditions.

With the General Plan LUE Amendment Alternative (project alternative), internal-to-internal VMT decreases slightly in comparison to baseline conditions (only the PM peak period VMT increases with the project alternative). Internal-to-external VMT with the project alternative decreases for the PM peak period but increases for each other timeframe in comparison to baseline conditions (though not as much as for the proposed project). Overall, there is a decrease in VMT from the 2006 General Plan in each timeframe (and the total) except AM peak period. The General Plan LUE Amendment Alternative (project alternative) VMT decreases in each timeframe (except for internal-to-internal VMT) from the General Plan LUE Amendment (proposed project).

The net result is a decrease in daily VMT with the General Plan LUE Amendment Alternative (project alternative) (approximately 0.87%) from 2006 General Plan conditions.

6.2 PROJECT TRAFFIC IMPACTS AND MITIGATION

6.2.1 Intersection Impacts and Mitigation

Traffic operations of roadway facilities are described with the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS “A”, representing completely free-flow conditions, to LOS “F”, representing breakdown in flow resulting in stop-and-go conditions. LOS “E” represents operations at or near capacity, an unstable level, where vehicles are operating with the minimum spacing for maintaining uniform flow.

The City of Newport Beach level of service standard for intersections includes the following:

- Level of Service LOS “D” throughout the City, unless otherwise noted.
- LOS “E” at any intersection in the Airport Area shared with Irvine.
- LOS “E” at Coast Highway (EW) and Dover Drive (NS) due to right-of-way limitations.
- LOS “E” at Marguerite Avenue (NS) and Coast Highway (EW) in the pedestrian oriented area of Corona del Mar.
- LOS “E” at Goldenrod Avenue (NS) and Coast Highway (EW) in the pedestrian oriented area of Corona del Mar.

- LOS “E” at Riverside Avenue (NS) and Coast Highway (EW)
- LOS “E” at Campus Drive (NS) and Bristol Street North (EW)

Within the City of Irvine, Level of Service E (peak hour ICU less than or equal to 1.00) is considered acceptable for Planning Area 36 (Irvine Business Complex/IBC) intersections. At other study area intersections in the City of Irvine, Level of Service D (peak hour ICU less than or equal to 0.90) is acceptable.

For ICU greater than the acceptable level of service, mitigation of the project contribution is required to bring intersection back to acceptable level of service or to no project conditions if project contribution is .01 or greater at Newport Beach locations, .02 or greater at locations in the City of Irvine, and .03 or greater at CMP locations (the impact threshold specified in the CMP).

Based on the intersection LOS performance criteria (as shown previously in Table 4-7), the following study area intersections experienced unacceptable operations during peak hours for General Plan LUE Amendment (proposed project) conditions using existing lanes: With the exception of Von Karman Avenue at Alton Parkway (PM), all of these intersections were already deficient under General Plan Baseline conditions. Anticipated recommended General Plan improvements (see Section 2.6 of this report) mitigate 11 of the 15 deficient intersections.

The four locations displayed in **bold** in the list below represent a deficiency which remains after General Plan recommended improvements are added:

- Tustin Avenue at Coast Highway (AM)
- Jamboree Road at Campus Drive (PM)
- Irvine Avenue at University Drive (PM)
- MacArthur Boulevard at Ford Drive (PM)
- Von Karman Avenue at Barranca Parkway (AM)
- Jamboree Road at Barranca Parkway (PM)
- Carlson Avenue at Campus Drive (PM)
- Red Hill Avenue at Alton Parkway (AM & PM)
- University Drive at Campus Drive (AM & PM)
- **Superior Avenue at Coast Highway (AM)**
- **Newport Boulevard (West) at Coast Highway (AM)**
- **Jamboree Road at Michelson Drive (PM)**
- **Von Karman Avenue at Alton Parkway (PM)**

Nine (9) of the above thirteen (13) intersection locations with ICU values greater than the acceptable level of service are not significantly impacted by the Project (project contribution is less than .01 at Newport Beach locations, or less than .02 at locations in the City of Irvine). However, a significant project impact is projected to occur at the following intersections without currently planned General Plan buildout recommended improvements:

- Irvine Avenue at University Drive (PM)
- MacArthur Boulevard at Ford Drive (PM)
- **Von Karman Avenue at Alton Parkway (PM)**

From those impacted intersections, Von Karman at Alton Parkway continued to experience unacceptable operations during the PM peak hours with currently anticipated General Plan Improvements.

