URBAN | CROSSROADS

HOUSING ELEMENT

TRANSPORTATION ANALYSIS

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TABLE OF CONTENTS

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APPENDICES

Appendix 3.1: Daily Traffic Count Data Sheets

Appendix 3.2: Intersection Peak Hour Traffic Count Data Sheets

Appendix 3.3:

Existing Conditions

ICU Analysis Worksheets

Appendix 4.1:

2006 General Plan Baseline (Buildout Land Use)

ICU Analysis Worksheets

(Existing Lane Configuration)

Appendix 4.2:

2006 General Plan Baseline (Buildout Land Use)

ICU Analysis Worksheets

(Planned Lane Configuration)

Appendix 4.3:

2006 General Plan Baseline (Buildout Land Use)

ICU Analysis Worksheets

(Recommended and Alternative Lane Configurations)

Appendix 5.1:

Newport Beach General Plan Housing Element Update (HEU)

ICU Analysis Worksheets

(Existing Lane Configuration)

Appendix 5.2:

Newport Beach General Plan Housing Element Update (HEU)

ICU Analysis Worksheets

(Planned Lane Configuration)

Appendix 5.3:

Newport Beach General Plan Housing Element Update (HEU)

ICU Analysis Worksheets

(Recommended and Alternative Lane Configurations)

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LIST OF EXHIBITS

LIST OF TABLES

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LIST OF ABBREVIATED TERMS

(1)	Reference
AC	Acreage
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CMP	Congestion Management Program
DU	Dwelling Unit
HEU	Housing Element Update
ICU	Intersection Capacity Utilization
ITE	Institute of Transportation Engineers
LOS	Level of Service
NBTM	Newport Beach Transportation Model
OCTAM	Orange County Transportation Analysis Model
OPR	Office of Planning and Research
Project	Newport Beach Housing Element Update
RHNA	Regional Housing Needs Assessment
TA	Transportation Analysis
TAZ	Traffic Analysis Zone
v/c	Volume to Capacity
VPD	Vehicles Per Day

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1 EXECUTIVE SUMMARY

This report presents the results of the automobile-based Level of Service (LOS) transportation analysis (TA) for the proposed Newport Beach General Plan Housing Element Update (HEU) ("project"). The HEU identifies housing sites that provide the development capacity to accommodate housing that addresses the City's Regional Housing Needs Assessment (RHNA) allocation at all income levels. The RHNA quantifies the housing need within each jurisdiction for all economic segments of the community in four income categories: very low, low, moderate, and above moderate.

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for LOS as the new measure for identifying transportation impacts for land use projects. This statewide mandate was implemented on July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018).

Based on OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA, the City of Newport Beach has adopted VMT Significance Criteria and Thresholds and City SB 743 VMT Implementation Guide. A VMT analysis has been prepared in a separate VMT evaluation report based on these adopted City VMT Guidelines, which are consistent with the VMT analysis methodology recommended by OPR and require the analysis of VMT for the purposes of CEQA.

Newport Beach established the Traffic Phasing Ordinance in 1978, which provides guidance and process to review traffic conditions utilizing vehicle LOS when planning transportation improvements as part of land use development projects. Although, a vehicle LOS study is no longer required for the purposes of CEQA, this study has been prepared per the Traffic Phasing Ordinance as a reference document to provide additional information regarding potential traffic conditions related to implementation of the City's Housing Element.

The Newport Beach Transportation Model (NBTM) is utilized in this study to estimate long range future traffic volumes with and without the Newport Beach General Plan Housing Element Update (HEU) proposed project. The NBTM travel forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City. The NBTM has recently been updated (2020) to incorporate current land use and roadway network features within the City of Newport Beach along with up-to-date socio-economic, trip generation, network data, and model procedures from the Orange County Transportation Analysis Model (OCTAM).

1.1 PROJECT OVERVIEW

Located in coastal Orange County, the City is approximately 31,472 acres of land area with a population of approximately 85,865 persons (Department of Finance, 2021). The City is generally northwest of the City of Laguna Beach, southeast of the City of Costa Mesa, east of the City of Huntington Beach, and southwest of the City of Irvine. Newport Beach is bordered to the west by the Pacific Ocean.

Regional access to the City is provided by State Route 73 (SR-73) that roughly comprises the City's northwest border, State Route 55 (SR-55) to the southwestern portion of the City, and Coast Highway (SR-1) along the City's coastline.

The City's 2021-2029 Housing Element was adopted in September 2022 as part of the statewide 6th Cycle Housing Element process and was subsequently certified by the State of California Department of Housing and Community Development (HCD) on October 5, 2022. The adopted 2021-2029 Housing Element establishes programs, policies and actions to further the goal of meeting the existing and projected housing needs of all income levels of the community, and provides evidence of the City's ability to accommodate the Regional Housing Needs Assessment (RHNA) allocation through the year 2029, as established by the Southern California Association of Governments (SCAG).

The City's RHNA allocation is 4,845 housing units, including 1,456 very low-income units and 930 low-income units. In addition to the 6th Cycle RHNA allocation, 2021-2029 Housing Element accounts for additional housing units to address future "no net loss" if it becomes necessary to identify replacement sites during the 6th Cycle implementation period. Therefore, the City factored in a "buffer" equating to 5,242 housing units. It is envisioned that only a portion of these sites will be necessary to accommodate the City's planning obligation of 4,845 housing units.

The adopted 2021-2029 Housing Element identifies six focus areas in the City that have sufficient capacity to meet its RHNA allocation for the 6th Cycle. The six focus areas in the adopted Housing Element are:

- Airport Area
- West Newport Mesa
- Dover-Westcliff
- Newport Center
- Coyote Canyon
- Banning Ranch

The Banning Ranch Focus Area is included in the adopted 2021-2029 Housing Element's sites inventory. However, it is not assumed in order to accommodate the City's 2021-2029 RHNA growth need. Banning Ranch is considered as an additional dwelling unit opportunity, beyond those that accommodate the RHNA.

The Program EIR will evaluate the potential environmental effects of the implementing actions associated with the adopted 2021-2029 Housing Element. It will analyze the 6th Cycle RHNA obligation of 4,845 units and the identified buffer of 5,242 units, for a total development capacity of 10,087 housing units that have been identified on 244 candidate housing sites in the six focus areas of the City that can accommodate housing. Subsequent to the adoption of the Housing Element, five additional potential housing sites were identified. Therefore, the Program EIR will evaluate 249 housing sites.

The Project does not propose any site development on any of the housing sites. Future housing development would occur over time depending upon numerous factors such as market conditions, and economic and planning considerations, and at the individual property owners' discretion.

1.2 TRANSPORTATION ANALYSIS SUMMARY

The 10,087 dwelling units analyzed for the Newport Beach General Plan Housing Element Update (HEU) project are estimated to generate approximately 4,442 AM peak hour trips, 5,840 PM peak hour trips, and 68,358 daily trips throughout the City of Newport Beach. The introduction of residential into an area with predominantly existing employment use balances the land uses in the area and traffic volume increases may not be as substantial as expected.

This report presents analysis of three scenarios:

- Existing (2021), reflective of on-the-ground conditions at the start of the Project
- 2006 General Plan Baseline (Buildout Land Use), including approved General Plan conditions
- Newport Beach General Plan Housing Element Update (HEU), incorporating RHNA housing (the Project)

The Newport Beach General Plan Housing Element Update (HEU) changes are expected to result in new and redistributed vehicle trips (peak hour and average daily traffic or ADT), which are addressed in this traffic analysis by comparing future 2040 traffic conditions under the 2006 General Plan Baseline (Buildout Land Use) and the Newport Beach General Plan Housing Element Update (HEU) proposed project. The daily and peak hour traffic impact of the Newport Beach General Plan Housing Element Update (HEU) proposed project to roadways and study-area intersections is analyzed.

Traffic is captured within individual Focus Areas and also interacts heavily between Newport Center and the Airport Area, Newport Center and Coyote Canyon, along with Newport Center and Banning Ranch / West Newport Mesa. Project traffic interacting outside the City of Newport Beach is most oriented westerly and easterly via Coast Highway and Superior Avenue, northerly via MacArthur Boulevard and Jamboree Road and along the SR-73 Freeway.

ROADWAY SEGMENT ANALYSIS SUMMARY

Average Daily Traffic (ADT) volumes for Newport Beach General Plan Housing Element Update (HEU) in the Airport Area increase by almost 2,000 vehicles per day (VPD) on certain segments between 2006 General Plan Baseline (Buildout Land Use), and Newport Beach General Plan Housing Element Update (HEU) conditions.

In the western portion of the City of Newport Beach, near Banning Ranch and West Newport Mesa, the highest volume increases between 2006 General Plan Baseline (Buildout Land Use) and Newport Beach General Plan Housing Element Update (HEU) conditions occur on Coast Highway west of Superior Avenue and on Superior Avenue north of Coast Highway (each of these segments experiences an increase of approximately 1,000 VPD).

Daily traffic volumes along Coast Highway between Newport Boulevard and Bayside Drive increase by up to 1,300 VPD.

Newport Center Focus Area volume increases of 400 to 1,000 VPD are shown along Jamboree Road, Santa Barbara Drive, MacArthur Boulevard, and Coast Highway. Segments providing access between Newport Center Focus Area and other parts of the City of Newport Beach and beyond (such as Coast Highway west of Jamboree Road and Jamboree Road north of San Joaquin Hills Road) have volume increases of almost 2,000 VPD.

In the vicinity of Coyote Canyon Focus Area, MacArthur Boulevard between SR-73 and Bonita Canyon Drive experiences an increase of 3,800, Bonita Canyon Drive east of MacArthur Boulevard experiences an increase of 600, and San Joaquin Hills west of Newport Coast Drive experiences an increase of 400VPD.

Theoretical planning capacities are generalized estimates of traffic volumes that can be accommodated in typical lanes. Specific capacity varies for each road based on various factors such as roadway width, presence of adjacent driveways, etc. Because specific road capacities vary from theoretical planning capacities, volumes on individual roadways sometimes exceed theoretical planning capacities. For existing (2021) conditions, the following arterials in the study area are estimated to carry volume that exceeds theoretical planning level capacity:

- Campus Drive east of Jamboree Road
- Bristol Street North west of Campus Drive
- Bristol Street South west of Jamboree Road
- Irvine Avenue south of Del Mar Avenue/University Drive
- Irvine Avenue north of 22nd Street/Santiago Drive
- Dover Drive east of 19th Street/Dover Drive
- Coast Highway east of Newport Boulevard
- Coast Highway west of Dover Drive
- MacArthur Boulevard south of Bison Avenue
- Jamboree Road south of Ford Road
- MacArthur Boulevard south of Ford Road
- Bonita Canyon Drive east of MacArthur Boulevard
- Coast Highway between MacArthur Boulevard and Poppy Avenue

The following arterial segments are forecasted to serve future volumes that exceed their theoretical planning level capacity for both future scenarios – 1) 2006 General Plan Baseline (Buildout Land Use) and 2) Newport Beach General Plan Housing Element Update (HEU) conditions:

- Newport Boulevard north of Coast Highway
- Coast Highway between Newport Boulevard and Dover Drive
- Coast Highway between Dover Drive and Bayside Drive
- Irvine Avenue south of Del Mar Avenue/University Drive
- Dover Drive east of Irvine Avenue
- Bristol Street South west of Jamboree Road
- Jamboree Road between Bristol Street South and University Drive
- Jamboree Road between Ford Road & San Joaquin Hills Road
- MacArthur Boulevard between Bison Avenue and San Joaquin Hills Road
- Bonita Canyon Drive east of MacArthur Boulevard
- Coast Highway between MacArthur Boulevard and east of Poppy Avenue

Additional segments that exceed their theoretical planning level capacity under Newport Beach General Plan Housing Element Update (HEU) conditions:

- Irvine Avenue north of Santiago Drive
- Irvine Avenue south of 20th Street/Highland Drive
- MacArthur Boulevard between SR-73 and Bison Avenue

INTERSECTION ANALYSIS SUMMARY

Newport Beach established the Traffic Phasing Ordinance in 1978, which provides guidance and process to review traffic conditions utilizing vehicle LOS when planning transportation improvements as part of land use development projects. Although, a vehicle LOS study is no longer required for the purposes of CEQA, this study has been prepared per the Traffic Phasing Ordinance as a reference document to provide additional information regarding potential traffic conditions related to implementation of the City's Housing Element. Intersection Capacity Utilization (ICU) analysis is based on peak hour volumes and uses individual turn movements and the corresponding intersection lane geometry to estimate level of service. Intersection LOS is used to determine appropriate intersection geometries to provide acceptable LOS.

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, Dover Drive at Coast Highway, and in Corona del Mar (subject to findings of the most recent General Plan update traffic study).

Based on the intersection LOS performance criteria, all study area intersection analysis locations experience acceptable operation for existing (2021) conditions. The following intersections are estimated to experience unacceptable operation during peak hours for both 2006 General Plan Baseline (Buildout Land Use) and Newport Beach General Plan Housing Element Update (HEU) conditions with the existing lane configuration:

- Superior Avenue at Coast Highway (AM)
- **Riverside Avenue at Coast Highway (AM/PM)**
- Tustin Avenue at Coast Highway (AM)
- Irvine Avenue at University Drive (AM/PM)
- **SB Newport Boulevard Off-Ramp at West Coast Highway (AM)**

Anticipated "General Plan Planned Improvements" identified within the 2006 General Plan Circulation Element improve 3 of the 5 deficient intersections to acceptable levels. The two locations displayed in bold in the list above represent a deficiency which remains after defined improvements are added to the General Plan Housing Element Update (HEU) conditions. Exhibit 1-1 summarizes the intersection deficiencies for General Plan Scenarios.

One additional intersection (**Orange at Coast Highway, AM**) experiences unacceptable operations for Newport Beach General Plan Housing Element Update (HEU) conditions using existing lanes.

Additional recommended improvements have been identified to provide acceptable LOS for the above intersections shown in bold. Section 5 details the intersection lanes required to provide acceptable LOS for the General Plan Housing Element Update (HEU) scenario.

EXHIBIT 1-1: GENERAL PLAN BUILDOUT DEFICIENT INTERSECTIONS

LEGEND:

- = 2006 GENERAL PLAN BUILDOUT (APPROVED LAND USE) DEFICIENCY WITH EXISTING LANES
- = 2006 GENERAL PLAN BUILDOUT (APPROVED LAND USE) DEFICIENCY WITH GENERAL PLAN LANES
- = GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) PROJECT DEFICIENCY WITH EXISTING LANES
- = GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) PROJECT DEFICIENCY WITH GENERAL PLAN LANES

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2 INTRODUCTION

The City of Newport Beach is located in coastal Orange County. Regional access to the City is provided by State Route 73 (SR-73) that roughly comprises the City's northwest border, State Route 55 (SR-55) to the southwestern portion of the City, and Coast Highway (SR-1) along the City's coastline.

The Regional Housing Needs Assessment (RHNA) is a State Housing law requirement that is part of the periodic process of updating local General Plan Housing Element. The RHNA determines existing and projected housing need (i.e., RHNA allocation) for all State jurisdictions (cities and unincorporated county areas) with the intent to provide opportunities for a mix of unit types, tenure, and affordability; and help achieve greenhouse gas (GHG) emission reductions from cars and light trucks.

The Newport Beach General Plan Housing Element Update (HEU) changes are expected to result in new and redistributed vehicle trips (peak hour and average daily traffic or ADT), which are addressed in this traffic analysis by comparing future 2040 traffic conditions under the 2006 General Plan Baseline (Buildout Land Use) and the Newport Beach General Plan Housing Element Update (HEU) proposed project. The daily and peak hour traffic impact of the Newport Beach General Plan Housing Element Update (HEU) proposed project to roadways and study-area intersections is analyzed.

This work effort is intended to evaluate the Newport Beach General Plan Housing Element Update (HEU) in the context of the known future demographic conditions in adjacent Cities and throughout the southern California area. Analysis to reflect neighboring agencies RHNA allocations is infeasible at this time because the adjacent jurisdiction planning processes are also underway, and local plans in the area have not been fully developed and/or approved.

The Newport Beach Transportation Model (NBTM) is utilized in this study to estimate long range future traffic volumes with and without the Newport Beach General Plan Housing Element Update (HEU) proposed project. The NBTM has recently been updated (2020) to incorporate current land use and roadway network features within the City of Newport Beach along with up-to-date socio-economic, trip generation, network data, and model procedures from the Orange County Transportation Analysis Model (OCTAM). The NBTM 5.0 travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation level of service (LOS) and vehicle miles traveled (VMT) issues in and around the City.

2.1 PROJECT DESCRIPTION

The Newport Beach General Plan Housing Element is being updated to identify housing sites that provide the development capacity to accommodate housing at all RHNA required income levels. The RHNA quantifies the housing need within each jurisdiction for all economic segments of the community in four income categories: very low, low, moderate, and above moderate.

The final RHNA allocation for the City of Newport Beach 2021-2029 Housing Element projected housing need for the 6th Cycle RHNA planning period is 4,845 DU, including 1,456 very low-income units and 930 low-income units. The Project being analyzed is comprised of 9,075 dwelling units (the obligation of 4,845 dwelling units and the identified 87 percent buffer of 4,230 dwelling units) throughout 310 candidate housing sites/parcels totaling approximately 1,270 acres.

To guide the identification of adequate sites for allocation of the City's RHNA remaining need, Focus Areas were identified by City staff and stakeholders (see Exhibit 2-1). The City has identified an adequate amount of land that is "Feasible" or "Potentially Feasible" for future development in eight primary areas of opportunity:

- Airport Area Environs

  This Focus Area is located within the northwestern portion of the City, adjacent to its boundary with the City of Irvine and is primarily characterized by a mix of high-density residential development and professional office uses.

- West Newport Mesa

  West Newport Mesa has been identified by the City as a reinvestment and redevelopment opportunity, where older industrial, smaller-scale development can transition to support future residential development. The adjacent Hoag Hospital and supportive medical-related activities supports the opportunity to provide housing for local workers of various income levels. This Focus Area is located within the southwestern portion of the City.

- Dover/Westcliff

  Dover-Westcliff has been identified as an area with opportunity to support increased density that is compatible with adjacent higher density residential uses and other uses that will support residential development. This Focus Area is located within the southern portion of the City, proximate to Newport Bay. This area contains a mix of single-family residential and commercial/retail uses.

- Newport Center

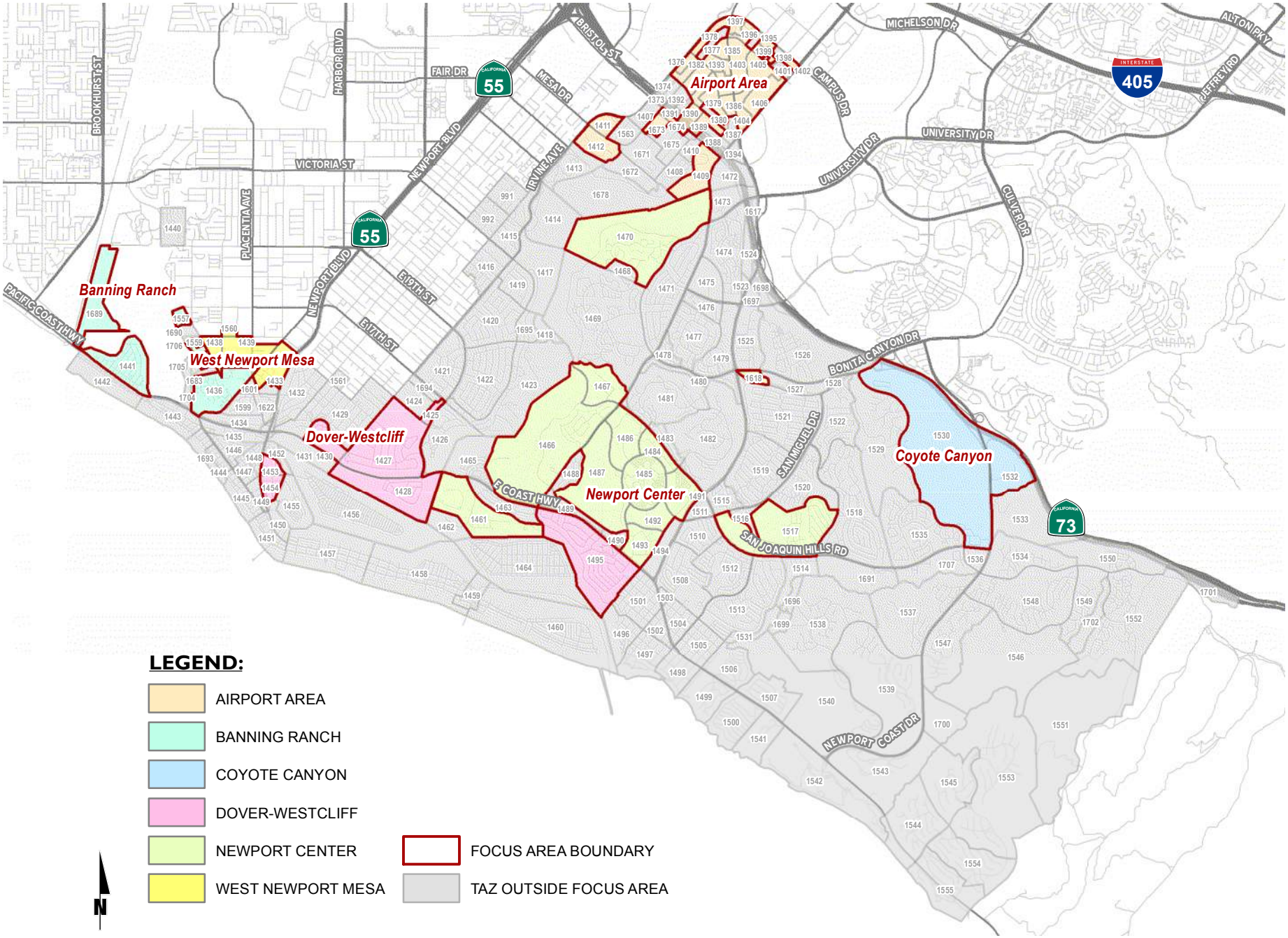
  Newport Center has recently had construction of new residential developments. The City expects the continuation of these development opportunities that creates housing adjacent to major employment opportunities and support retail. It is located within the central portion of the City, north of Coast Highway. This area is characterized primarily by commercial/retail uses within Fashion Island, but includes professional office and limited high-density residential development.

- Banning Ranch

  Banning Ranch has been identified in prior planning periods as a site to accommodate future housing needs. Banning Ranch was approved for development by the City, but the project was subsequently denied by the Coastal Commission. The website of the Banning Ranch Conservancy indicates its mission is to preserve, acquire, conserve and manage the entire Banning Ranch as permanent public open space, park and coastal nature preserve.

  The Banning Ranch Focus Area is included in the adopted 2021-2029 Housing Element's sites inventory. However, it is not assumed in order to accommodate the City's 2021-2029 RHNA growth need. Banning Ranch is considered as an additional dwelling unit opportunity, beyond those that accommodate the RHNA.

EXHIBIT 2-1: NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) FOCUS AREAS



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- Coyote Canyon

  Coyote Canyon is mostly a closed landfill area with limited opportunities for active uses. However, a portion of the property is not subject to these restrictions and is considered an opportunity for future residential development. This Focus Area is located within the northeastern portion of the City, south of State Route 73. This area is characterized entirely by residential uses, including predominantly single-family uses and limited medium-density residential development.

- Pipeline Projects

  Approximately 198 dwelling units are already under review / consideration and have been included for completeness.

- Accessory Dwelling Units

  The Municipal Code defines ADU as a "dwelling unit accessory to and attached to, detached from, or contained within the principal dwelling unit on a site zoned for residential use." The Project assumes 240 ADUs.

2.2 TRANSPORTATION MODEL

The Newport Beach Transportation Model (NBTM) is a computer simulation tool that is utilized to estimate future traffic volume forecasts and VMT as it considers interaction between different land uses based on socio-economic data such as population, households and employment. The NBTM travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City.

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 concept of a focused model is to provide the greatest level of detail within the primary analysis or study area, with less detail included in those parts of the model which are geographically distant from the primary study area.

The NBTM is a sub-area model of OCTAM, accounting for regional transportation supply and demand and incorporates recent changes to the existing and planned circulation system since the 2006 General Plan update (e.g., removal of the 19th Street Bridge across the Santa Ana River) as well as land use changes. Because the NBTM is based upon OCTAM and incorporates the City of Newport Beach 2006 General Plan, future analysis also reflects 2006 General Plan Buildout (2040) baseline condition.

The NBTM has recently (2020) been updated to be consistent with the Orange County Transportation Analysis Model, correlate to existing transportation conditions in the City of Newport Beach, provide estimates of Vehicle Miles Traveled (VMT) for use in evaluating potential land use and roadway projects, and forecast future General Plan volumes throughout the City of Newport Beach for land use and circulation planning.

NBTM 5.0 has been updated to incorporate current data for existing (2020) and General Plan conditions in the City of Newport Beach. Up-to-date representation of the surrounding region (in Orange County and beyond) has been incorporated consistent with the Orange County Transportation Analysis Model (OCTAM). Data and procedures from the OCTAM 5.0 have been incorporated into NBTM. The model area surrounding Newport Beach corresponds directly to the parent (OCTAM 5.0) model, while the primary study area incorporates more detail than the parent model.