For the intersection of Von Karman Avenue at Alton Parkway, AM and PM peak hour Intersection Capacity Utilization (ICU) analysis has been performed without and with the Advanced Transportation Management Systems (ATMS) improvements which are already planned by the City of Irvine at this location.

Without ATMS improvements, the intersection is anticipated to experience 0.91 (LOS D) operations in the AM peak hour and 1.02 (LOS F) operations in the PM peak hour. No General Plan lane improvements are planned for this intersection. Without the additional capacity allowed by the ATMS, there is a PM peak hour impact with the General Plan LUE Amendment (proposed project).

With ATMS improvements, the intersection is anticipated to experience 0.86 (LOS D) operations in the AM peak hour and 0.97 (LOS E) operations in the PM peak hour. The final intersection operation with currently planned improvements is not deficient, and no impact occurs.

At the request of the City or Irvine, an additional scenario has been developed for intersections in Irvine. Urban Crossroads has performed a special model run to develop a cumulative scenario for use in comparison when evaluating the Land Use Element project. The cumulative scenario includes known potential projects in Irvine, including:

- Campos Verdes (ITC)
- Milani Apartments
- 2772 Main and 2699 & 2719 White.

For the Irvine cumulative scenario, a similar situation is anticipated to occur at the Von Karman Avenue/Alton Parkway intersection (a project impact, if ATMS is not included but no project impact with ATMS by others).

At the intersection of Von Karman Avenue at Alton Parkway, physical widening of the intersection is infeasible, as the intersection is built out. The City of Irvine allows the application of an Advanced Transportation Management Systems (ATMS) credit to be considered, subject to the following conditions:

1. The Intersection Capacity Utilization (ICU) Level of Service is deficient; and
2. The physical improvements needed to mitigate the ICU value cannot be constructed because of physical or other constraints, which may preclude the construction of the required improvements; and
3. The ATMS fee will allow for a 0.05 mitigation credit to the ICU value of the existing signalized intersection; and
4. An ATMS credit has not been previously approved for the impacted intersection; and
5. The ATMS credit can only be applied to existing signalized intersections.

The ATMS fee is not at the option of the developer or property owner and may be imposed at the sole discretion of the City of Irvine Director of Public Works.

This ATMS credit as indicated above (by others) mitigates the potential project impact found when analyzed with only lanes on the ground at the intersection of Von Karman Avenue at Alton Parkway. Should physical widening be preferred, an additional (3rd) northbound through lane would add capacity to the movement experiencing the highest volume / capacity ratio.

The General Plan LUE Amendment (proposed project) changes result in the redistribution of peak hour directional traffic movements that generally do not degrade roadway system performance in comparison to the 2006 General Plan. In order to provide an example of how peak hour volume shifts occur, Exhibit ES-3 (previously presented) has been developed. Exhibit ES-3 provides an overview of General Plan (future) AM peak hour traffic volumes for the intersection of MacArthur Boulevard at Jamboree Road. Traffic volumes have increased for some movements, but have decreased for other movements. Traffic volume decreases occur for the northbound through movement, the eastbound left turn movement, and the westbound right turn movement.

Replacing planned business uses with residential into a mostly business area causes redistribution of travel patterns that results in decreases on some movements. Residential trip generation involves primarily outgoing travel in the morning, and inbound travel in the evening, which is opposite the travel patterns for office uses.

6.2.2 Freeway Mainline Segment Impacts and Mitigation

The assessment of freeway mainline segments that could potentially be considered "impacted" are based on the Project's contribution of 1-49 or more peak hour trips on an already deficient (LOS F) segment with General Plan Improvements.

As stated in the Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002), an assessment of a state highway facility (SHF), is typically required when a proposed project is anticipated to contribute 1-49 or more peak hour trips to a SHF. Therefore, areas where the Project may contribute these peak hour trips to already deficient (LOS F) freeway ramps could impact these locations.