The NBTM depends on the Orange County Transportation Analysis Model, Version 5.0 (OCTAM 5.0). The general modeling steps or processes are:

- Land use to socioeconomic data (SED) conversion
- Trip generation and mode choice
- Trip distribution
- Time of day factoring
- Traffic assignment
- Post-assignment data refinement processing.

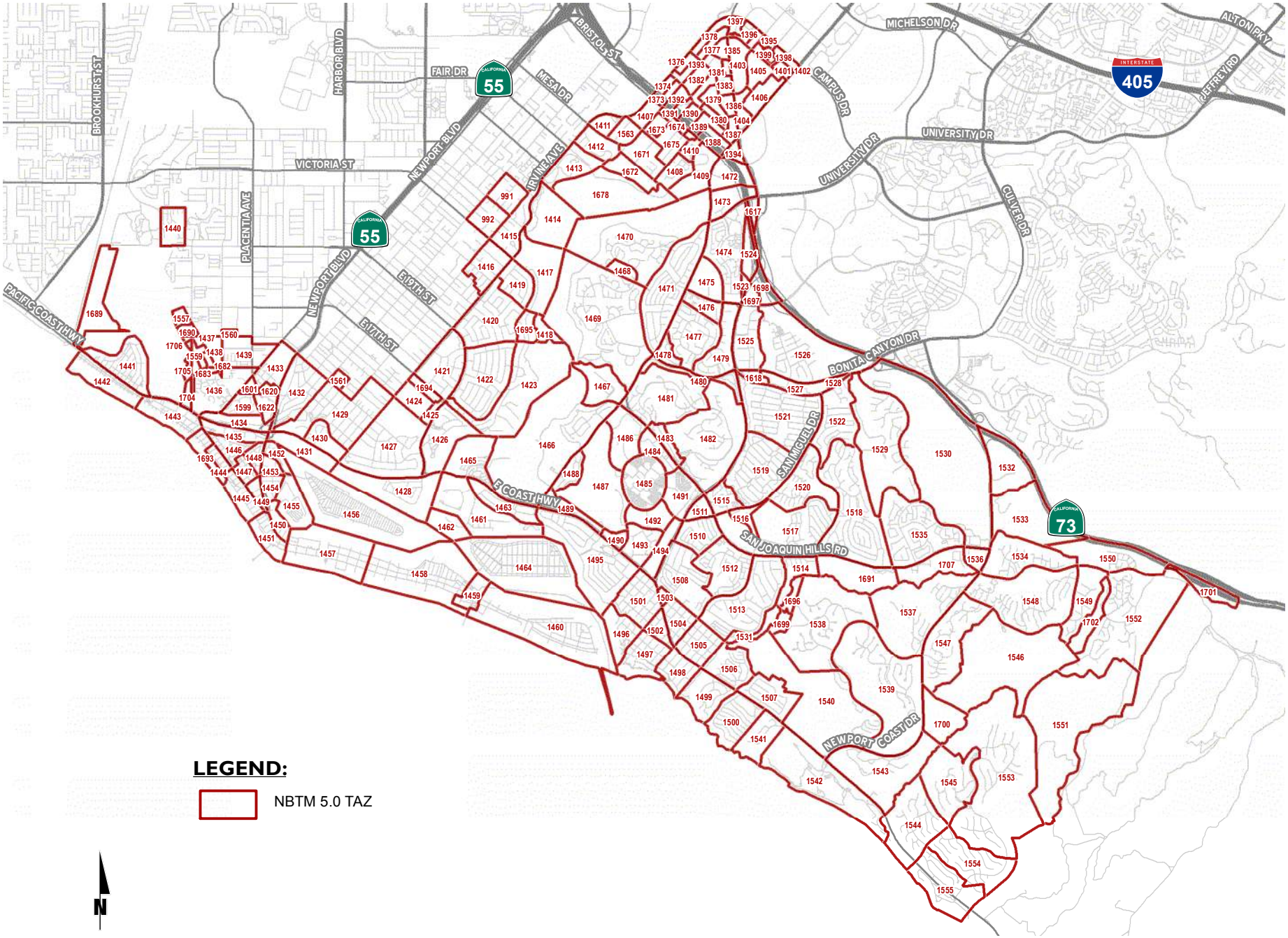
The NBTM 5.0 has been calibrated to represent "shoulder season" (spring/fall) conditions in the City of Newport Beach. The Newport Beach Traffic Phasing Ordinance (TPO) and the General Plan Circulation Element reference average conditions. The General Plan Circulation Element specifically indicates that analysis of traffic conditions occurs outside of the summer season.

In the NBTM, Traffic Analysis Zones (TAZs) are used to identify land areas for purposes of aggregating individual land uses to a level of detail suitable for local area modeling. To ensure appropriate traffic access to / from the arterial roadway system, TAZs generally are bounded by arterial (or smaller) roadways without crossing main network features. The NBTM TAZ structure is shown on Exhibit 2-2. In areas of dense network and land use features, the TAZ level of detail is important to provide representation of roadway network features and access points. This TAZ structure provides information for traffic modeling interactions within the City and to surrounding areas. Further away from the City of Newport Beach, the NBTM TAZs conform to the OCTAM TAZs. The level of TAZ structure detail in the City of Newport Beach is intended to support accurate forecasting of traffic on arterial roadways (as well as study area freeways) within the study area.

2.3 ANALYSIS METHODOLOGY

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate was implemented on July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (Technical Advisory). VMT analysis of the Newport Beach General Plan Housing Element Update (HEU) has been completed under a separate cover.

EXHIBIT 2-2: CITY OF NEWPORT BEACH TRAFFIC ANALYSIS ZONES (TAZ)



Newport Beach established the Traffic Phasing Ordinance in 1978, which provides guidance and process to review traffic conditions utilizing vehicle LOS when planning transportation improvements as part of land use development projects. Although, a vehicle LOS study is no longer required for the purposes of CEQA, this study has been prepared per the Traffic Phasing Ordinance as a reference document to provide additional information regarding potential traffic conditions related to implementation of the City's Housing Element.

On November 7, 2000, the Newport Beach electorate approved Measure S, which amended the Newport Beach City Charter by adding Section 423. Section 423 requires voter approval of certain amendments of the Newport Beach General Plan (General Plan). On November 6, 2006, the Newport Beach electorate approved Measure V, a comprehensive update and amendment of the General Plan Land Use Element.

The Guidelines for Implementing Charter Section 423 document the procedures for evaluating any major amendment to the Newport Beach General Plan which requires voter approval. According to Section 423, a "major amendment" is one that significantly increases traffic, intensity or density of allowed and proposed uses. This Section describes the methodology and assumptions to be used for purposes of calculating the traffic (maximum peak hour trips), intensity (floor area) and density (dwelling units) of allowed uses and proposed uses. Section 423 specifies that the term "significantly increases" means "over 100 peak hour trips."

A comparison of the Newport Beach Housing Element Update (HEU) project to the 2006 General Plan Baseline (Buildout Land Use) provides the information necessary to determine the effects of the Newport Beach Housing Element Update (HEU) project on the roadway system.

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. Table 2-1 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 Plan for the City of Newport Beach.

TABLE 2-1: VOLUME/CAPACITY RATIO LEVEL OF SERVICE RANGES

Level of Service (LOS)	Volume/Capacity (V/C) Ratio Range Arterial Roads or 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 used in this analysis are presented in Table 2-2.

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 2-2: DAILY ROADWAY SEGMENT CAPACITIES

Classification and Lanes	Capacity
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

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.

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, Dover Drive at Coast Highway, and in Corona del Mar (subject to findings of the most recent General Plan update traffic study).

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

- Saturation Flow Rate: 1,600 vehicles/hour/lane
- Clearance Interval: .00
- Right-Turn-On-Red Utilization Factor*: .00

(*"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.)

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

3.0 TRANSPORTATION SETTING

This chapter describes the transportation setting for the Newport Beach General Plan Housing Element Update (HEU) 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 within the study area. At the end of this chapter, a summary list of "General Plan Planned Improvements" is provided (circulation system recommended improvements identified in the 2006 City of Newport Beach General Plan Circulation Element).

3.1 EXISTING AND PLANNED ROADWAY NETWORK

Exhibit 3-1 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 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 designated in the recently adopted General Plan Circulation Element as accommodating a daily capacity ranging from 45,000 to 60,000 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 designated in the recently adopted General Plan Circulation Element as accommodating a daily capacity ranging from 30,000 to 45,000 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 VPD with a typical capacity of 58,000 VPD.

Primary Arterial - A Primary arterial highway is usually a four-lane divided roadway. A Primary arterial is designated in the recently adopted General Plan Circulation Element as accommodating a daily capacity ranging from 20,000 to 30,000 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 at intersections, resulting in a daily capacity ranging from 35,000 to 50,000 VPD with a typical capacity of 40,000 VPD.

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 are designated in the recently adopted General Plan Circulation Element as accommodating daily capacity ranging from 10,000 to 20,000 VPD.

EXHIBIT 3-1: EXISTING THROUGH LANES

LEGEND:

- # = EXISTING THROUGH LANES
- D = DIVIDED
- U = UNDIVIDED

13386 - 302 - study area.dwg

Commuter Roadway - A commuter roadway is a two-to-four-lane, unrestricted access roadway designated in the recently adopted General Plan Circulation Element as accommodating daily capacity ranging from 7,500 to 15,000 VPD. It differs from a local street in its ability to handle through traffic movements between arterials.

Exhibit 3-2 display the roadway classifications for City of Newport Beach network. 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. Newport Beach General Plan roadway cross-sections are shown on Exhibit 3-3.

STUDY AREA INTERSECTIONS

Study area intersection locations are shown on Exhibit 3-4 and listed on Table 3-1. Existing intersection turn lanes and intersection controls are shown on Exhibit 3-5. Individual potential future intersection improvements are shown on Exhibit 3-6.

3.2 NEWPORT BEACH GENERAL PLAN TRAILS

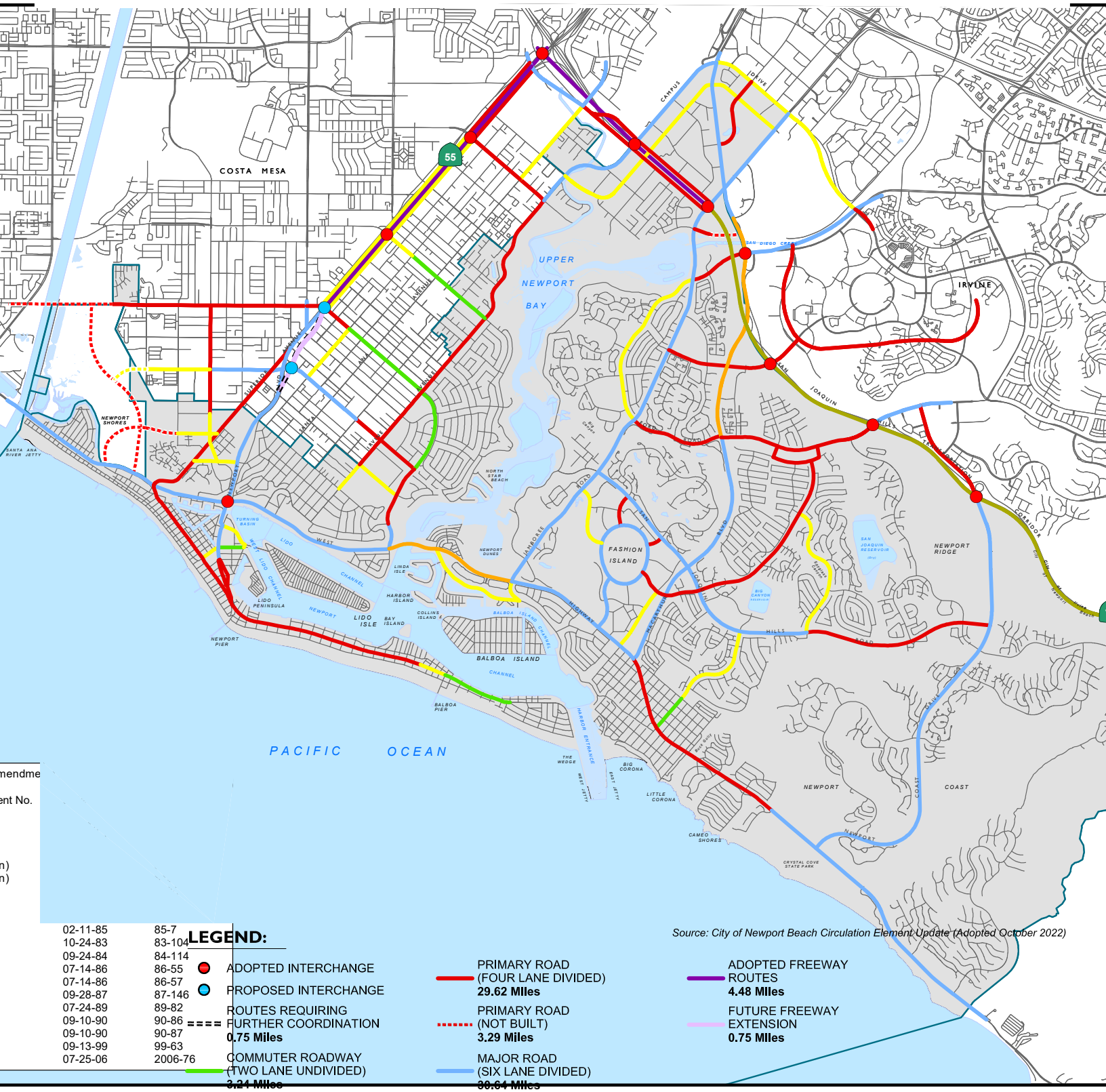
The City of Newport Beach maintains a trail system to provide opportunities for commuter and recreational bicyclists, along with pedestrians and equestrians. Exhibit 3-7 shows the 2022 General Plan Bikeways Master Plan. Bicycle lanes, bicycle routes, bicycle paths, and bike trails are shown.

Equestrian and hiking trails are shown on Exhibit 3-8. Bicycle, equestrian, and pedestrian plan improvements (including trails, bike storage, bike racks on buses, crosswalk improvements, commuter information areas), maintenance of existing and future facilities, development / implementation of curb management strategies, and support of parking optimization (to ensure usage of parking without additional vacant spaces) provide options for travelers to reduce dependance on private automobiles.

3.3 EXISTING TRANSIT

Public transportation is provided via OCTA and through paratransit programs, such as the one at the Oasis Senior Center provided for seniors and the seasonal City operated Balboa Peninsula Trolley. Ferry service between Balboa Island and Balboa Peninsula provides a transportation connection for pedestrians, bicyclists, and automobile travelers. Encouraging additional transit / paratransit service times and options can reduce dependance on individual automobile travel. Exhibit 3-9 shows year-round OCTA bus routes in the City of Newport Beach. Bus routes where service is every 15 minutes (or more frequent) is shown on Exhibit 3-10.

EXHIBIT 3-2: CITY OF NEWPORT BEACH MASTER PLAN OF STREETS AND HIGHWAYS

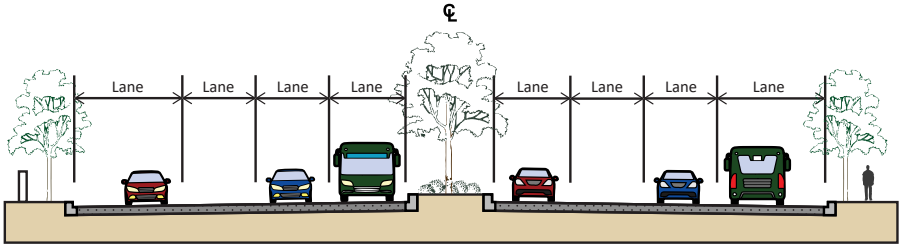


Source: City of Newport Beach Circulation Element Update (Adopted October 2022)

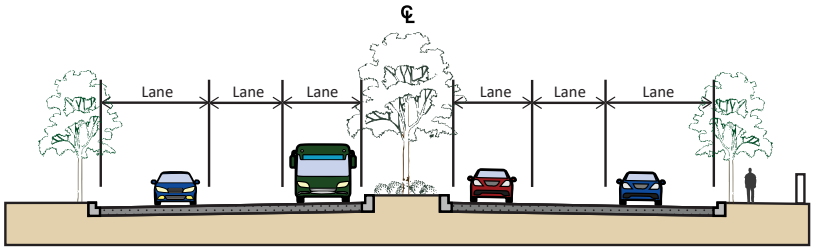
13386 - 302 - study area.dwg

EXHIBIT 3-3: NEWPORT BEACH
GENERAL PLAN ROADWAY CROSS-SECTIONS

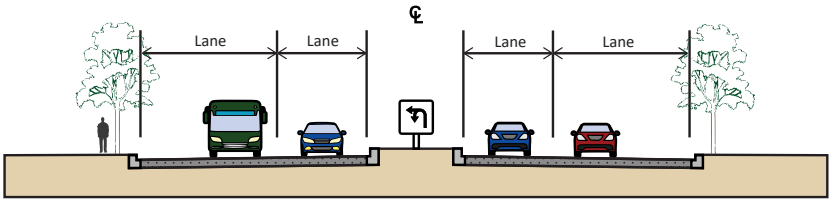
PRINCIPAL - 144'
(8 Lanes Divided)



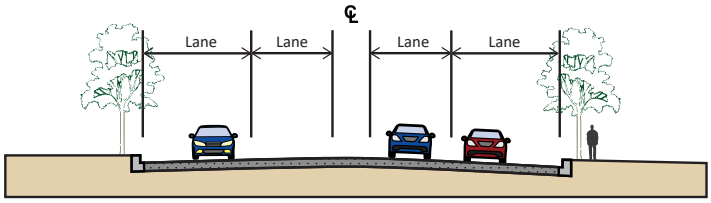
MAJOR - 128'
(6 Lanes Divided)



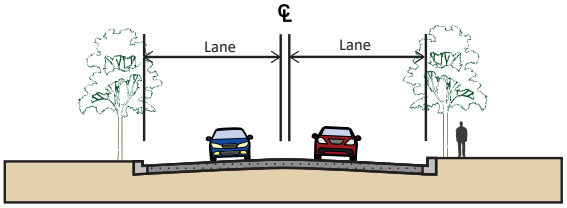
PRIMARY - 104'
(4 Lanes Divided)



SECONDARY - 84'
(4 Lanes Undivided)



COMMUTER - 60'
(2 Lanes Divided)



NOTE: AUGMENTED SECTIONS MAY INCLUDE ADDITIONAL LANES AT INTERSECTION, AS NECESSARY.

Source: City of Newport Beach Circulation Element Update (Adopted October 2022)

EXHIBIT 3-4: NEWPORT BEACH STUDY AREA INTERSECTION LOCATIONS

LEGEND:

(#) = INTERSECTION ID

13386 - 302 - study area.dwg

TABLE 3-1: EXISTING INTERSECTION ANALYSIS LOCATIONS

ID	Intersection	ID	Intersection
1	15th St / Coast Hwy (Future Int.)	33	Jamboree Rd / Bayview Wy
2	Superior Av / Placentia Av	34	Jamboree Rd / Eastbluff Dr - University Dr
3	Superior Av / Coast Hwy	35	Jamboree Rd / Bison Av
4	Newport Bl / Hospital Rd	36	Jamboree Rd / Eastbluff Dr - Ford Dr
5	Newport Bl / Via Lido	37	Jamboree Rd / San Joaquin Hills Rd
6	Newport Bl / 32nd St	38	Jamboree Rd / Santa Barbara Dr
7	Riverside Av / Coast Hwy	39	Jamboree Rd / Coast Hwy
8	Tustin Av / Coast Hwy	40	Santa Cruz Dr / San Joaquin Hills Rd
9	MacArthur Bl / Campus Dr	41	Santa Rosa Dr / San Joaquin Hills Rd
10	MacArthur Bl / Birch St	42	Newport Center Dr / Coast Hwy
11	Von Karman Av / Campus Dr	44	Avocado Av / San Miguel Dr
12	MacArthur Bl / Von Karman Av	45	Avocado Av / Coast Hwy
13	Jamboree Rd / Campus Dr	46	SR-73 NB Ramps / Bison Av
14	Jamboree Rd / Birch St	47	SR-73 SB Ramps / Bison Av
15	Campus Dr / Bristol St (N)	48	MacArthur Bl / Bison Av
16	Birch St / Bristol St (N)	49	MacArthur Bl / Ford Rd
17	Campus Dr - Irvine Av / Bristol St (S)	50	MacArthur Bl / San Joaquin Hills Rd
18	Birch St / Bristol St (S)	51	MacArthur Bl / San Miguel Dr
19	Irvine Av / Mesa Dr	52	MacArthur Bl / Coast Hwy
20	Irvine Av / University Dr	53	SR-73 NB Ramps / Bonita Canyon Dr
21	Irvine Av / Santiago Dr	54	SR-73 SB Ramps / Bonita Canyon Dr
22	Irvine Av / Highland Dr	55	San Miguel Dr / Spyglass Hill Rd
23	Irvine Av / Dover Dr	56	San Miguel Dr / San Joaquin Hills Rd
24	Irvine Av / Westcliff Dr	57	Goldenrod Av / Coast Hwy
25	Dover Dr / Westcliff Dr	58	Marguerite Av / San Joaquin Hills Rd
26	Dover Dr / 16th St	59	Marguerite Av / Coast Hwy
27	Dover Dr / Coast Hwy	60	Spyglass Hill Rd / San Joaquin Hills Rd
28	Bayside Dr / Coast Hwy	61	Poppy Av / Coast Hwy
29	MacArthur Bl / Jamboree Rd	62	Newport Coast Dr / SR-73 NB Ramps
30	Jamboree Rd / Bristol St (N)	64	Newport Coast Dr / San Joaquin Hills Rd
31	Bayview Pl / Bristol St (S)	65	Newport Coast Dr / Coast Hwy
32	Jamboree Rd / Bristol St (S)	66	Newport Bl (W) / Coast Hwy
		67	Orange St. / Coast Hwy

Z:\Shared\UcJobs_13100-13500_13300\13386\Excel\[13386-01_ICU Tables.xlsx]Existing_Intersections

EXHIBIT 3-5 (1 OF 2): NEWPORT BEACH
EXISTING INTERSECTION CONTROLS AND TURN LANES

1 15TH ST. & COAST HWY. — FUTURE INTERSECTION

2 SUPERIOR AV. & PLACENTIA AV. — DEF, DEF

3 SUPERIOR AV. & COAST HWY. — RTO, RTO, DEF

4 NEWPORT BL. & HOSPITAL RD.

5 NEWPORT BL. & VIA LIDO — RTO, RTO

6 NEWPORT BL. & 32ND ST.

7 RIVERSIDE AV. & COAST HWY. — RTO

8 TUSTIN AV. & COAST HWY.

9 MACARTHUR BL. & CAMPUS DR. — DEF

10 MACARTHUR BL. & BIRCH ST.

11 VON KARMAN AV. & CAMPUS DR.

12 MACARTHUR BL. & VON KARMAN AV.

13 JAMBOREE RD. & CAMPUS DR.

14 JAMBOREE RD. & BIRCH ST.

15 CAMPUS DR. & BRISTOL ST. (N) — RTO, RTO, RTO

16 BIRCH ST. & BRISTOL ST. (N)

LEGEND:

- (10) = INTERSECTION ID
- = TRAFFIC SIGNAL
- (S) = ALL WAY STOP
- = STOP SIGN
- = FREE RIGHT TURN
- RTO = RIGHT TURN OVERLAP PHASE
- DEF = DEFACTO RIGHT TURN LANE

17 CAMPUS DR. & BRISTOL ST. (S)

18 BIRCH ST. & BRISTOL ST. (S)

19 IRVINE AV. & MESA DR. — DEF

20 IRVINE AV. & UNIVERSITY DR. — DEF

21 IRVINE AV. & SANTIAGO DR. — DEF, DEF

22 IRVINE AV. & HIGHLAND DR. — DEF, DEF, DEF, DEF

23 IRVINE AV. & DOVER DR. — DEF, DEF

24 IRVINE AV. & WESTCLIFF DR. — DEF, DEF

25 DOVER DR. & WESTCLIFF DR.

26 DOVER DR. & 16TH ST. — DEF, DEF, DEF

27 DOVER DR. & COAST HWY.

28 BAYSIDE DR. & COAST HWY. — DEF

29 MACARTHUR BL. & JAMBOREE RD. — RTO

30 JAMBOREE RD. & BRISTOL ST. (N)

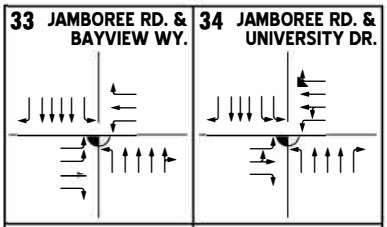
31 BAYVIEW PL. & BRISTOL ST. (S)

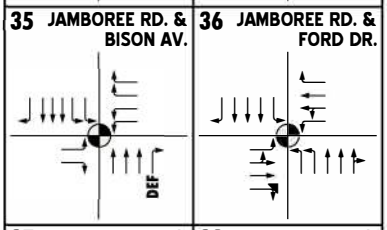
32 JAMBOREE RD. & BRISTOL ST. (S)

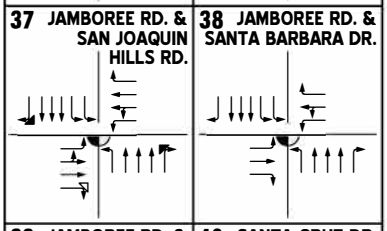
EXHIBIT 3-5 (2 OF 2): NEWPORT BEACH
EXISTING INTERSECTION CONTROLS AND TURN LANES

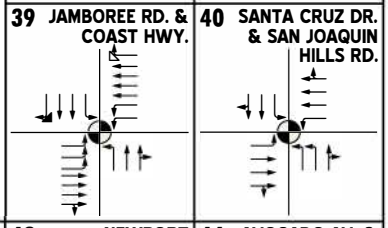
LEGEND:

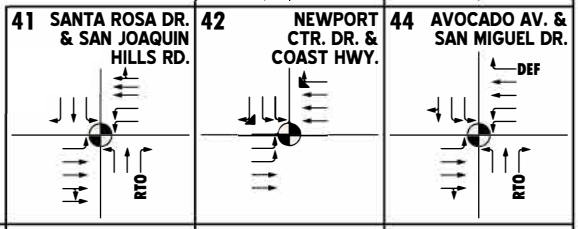
- 10 = INTERSECTION ID
- = TRAFFIC SIGNAL
- S = ALL WAY STOP
- = STOP SIGN
- = FREE RIGHT TURN
- RTO = RIGHT TURN OVERLAP PHASE
- DEF = DEFACTO RIGHT TURN LANE

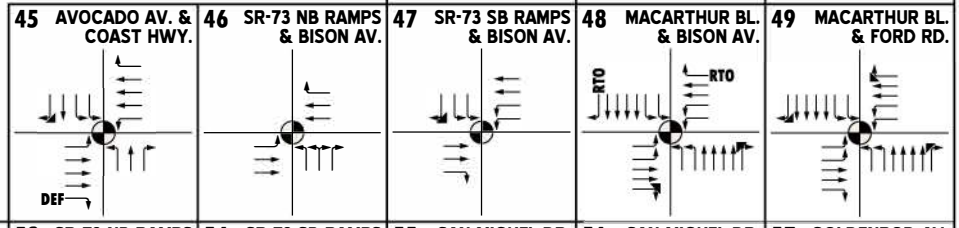


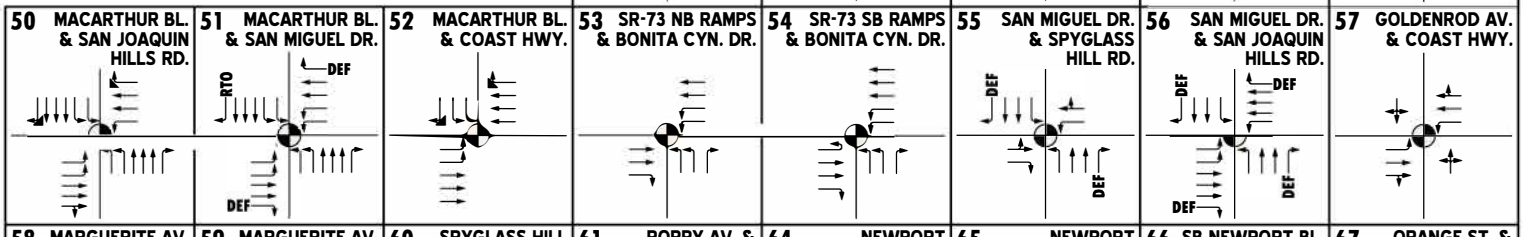












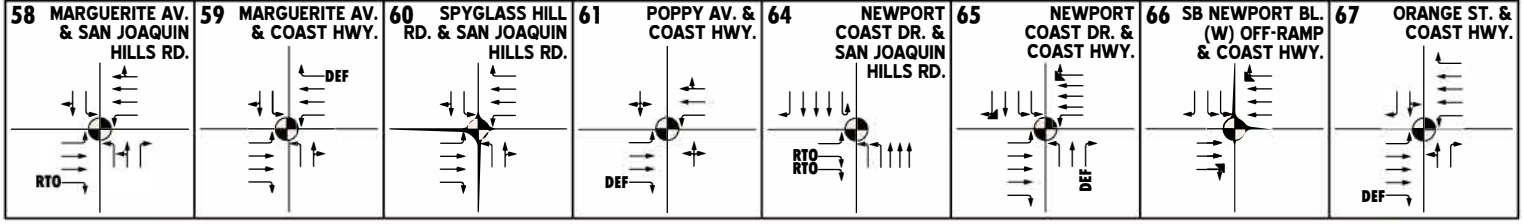


EXHIBIT 3-6: POTENTIAL INTERSECTION TURN LANES

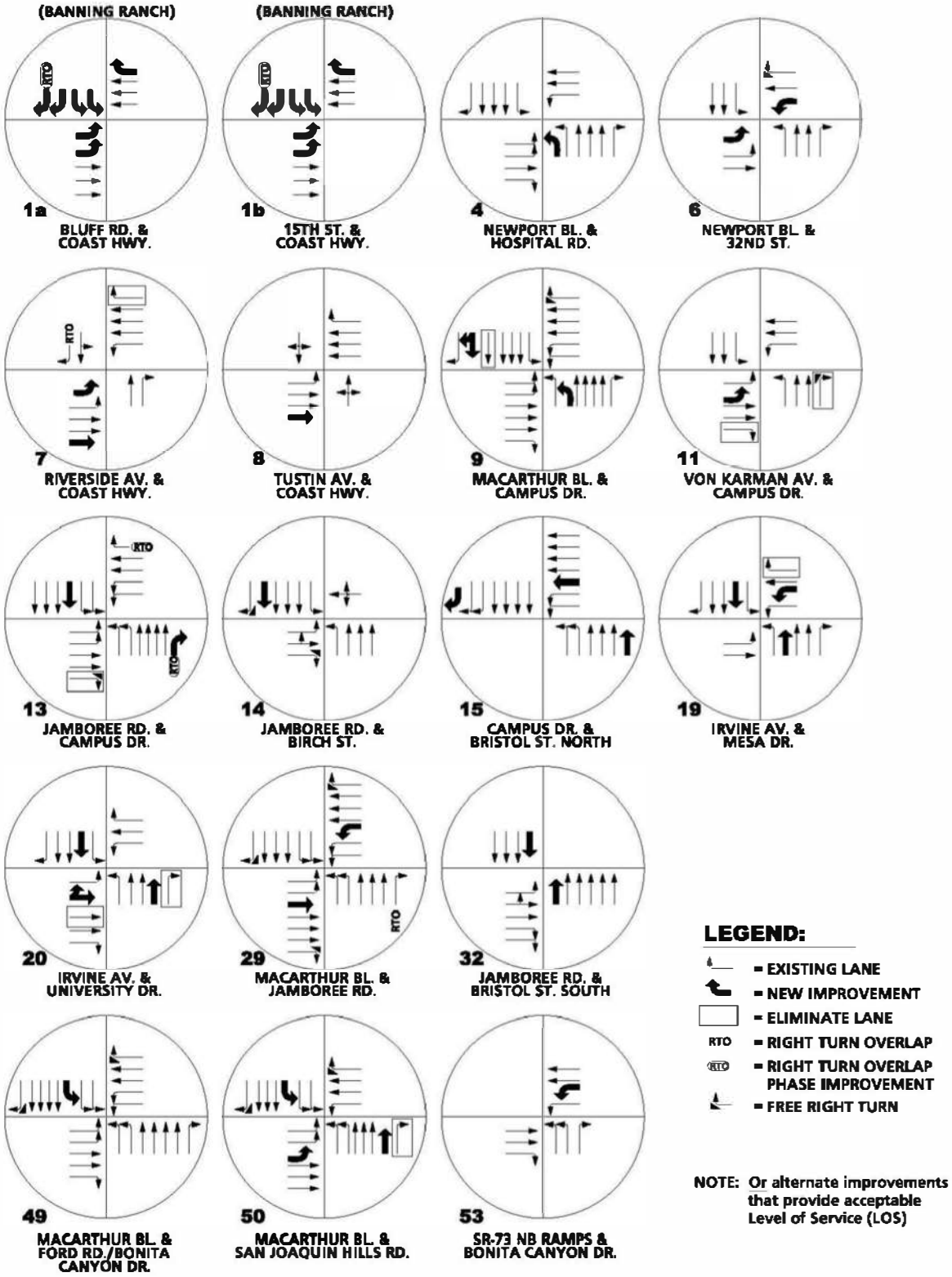
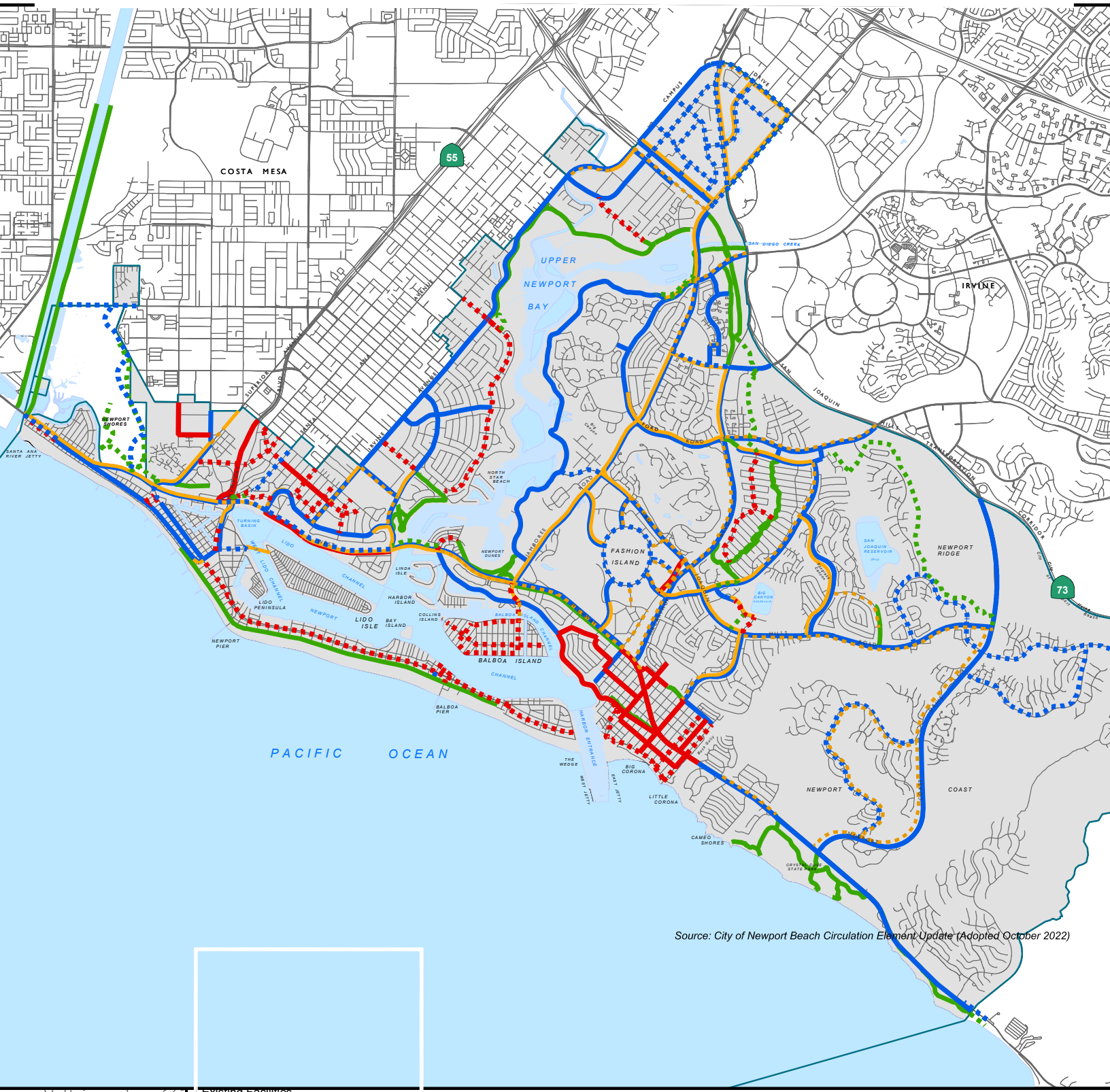


EXHIBIT 3-7: NEWPORT BEACH BIKEWAYS MASTER PLAN



Source: City of Newport Beach Circulation Element Update (Adopted October 2022)

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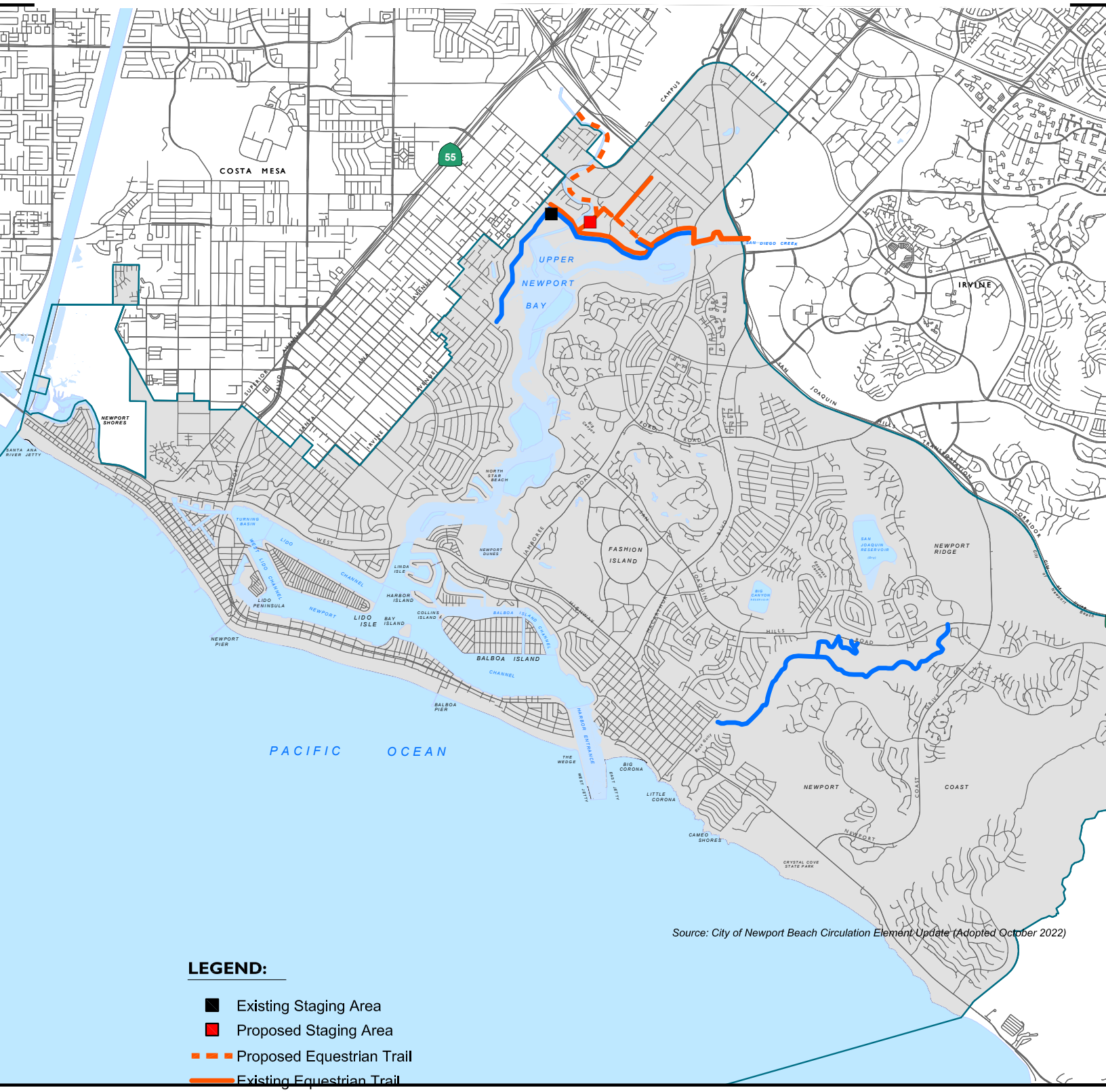
EXHIBIT 3-8: NEWPORT BEACH EQUESTRIAN AND HIKING TRAILS MASTER PLAN



Source: City of Newport Beach Circulation Element Update (Adopted October 2022)

13386 - 302 - study area.dwg

EXHIBIT 3-9: EXISTING BUS ROUTES IN NEWPORT BEACH

LEGEND:

(1) = BUS ROUTE

= BUS STOP

13386 - 304 - transit.dwg

EXHIBIT 3-10: EXISTING BUS ROUTES (15 MINUTE OR MORE FREQUENT) IN NEWPORT BEACH

LEGEND:

= BUS ROUTE 47 (15 MIN OR LESS)

= BUS ROUTE 55 (15 MIN OR LESS)

13386 - 304 - transit.dwg

3.4 TRAFFIC COUNT DATA

Existing AM and PM peak hour intersection volumes in the study area are shown on Exhibit 3-11 and Exhibit 3-12, respectively. The peak periods utilized for the intersection traffic counts are as follows:

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

For 2018 datasets, traffic volumes have been adjusted by adding three years of background (ambient) growth (1% per year, total of 3.03% compounded over a 3-year period) in order to estimate "typical/non-COVID-19" 2021 conditions. Existing 2021 conditions are used because the intent of the existing baseline scenario is to represent conditions at Project initiation.

For 2019 datasets, traffic volumes have been adjusted by adding two years of background (ambient) growth (1% per year, total of 2.02% compounded over a 2-year period) in order to estimate "typical/non-COVID-19" 2021 conditions.

In some cases, new intersection peak hour counts at the following intersections were collected in February 2021, where 2020 counts are not available:

ID	Intersection Location
44	Avocado Avenue / San Miguel Drive
46	SR-73 NB Ramps / Bison Avenue
47	SR-73 SB Ramps / Bison Avenue
60	Spyglass Hill Road / San Joaquin Hills Road
62	Newport Coast Drive / SR-73 NB Ramps
64	Newport Coast Drive / San Joaquin Hills Road
65	Newport Coast Drive / Coast Highway

Due to the COVID-19 pandemic, these new February 2021 peak hour counts are anticipated to be lower than typical conditions. As a comparison, new February 2021 counts were also taken at Jamboree Road/Coast Highway (#39) and MacArthur Boulevard/San Joaquin Hills Road (#50) where pre-COVID data is available.

Average morning and evening peak hour volume comparison at Jamboree Road/Coast Highway (#39) and MacArthur Boulevard/San Joaquin Hills Road (#50) indicate that the February 2020 data ("typical/non-COVID-19") are approximately 32.17% higher than the February 2021 counts (see table below).

EXHIBIT 3-11 (1 OF 2): NEWPORT BEACH EXISTING (2021) AM PEAK HOUR INTERSECTION VOLUMES

LEGEND:

(#) = INTERSECTION ID

1 15TH ST. & COAST HWY.

FUTURE INTERSECTION

2 SUPERIOR AV. & PLACENTIA AV.

19 274 63 | 80 173 18
30 290 287 | 415 849 20

3 SUPERIOR AV. & COAST HWY.

271 154 180 | 221 564 87
1011 1929 296 | 169 312 82

4 NEWPORT BL. & HOSPITAL RD.

388 199 47 | 29 245 48
337 238 183 | 131 1343 43

5 NEWPORT BL. & VIA LIDO

993 456 | 469 18
1307 29

6 NEWPORT BL. & 32ND ST.

128 674 64 | 45 236 36
320 56 13 | 20 917 13

7 RIVERSIDE AV. & COAST HWY.

264 2 77 | 60 1226 10
213 2178 7 | 13 1 7

8 TUSTIN AV. & COAST HWY.

16 36 | 52 1214
41 2108 1 | 2 0 0

9 MACARTHUR BL. & CAMPUS DR.

211 671 324 | 73 168 39
470 775 73 | 56 587 76

10 MACARTHUR BL. & BIRCH ST.

168 678 84 | 57 118 27
86 325 66 | 33 631 81

11 VON KARMAN AV. & CAMPUS DR.

88 449 73 | 91 231 57
233 323 54 | 20 664 36

12 MACARTHUR BL. & VON KARMAN AV.

125 423 53 | 20 98 169
17 74 32 | 46 823 699

13 JAMBOREE RD. & CAMPUS DR.

139 1800 166 | 102 289 333
75 201 52 | 110 141 200

14 JAMBOREE RD. & BIRCH ST.

448 1698 1 | 0 0 0
92 5 54 | 184 1402 1

15 CAMPUS DR. & BRISTOL ST. (N)

244 281 | 242 1099 212
492 1637

16 BIRCH ST. & BRISTOL ST. (N)

100 105 | 207 1332 395
98 1073

17 CAMPUS DR. & BRISTOL ST. (S)

386 98
1000 1854 474 | 1125 288

18 BIRCH ST. & BRISTOL ST. (S)

332 169
771 1237 213 | 393 389

19 IRVINE AV. & MESA DR.

44 596 6 | 2 26 139
146 250 128 | 112 1290 512

20 IRVINE AV. & UNIVERSITY DR.

63 692 72 | 30 15 24
199 93 132 | 103 1701 68

21 IRVINE AV. & SANTIAGO DR.

33 1057 62 | 155 40 22
130 45 164 | 57 1403 12

22 IRVINE AV. & HIGHLAND DR.

32 1142 39 | 107 44 17
102 29 105 | 55 1264 18

23 IRVINE AV. & DOVER DR.

31 850 143 | 233 103 11
73 164 43 | 51 881 12

24 IRVINE AV. & WESTCLIFF DR.

171 463 236 | 53 318 30
253 586 134 | 241 608 19

25 DOVER DR. & WESTCLIFF DR.

80 634
53 679 | 320 478

26 DOVER DR. & 16TH ST.

70 184 156 | 60 23 42
28 24 237 | 122 720 27

27 DOVER DR. & COAST HWY.

125 39 182 | 731 1179 27
125 1983 33 | 24 56 43

28 BAYSIDE DR. & COAST HWY.

37 29 | 20 1507 63
32 2602 471 | 379 11 42

29 MACARTHUR BL. & JAMBOREE RD.

266 392 66 | 205 742 330
438 1027 183 | 178 922 548

30 JAMBOREE RD. & BRISTOL ST. (N)

413 719
728 1694 772

31 BAYVIEW PL. & BRISTOL ST. (S)

3146 379 | 82

32 JAMBOREE RD. & BRISTOL ST. (S)

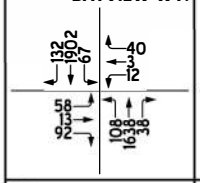
704
1252 537 1426 | 1875 21

EXHIBIT 3-11 (2 OF 2): NEWPORT BEACH EXISTING (2021) AM PEAK HOUR INTERSECTION VOLUMES

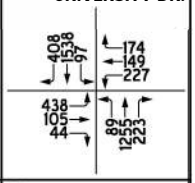
LEGEND:

(#) = INTERSECTION ID

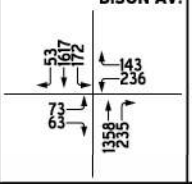
33 JAMBOREE RD. & BAYVIEW WY.



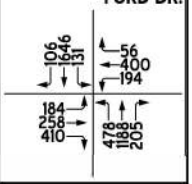
34 JAMBOREE RD. & UNIVERSITY DR.



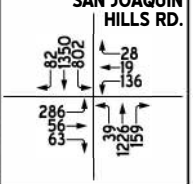
35 JAMBOREE RD. & BISON AV.



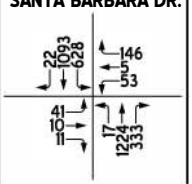
36 JAMBOREE RD. & FORD DR.



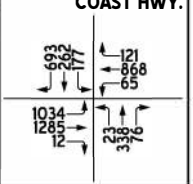
37 JAMBOREE RD. & SAN JOAQUIN HILLS RD.



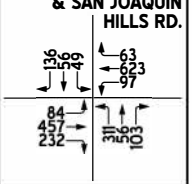
38 JAMBOREE RD. & SANTA BARBARA DR.



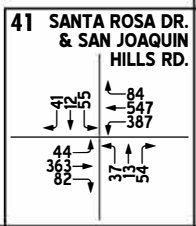
39 JAMBOREE RD. & COAST HWY.



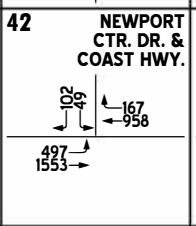
40 SANTA CRUZ DR. & SAN JOAQUIN HILLS RD.



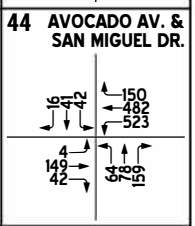
41 SANTA ROSA DR. & SAN JOAQUIN HILLS RD.



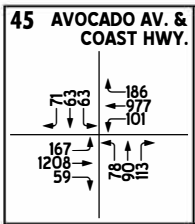
42 NEWPORT CTR. DR. & COAST HWY.



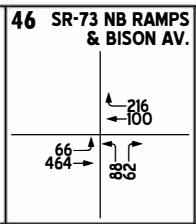
44 AVOCADO AV. & SAN MIGUEL DR.



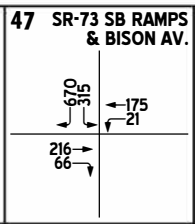
45 AVOCADO AV. & COAST HWY.