The General Plan LUE Amendment (proposed project) is anticipated to contribute 1-49 or more peak hour trips to the previously studied segments under the 2006 General Plan conditions at the I-405, SR-73 and SR-55 Freeways. Sections where the General Plan LUE Amendment (proposed project) is not anticipated to contribute 1-49 or more peak hour trips (trip reduction locations) have been identified as "non-impacted" segments, for the purposes of this analysis. The study area freeway mainline locations identified as being impacted by the General Plan LUE Amendment (proposed project) based on the continuing deficient operations from the 2006 General Plan are:

- SB I-405, North of SR-55 FWY, (PM Peak Hour Only)
- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (AM and PM Peak Hours)
- NB SR-55, MacArthur Blvd. to I-405 FWY, (AM Peak Hour Only)
- NB SR-55, I-405 FWY to SR-73, (AM Peak Hour Only)
- NB SR-55, SR-73 FWY to Mesa Dr, (AM Peak Hour Only)

As the proposed project would contribute to the existing and forecasted deficient freeway segments, the project's contribution to this cumulative traffic impact is considered cumulatively considerable.

Neither Caltrans nor the State has adopted a fee program that can ensure that locally-contributed impact fees will be tied to improvements to freeway mainlines, and only Caltrans has the jurisdiction over mainline improvements. Because Caltrans has exclusive control over state highway improvements, ensuring that fair share contributions to mainline improvements are actually part of a program tied to implementation of mitigation is within the jurisdiction of Caltrans. As such, the City of Newport Beach may decide whether specific overriding economic,

legal, social, technological, or other benefits of the project outweigh the unavoidable adverse cumulative traffic impacts associated with the project.

The General Plan LUE Amendment Alternative (project alternative) is anticipated to contribute 1-49 or more peak hour trips to the previously studied segments under the 2006 General Plan conditions at the I-405, SR-73 and SR-55 Freeways. As shown in Table 5-5 (previously presented), the study area freeway mainline locations identified as being impacted by the General Plan LUE Amendment Alternative (project alternative) based on the continuing deficient operations from the 2006 General Plan and an increase in traffic are:

- SB I-405, North of SR-55 FWY, (PM Peak Hour Only)
- NB I-405, South of Jamboree Rd, (AM Peak Hour Only)
- NB SR-73, North of Jamboree Rd, (PM Peak Hour Only)
- NB SR-55, Dyer Rd. to MacArthur Blvd, (PM Peak Hour Only)
- NB SR-55, I-405 FWY to SR-73, (AM Peak Hour Only)
- NB SR-55, SR-73 FWY to Mesa Dr, (AM Peak Hour Only)

There is one new freeway mainline impact with the Project Alternative (NB I-405, south of Jamboree Road in the AM peak hour only). One additional freeway mainline segment (NB SR-55, MacArthur Boulevard to I-405 FWY in the AM peak hour only) was identified as a project impact for the General Plan LUE Amendment (proposed project) that no longer includes an increase in traffic with the project alternative. In addition, for the segment NB SR-55, Dyer Rd. to MacArthur Blvd, an AM Peak Hour impact was found for the proposed project that is no longer indicated for the project alternative.

As the proposed project would contribute to the existing and forecasted deficient freeway segments, the project's contribution to this cumulative traffic impact is considered cumulatively considerable.

Neither Caltrans nor the State has adopted a fee program that can ensure that locally-contributed impact fees will be tied to improvements to freeway mainlines, and only Caltrans has the jurisdiction over mainline improvements. Because Caltrans has exclusive control over state highway improvements, ensuring that fair share contributions to mainline improvements are actually part of a program tied to implementation of mitigation is within the jurisdiction of Caltrans. As such, the City of Newport Beach may decide whether specific overriding economic, legal, social, technological, or other benefits of the project outweigh the unavoidable adverse cumulative traffic impacts associated with the project alternative.

6.2.3 Freeway Ramp Impacts and Mitigation

The assessment of freeway ramps that are considered "impacted" are based on the Project's contribution of 1-49 or more peak hour trips on already deficient (LOS F) freeway ramps with General Plan Improvements.

As stated in the Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002), an assessment of a state highway facility (SHF), is typically required when a proposed project is anticipated to contribute 1-49 or more peak hour trips to a SHF. Therefore, areas where the Project may contribute these peak hour trips to already deficient (LOS F) freeway ramps, could impact these locations.

The General Plan LUE Amendment (proposed project) is anticipated to contribute 1-49 or more peak hour trips to the previously studied ramps under the 2006 General Plan conditions at the I-405, SR-73 and SR-55 Freeways. The study area freeway mainline locations identified as being impacted by the General Plan LUE Amendment (proposed project) based on the continuing deficient operations from the 2006 General Plan are:

- I-405, NB Off-Ramp at MacArthur Blvd
- I-405, SB Loop Off-Ramp at MacArthur Blvd.

The General Plan LUE Amendment Alternative (project alternative) is anticipated to contribute 1-49 or more peak hour trips to the previously studied ramps under the 2006 General Plan conditions at the I-405, SR-73 and SR-55 Freeways. As shown in Table 5-6 (previously presented), the study area ramp location identified as being impacted by the General Plan LUE Amendment Alternative (project alternative) based on the continuing deficient operations from the 2006 General Plan and an increase in traffic is I-405, SB Loop Off-Ramp at MacArthur Blvd. This is one less ramp impact location than identified in the General Plan LUE Amendment (proposed project) scenario.

Table 6-2 provides a comparison of the intersection deficiencies in the City of Newport Beach. When the 2006 General Plan analysis was performed, several intersection deficiencies occurred with existing lanes. Since 2005, construction has occurred at some study area intersections, which eliminated some of the existing deficiencies. The 2006 General Plan data has been developed with the current NBTM, and incorporates recent amendments in addition to current knowledge of the local area. As shown on Table 6-2, the current 2006 General Plan and General Plan LUE Amendment (proposed project) analysis result in a similar number of deficiencies in the City of Newport Beach as the previous analysis (with improvements).

TABLE 6-2

DEFICIENT INTERSECTION SUMMARY

INTERSECTION (NS/EW)[1]	2006 GENERAL PLAN				2006 GENERAL PLAN BASELINE				LUE AMENDMENT			
	EXISTING LANES[2]		GP LANES		EXISTING LANES		GP LANES		EXISTING LANES		GP LANES	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
3. Superior Av. & Coast Hw.	D	C	D	C	**F**	C	**F**	C	**F**	C	**F**	C
7. Riverside Av. & Coast Hw.	**E**	**E**	C	D	**F**	D	C	D	E	D	C	D
9. MacArthur Bl. & Campus Dr.	C	**F**	C	D	D	E	A	B	E	E	B	B
11. Von Karman Av. & Campus Dr.	C	**E**	B	D	C	D	B	C	C	D	B	C
13. Jamboree Rd. & Campus Dr.	**E**	**F**	D	D	C	**F**	C	D	C	**F**	C	D
14. Jamboree Rd. & Birch St.	**E**	D	D	C	A	A	A	A	B	B	A	A
15. Campus Dr. & Bristol St. (N)	**E**	**F**	C	D	B	E	A	C	B	E	A	C
19. Irvine Av. & Mesa Dr.	**F**	**F**	C	D	A	B	A	B	A	B	A	B
20. Irvine Av. & University Dr.	**F**	**F**	C	C	C	**E**	A	C	C	**E**	A	C
29. MacArthur Bl. & Jamboree Rd.	**E**	**E**	D	D	B	D	B	D	C	D	B	D
32. Jamboree Rd. & Bristol St. S.	**E**	D	D	C	C	B	C	B	D	B	C	B
49. MacArthur Bl. & Ford Rd./Bonita Canyon Dr.	C	**E**	C	D	C	**E**	C	D	C	**E**	C	D
50. MacArthur Bl. & San Joaquin Hills Rd.	C	**F**	B	D	B	D	A	B	B	D	A	B
53. SR-73 NB Ramps & Bonita Cyn. Dr.	**F**	C	D	B	C	B	C	B	B	A	B	A
57. Goldenrod Av. & Coast Hw.	**E**	B	**E**	B	C	D	C	D	D	D	D	D
59.Marguerite Av. & Coast Hw.	**E**	**E**	**E**	**E**	C	C	C	C	D	C	D	C
66. Newport Blvd (W) & Coast Hw.	D	C	D	C	**F**	D	**F**	D	**F**	D	**F**	D

[1] In addition to the deficient intersections mentioned above, 7 intersections with existing lanes and 2 with GP lanes in the City of Irvine experience deficient operations.

[2] Since 2006, additional lanes at several intersections have been constructed, resulting acceptable Level of Service (LOS). – Newport @ Hospital, MacArthur @ Jamboree, Jamboree @ Bristol St. South.