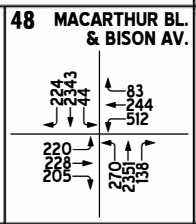
46 SR-73 NB RAMPS & BISON AV.



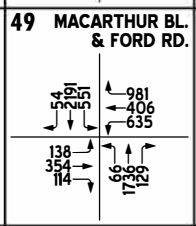
47 SR-73 SB RAMPS & BISON AV.



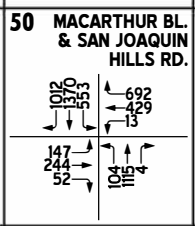
48 MACARTHUR BL. & BISON AV.



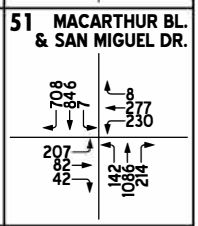
49 MACARTHUR BL. & FORD RD.



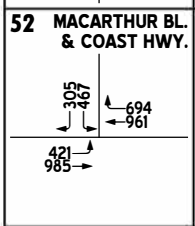
50 MACARTHUR BL. & SAN JOAQUIN HILLS RD.



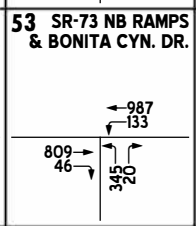
51 MACARTHUR BL. & SAN MIGUEL DR.



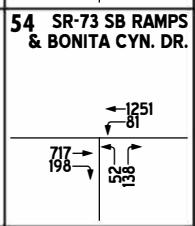
52 MACARTHUR BL. & COAST HWY.



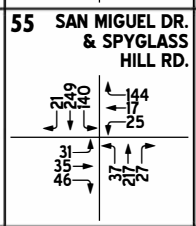
53 SR-73 NB RAMPS & BONITA CYN. DR.



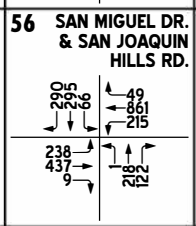
54 SR-73 SB RAMPS & BONITA CYN. DR.



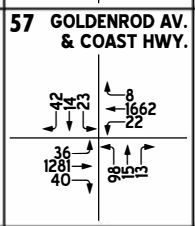
55 SAN MIGUEL DR. & SPYGLASS HILL RD.



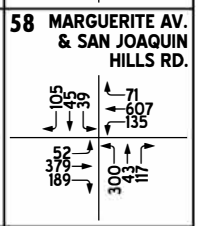
56 SAN MIGUEL DR. & SAN JOAQUIN HILLS RD.



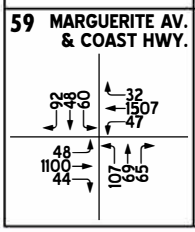
57 GOLDENROD AV. & COAST HWY.



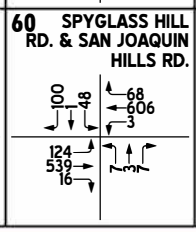
58 MARGUERITE AV. & SAN JOAQUIN HILLS RD.



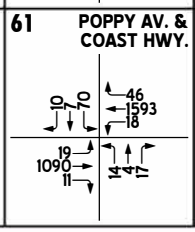
59 MARGUERITE AV. & COAST HWY.



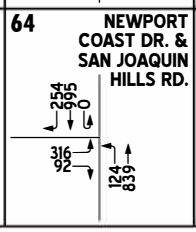
60 SPYGLASS HILL RD. & SAN JOAQUIN HILLS RD.



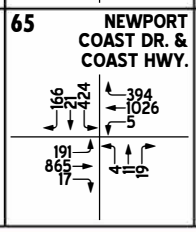
61 POPPY AV. & COAST HWY.



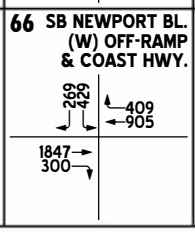
64 NEWPORT COAST DR. & SAN JOAQUIN HILLS RD.



65 NEWPORT COAST DR. & COAST HWY.



66 SB NEWPORT BL. (W) OFF-RAMP & COAST HWY.



67 ORANGE ST. & COAST HWY.

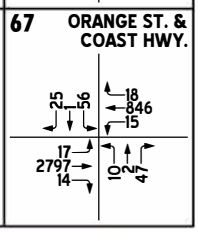


EXHIBIT 3-12 (1 OF 2): NEWPORT BEACH EXISTING (2021) PM PEAK HOUR INTERSECTION VOLUMES

LEGEND:

(#) = INTERSECTION ID

1 15TH ST. & COAST HWY.

FUTURE INTERSECTION

2 SUPERIOR AV. & PLACENTIA AV.

11 445 67 → 91 340 41
11 175 426 → 268 388 14

3 SUPERIOR AV. & COAST HWY.

444 203 204 → 159 2157 130
268 884 211 → 298 188 82

4 NEWPORT BL. & HOSPITAL RD.

228 1653 44 → 48 222 95
361 114 230 → 154 1298 60

5 NEWPORT BL. & VIA LIDO

1342 514 → 493 29
1090 43

6 NEWPORT BL. & 32ND ST.

289 667 132 → 81 46 23
197 42 22 → 53 806 11

7 RIVERSIDE AV. & COAST HWY.

480 10 83 → 38 2443 29
245 1499 15 → 12 2 15

8 TUSTIN AV. & COAST HWY.

48 37 → 52 2327
83 1546 0 → 0 0 1

9 MACARTHUR BL. & CAMPUS DR.

589 852 159 → 213 1058 80
321 325 66 → 206 1098 53

10 MACARTHUR BL. & BIRCH ST.

169 876 48 → 214 510
310 283 42 → 121 875 31

11 VON KARMAN AV. & CAMPUS DR.

362 369 125 → 112 609 34
168 466 63 → 62 530 124

12 MACARTHUR BL. & VON KARMAN AV.

47 926 58 → 91 91 624
100 43 198 → 37 810 279

13 JAMBOREE RD. & CAMPUS DR.

145 1370 187 → 156 340 206
179 598 196 → 75 1164 492

14 JAMBOREE RD. & BIRCH ST.

138 1643 8 → 1 0 0
267 162 → 135 1535 2

15 CAMPUS DR. & BRISTOL ST. (N)

1184 1032 → 113 1839 273
445 710

16 BIRCH ST. & BRISTOL ST. (N)

675 451 → 121 1507 468
144 366

17 CAMPUS DR. & BRISTOL ST. (S)

1086 210
470 1021 568 → 677 262

18 BIRCH ST. & BRISTOL ST. (S)

739 249
264 139 114 → 172 325

19 IRVINE AV. & MESA DR.

278 1427 7 → 16 237 585
40 73 180 → 88 595 179

20 IRVINE AV. & UNIVERSITY DR.

203 1861 48 → 70 77 62
90 52 124 → 108 698 41

21 IRVINE AV. & SANTIAGO DR.

66 1825 78 → 104 59 20
62 30 81 → 79 788 16

22 IRVINE AV. & HIGHLAND DR.

77 1609 59 → 49 28 14
38 29 52 → 66 923 19

23 IRVINE AV. & DOVER DR.

74 1360 164 → 295 259 26
45 113 56 → 60 733 24

24 IRVINE AV. & WESTCLIFF DR.

407 571 204 → 93 752 75
281 533 136 → 273 429 39

25 DOVER DR. & WESTCLIFF DR.

81 354
115 510 → 649 648

26 DOVER DR. & 16TH ST.

26 830 59 → 43 13 25
15 20 173 → 187 1290 24

27 DOVER DR. & COAST HWY.

128 51 891 → 1448 2122 37
139 1344 14 → 23 44 46

28 BAYSIDE DR. & COAST HWY.

47 15 34 → 27 3066 75
57 1798 412 → 487 19 45

29 MACARTHUR BL. & JAMBOREE RD.

395 1468 155 → 202 1014 462
253 957 52 → 264 678 318

30 JAMBOREE RD. & BRISTOL ST. (N)

755 916
742 1500 844

31 BAYVIEW PL. & BRISTOL ST. (S)

2537 136 → 350

32 JAMBOREE RD. & BRISTOL ST. (S)

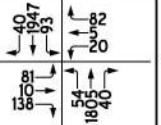
984
981 878 1049 → 1856 78

EXHIBIT 3-12 (2 OF 2): NEWPORT BEACH EXISTING (2021) PM PEAK HOUR INTERSECTION VOLUMES

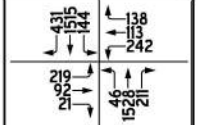
LEGEND:

(#) = INTERSECTION ID

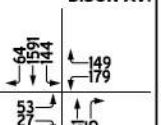
33 JAMBOREE RD. & BAYVIEW WY.



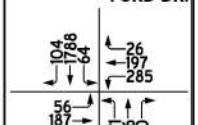
34 JAMBOREE RD. & UNIVERSITY DR.



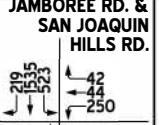
35 JAMBOREE RD. & BISON AV.



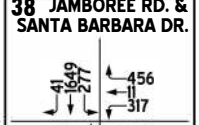
36 JAMBOREE RD. & FORD DR.



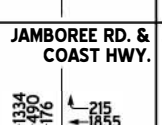
37 JAMBOREE RD. & SAN JOAQUIN HILLS RD.



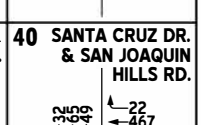
38 JAMBOREE RD. & SANTA BARBARA DR.



39 JAMBOREE RD. & COAST HWY.

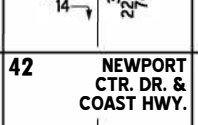


40 SANTA CRUZ DR. & SAN JOAQUIN HILLS RD.

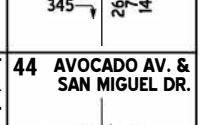


41 SANTA ROSA DR. & SAN JOAQUIN HILLS RD.

42 NEWPORT CTR. DR. & COAST HWY.



44 AVOCADO AV. & SAN MIGUEL DR.



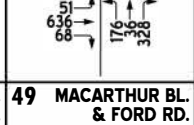
45 AVOCADO AV. & COAST HWY.

46 SR-73 NB RAMPS & BISON AV.

47 SR-73 SB RAMPS & BISON AV.

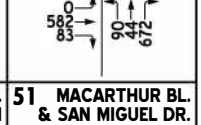
48 MACARTHUR BL. & BISON AV.

49 MACARTHUR BL. & FORD RD.

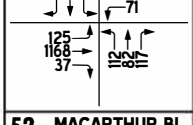


50 MACARTHUR BL. & SAN JOAQUIN HILLS RD.

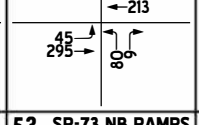
51 MACARTHUR BL. & SAN MIGUEL DR.



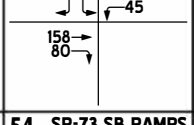
52 MACARTHUR BL. & COAST HWY.



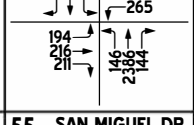
53 SR-73 NB RAMPS & BONITA CYN. DR.



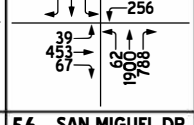
54 SR-73 SB RAMPS & BONITA CYN. DR.



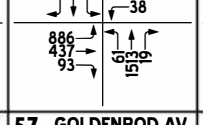
55 SAN MIGUEL DR. & SPYGLASS HILL RD.



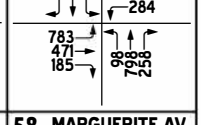
56 SAN MIGUEL DR. & SAN JOAQUIN HILLS RD.



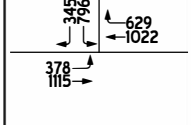
57 GOLDENROD AV. & COAST HWY.



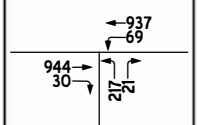
58 MARGUERITE AV. & SAN JOAQUIN HILLS RD.



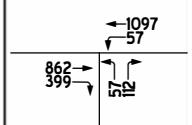
59 MARGUERITE AV. & COAST HWY.



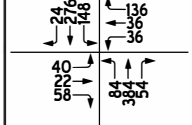
60 SPYGLASS HILL RD. & SAN JOAQUIN HILLS RD.



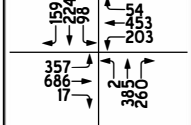
61 POPPY AV. & COAST HWY.



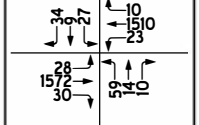
64 NEWPORT COAST DR. & SAN JOAQUIN HILLS RD.



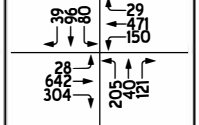
65 NEWPORT COAST DR. & COAST HWY.



66 SB NEWPORT BL. (W) OFF-RAMP & COAST HWY.



67 ORANGE ST. & COAST HWY.



ID	Intersection	EXISTING RAW COUNTS					
		Existing, 2020 (typical/non-COVID-19)			Existing, February 2021 (during COVID-19 counts)		
		AM	PM	TOTAL	AM	PM	TOTAL
39	Jamboree Rd. / Coast Hwy.	4,904	6,188	11,092	3,977	4,802	8,779
50	MacArthur Bl. / San Joaquin Hills Rd.	5,679	5,968	11,647	3,900	4,525	8,425
AVERAGE AM/PM GROWTH (to be applied to the new intersections with February 2021 only counts)							**32.17%**

These adjustments have been applied as needed at the intersection locations where previous counts are not available. In cases where the February 2021 traffic counts were lower than the 2020 counts, the new traffic counts were increased by 32.17%. For 2020 non-COVID-19 counts, a factor of 1% has been used to approximate 2021 non-COVID-19 conditions.

The manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

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).

Daily traffic volume data for this effort was collected from City of Newport Beach sources, Caltrans, and the Orange County Transportation Authority. Where counts are unavailable, existing ADT volumes are based upon factored intersection peak hour counts using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 12 = Leg Volume

The above equation utilizing a factor of 12 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.33 percent (i.e., 1/0.0833 = 12), based upon previous work in the City of Newport Beach.

Table 3-2 summarizes the ADT volumes (rounded to 1000's) on City of Newport Beach roadway segments.

Study area ADT midblock traffic counts for key locations analyzed on the arterial roadway system are illustrated on Exhibit 3-13. Existing 24-hour traffic volume count worksheets are included in Appendix 3.2.

3.5 2021 DAILY ROADWAY SEGMENT ANALYSIS

Existing ADT volume/capacity (V/C) ratios on the arterial roadway system in the study area are illustrated on Exhibit 3-14. Based on the ADT V/C level of service (LOS) performance criteria outlined in Section 1.3 of this report, the following arterials in the study area are estimated to carry volume that exceeds theoretical planning level capacity:

- Campus Drive east of Jamboree Road
- Bristol Street North west of Campus Drive
- Bristol Street South west of Jamboree Road
- Irvine Avenue south of Del Mar Avenue
- Irvine Avenue north of 22nd Street/Santiago Drive
- Dover Drive east of Irvine Avenue
- Coast Highway east of Newport Boulevard
- Coast Highway west of Dover Drive
- Bison Avenue east of SR-73 Tollway
- MacArthur Boulevard south of Bison Avenue
- Jamboree Road south of Ford Road
- MacArthur Boulevard south of Ford Road
- Bonita Canyon Drive east of MacArthur Boulevard
- Coast Highway between MacArthur Boulevard and Poppy Avenue

3.6 2021 PEAK HOUR INTERSECTION OPERATIONS

Existing intersection capacity utilization (ICU) values were calculated for the intersections illustrated in Exhibit 3-4 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 3-3 (ICU calculation worksheets are included in Appendix 3-3). Use of the ICU methodology for each signalized intersection is consistent with the traffic analysis guidelines of the City of Newport Beach Traffic Phasing Ordinance (TPO) and Orange County Transportation Authority (OCTA) Congestion Management Program (CMP). Table 2-1 (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 intersection analysis locations experience acceptable operations for existing (2021) conditions.

TABLE 3-2: EXISTING AVERAGE DAILY TRAFFIC (ADT) VOLUMES

	INTERSECTION	EXISTING (2021) ADT			
		NORTH	SOUTH	WEST	EAST
1	15th St. / Coast Hwy (Future Intersection)			50.5	50.5
2	Superior Av / Placentia Av	17.2	21.4	14.8	8.7
3	Superior Av / Coast Hwy	17.6	19.0	51.1	43.4
4	Newport Bl / Hospital Rd	43.6	48.7	15.7	8.5
5	Newport Bl / Via Lido	52.2	30.0		
6	Newport Bl / 32nd St	29.7	22.6	7.8	4.0
7	Riverside Av / Coast Hwy	10.5		53.5	
8	Tustin Av / Coast Hwy	2.7		53.5	49.0
9	MacArthur Bl / Campus Dr	44.6	29.5	30.8	22.7
10	MacArthur Bl / Birch St	29.5	18.1	17.2	14.4
11	Von Karman Av / Campus Dr	19.3	17.7	22.7	18.4
12	MacArthur Bl / Von Karman Av	18.1	37.8		
13	Jamboree Rd / Campus Dr	40.1	43.1	18.4	23.7
14	Jamboree Rd / Birch St	43.1	41.7	8.4	7.9
15	Campus Dr / Bristol St (N)	29.1	29.5	41.6	
16	Birch St / Bristol St (N)	19.4	17.1		
17	Campus Dr - Irvine Av / Bristol St (S)	29.5	28.4	24.7	
18	Birch St / Bristol St (S)	17.1			20.6
19	Irvine Av / Mesa Dr	28.4	30.6	10.8	13.2
20	Irvine Av / University Dr	30.6	34.7		
21	Irvine Av / Santiago Dr	35.1	30.7	4.5	3.7
22	Irvine Av / Highland Dr	30.7	32.1	3.5	2.4
23	Irvine Av / Dover Dr	32.1	22.3	7.3	14.4
24	Irvine Av / Westcliff Dr	22.3	18.3		16.3
25	Dover Dr / Westcliff Dr	14.4	25.9	16.3	
26	Dover Dr / 16th St	25.9	29.7	5.2	
27	Dover Dr / Coast Hwy	29.7	2.6	49.0	64.8
28	Bayside Dr / Coast Hwy	2.4	12.6	64.8	60.5
29	MacArthur Bl / Jamboree Rd	37.8	36.8	38.1	41.7
30	Jamboree Rd / Bristol St (N)	38.1	48.0	0.0	
31	Bayview Pl / Bristol St (S)		5.8	32.1	34.9
32	Jamboree Rd / Bristol St (S)	48.0	48.6	34.9	
33	Jamboree Rd / Bayview Wy	48.6	50.5	3.9	3.0
34	Jamboree Rd / Eastbluff Dr - University Dr	50.5	43.0		13.8
35	Jamboree Rd / Bison Av	43.0	41.7	1.7	7.9
36	Jamboree Rd / Eastbluff Dr - Ford Dr	41.7	53.5	15.3	10.9
37	Jamboree Rd / San Joaquin Hills Rd	53.5	40.5	6.4	23.4
38	Jamboree Rd / Santa Barbara Dr	40.5	35.4		14.4
39	Jamboree Rd / Coast Hwy	35.4	11.5	60.5	43.3
40	Santa Cruz Dr / San Joaquin Hills Rd	3.3	12.3	23.4	15.0
41	Santa Rosa Dr / San Joaquin Hills Rd	3.9	10.5	15.0	24.6
42	Newport Center Dr / Coast Hwy	22.9		43.3	35.8
44	Avocado Av / San Miguel Dr	4.6	6.5		26.5
45	Avocado Av / Coast Hwy	15.3	6.2	35.8	34.3
46	SR-73 NB Ramps / Bison Av			7.6	34.5
47	SR-73 SB Ramps / Bison Av			23.6	7.6
48	MacArthur Bl / Bison Av	67.3	70.6	17.2	14.4
49	MacArthur Bl / Ford Rd	70.6	61.8	10.9	36.6
50	MacArthur Bl / San Joaquin Hills Rd	61.8	37.8	24.6	21.4
51	MacArthur Bl / San Miguel Dr	37.8		26.5	13.1
52	MacArthur Bl / Coast Hwy	41.8		34.3	48.5
53	SR-73 NB Ramps / Bonita Canyon Dr				21.1
54	SR-73 SB Ramps / Bonita Canyon Dr				
55	San Miguel Dr / Spyglass Hill Rd	19.5	15.3		3.2
56	San Miguel Dr / San Joaquin Hills Rd	15.3	13.1	20.9	21.0
57	Goldenrod Av / Coast Hwy	2.1		48.5	48.5
58	Marguerite Av / San Joaquin Hills Rd	3.7	11.0	21.0	17.9

TABLE 3-2: EXISTING AVERAGE DAILY TRAFFIC (ADT) VOLUMES

	INTERSECTION	EXISTING (2021) ADT			
		NORTH	SOUTH	WEST	EAST
59	Marguerite Av / Coast Hwy	5.6	6.7	48.5	48.5
60	Spyglass Hill Rd / San Joaquin Hills Rd	3.2	0.6	17.9	18.1
61	Poppy Av / Coast Hwy	6.5		48.5	32.4
62	Newport Coast Dr / SR-73 NB Ramps	12.2			
64	Newport Coast Dr / San Joaquin Hills Rd	26.8	24.0	16.1	
65	Newport Coast Dr / Coast Hwy	24.0	1.5	32.4	41.6
66	Newport Bl (W) / Coast Hwy			43.4	
67	Orange St. / Coast Hwy	1.3	1.5	51.7	51.9

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EXHIBIT 3-13: NEWPORT BEACH EXISTING (2021) AVERAGE DAILY TRAFFIC (ADT)

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

13386 - 301 - volumes & lane geometrics.dwg

EXHIBIT 3-14: NEWPORT BEACH EXISTING (2021) VOLUME/CAPACITY (V/C) RATIOS

LEGEND:

0.88 = VOLUME/CAPACITY

= ARTERIAL LOS OVER THEORETICAL PLANNING LEVEL CAPACITY

13386 - 301 - volumes & lane geometrics.dwg

TABLE 3-3: EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS SUMMARY

ID	Intersection	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	1	2	d	1	2	d	1	1	1	1	1	0	0.54	0.66	A	B
3	Superior Av / Coast Hwy	1.5	1.5	0	1.5	1.5	2>	2	3	1	1	4	d	0.65	0.62	B	B
4	Newport Bl / Hospital Rd	1	3	1	1	3	1	2	1	1	1	2	0	0.52	0.64	A	B
5	Newport Bl / Via Lido	0	3	1	2	3	0	0	0	0	1	0	2>	0.43	0.41	A	A
6	Newport Bl / 32nd St	1	3	0	1	2	1	1.5	0.5	1	1	1	0	0.41	0.49	A	A
7	Riverside Av / Coast Hwy	0.5	0.5	0	0.5	0.5	1>	1	2	0	1	3	1	0.75	0.82	C	D
8	Tustin Av / Coast Hwy	0.5	0.5	0	0.5	0.5	0	1	2	0	0	3	0	0.69	0.60	B	A
9	MacArthur Bl / Campus Dr	1	4	1	1	4	1	2	3	d	2	3	F	0.48	0.82	A	D
10	MacArthur Bl / Birch St	1	3	1	1	4	0	1.5	1.5	0	1	2	F	0.34	0.53	A	A
11	Von Karman Av / Campus Dr	1	2	F	1	2	0	1	2	1	1	2	0	0.50	0.69	A	B
12	MacArthur Bl / Von Karman Av	1	3	1	1	3	1	1	2	F	2	1	F	0.55	0.46	A	A
13	Jamboree Rd / Campus Dr	2	4	0	2	3	0	2	2	F	2	2	1	0.61	0.62	B	B
14	Jamboree Rd / Birch St	1	3	0	1	3	F	1.5	0.5	F	0.5	0.5	0	0.50	0.51	A	A
15	Campus Dr / Bristol St (N)	2	3	0	0	4	3>	0	0	0	1	4	0	0.55	0.69	A	B
16	Birch St / Bristol St (N)	2	2	0	0	1.5	2.5	0	0	0	1.5	3.5	0	0.58	0.48	A	A
17	Campus Dr - Irvine Av / Bristol St (S)	0	5	0	1	3	0	1.5	2.5	2	0	0	0	0.69	0.53	B	A
18	Birch St / Bristol St (S)	0	2.5	1.5	2	2	0	1.5	3.5	0	0	0	0	0.45	0.43	A	A
19	Irvine Av / Mesa Dr	1	3	1	1	3	1	1	2	0	2	1	d	0.49	0.65	A	B
20	Irvine Av / University Dr	1	2	1	1	2	1	1	1	1	1	1	d	0.72	0.77	C	C
21	Irvine Av / Santiago Dr	1	2	0	1	2	d	0.5	0.5	1	0.5	0.5	d	0.66	0.72	B	C
22	Irvine Av / Highland Dr	1	2	d	1	2	d	0.5	0.5	d	0.5	0.5	d	0.55	0.60	A	A
23	Irvine Av / Dover Dr	1	2	d	1	2	d	1	1	0	1	1	1	0.56	0.68	A	B
24	Irvine Av / Westcliff Dr	2	2	d	2	2	d	2	2	0	1	2	0	0.51	0.69	A	B
25	Dover Dr / Westcliff Dr	2	2	0	0	1	1	2	0	F	0	0	0	0.51	0.46	A	A
26	Dover Dr / 16th St	1	2	d	1	2	d	0.5	0.5	d	1	1	1	0.62	0.55	B	A
27	Dover Dr / Coast Hwy	1	2	0	3	1	1	2	3	0	1	3	F	0.71	0.70	C	B
28	Bayside Dr / Coast Hwy	2.5	0.5	0	1	1	d	1	3	1	1	4	0	0.71	0.66	C	B
29	MacArthur Bl / Jamboree Rd	2	3	1	2	3	F	2	4	1	3	3	1>	0.54	0.68	A	B
30	Jamboree Rd / Bristol St (N)	2	2.5	1.5	0	3.5	1.5	0	0	0	0	0	0	0.38	0.52	A	A
31	Bayview Pl / Bristol St (S)	0	0	2	0	0	0	0	4	1	0	0	0	0.52	0.51	A	A
32	Jamboree Rd / Bristol St (S)	0	5	0	0	4	0	1.5	1.5	2	0	0	0	0.68	0.63	B	B
33	Jamboree Rd / Bayview Wy	1	4	0	1	4	1	2	1	1	1	1	1	0.45	0.49	A	A
34	Jamboree Rd / Eastbluff Dr - University Dr	1	3	1	2	3	1	1.5	0.5	1	1.5	1.5	F	0.62	0.54	B	A
35	Jamboree Rd / Bison Av	0	3	d	2	3	1	1	0	1	2	0	2	0.47	0.46	A	A
36	Jamboree Rd / Eastbluff Dr - Ford Dr	2	3	0	1	3	1	1.5	1.5	F	1.5	1.5	1	0.71	0.65	C	B
37	Jamboree Rd / San Joaquin Hills Rd	1	3	F	2	3	F	1.5	1.5	1	1.5	1.5	1	0.64	0.53	B	A
38	Jamboree Rd / Santa Barbara Dr	1	3	1	2	3	1	1	1	1	1.5	0.5	1	0.57	0.66	A	B
39	Jamboree Rd / Coast Hwy	1	2	0	1	2	F	3	4	0	2	4	1	0.59	0.64	A	B
40	Santa Cruz Dr / San Joaquin Hills Rd	2	1	0	1	2	0	1	3	0	1	3	0	0.39	0.47	A	A
41	Santa Rosa Dr / San Joaquin Hills Rd	1	1	1>	1	1	1	1	3	0	2	3	0	0.26	0.42	A	A
42	Newport Center Dr / Coast Hwy	0	0	0	2	0	F	2	3	0	0	3	F	0.37	0.45	A	A
44	Avocado Av / San Miguel Dr	1	1	1>	2	1	0	1	3	0	2	2	d	0.28	0.62	A	B
45	Avocado Av / Coast Hwy	1	1	1	2	1	F	1	3	d	1	3	1	0.43	0.47	A	A
46	SR-73 NB Ramps / Bison Av	1.5	0	1.5	0	0	0	1	2	0	0	2	1	0.21	0.38	A	A
47	SR-73 SB Ramps / Bison Av	0	0	0	2	0	F	0	2	1	2	2	0	0.17	0.13	A	A
48	MacArthur Bl / Bison Av	2	4	F	2	4	1>	2	2	F	2	2	1>	0.68	0.59	B	A
49	MacArthur Bl / Ford Rd	2	4	F	2	4	F	2	2	1	2	2	F	0.75	0.75	C	C
50	MacArthur Bl / San Joaquin Hills Rd	2	3	1	2	3	F	3	3	0	1	2	F	0.57	0.76	A	C
51	MacArthur Bl / San Miguel Dr	2	3	1	2	3	1	3	2	d	2	2	d	0.57	0.49	A	A
52	MacArthur Bl / Coast Hwy	0	0	0	2	0	F	2	3	0	0	3	F	0.48	0.58	A	A
53	SR-73 NB Ramps / Bonita Canyon Dr	2	0	1	0	0	0	0	2	1	2	2	0	0.42	0.39	A	A
54	SR-73 SB Ramps / Bonita Canyon Dr	2	0	1	0	0	0	1	2	1	2	3	0	0.35	0.36	A	A
55	San Miguel Dr / Spyglass Hill Rd	1	2	d	1	2	d	0.5	0.5	1	1	1	0	0.28	0.35	A	A
56	San Miguel Dr / San Joaquin Hills Rd	1	2	d	1	2	d	2	3	d	1	3	d	0.44	0.49	A	A

TABLE 3-3: EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS SUMMARY

ID	Intersection	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
57	Goldenrod Av / Coast Hwy	0.5	0.5	0	0.5	0.5	0	1	2	0	1	2	0	0.66	0.60	B	A
58	Marguerite Av / San Joaquin Hills Rd	1.5	0.5	1	1	1	0	1	2	1>	1	3	0	0.40	0.46	A	A
59	Marguerite Av / Coast Hwy	1	1	0	1	1	0	1	2	1	1	2	d	0.66	0.70	B	B
60	Spyglass Hill Rd / San Joaquin Hills Rd	1	1	0	1	1	0	1	2	1	1	2	1	0.33	0.32	A	A
61	Poppy Av / Coast Hwy	0.5	0.5	0	0.5	0.5	0	1	2	d	1	2	0	0.59	0.59	A	A
62	Newport Coast Dr / SR-73 NB Ramps	0	2	F	0	2	0	0	0	0	1.5	0	0.5	0.31	0.34	A	A
64	Newport Coast Dr / San Joaquin Hills Rd	2	3	0	1	3	1	1	0	2>	0	0	0	0.44	0.42	A	A
65	Newport Coast Dr / Coast Hwy	1	1	d	2	1	F	1	3	1	1	3	F	0.48	0.53	A	A
66	Newport Bl (W) / Coast Hwy	0	0	0	2	0	1	0	2	F	0	3	F	0.75	0.68	C	B
67	Orange / Coast Hwy	0.5	0.5	1	0.5	0.5	1	1	3	D	1	3	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; F = 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.

[4] TS = Traffic Signal

Shaded = LOS E Acceptable

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4.0 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE)

The adopted 2006 General Plan Baseline (Buildout Land Use) ("future baseline" or "2006 General Plan") will be used as the baseline for comparison of the Project and includes a citywide increase of almost 5,000 residential dwelling units. This scenario also includes increases of over a million square feet of general commercial uses, 200,000 square feet of industrial uses, 100,000 square feet of church/synagogue/temple, along with school, marina and theatre uses are included in the 2006 General Plan Baseline (Buildout Land Use).

4.1 NBTM DEMOGRAPHIC DATA REPRESENTATION

Land use data is converted to socio-economic data (SED) for use in the NBTM. Population and employment estimates have been developed from land use to SED conversion factors that have been calibrated to specific areas and land uses within the City of Newport Beach.

Occupied dwelling units are used to estimate the number of households, population and employed resident quantities in each TAZ. As shown in Table 4-1, population is anticipated to increase by approximately 12.6% and employment is anticipated to increase by approximately 13.2% between existing (2021) and 2006 General Plan Baseline (Buildout Land Use) conditions, which is anticipated to be 2040. The population increase of approximately 11,000 residents correlates to the 2006 General Plan Baseline (Buildout Land Use) increase of approximately 5,000 homes.

Population accounts for all of the residents in a household: working people (adults & teenagers), people of working age who don't work outside the home, and people not of working age. Employed Residents is the subset of population that includes working people only. There are fewer working people (Employed Residents) than jobs provided (Employees) within the City for both existing (2021) and General Plan buildout conditions.

TABLE 4-1: 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE)
POPULATION AND EMPLOYMENT SUMMARY

Socio-Economic Data	Existing (2021)	2006 General Plan Baseline (Buildout Land Use)	Growth	% Growth
Population	89,562	100,815	11,253	12.6%
Employed Residents	53,918	62,303	8,385	15.6%
Employees	75,561	85,552	9,991	13.2%
Employees / Employed Resident	1.40	1.37	-0.03	-2.1%

4.2 TRAFFIC VOLUME FORECASTS

NBTM is utilized in this study to estimate long range future traffic volumes with buildout of the 2006 General Plan Baseline (Buildout Land Use). NBTM has recently been updated to incorporate current

land use, socio-economic, trip generation and network data from the Orange County Transportation Analysis Model (OCTAM). The NBTM 5.0 travel demand forecasting tool is maintained for the City of Newport Beach to address traffic and circulation issues in and around the City.

The NBTM 5.0 post assignment refinement procedures are based upon OCTAM and NCHRP-765 procedures. The goal of the future traffic volume forecast refinement or post-processing is to utilize all available data to prepare the best possible estimate of future traffic conditions. The recommended procedure incorporates traffic count (or estimated) data, model validation data (traffic estimates), and future (raw) model forecasts (estimates) as inputs.

NBTM daily and peak hour volumes have been reviewed in comparison to other recent forecasts and internal to the City in order to assure reasonable growth from existing, conservation of flow between nearby intersections, appropriate relationship between peak hour and daily volumes, travel pattern mirroring (outbound morning traffic reflected by similar inbound evening traffic).

2006 General Plan Baseline (Buildout Land Use) traffic forecasts for average daily traffic (ADT) volumes are shown on Exhibit 4-1. Peak hour intersection volumes for 2006 General Plan Baseline (Buildout Land Use) conditions are shown on Exhibits 4-2 and 4-3 for AM and PM conditions, respectively.

4.3 DAILY ROADWAY SEGMENT ANALYSIS

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.

Long range future ADT volume/capacity (V/C) ratios on the arterial roadway system in the study area are illustrated on Exhibit 4-4 for 2006 General Plan Baseline (Buildout Land Use) conditions and including the planned General Plan roadway network improvements. 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 have forecast volumes more than their theoretical planning level capacity:

- Newport Boulevard north of Coast Highway
- Coast Highway between Newport Boulevard and Dover Drive
- Coast Highway between Dover Drive and Bayside Drive
- Irvine Avenue south of Del Mar Avenue
- Dover Drive east of Irvine Avenue
- Campus Drive east of Jamboree Road
- Bristol Street North west of Campus Drive
- Bristol Street South west of Jamboree Road
- Jamboree Road south of Bristol Street South

EXHIBIT 4-1: 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) AVERAGE DAILY TRAFFIC (ADT)

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

13386 - 301 - volumes & lane geometrics.dwg

EXHIBIT 4-2 (1 OF 2): 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) AM PEAK HOUR INTERSECTION VOLUMES

LEGEND:

(#) = INTERSECTION ID

1 15TH ST. & COAST HWY.

	182 278 →	← 241 934
569 3624 →		

2 SUPERIOR AV. & PLACENTIA AV.

	20 285 70 →	← 83 880 19
32 337 299 →		← 432 884 23

3 SUPERIOR AV. & COAST HWY.

	282 165 242 →	← 247 686 109
827 2867 208 →		← 207 436 161

4 NEWPORT BL. & HOSPITAL RD.

	404 1265 50 →	← 31 256 52
351 248 304 →		← 273 1459 57

5 NEWPORT BL. & VIA LIDO

	1033 474 →	← 553 20
		← 1517 32

6 NEWPORT BL. & 32ND ST.

	149 701 88 →	← 72 37 51
417 51 15 →		← 23 1001 14

7 RIVERSIDE AV. & COAST HWY.

	405 5 128 →	← 89 1323 16
359 2865 13 →		← 19 4 13

8 TUSTIN AV. & COAST HWY.

	19 41 →	← 54 1424
51 2936 1 →		← 2 2 2

9 MACARTHUR BL. & CAMPUS DR.

	272 660 357 →	← 117 284 58
545 807 77 →		← 62 825 79

10 MACARTHUR BL. & BIRCH ST.

	243 744 88 →	← 62 176 29
114 368 79 →		← 41 857 84

11 VON KARMAN AV. & CAMPUS DR.

	193 505 149 →	← 95 298 59
243 362 56 →		← 31 829 53

12 MACARTHUR BL. & VON KARMAN AV.

	131 489 67 →	← 23 102 197
18 84 34 →		← 47 856 779

13 JAMBOREE RD. & CAMPUS DR.

	145 1872 199 →	← 128 505 589
78 230 54 →		← 160 1243 369

14 JAMBOREE RD. & BIRCH ST.

	489 1966 1 →	← 1 1 1
127 2 63 →		← 192 1577 1

15 CAMPUS DR. & BRISTOL ST. (N)

	377 376 →	← 259 1174 221
		← 519 1758

16 BIRCH ST. & BRISTOL ST. (N)

	157 150 →	← 247 1385 433
		← 102 1123

17 CAMPUS DR. & BRISTOL ST. (S)

	465 132 →	
1040 2219 493 →		← 1237 373

18 BIRCH ST. & BRISTOL ST. (S)

	358 325 →	
802 1690 232 →		← 423 551

19 IRVINE AV. & MESA DR.

	47 674 7 →	← 3 28 149
153 269 134 →		← 118 1528 733

20 IRVINE AV. & UNIVERSITY DR.

	189 720 62 →	← 43 34 26
506 136 200 →		← 167 1769 71

21 IRVINE AV. & SANTIAGO DR.

	35 114 65 →	← 161 48 29
136 48 186 →		← 75 1533 17

22 IRVINE AV. & HIGHLAND DR.

	34 1188 42 →	← 119 47 18
107 31 110 →		← 57 1419 20

23 IRVINE AV. & DOVER DR.

	33 835 158 →	← 286 108 12
81 171 46 →		← 53 984 13

24 IRVINE AV. & WESTCLIFF DR.

	228 483 246 →	← 61 374 33
273 609 140 →		← 251 676 20

25 DOVER DR. & WESTCLIFF DR.

	108 660 →	
82 706 →		← 333 528

26 DOVER DR. & 16TH ST.

	73 231 58 →	← 62 25 45
30 26 247 →		← 128 749 29

27 DOVER DR. & COAST HWY.

	156 41 1229 →	← 761 1316 29
181 2773 43 →		← 29 58 46

28 BAYSIDE DR. & COAST HWY.

	77 13 50 →	← 42 1637 66
145 3206 695 →		← 394 23 45

29 MACARTHUR BL. & JAMBOREE RD.

	299 426 74 →	← 214 784 344
491 1220 204 →		← 185 959 571

30 JAMBOREE RD. & BRISTOL ST. (N)

	500 767 →	
		← 796 1916 803

31 BAYVIEW PL. & BRISTOL ST. (S)

3707 433 →		← 86

32 JAMBOREE RD. & BRISTOL ST. (S)

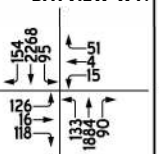
	765 →	
1478 569 1754 →		← 2039 23

EXHIBIT 4-2 (2 OF 2): 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) AM PEAK HOUR INTERSECTION VOLUMES

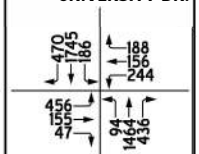
LEGEND:

(#) = INTERSECTION ID

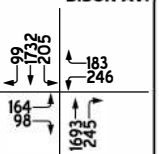
33 JAMBOREE RD. & BAYVIEW WY.



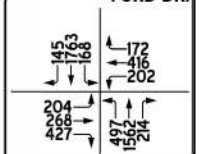
34 JAMBOREE RD. & UNIVERSITY DR.



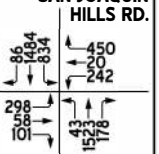
35 JAMBOREE RD. & BISON AV.



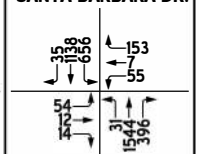
36 JAMBOREE RD. & FORD DR.



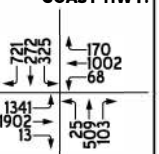
37 JAMBOREE RD. & SAN JOAQUIN HILLS RD.



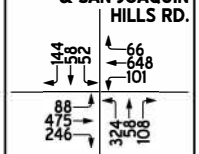
38 JAMBOREE RD. & SANTA BARBARA DR.



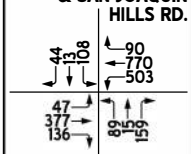
39 JAMBOREE RD. & COAST HWY.



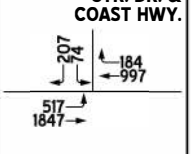
40 SANTA CRUZ DR. & SAN JOAQUIN HILLS RD.



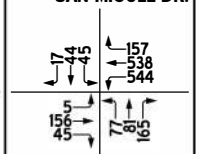
41 SANTA ROSA DR. & SAN JOAQUIN HILLS RD.



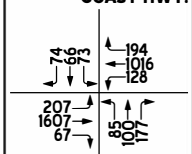
42 NEWPORT CTR. DR. & COAST HWY.



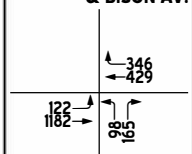
44 AVOCADO AV. & SAN MIGUEL DR.



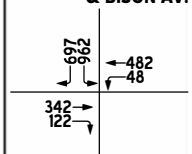
45 AVOCADO AV. & COAST HWY.



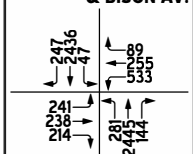
46 SR-73 NB RAMPS & BISON AV.



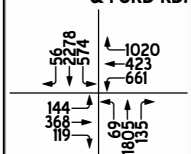
47 SR-73 SB RAMPS & BISON AV.



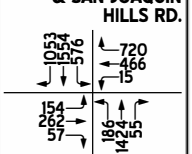
48 MACARTHUR BL. & BISON AV.



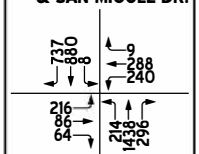
49 MACARTHUR BL. & FORD RD.



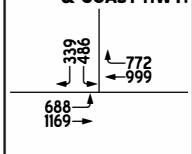
50 MACARTHUR BL. & SAN JOAQUIN HILLS RD.



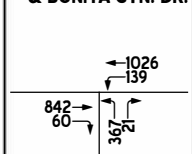
51 MACARTHUR BL. & SAN MIGUEL DR.



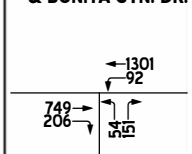
52 MACARTHUR BL. & COAST HWY.



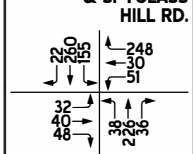
53 SR-73 NB RAMPS & BONITA CYN. DR.



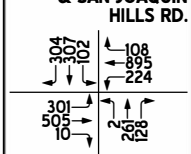
54 SR-73 SB RAMPS & BONITA CYN. DR.



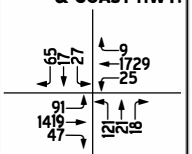
55 SAN MIGUEL DR. & SPYGLASS HILL RD.



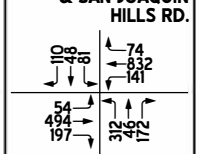
56 SAN MIGUEL DR. & SAN JOAQUIN HILLS RD.



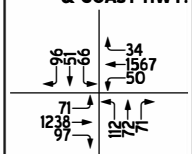
57 GOLDENROD AV. & COAST HWY.



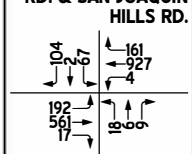
58 MARGUERITE AV. & SAN JOAQUIN HILLS RD.



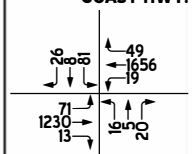
59 MARGUERITE AV. & COAST HWY.



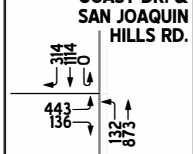
60 SPYGLASS HILL RD. & SAN JOAQUIN HILLS RD.



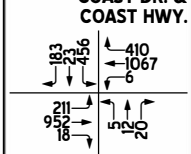
61 POPPY AV. & COAST HWY.



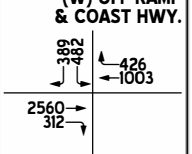
64 NEWPORT COAST DR. & SAN JOAQUIN HILLS RD.



65 NEWPORT COAST DR. & COAST HWY.



66 SB NEWPORT BL. (W) OFF-RAMP & COAST HWY.



67 ORANGE ST. & COAST HWY.

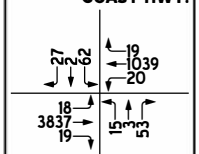
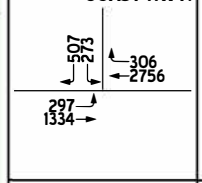


EXHIBIT 4-3 (1 OF 2): 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) PM PEAK HOUR INTERSECTION VOLUMES

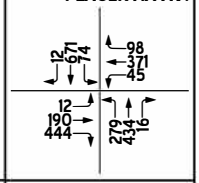
LEGEND:

(#) = INTERSECTION ID

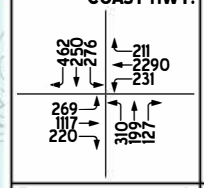
1 15TH ST. & COAST HWY.



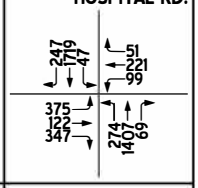
2 SUPERIOR AV. & PLACENTIA AV.



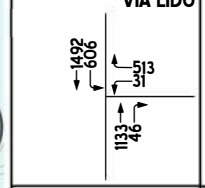
3 SUPERIOR AV. & COAST HWY.



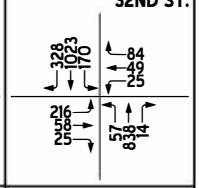
4 NEWPORT BL. & HOSPITAL RD.



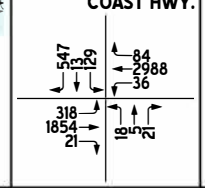
5 NEWPORT BL. & VIA LIDO



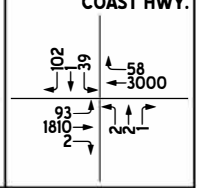
6 NEWPORT BL. & 32ND ST.



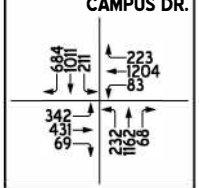
7 RIVERSIDE AV. & COAST HWY.



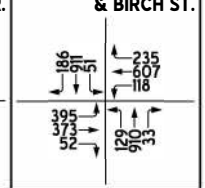
8 TUSTIN AV. & COAST HWY.



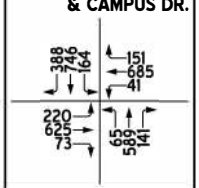
9 MACARTHUR BL. & CAMPUS DR.



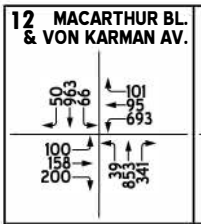
10 MACARTHUR BL. & BIRCH ST.



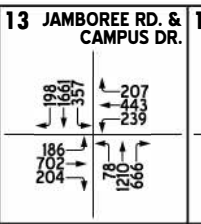
11 VON KARMAN AV. & CAMPUS DR.



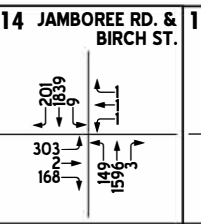
12 MACARTHUR BL. & VON KARMAN AV.



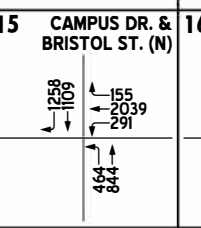
13 JAMBOREE RD. & CAMPUS DR.



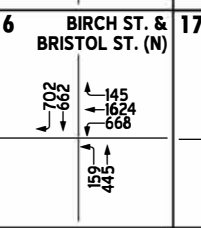
14 JAMBOREE RD. & BIRCH ST.



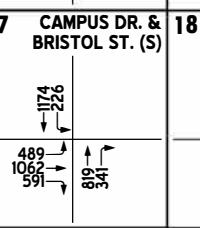
15 CAMPUS DR. & BRISTOL ST. (N)



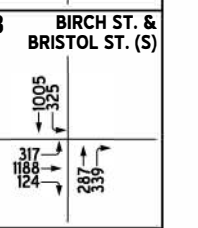
16 BIRCH ST. & BRISTOL ST. (N)



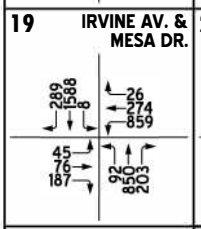
17 CAMPUS DR. & BRISTOL ST. (S)



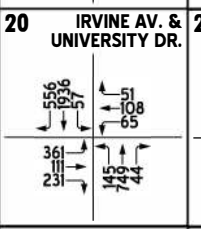
18 BIRCH ST. & BRISTOL ST. (S)



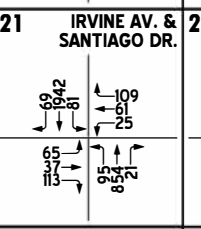
19 IRVINE AV. & MESA DR.



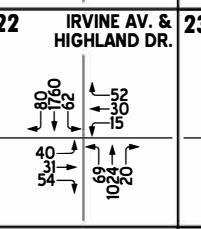
20 IRVINE AV. & UNIVERSITY DR.



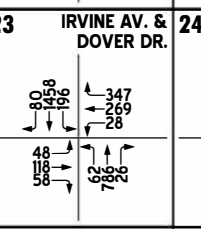
21 IRVINE AV. & SANTIAGO DR.



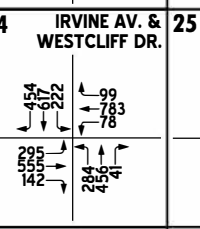
22 IRVINE AV. & HIGHLAND DR.



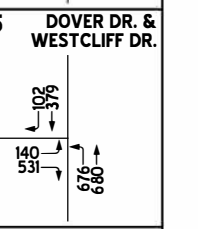
23 IRVINE AV. & DOVER DR.



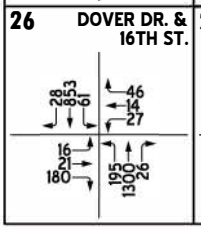
24 IRVINE AV. & WESTCLIFF DR.



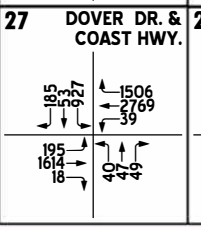
25 DOVER DR. & WESTCLIFF DR.



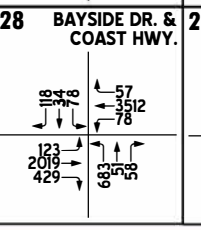
26 DOVER DR. & 16TH ST.



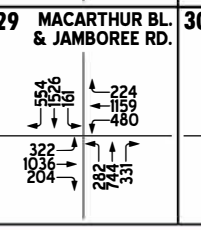
27 DOVER DR. & COAST HWY.



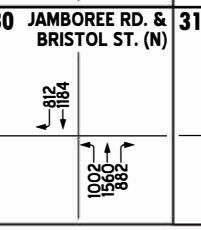
28 BAYSIDE DR. & COAST HWY.



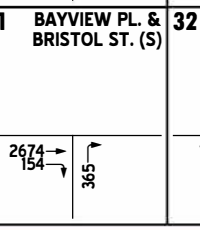
29 MACARTHUR BL. & JAMBOREE RD.



30 JAMBOREE RD. & BRISTOL ST. (N)



31 BAYVIEW PL. & BRISTOL ST. (S)



32 JAMBOREE RD. & BRISTOL ST. (S)

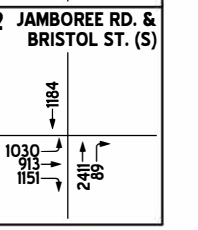
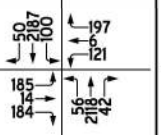


EXHIBIT 4-3 (2 OF 2): 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) PM PEAK HOUR INTERSECTION VOLUMES

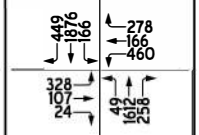
LEGEND:

(#) = INTERSECTION ID

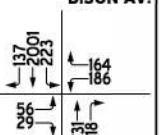
33 JAMBOREE RD. & BAYVIEW WY.



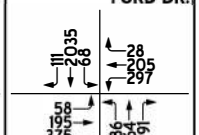
34 JAMBOREE RD. & UNIVERSITY DR.



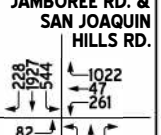
35 JAMBOREE RD. & BISON AV.



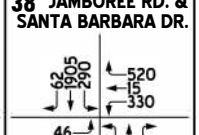
36 JAMBOREE RD. & FORD DR.



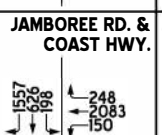
37 JAMBOREE RD. & SAN JOAQUIN HILLS RD.



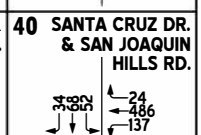
38 JAMBOREE RD. & SANTA BARBARA DR.



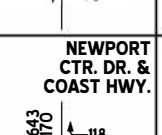
39 JAMBOREE RD. & COAST HWY.



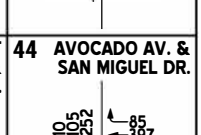
40 SANTA CRUZ DR. & SAN JOAQUIN HILLS RD.



41 SANTA ROSA DR. & SAN JOAQUIN HILLS RD.

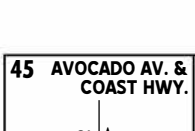


42 NEWPORT CTR. DR. & COAST HWY.

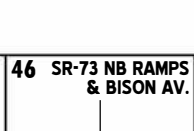


44 AVOCADO AV. & SAN MIGUEL DR.

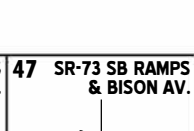
45 AVOCADO AV. & COAST HWY.



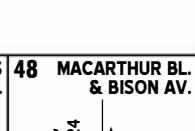
46 SR-73 NB RAMPS & BISON AV.



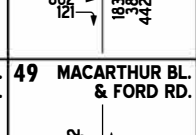
47 SR-73 SB RAMPS & BISON AV.



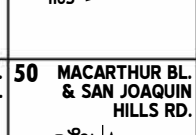
48 MACARTHUR BL. & BISON AV.



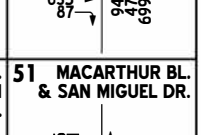
49 MACARTHUR BL. & FORD RD.



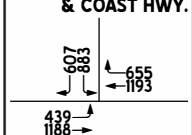
50 MACARTHUR BL. & SAN JOAQUIN HILLS RD.



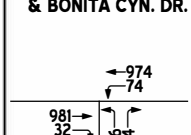
51 MACARTHUR BL. & SAN MIGUEL DR.



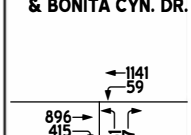
52 MACARTHUR BL. & COAST HWY.



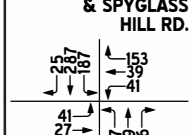
53 SR-73 NB RAMPS & BONITA CYN. DR.



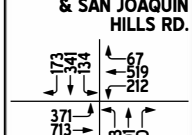
54 SR-73 SB RAMPS & BONITA CYN. DR.



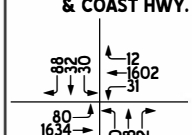
55 SAN MIGUEL DR. & SPYGLASS HILL RD.



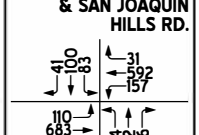
56 SAN MIGUEL DR. & SAN JOAQUIN HILLS RD.



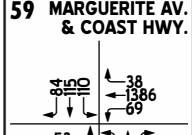
57 GOLDENROD AV. & COAST HWY.



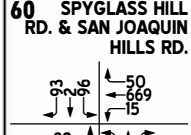
58 MARGUERITE AV. & SAN JOAQUIN HILLS RD.



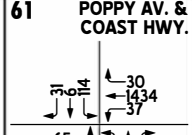
59 MARGUERITE AV. & COAST HWY.



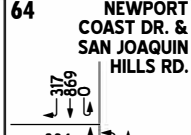
60 SPYGLASS HILL RD. & SAN JOAQUIN HILLS RD.



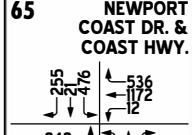
61 POPPY AV. & COAST HWY.



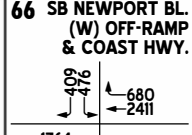
64 NEWPORT COAST DR. & SAN JOAQUIN HILLS RD.



65 NEWPORT COAST DR. & COAST HWY.



66 SB NEWPORT BL. (W) OFF-RAMP & COAST HWY.



67 ORANGE ST. & COAST HWY.

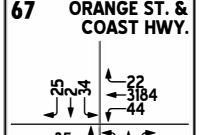


EXHIBIT 4-4: 2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) VOLUME/CAPACITY (V/C) RATIOS

LEGEND:

0.88 = VOLUME/CAPACITY

= ARTERIAL LOS OVER THEORETICAL PLANNING LEVEL CAPACITY

13386 - 301 - volumes & lane geometrics.dwg

- Jamboree Road, between Ford Road & San Joaquin Hills Road
- MacArthur Boulevard between Bison Avenue and San Joaquin Hills Road
- Bonita Canyon Drive east of MacArthur Boulevard
- Coast Highway between MacArthur Boulevard and east of Poppy Avenue

4.4 PEAK HOUR INTERSECTION OPERATIONS

2006 General Plan Baseline (Buildout Land Use) intersection operations have been evaluated using the procedures described in Section 2.3. AM and PM peak hour Intersection Capacity Utilization (ICU) analysis has been performed using both existing and recommended or planned 2006 General Plan intersection lanes. These intersection operations are summarized and presented in Table 4-2 (actual turn volumes and ICU calculation worksheets using existing geometrics are included in Appendix 4.1 and actual turn volumes and ICU calculation worksheets using General Plan improvement geometrics are included in Appendix 4.2).

Based on the intersection LOS performance criteria, the following study area intersections experienced unacceptable operations during peak hours for 2006 General Plan Baseline (Buildout Land Use) conditions using existing lanes. Anticipated "General Plan Planned Improvements" (see Section 3.1 of this report) improve 3 of the 5 deficient intersections to acceptable levels. 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):

- Superior Avenue at Coast Highway (AM)
- **Riverside Avenue at Coast Highway (AM/PM)**
- Tustin Avenue at Coast Highway (AM)
- Irvine Avenue at University Drive (AM/PM)
- **Newport Boulevard (West) at Coast Highway (AM)**

For the intersection of Newport Boulevard at Coast Highway, there were no recommended improvements included in the 2006 General Plan. However, an extended ICU analysis was performed using alternative geometric improvements in order to improve the LOS (though it remains LOS E) and the results are included in Table 4-2.

TABLE 4-2: EXISTING & GENERAL PLAN IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) - PEAK HOUR INTERSECTION OPERATIONS

		Intersection Approach Lanes[1]												Peak Hour			
		Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
ID	Intersection	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	15th St / Coast Hwy																
	- General Plan Planned Improvements	0	0	0	**2**	0	**2>**	**2**	3	0	0	3	**1**	0.84	0.75	D	C
2	Superior Av / Placentia Av																
	- Existing Lanes	1	2	d	1	2	d	1	1	1	1	1	0	0.58	0.69	A	B
3	Superior Av / Coast Hwy																
	- Existing Lanes	1.5	1.5	0	1.5	1.5	2>	2	3	1	1	4	d	**0.94**	0.69	**E**	B
	- General Plan Planned Improvements	1.5	1.5	0	1.5	1.5	2>	2	**4**	1	1	4	d	0.79	0.69	C	B
4	Newport Bl / Hospital Rd																
	- Existing Lanes	1	3	1	1	3	1	2	1	1	1	2	0	0.66	0.81	B	D
	- General Plan Planned Improvements	**2**	3	1	1	3	1	2	1	1	1	2	0	0.57	0.72	A	C
5	Newport Bl / Via Lido																
	- Existing Lanes	0	3	1	2	3	0	0	0	0	1	0	2>	0.49	0.44	A	A
6	Newport Bl / 32nd St																
	- Existing Lanes	1	3	0	1	2	1	1.5	0.5	1	1	1	0	0.48	0.53	A	A
7	Riverside Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	1>	1	2	0	1	3	1	**1.01**	0.98	**F**	E
	- General Plan Planned Improvements	0.5	0.5	0	**1.5**	0.5	1>	**2**	**3**	0	1	3	0	0.71	0.99	C	E
	- General Plan Recommended Improvements	0.5	0.5	0	**1.5**	0.5	**F**	**2**	**3**	0	1	3	0	0.71	0.85	C	D
8	Tustin Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	0	1	2	0	0	3	0	**0.96**	0.79	**E**	C
	- General Plan Planned Improvements	0.5	0.5	0	0.5	0.5	0	1	**3**	0	0	3	0	0.65	0.79	B	C
9	MacArthur Bl / Campus Dr																
	- Existing Lanes	1	4	1	1	4	1	2	3	d	2	3	F	0.58	0.93	A	E
	- General Plan Planned Improvements	**2**	4	1	1	3.5	**1.5**	2	3	d	2	3	F	0.58	0.75	A	C
10	MacArthur Bl / Birch St																
	- Existing Lanes	1	3	1	1	4	0	1.5	1.5	0	1	2	F	0.43	0.61	A	B
11	Von Karman Av / Campus Dr																
	- Existing Lanes	1	2	F	1	2	0	1	2	1	1	2	0	0.63	0.79	B	C
	- General Plan Planned Improvements	1	2	F	1	2	0	**2**	2	0	1	2	0	0.55	0.73	A	C
12	MacArthur Bl / Von Karman Av																
	- Existing Lanes	1	3	1	1	3	1	1	2	F	2	1	F	0.62	0.52	B	A
13	Jamboree Rd / Campus Dr																
	- Existing Lanes	2	4	0	2	3	0	2	2	F	2	2	1	0.73	0.82	C	D
	- General Plan Planned Improvements	2	4	**1**	2	**4**	0	2	2	0	2	2	1	0.64	0.89	B	D
14	Jamboree Rd / Birch St																
	- Existing Lanes	1	3	0	1	3	F	1.5	0.5	F	0.5	0.5	0	0.57	0.57	A	A
	- General Plan Planned Improvements	1	3	0	1	**4**	F	1.5	0.5	F	0.5	0.5	0	0.47	0.48	A	A
15	Campus Dr / Bristol St (N)																
	- Existing Lanes	2	3	0	0	4	3>	0	0	0	1	4	0	0.59	0.75	A	C
	- General Plan Planned Improvements	2	**4**	0	0	4	3>	0	0	0	1	**5**	0	0.45	0.68	A	B
16	Birch St / Bristol St (N)																
	- Existing Lanes	2	2	0	0	1.5	2.5	0	0	0	1.5	3.5	0	0.61	0.57	B	A
17	Campus Dr - Irvine Av / Bristol St (S)																
	- Existing Lanes	0	5	0	1	3	0	1.5	2.5	2	0	0	0	0.83	0.60	D	A
18	Birch St / Bristol St (S)																
	- Existing Lanes	0	2.5	1.5	2	2	0	1.5	3.5	0	0	0	0	0.68	0.52	B	A
19	Irvine Av / Mesa Dr																
	- Existing Lanes	1	3	1	1	3	1	1	2	0	2	1	d	0.64	0.77	B	C
20	Irvine Av / University Dr																
	- Existing Lanes	1	2	1	1	2	1	1	1	1	1	1	d	**0.94**	**0.99**	**E**	**E**
	- General Plan Planned Improvements	1	**3**	0	1	**3**	1	**1.5**	**1.5**	1	1	1	d	0.66	0.71	B	C
21	Irvine Av / Santiago Dr																
	- Existing Lanes	1	2	0	1	2	d	0.5	0.5	1	0.5	0.5	d	0.71	0.78	C	C
22	Irvine Av / Highland Dr																
	- Existing Lanes	1	2	d	1	2	d	0.5	0.5	d	0.5	0.5	d	0.61	0.65	B	B

TABLE 4-2: EXISTING & GENERAL PLAN IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) - PEAK HOUR INTERSECTION OPERATIONS

		Intersection Approach Lanes[1]												Peak Hour			
		Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
ID	Intersection	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
23	Irvine Av / Dover Dr																
	- Existing Lanes	1	2	d	1	2	d	1	1	0	1	1	1	0.64	0.74	B	C
24	Irvine Av / Westcliff Dr																
	- Existing Lanes	2	2	d	2	2	d	2	2	0	1	2	0	0.54	0.74	A	C
25	Dover Dr / Westcliff Dr																
	- Existing Lanes	2	2	0	0	1	1	2	0	F	0	0	0	0.54	0.49	A	A
26	Dover Dr / 16th St																
	- Existing Lanes	1	2	d	1	2	d	0.5	0.5	d	1	1	1	0.65	0.57	B	A
27	Dover Dr / Coast Hwy																
	- Existing Lanes	1	2	0	3	1	1	2	3	0	1	3	F	0.89	0.86	D	D
28	Bayside Dr / Coast Hwy																
	- Existing Lanes	2.5	0.5	0	1	1	d	1	3	1	1	4	0	0.85	0.87	D	D
29	MacArthur Bl / Jamboree Rd																
	- Existing Lanes	2	3	1>	2	3	F	2	4	1	3	3	1	0.58	0.75	A	C
30	Jamboree Rd / Bristol St (N)																
	- Existing Lanes	2	2.5	1.5	0	3.5	1.5	0	0	0	0	0	0	0.43	0.68	A	B
31	Bayview Pl / Bristol St (S)																
	- Existing Lanes	0	0	2	0	0	0	0	4	1	0	0	0	0.61	0.53	B	A
32	Jamboree Rd / Bristol St (S)																
	- Existing Lanes	0	5	0	0	4	0	1.5	1.5	2	0	0	0	0.81	0.72	D	C
	- General Plan Planned Improvements	0	**6**	0	0	4	0	1.5	1.5	2	0	0	0	0.76	0.67	C	B
33	Jamboree Rd / Bayview Wy																
	- Existing Lanes	1	4	0	1	4	1	2	1	1	1	1	1	0.55	0.69	A	B
34	Jamboree Rd / Eastbluff Dr - University Dr																
	- Existing Lanes	1	3	1	2	3	1	1.5	0.5	1	1.5	1.5	F	0.70	0.70	B	B
35	Jamboree Rd / Bison Av																
	- Existing Lanes	0	3	d	2	3	1	1	0	1	2	0	2	0.66	0.54	B	A
36	Jamboree Rd / Eastbluff Dr - Ford Dr																
	- Existing Lanes	2	3	0	1	3	1	1.5	1.5	F	1.5	1.5	1	0.75	0.71	C	C
37	Jamboree Rd / San Joaquin Hills Rd																
	- Existing Lanes	1	3	F	2	3	F	1.5	1.5	1	1.5	1.5	1	0.75	0.67	C	B
38	Jamboree Rd / Santa Barbara Dr																
	- Existing Lanes	1	3	1	2	3	1	1	1	1	1.5	0.5	1	0.66	0.77	B	C
39	Jamboree Rd / Coast Hwy																
	- Existing Lanes	1	2	0	1	2	F	3	4	0	2	4	1	0.83	0.70	D	B
40	Santa Cruz Dr / San Joaquin Hills Rd																
	- Existing Lanes	2	1	0	1	2	0	1	3	0	1	3	0	0.41	0.49	A	A
41	Santa Rosa Dr / San Joaquin Hills Rd																
	- Existing Lanes	1	1	1>	1	1	1	1	3	0	2	3	0	0.35	0.56	A	A
42	Newport Center Dr / Coast Hwy																
	- Existing Lanes	0	0	0	2	0	F	2	3	0	0	3	F	0.41	0.54	A	A
44	Avocado Av / San Miguel Dr																
	- Existing Lanes	1	1	1>	2	1	0	1	3	0	2	2	d	0.30	0.67	A	B
45	Avocado Av / Coast Hwy																
	- Existing Lanes	1	1	1	2	1	F	1	3	d	1	3	1	0.57	0.58	A	A
46	SR-73 NB Ramps / Bison Av																
	- Existing Lanes	1.5	0	1.5	0	0	0	1	2	0	0	2	1	0.42	0.45	A	A
47	SR-73 SB Ramps / Bison Av																
	- Existing Lanes	0	0	0	2	0	F	0	2	1	2	2	0	0.45	0.27	A	A
48	MacArthur Bl / Bison Av																
	- Existing Lanes	2	4	F	2	4	1>	2	2	F	2	2	1>	0.71	0.63	C	B
49	MacArthur Bl / Ford Rd																
	- Existing Lanes	2	4	F	2	4	F	2	2	1	2	2	F	0.78	0.78	C	C
	- General Plan Planned Improvements	2	4	F	**3**	4	F	2	2	1	2	2	F	0.72	0.70	C	B

TABLE 4-2: EXISTING & GENERAL PLAN IMPROVEMENT GEOMETRICS
2006 GENERAL PLAN BASELINE (BUILDOUT LAND USE) - PEAK HOUR INTERSECTION OPERATIONS

		Intersection Approach Lanes[1]												Peak Hour			
		Northbound			Southbound			Eastbound			Westbound			ICU (V/C)[2]		LOS[3]	
ID	Intersection	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
50	MacArthur Bl / San Joaquin Hills Rd																
	- Existing Lanes	2	3	1	2	3	F	3	3	0	1	2	F	0.66	0.80	B	C
	- General Plan Planned Improvements	2	**4**	0	**3**	3	F	3	3	0	1	2	F	0.56	0.65	A	B
51	MacArthur Bl / San Miguel Dr																
	- Existing Lanes	2	3	1	2	3	1	3	2	d	2	2	d	0.62	0.58	B	A
52	MacArthur Bl / Coast Hwy																
	- Existing Lanes	0	0	0	2	0	F	2	3	0	0	3	F	0.58	0.66	A	B
53	SR-73 NB Ramps / Bonita Canyon Dr																
	- Existing Lanes	2	0	1	0	0	0	0	2	1	2	2	0	0.44	0.40	A	A
54	SR-73 SB Ramps / Bonita Canyon Dr																
	- Existing Lanes	2	0	1	0	0	0	1	2	1	2	3	0	0.37	0.37	A	A
55	San Miguel Dr / Spyglass Hill Rd																
	- Existing Lanes	1	2	d	1	2	d	0.5	0.5	1	1	1	0	0.36	0.39	A	A
56	San Miguel Dr / San Joaquin Hills Rd																
	- Existing Lanes	1	2	d	1	2	d	2	3	d	1	3	d	0.47	0.54	A	A
57	Goldenrod Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	0	1	2	0	1	2	0	0.74	0.71	C	C
58	Marguerite Av / San Joaquin Hills Rd																
	- Existing Lanes	1.5	0.5	1	1	1	0	1	2	1>	1	3	0	0.45	0.48	A	A
59	Marguerite Av / Coast Hwy																
	- Existing Lanes	1	1	0	1	1	0	1	2	1	1	2	d	0.70	0.73	B	C
60	Spyglass Hill Rd / San Joaquin Hills Rd																
	- Existing Lanes	1	1	0	1	1	0	1	2	1	1	2	1	0.49	0.34	A	A
61	Poppy Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	0	1	2	d	1	2	0	0.66	0.62	B	B
62	Newport Coast Dr / SR-73 NB Ramps																
	- Existing Lanes	0	2	F	0	2	0	0	0	0	1.5	0	0.5	0.32	0.38	A	A
64	Newport Coast Dr / San Joaquin Hills Rd																
	- Existing Lanes	2	3	0	1	3	1	1	0	2>	0	0	0	0.55	0.50	A	A
65	Newport Coast Dr / Coast Hwy																
	- Existing Lanes	1	1	d	2	1	F	1	3	1	1	3	F	0.51	0.56	A	A
66	Newport Bl (W) / Coast Hwy																
	- Existing Lanes	0	0	0	2	0	1	0	2	F	0	3	F	**1.04**	0.81	**F**	D
	- General Plan Recommended Improvements	0	0	0	2	0	**F**	0	2	F	0	3	F	**0.95**	0.70	**E**	B
67	Orange / Coast Hwy																
	- Existing Lanes	0.5	0.5	1	0.5	0.5	1	1	3	D	1	3	1	0.88	0.74	D	C

[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; F = 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.

[4] TS = Traffic Signal

Shaded = LOS E Acceptable

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

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5.0 GENERAL PLAN HOUSING ELEMENT UPDATE (HEU)

The Regional Housing Needs Assessment (RHNA) is a State Housing law requirement that is part of the periodic process of updating local General Plan Housing Elements. It is a process that determines existing and projected housing need (i.e., RHNA allocation) for all State jurisdictions (cities and unincorporated county areas) with the intent to provide opportunities for a mix of unit types, tenure, and affordability; and help achieve greenhouse gas (GHG) emission reductions from cars and light trucks.

The Newport Beach General Plan (General Plan) Housing Element is being updated to identify housing sites that provide the development capacity to accommodate housing that addresses the City's RHNA allocation at all income levels. The RHNA quantifies the housing need within each jurisdiction for all economic segments of the community in four income categories: very low, low, moderate, and above moderate.

The City's 2021-2029 Housing Element was adopted in September 2022 as part of the statewide 6th Cycle Housing Element process and was subsequently certified by the State of California Department of Housing and Community Development (HCD) on October 5, 2022. The adopted 2021-2029 Housing Element establishes programs, policies and actions to further the goal of meeting the existing and projected housing needs of all income levels of the community, and provides evidence of the City's ability to accommodate the Regional Housing Needs Assessment (RHNA) allocation through the year 2029, as established by the Southern California Association of Governments (SCAG).

The City's RHNA allocation is 4,845 housing units, including 1,456 very low-income units and 930 low-income units. In addition to the 6th Cycle RHNA allocation, 2021-2029 Housing Element accounts for additional housing units to address future "no net loss" if it becomes necessary to identify replacement sites during the 6th Cycle implementation period. Therefore, the City factored in a "buffer" equating to 5,242 housing units. It is envisioned that only a portion of these sites will be necessary to accommodate the City's planning obligation of 4,845 housing units.

This work effort is intended to evaluate the Newport Beach General Plan Housing Element Update (HEU) in the context of the known future demographic conditions in adjacent Cities and throughout the southern California area. Analysis to reflect neighboring agencies RHNA allocations is infeasible at this time because the adjacent jurisdiction planning processes are also underway, and local plans in the area have not been fully developed and/or approved.

5.1 PROJECT DESCRIPTION

The Project has been described in detail in Section 2.0.

5.2 PROJECT TRAFFIC

As shown in Table 5-1, population is anticipated to increase by approximately 16.2% with the Newport Beach General Plan Housing Element Update (HEU) in comparison to 2006 General Plan Baseline (Buildout Land Use) conditions. The population increase of over 16,000 residents correlates to the Newport Beach General Plan Housing Element Update (HEU) increase of approximately 10,087 homes.

It should be noted that the NBTM includes a small amount of employment associated with each dwelling unit, representing activities such as gardening service, housekeeping, tutoring, telecommuting, etc.

TABLE 5-1: GENERAL PLAN POPULATION AND EMPLOYMENT SUMMARY

Socio-Economic Data Category	General Plan			
	2006 Baseline (Buildout Land Use)	Housing Element Update (HEU)	Change	% Change
Population	100,815	117,102	16,287	16.2%
Employed Residents	62,303	73,471	11,168	17.9%
Employees	85,552	85,842	290	0.3%
Employees / Employed Resident	1.37	1.17	-0.20	-14.6%

5.2.1 FOCUS AREA EMPLOYEE / POPULATION RELATIONSHIPS

The goal of the Newport Beach General Plan Housing Element Update (HEU) is to reduce the difference between the number of employees and the employed residents by providing residential opportunities in close proximity to office and retail land use, essentially providing additional workers to fill nearby positions.

For the Airport Area, as shown in Attachment 5.1, the existing quantity of employees is approximately 8.75 times the population. With the General Plan Housing Element Update (HEU), the number of employees is closer to 2.66 times the population, which provides abundant opportunity for residents to find employment within the Airport Area, generally leading to shorter commute times and fewer autos on the road.

The existing quantity of employment is just over 2 times the population in West Newport Mesa. With the General Plan Housing Element Update (HEU), the number of employees is closer to 1.25 times the number of residents.

In Dover-Westcliff, the existing condition includes about 1.6 employees per resident. With the General Plan Housing Element Update (HEU), the number of employees is close to balanced (approximately 0.84 employees per resident).

The Newport Center existing quantity of employees is approximately 3.2 times the number of residents. With the General Plan Housing Element Update (HEU), the number of employees is closer to 1.9 times the number of residents. With the HEU, there is more opportunity for capturing home-work trips within Newport Center than currently exists, but the potential capture of traffic is not as large as in the Airport Area.

For Coyote Canyon, the existing quantity of employment is approximately half of the number of residents. With the General Plan Housing Element Update (HEU), the number of employees is approximately 0.1 the number of residents.

The General Plan Housing Element Update (HEU) results in 0.1 employees per resident in Banning Ranch.

5.2.2 NBTM TRIP GENERATION

The NBTM trip generation estimates are based on socioeconomic data trip generation rates, which estimate each trip purpose based upon general measures of human activity such as population, employment, households, etc.

The trip generation procedures for NBTM 5.0 utilizes the OCTAM trip generation procedures, providing productions and attractions that are consistent with the regional trip generation estimates for the following trip purposes:

- Home-Based-Work (Direct and Strategic, with income segmentation)
- Work Based Other
- Home-Based Shop
- Home-Based Social/Recreational
- Home-Based Other
- Home-Based School (Elementary/Junior/High)
- Home-University
- Other-Based Other

The Home-Based Other purposes are aggregated prior to running mode choice to the regional model trip purposes:

- Home-Based-Work (with income segmentation)
- Home-Based University
- Home-Based School (Elementary/Junior/High)
- Home-Based-Other (includes Home-Based Shop, Home-Based Social/Recreational, Home-Based Other)
- Work Based Other
- Other-Based Other

Model trip generation is not intended to match ITE trip generation because it does not capture driveway level traffic. This transportation analysis includes the number of additional trips (average daily traffic or ADT) associated with the Newport Beach General Plan Housing Element Update (HEU) land uses, distributes them through the roadway system, and analyzes the change in daily and peak hour traffic to roadways and study-area intersections.

The NBTM estimates mode choice (auto, pedestrian, transit, etc.) via a procedure that involves trip distribution inputs, income segmentation, transit access and transit modes, transit penalties, wait times, tolls and auto operating costs, school bus factors, HOV percentages, and an adjustment to current year dollars.

The NBTM traffic assignment procedure utilizes 4 time periods (AM peak, PM peak, midday and nighttime) per regional model procedure, with conversion to AM and PM peak hour volumes directly from the AM and PM peak periods, respectively. Table 5-1 provides an approximation of the General Plan Housing Element Update (HEU) peak hour and daily trips.

The NBTM apartment trip generation rate was selected as a generalized representation of the low-rise multi-family housing that's included in the HEU project. This land use category is conservative as it has higher trip generation than other possible, but yet to be determined land uses, such as other mixed-use, coastal, high-rise categories have not been utilized for this analysis. If and when individual projects are proposed that satisfy the parameters of these reduced rate categories, the individual project trip generation would be less than anticipated in this report.

TABLE 5-2: NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) LAND USE AND TRIP GENERATION

Land Use	Dwelling Unit	AM Peak Hour			PM Peak Hour			
Description	Quantity	In	Out	Total	In	Out	Total	Daily
Apartment Rate	1	0.10	0.44	0.54	0.46	0.25	0.71	8.31
Project Total	10,087	1,009	4,438	5,447	4,640	2,522	7,162	83,823

5.2.3 NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) TRIP DISTRIBUTION

Trip distribution estimates are based on trip distribution patterns that are consistent with the regional travel demand model procedures using a gravity model. In the gravity model, trips produced at an origin and attracted to a destination are proportional to the total trip productions at the origin and the total attractions at the destination. Friction factors are used to calibrate the desirability of various distances.

The Newport Beach General Plan Housing Element Update (HEU) external trip distribution is presented on Exhibit 5-1. As shown on Exhibit 5-1, project traffic interacting outside the City of Newport Beach is most oriented westerly via Coast Highway and Superior Avenue (45%), northerly via MacArthur Boulevard and Jamboree Road (25%) and along the SR-73 Freeway (20%).

Internal trip interactions are shown on Exhibit 5-2. Traffic is captured within individual Focus Areas (7% in the Airport Area, 13% in Newport Center), and also interacts heavily along the "desire lines" shown on the exhibit (between Newport Center and the Airport Area, Newport Center and Coyote Canyon, and Newport Center and Banning Ranch / West Newport Mesa). The areas of the City with a large amount of employment are anticipated to interact heavily with trips generated by the new housing.

Trip distribution percentages are shown rounded to the nearest 1%, whereas the forecast model output is calculated to a finer level of detail.

5.3 TRAFFIC VOLUME FORECASTS

NBTM is utilized in this study to estimate long range future traffic volumes with buildout of the Newport Beach General Plan Housing Element Update (HEU). Daily traffic volume forecasts are summarized on Table 5-3 for Existing (2021), 2006 General Plan Baseline (Buildout Land Use), and Newport Beach General Plan Housing Element Update (HEU) conditions. Average Daily Traffic (ADT) volumes for Newport Beach General Plan Housing Element Update (HEU) are shown on Exhibit 5-3.

Focus Area Volumes

For arterial roadway segments in the Airport Area, volumes increase by 700 vehicles per day (VPD) to 2,500 VPD between 2006 General Plan Baseline (Buildout Land Use), and Newport Beach General Plan Housing Element Update (HEU) conditions. The increase in vehicle is offset by travel captured internally based on the introduction of residential into an area with predominantly existing office use, therefore balancing the land uses in the Focus Area. Segments approaching the Airport Area have similar changes in automobile volumes, with the largest differences occurring on MacArthur Boulevard north of Campus Drive and on Jamboree Road south of Mesa Drive.

In the western portion of the City of Newport Beach, near Banning Ranch and West Newport Mesa, the highest volume increases between 2006 General Plan Baseline (Buildout Land Use), and Newport Beach General Plan Housing Element Update (HEU) conditions occur on Coast Highway west of Superior Avenue and on Superior Avenue north of Coast Highway (1,000 VPD). This is also based on the introduction of residential into an area with predominantly existing employment use, therefore balancing the land uses in the area.

Daily traffic volumes along Coast Highway between Newport Boulevard and Bayside Drive increase by approximately 900 to 1,700 VPD. These increases are caused by the addition of housing in the Dover-Westcliff Focus Area, and also vehicles traveling to / from the edges of the City of Newport Beach interacting with other Focus Areas.

EXHIBIT 5-1: NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) EXTERNAL PROJECT TRIP DISTRIBUTION

LEGEND:

10 = PERCENT TO/FROM PROJECT

* NOTE: TRIP DISTRIBUTION <1% NOT SHOWN ON EXHIBIT.

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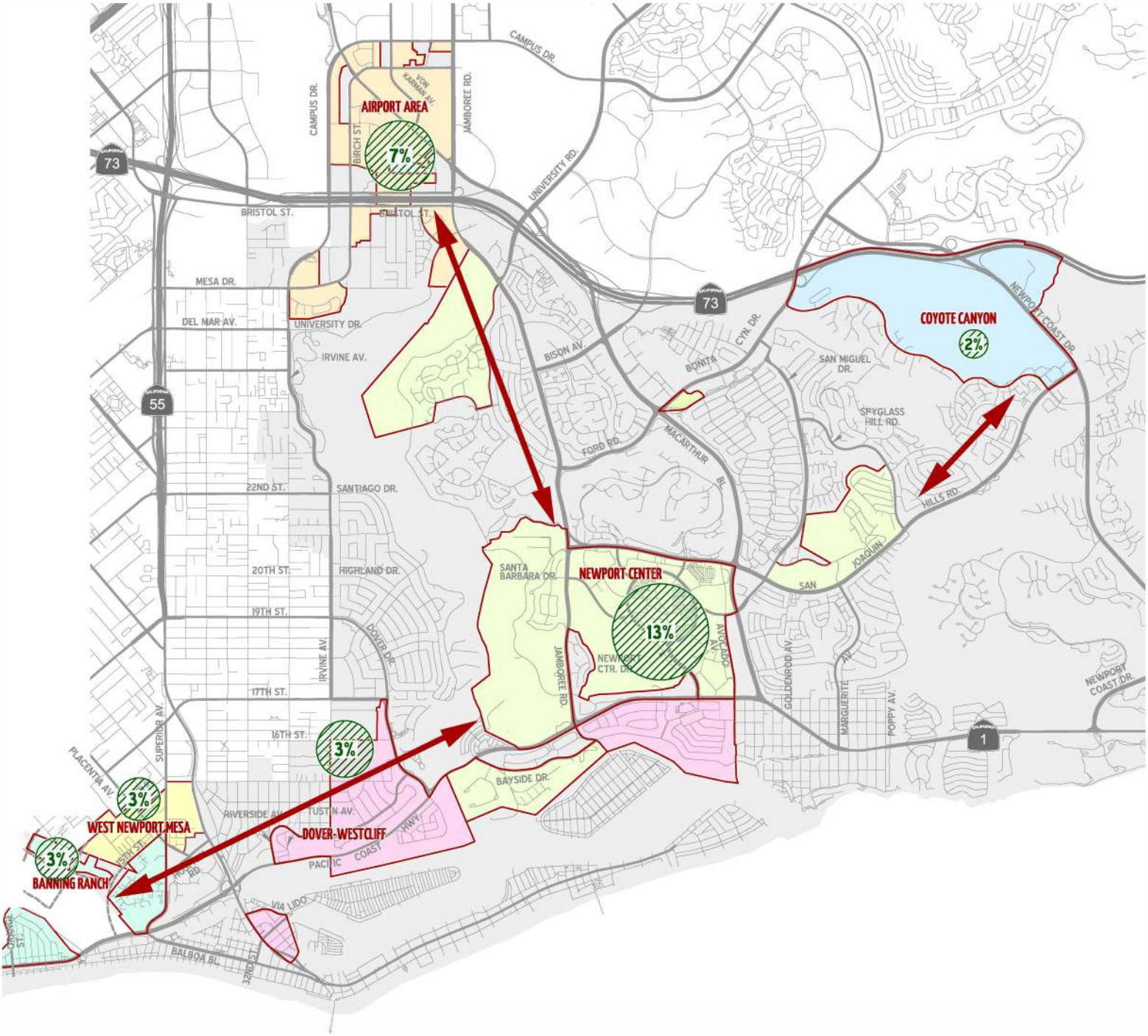
EXHIBIT 5-2: NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) INTERNAL TRAFFIC INTERACTIONS



LEGEND:

= REMAINING INTERNAL PERCENT TO/FROM FOCUSED AREA

= DESIRE LINES (HIGHER THAN AVERAGE INTERACTION WITHIN THE CITY

Table 5-3: Newport Beach Housing Element Update Daily Traffic Volume Forecasts

ID	INTERSECTION	Existing ADT				Baseline ADT				Housing Element Update			
		Leg				Leg				Leg			
		North	South	West	East	North	South	West	East	North	South	West	East
1	15th St. / Coast Hwy			50.5	50.5	19.7		55.1	53.1	21.6		56.1	54.1
2	Superior Av / Placentia Av	17.2	21.4	14.8	8.7	17.9	22.3	15.3	9.0	18.3	23.1	15.3	9.7
3	Superior Av / Coast Hwy	17.6	19.0	51.1	43.4	18.3	21.2	55.1	46.7	19.3	21.6	56.1	47.2
4	Newport Bl / Hospital Rd	43.6	48.7	15.7	8.5	45.5	51.7	16.8	8.9	45.8	52.4	17.8	8.9
5	Newport Bl / Via Lido	52.2	30.0			53.7	30.6		12.0	54.4	30.8		12.5
6	Newport Bl / 32nd St	29.7	22.6	7.8	4.0	30.5	22.6	9.0	5.6	30.7	22.8	9.1	5.6
7	Riverside Av / Coast Hwy	10.5		53.5	53.5	11.1	1.2	65.3	64.3	11.5	1.2	66.4	65.5
8	Tustin Av / Coast Hwy	2.7		53.5	61.3	2.7		64.3	63.6	3.0		65.5	64.7
9	MacArthur Bl / Campus Dr	44.6	29.5	30.8	22.7	47.4	30.8	36.0	27.1	49.9	32.9	37.5	27.8
10	MacArthur Bl / Birch St	29.5	18.1	17.2	14.4	30.8	20.6	20.3	15.9	32.9	21.6	21.1	16.5
11	Von Karman Av / Campus Dr	19.3	17.7	22.7	18.4	24.1	20.2	27.2	18.6	24.9	21.4	27.9	19.0
12	MacArthur Bl / Von Karman Av	18.1	37.8			20.9	39.0	4.6	13.2	21.4	41.1	5.1	14.0
13	Jamboree Rd / Campus Dr	40.1	43.1	18.4	23.7	44.2	48.3	21.1	30.2	45.3	49.8	21.8	30.5
14	Jamboree Rd / Birch St	43.1	41.7	8.4	7.9	48.3	44.8	10.9	8.0	49.8	47.0	11.2	8.0
15	Campus Dr / Bristol St (N)	29.1	29.5	41.6		32.1	34.8	44.4	22.6	32.9	36.2	45.3	22.6
16	Birch St / Bristol St (N)	19.4	17.1			21.4	19.9	22.6	21.0	22.2	20.6	22.6	21.0
17	Campus Dr - Irvine Av / Bristol St (S)	29.5	28.4	24.7		34.8	30.6	26.4	23.2	36.2	32.4	27.0	23.9
18	Birch St / Bristol St (S)	17.1	0.0	0.0	20.6	19.9	8.0	23.2	23.1	20.6	8.0	23.9	23.8
19	Irvine Av / Mesa Dr	28.4	30.6	10.8	13.2	31.3	35.5	11.1	15.1	32.8	37.6	11.1	15.5
20	Irvine Av / University Dr	30.6	34.7			35.5	35.1	13.4	2.8	37.6	36.0	13.9	3.1
21	Irvine Av / Santiago Dr	35.1	30.7	4.5	3.7	36.2	32.5	4.6	3.7	37.0	33.9	4.6	3.8
22	Irvine Av / Highland Dr	30.7	32.1	3.5	2.4	32.5	33.9	3.5	3.1	33.9	35.2	3.5	3.2
23	Irvine Av / Dover Dr	32.1	22.3	7.3	14.4	33.9	27.6	7.6	14.6	35.2	28.6	7.6	15.0
24	Irvine Av / Westcliff Dr	22.3	18.3		16.3	27.6	18.9	31.5	17.3	28.6	19.2	31.5	17.9
25	Dover Dr / Westcliff Dr	14.4	25.9	16.3		14.5	26.9	17.0	0.7	14.8	27.1	17.0	0.7
26	Dover Dr / 16th St	25.9	29.7	5.2		26.9	30.9	5.5	0.0	26.6	31.2	5.5	0.0
27	Dover Dr / Coast Hwy	29.7	2.6	49.3	64.8	31.9	4.0	50.8	71.2	31.7	4.2	51.7	72.9
28	Bayside Dr / Coast Hwy	2.4	12.6	64.8	60.5	4.7	14.6	71.2	65.2	4.8	14.9	72.9	66.6
29	MacArthur Bl / Jamboree Rd	37.8	36.8	38.1	41.7	39.0	37.3	42.0	45.9	41.1	38.0	44.0	46.2
30	Jamboree Rd / Bristol St (N)	38.1	48.0			41.0	52.5	24.4	15.5	43.0	52.3	25.3	15.4
31	Bayview Pl / Bristol St (S)		5.8	32.1	34.9		6.3	35.6	37.8		6.3	36.3	38.6
32	Jamboree Rd / Bristol St (S)	48.0	48.6	34.9		50.8	53.4	37.8	7.5	52.3	55.9	38.6	8.1
33	Jamboree Rd / Bayview Wy	48.6	50.5	3.9	3.0	53.4	50.6	7.9	5.0	55.9	53.1	8.1	5.0
34	Jamboree Rd / Eastbluff Dr - University Dr	50.5	43.0		13.8	50.6	49.0	10.5	17.0	53.1	50.7	10.5	17.5

Table 5-3: Newport Beach Housing Element Update Daily Traffic Volume Forecasts

ID	INTERSECTION	Existing ADT				Baseline ADT				Housing Element Update			
		Leg				Leg				Leg			
		North	South	West	East	North	South	West	East	North	South	West	East
35	Jamboree Rd / Bison Av	43.0		1.7	7.9	49.0	46.7	3.2	13.6	50.7	48.7	2.6	13.5
36	Jamboree Rd / Eastbluff Dr - Ford Dr		53.5	15.3	10.9	46.7	57.5	15.3	11.3	48.7	60.0	15.4	11.1
37	Jamboree Rd / San Joaquin Hills Rd	53.5	40.5	6.4	23.4	57.5	44.6	6.4	23.4	60.0	46.1	6.6	24.2
38	Jamboree Rd / Santa Barbara Dr	40.5	35.4		14.4	44.6	40.1	6.7	14.6	46.1	40.6	7.0	15.4
39	Jamboree Rd / Coast Hwy	35.4	11.5	60.5	43.3	40.1	13.2	65.6	46.8	40.6	13.5	66.9	47.8
40	Santa Cruz Dr / San Joaquin Hills Rd	3.3	12.3	23.4	15.0	4.1	12.4	23.4	15.5	4.1	12.9	24.2	15.2
41	Santa Rosa Dr / San Joaquin Hills Rd	3.9	10.5	15.0	24.6	4.3	10.9	15.5	25.6	4.3	10.5	15.2	25.6
42	Newport Center Dr / Coast Hwy	22.9		43.3	35.8	23.9		46.8	37.9	23.9		47.8	38.1
44	Avocado Av / San Miguel Dr	4.6	6.5		26.5	5.0	16.0	16.8	27.5	5.0	16.0	16.8	27.5
45	Avocado Av / Coast Hwy	15.3	6.2	35.8	34.3	15.3	8.1	37.9	37.3	15.3	8.2	38.1	37.5
46	SR-73 NB Ramps / Bison Av			7.6	34.5	11.7	4.0	26.2	35.4	11.6	4.0	27.2	35.8
47	SR-73 SB Ramps / Bison Av			23.6	7.6	9.5	4.1	24.2	26.2	10.0	4.0	25.1	27.2
48	MacArthur Bl / Bison Av	67.3	70.6	17.2	14.4	68.1	71.2	17.2	24.2	69.4	74.0	17.2	25.1
49	MacArthur Bl / Ford Rd	70.6	61.8	10.9	36.6	71.2	64.3	11.3	37.6	74.0	64.9	11.4	38.2
50	MacArthur Bl / San Joaquin Hills Rd	61.8	37.8	24.6	21.4	64.3	38.5	25.6	22.3	64.9	39.7	25.6	22.3
51	MacArthur Bl / San Miguel Dr	37.8		26.5	13.1	38.5	44.3	27.5	13.7	39.7	44.7	27.5	13.7
52	MacArthur Bl / Coast Hwy	41.8		34.3	48.5	44.3		37.3	50.4	44.7		37.5	50.6
53	SR-73 NB Ramps / Bonita Canyon Dr				21.1		7.7	27.9	21.6		8.5	29.2	22.1
54	SR-73 SB Ramps / Bonita Canyon Dr						6.0	28.4	27.9		7.2	29.8	29.2
55	San Miguel Dr / Spyglass Hill Rd	19.5	15.3		3.2	20.1	16.0	1.2	4.2	20.1	16.0	1.2	4.3
56	San Miguel Dr / San Joaquin Hills Rd	15.3	13.1	20.9	21.0	16.0	13.7	22.3	21.5	16.0	13.7	22.3	21.7
57	Goldenrod Av / Coast Hwy	2.1		48.5	48.5	5.6	7.0	50.4	50.1	5.6	7.1	50.6	50.4
58	Marguerite Av / San Joaquin Hills Rd	3.7	11.0	21.0	17.9	3.7	11.3	21.5	18.3	3.7	11.5	21.7	18.2
59	Marguerite Av / Coast Hwy	5.6	6.7	48.5	48.5	5.8	7.1	50.1	49.8	5.8	7.2	50.4	50.0
60	Spyglass Hill Rd / San Joaquin Hills Rd	3.2	0.6	3.2	0.6	4.2	1.3	18.2	18.7	4.3	1.3	18.2	19.5
61	Poppy Av / Coast Hwy	6.5		48.5	32.4	6.5	1.0	49.8	45.0	6.6	1.0	50.0	45.3
62	Newport Coast Dr / SR-73 NB Ramps	12.2				13.3	24.6	3.6	2.2	14.5	26.4	4.0	2.3
64	Newport Coast Dr / San Joaquin Hills Rd	26.8	24.0	16.1		28.3	24.4	17.3		29.4	24.9	17.7	
65	Newport Coast Dr / Coast Hwy	24.0	1.5	32.4	41.6	24.2	2.0	32.4	43.3	24.4	2.0	32.6	43.3
66	Newport Bl (W) / Coast Hwy			43.4		3.0	5.0	49.8	43.6	2.9	5.1	50.3	44.3
67	Orange St. / Coast Hwy	1.3	1.5	51.7	51.9	1.5	1.9	58.7	59.0	2.4	2.0	59.9	59.7

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EXHIBIT 5-3: NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) AVERAGE DAILY TRAFFIC (ADT)

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

13386 - 301 - volumes & lane geometrics.dwg

Newport Center Focus Area volume increases of up to 1,500 VPD are shown along Jamboree Road, Santa Barbara Drive, MacArthur Boulevard, and Coast Highway. Segments providing access between Newport Center Focus Area and other parts of the City of Newport Beach and beyond (such as Coast Highway west of Jamboree Road and Jamboree Road north of San Joaquin Hills Road) have volume increases of up to 2,500 VPD.

In the vicinity of Coyote Canyon Focus Area, MacArthur Boulevard between SR-73 and Bonita Canyon Drive experiences an increase of 3,800, Bonita Canyon Drive east of MacArthur Boulevard experiences an increase of 600, and San Joaquin Hills west of Newport Coast Drive experiences an increase of 400 VPD.

Weekday AM and PM peak hour intersection turning movement volumes are shown on Exhibits 5-4 and 5-5, respectively.

5.4 DAILY ROADWAY SEGMENT ANALYSIS

Volume to capacity (V/C) analysis of roadway segments has been performed for Newport Beach General Plan Housing Element Update (HEU) conditions. Buildout of the City's General Plan circulation system has been assumed. Exhibit 5-6 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 same arterial segments which were estimated to exceed their theoretical planning level capacity in 2006 General Plan Baseline (Buildout Land Use conditions) volumes which in Section 3.2 of this report, also exceed their theoretical planning level capacity under Newport Beach General Plan Housing Element Update (HEU) conditions:

- Newport Boulevard north of Coast Highway
- Coast Highway between Newport Boulevard and Dover Drive
- Coast Highway between Dover Drive and Bayside Drive
- Irvine Avenue south of University Drive
- Dover Drive east of Irvine Avenue
- Campus Drive east of Jamboree Road
- Bristol Street North west of Campus Drive
- Bristol Street South west of Jamboree Road
- Jamboree Road between Bristol Street South and University Road
- Jamboree Road, between Ford Road & San Joaquin Hills Road
- MacArthur Boulevard between Bison Avenue and San Joaquin Hills Road
- Bonita Canyon Drive east of MacArthur Boulevard
- Coast Highway between MacArthur Boulevard and east of Poppy Avenue

EXHIBIT 5-4 (1 OF 2): NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) AM PEAK HOUR INTERSECTION VOLUMES

LEGEND:

(#) = INTERSECTION ID

1 15TH ST. & COAST HWY.

228 336 263 950 637 3624

2 SUPERIOR AV. & PLACENTIA AV.

20 285 47 83 380 19 32 388 299 432 934 26

3 SUPERIOR AV. & COAST HWY.

282 161 237 241 686 105 891 2851 208 218 492 162

4 NEWPORT BL. & HOSPITAL RD.

407 1246 50 31 256 51 373 257 383 278 1500 47

5 NEWPORT BL. & VIA LIDO

1033 474 582 21 1528 32

6 NEWPORT BL. & 32ND ST.

155 701 88 76 41 54 410 60 15 24 1004 14

7 RIVERSIDE AV. & COAST HWY.

410 5 124 91 1438 16 357 2899 13 19 4 13

8 TUSTIN AV. & COAST HWY.

26 54 54 1530 66 2959 1 2 2

9 MACARTHUR BL. & CAMPUS DR.

281 680 349 119 392 58 587 932 82 73 977 81

10 MACARTHUR BL. & BIRCH ST.

250 800 88 64 182 29 120 385 82 48 955 84

11 VON KARMAN AV. & CAMPUS DR.

203 507 148 95 297 59 243 383 56 36 888 58

12 MACARTHUR BL. & VON KARMAN AV.

131 520 53 22 102 211 23 710 49 47 855 807

13 JAMBOREE RD. & CAMPUS DR.

145 1872 188 107 502 574 78 236 54 198 1296 414

14 JAMBOREE RD. & BIRCH ST.

500 1966 1 1 193 67 192 1621 1

15 CAMPUS DR. & BRISTOL ST. (N)

398 390 275 1348 241 568 1782

16 BIRCH ST. & BRISTOL ST. (N)

195 173 261 1535 433 122 1143

17 CAMPUS DR. & BRISTOL ST. (S)

478 159 1040 2145 493 1319 386

18 BIRCH ST. & BRISTOL ST. (S)

376 230 802 1649 229 456 597

19 IRVINE AV. & MESA DR.

47 702 8 3 28 156 153 273 134 117 1573 799

20 IRVINE AV. & UNIVERSITY DR.

219 720 63 52 45 26 542 137 204 186 1769 71

21 IRVINE AV. & SANTIAGO DR.

35 1120 65 161 50 34 136 48 199 90 1681 21

22 IRVINE AV. & HIGHLAND DR.

34 1204 41 115 47 18 107 31 110 58 1600 21

23 IRVINE AV. & DOVER DR.

34 849 160 318 114 12 83 171 46 53 1118 13

24 IRVINE AV. & WESTCLIFF DR.

236 482 246 79 418 35 330 609 140 251 721 20

25 DOVER DR. & WESTCLIFF DR.

99 660 80 706 333 580

26 DOVER DR. & 16TH ST.

73 1246 58 62 45 30 26 247 128 1688 29

27 DOVER DR. & COAST HWY.

179 41 1247 771 1422 29 190 2810 42 29 58 46

28 BAYSIDE DR. & COAST HWY.

84 12 46 40 1726 66 150 3229 701 404 21 45

29 MACARTHUR BL. & JAMBOREE RD.

351 436 77 214 814 344 540 125 235 187 959 571

30 JAMBOREE RD. & BRISTOL ST. (N)

539 820 816 2015 816

31 BAYVIEW PL. & BRISTOL ST. (S)

3706 444 106

32 JAMBOREE RD. & BRISTOL ST. (S)

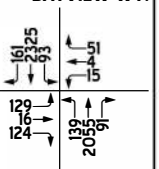
823 1447 603 1750 2226 24

EXHIBIT 5-4 (2 OF 2): NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) AM PEAK HOUR INTERSECTION VOLUMES

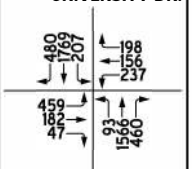
LEGEND:

(#) = INTERSECTION ID

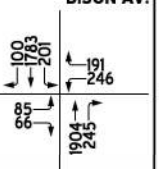
33 JAMBOREE RD. & BAYVIEW WY.



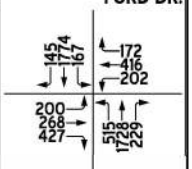
34 JAMBOREE RD. & UNIVERSITY DR.



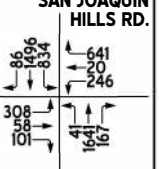
35 JAMBOREE RD. & BISON AV.



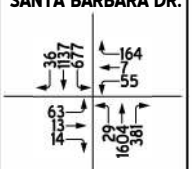
36 JAMBOREE RD. & FORD DR.



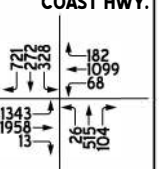
37 JAMBOREE RD. & SAN JOAQUIN HILLS RD.



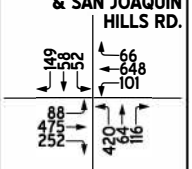
38 JAMBOREE RD. & SANTA BARBARA DR.



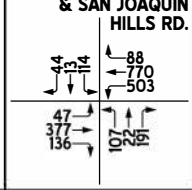
39 JAMBOREE RD. & COAST HWY.



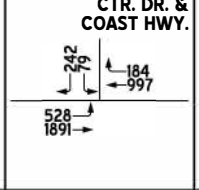
40 SANTA CRUZ DR. & SAN JOAQUIN HILLS RD.



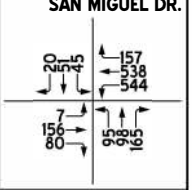
41 SANTA ROSA DR. & SAN JOAQUIN HILLS RD.



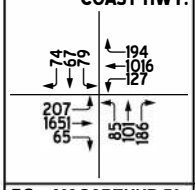
42 NEWPORT CTR. DR. & COAST HWY.



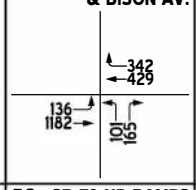
44 AVOCADO AV. & SAN MIGUEL DR.



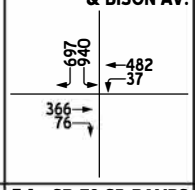
45 AVOCADO AV. & COAST HWY.



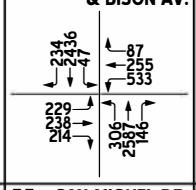
46 SR-73 NB RAMPS & BISON AV.



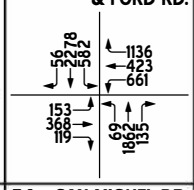
47 SR-73 SB RAMPS & BISON AV.



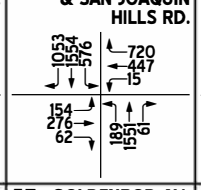
48 MACARTHUR BL. & BISON AV.



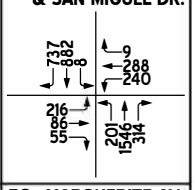
49 MACARTHUR BL. & FORD RD.



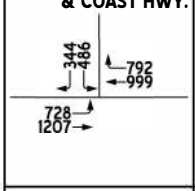
50 MACARTHUR BL. & SAN JOAQUIN HILLS RD.



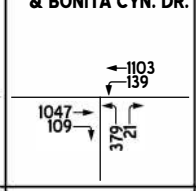
51 MACARTHUR BL. & SAN MIGUEL DR.



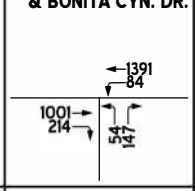
52 MACARTHUR BL. & COAST HWY.



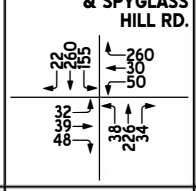
53 SR-73 NB RAMPS & BONITA CYN. DR.



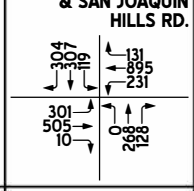
54 SR-73 SB RAMPS & BONITA CYN. DR.



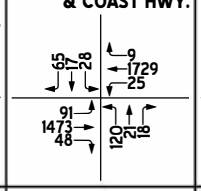
55 SAN MIGUEL DR. & SPYGLASS HILL RD.



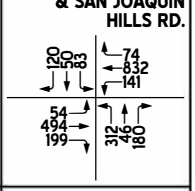
56 SAN MIGUEL DR. & SAN JOAQUIN HILLS RD.



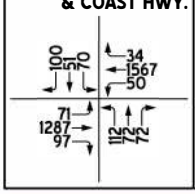
57 GOLDENROD AV. & COAST HWY.



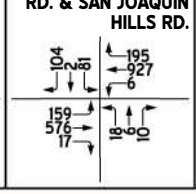
58 MARGUERITE AV. & SAN JOAQUIN HILLS RD.



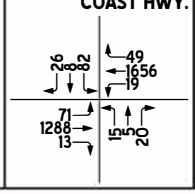
59 MARGUERITE AV. & COAST HWY.



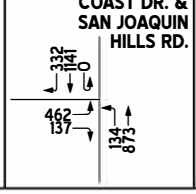
60 SPYGLASS HILL RD. & SAN JOAQUIN HILLS RD.



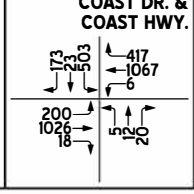
61 POPPY AV. & COAST HWY.



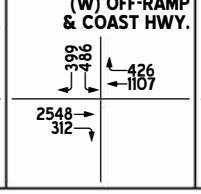
64 NEWPORT COAST DR. & SAN JOAQUIN HILLS RD.



65 NEWPORT COAST DR. & COAST HWY.



66 SB NEWPORT BL. (W) OFF-RAMP & COAST HWY.



67 ORANGE ST. & COAST HWY.

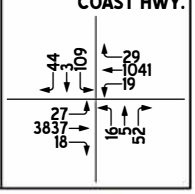
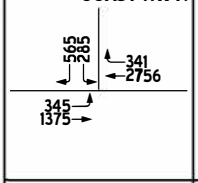


EXHIBIT 5-5 (1 OF 2): NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) PM PEAK HOUR INTERSECTION VOLUMES

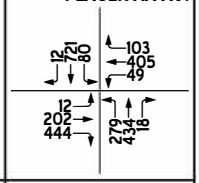
LEGEND:

(#) = INTERSECTION ID

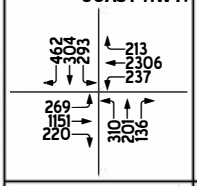
1 15TH ST. & COAST HWY.



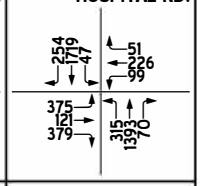
2 SUPERIOR AV. & PLACENTIA AV.



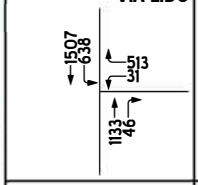
3 SUPERIOR AV. & COAST HWY.



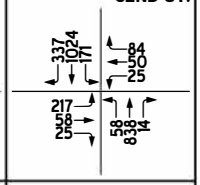
4 NEWPORT BL. & HOSPITAL RD.



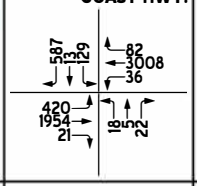
5 NEWPORT BL. & VIA LIDO



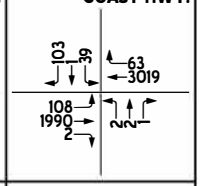
6 NEWPORT BL. & 32ND ST.



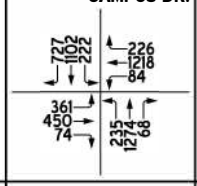
7 RIVERSIDE AV. & COAST HWY.



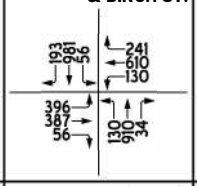
8 TUSTIN AV. & COAST HWY.



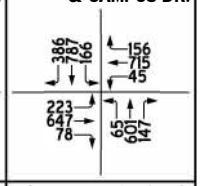
9 MACARTHUR BL. & CAMPUS DR.



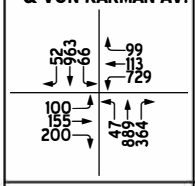
10 MACARTHUR BL. & BIRCH ST.



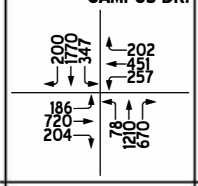
11 VON KARMAN AV. & CAMPUS DR.



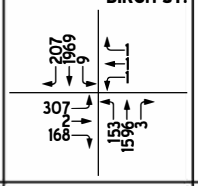
12 MACARTHUR BL. & VON KARMAN AV.



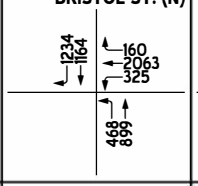
13 JAMBOREE RD. & CAMPUS DR.



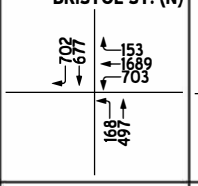
14 JAMBOREE RD. & BIRCH ST.



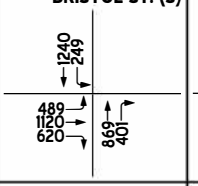
15 CAMPUS DR. & BRISTOL ST. (N)



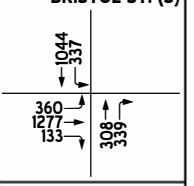
16 BIRCH ST. & BRISTOL ST. (N)



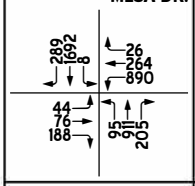
17 CAMPUS DR. & BRISTOL ST. (S)



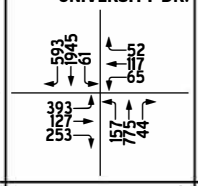
18 BIRCH ST. & BRISTOL ST. (S)



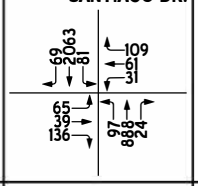
19 IRVINE AV. & MESA DR.



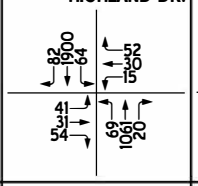
20 IRVINE AV. & UNIVERSITY DR.



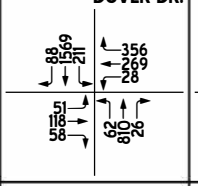
21 IRVINE AV. & SANTIAGO DR.



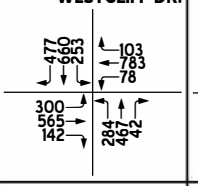
22 IRVINE AV. & HIGHLAND DR.



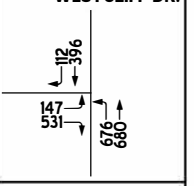
23 IRVINE AV. & DOVER DR.



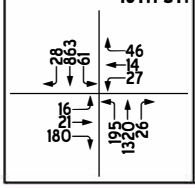
24 IRVINE AV. & WESTCLIFF DR.



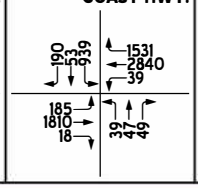
25 DOVER DR. & WESTCLIFF DR.



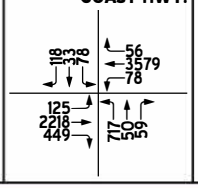
26 DOVER DR. & 16TH ST.



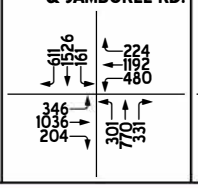
27 DOVER DR. & COAST HWY.



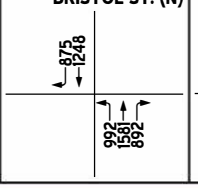
28 BAYSIDE DR. & COAST HWY.



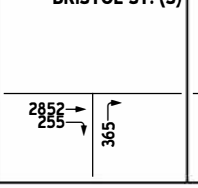
29 MACARTHUR BL. & JAMBOREE RD.



30 JAMBOREE RD. & BRISTOL ST. (N)



31 BAYVIEW PL. & BRISTOL ST. (S)



32 JAMBOREE RD. & BRISTOL ST. (S)

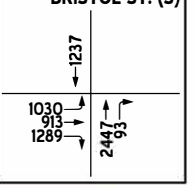
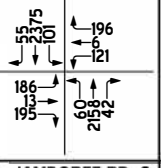


EXHIBIT 5-5 (2 OF 2): NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) PM PEAK HOUR INTERSECTION VOLUMES

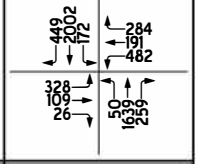
LEGEND:

(#) = INTERSECTION ID

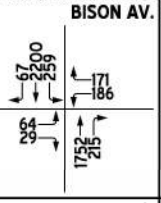
33 JAMBOREE RD. & BAYVIEW WY.



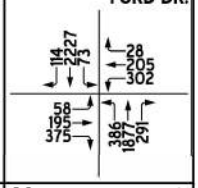
34 JAMBOREE RD. & UNIVERSITY DR.



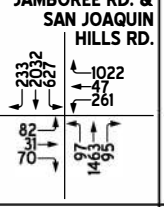
35 JAMBOREE RD. & BISON AV.



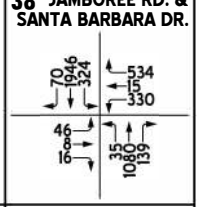
36 JAMBOREE RD. & FORD DR.



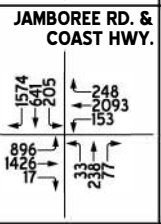
37 JAMBOREE RD. & SAN JOAQUIN HILLS RD.



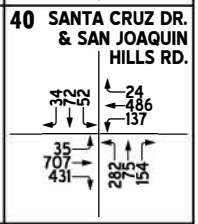
38 JAMBOREE RD. & SANTA BARBARA DR.



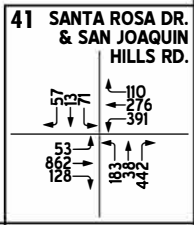
39 JAMBOREE RD. & COAST HWY.



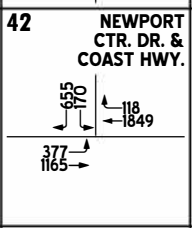
40 SANTA CRUZ DR. & SAN JOAQUIN HILLS RD.



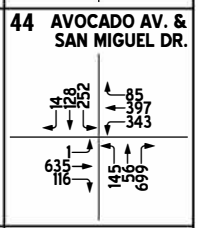
41 SANTA ROSA DR. & SAN JOAQUIN HILLS RD.



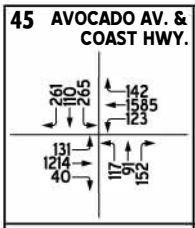
42 NEWPORT CTR. DR. & COAST HWY.



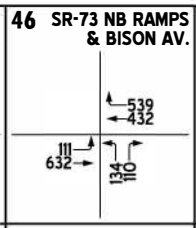
44 AVOCADO AV. & SAN MIGUEL DR.



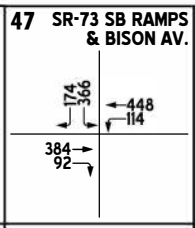
45 AVOCADO AV. & COAST HWY.



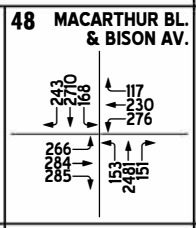
46 SR-73 NB RAMPS & BISON AV.



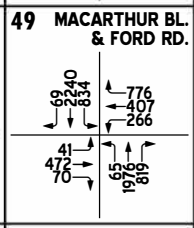
47 SR-73 SB RAMPS & BISON AV.



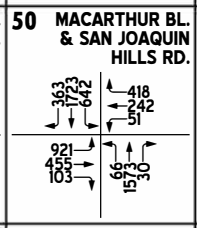
48 MACARTHUR BL. & BISON AV.



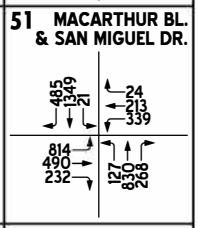
49 MACARTHUR BL. & FORD RD.



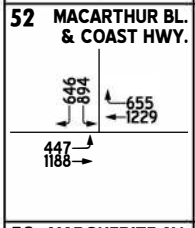
50 MACARTHUR BL. & SAN JOAQUIN HILLS RD.



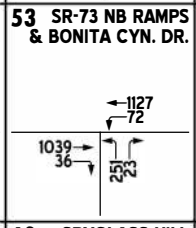
51 MACARTHUR BL. & SAN MIGUEL DR.



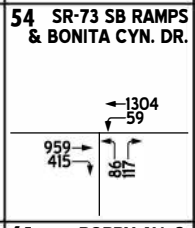
52 MACARTHUR BL. & COAST HWY.



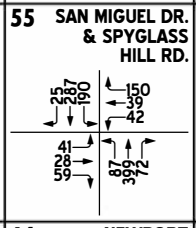
53 SR-73 NB RAMPS & BONITA CYN. DR.



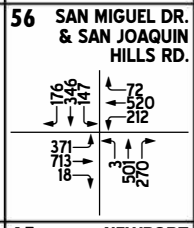
54 SR-73 SB RAMPS & BONITA CYN. DR.



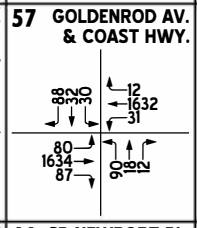
55 SAN MIGUEL DR. & SPYGLASS HILL RD.



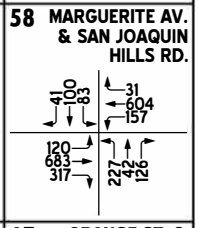
56 SAN MIGUEL DR. & SAN JOAQUIN HILLS RD.



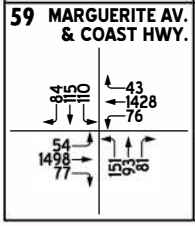
57 GOLDENROD AV. & COAST HWY.



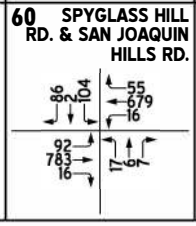
58 MARGUERITE AV. & SAN JOAQUIN HILLS RD.



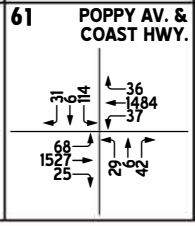
59 MARGUERITE AV. & COAST HWY.



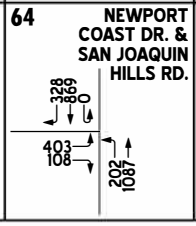
60 SPYGLASS HILL RD. & SAN JOAQUIN HILLS RD.



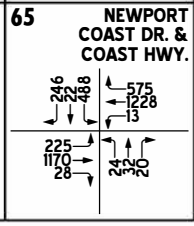
61 POPPY AV. & COAST HWY.



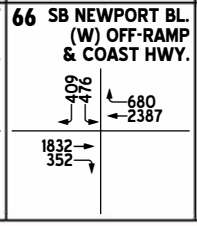
64 NEWPORT COAST DR. & SAN JOAQUIN HILLS RD.



65 NEWPORT COAST DR. & COAST HWY.



66 SB NEWPORT BL. (W) OFF-RAMP & COAST HWY.



67 ORANGE ST. & COAST HWY.

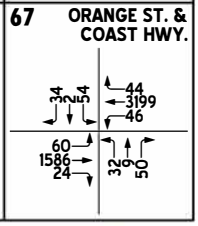


EXHIBIT 5-6: NEWPORT BEACH GENERAL PLAN HOUSING ELEMENT UPDATE (HEU) VOLUME/CAPACITY (V/C) RATIOS

LEGEND:

0.88 = VOLUME/CAPACITY

= ARTERIAL LOS OVER THEORETICAL PLANNING LEVEL CAPACITY

13386 - 301 - volumes & lane geometrics.dwg

Additional segments that exceed their theoretical planning level capacity under Newport Beach General Plan Housing Element Update (HEU) conditions:

- Irvine Avenue north of Santiago Drive
- Irvine Avenue south of Highland Drive
- MacArthur Boulevard between SR-73 and Bison Avenue

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, therefore more emphasis is given to more detailed peak hour analysis at key intersections.

5.5 PEAK HOUR INTERSECTION OPERATIONS

Newport Beach General Plan Housing Element Update (HEU) intersection operations have been evaluated using the procedures described in section 2.3 and with the project detailed in Section 2. 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 5-4 (ICU calculation worksheets using existing geometrics are included in Appendix 5.1 and ICU calculation worksheets using General Plan planned improvement geometrics are included in Appendix 5.2).

Based on the intersection LOS performance criteria, the following study area intersections experienced unacceptable operations during peak hours for General Plan Housing Element Update (HEU) conditions using existing lanes. Anticipated "General Plan Planned Improvements" (see Section 2.6 of this report) detailed in the 2006 General Plan improve 2 of the 5 deficient intersections to acceptable levels. The two locations displayed in bold in the list below represent a deficiency which remains after defined General Plan improvements are added to General Plan Housing Element Update (HEU) conditions (if there are General Plan improvements at that location):

- Superior Avenue at Coast Highway (AM)
- **Riverside Avenue at Coast Highway (AM/PM)**
- Tustin Avenue at Coast Highway (AM)
- Irvine Avenue at University Drive (AM/PM)
- **SB Newport Boulevard Off-Ramp at West Coast Highway (AM)**

One additional intersection experiences unacceptable operations for Newport Beach General Plan Housing Element Update (HEU) conditions using existing lanes and does not have pre-determined improvements detailed within the 2006 General Plan:

- **Orange at Coast Highway (AM)**

TABLE 5-4: EXISTING & GENERAL PLAN IMPROVEMENT GEOMETRICS
GENERAL PLAN HOUSING ELEMENT UPDATE (RHNA) - PEAK HOUR INTERSECTION OPERATIONS

ID	Intersection	Intersection Approach Lanes[1]												Peak Hour ICU (V/C)[2]		Peak Hour LOS[3]	
		Northbound			Southbound			Eastbound			Westbound						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	15th St / Coast Hwy																
	- General Plan Planned Improvements	0	0	0	**2**	0	**2>**	**2**	3	0	0	3	**1**	0.87	0.76	D	C
2	Superior Av / Placentia Av																
	- Existing Lanes	1	2	d	1	2	d	1	1	1	1	1	0	0.60	0.72	A	C
3	Superior Av / Coast Hwy																
	- Existing Lanes	1.5	1.5	0	1.5	1.5	2>	2	3	1	1	4	d	**0.94**	0.70	**E**	B
	- General Plan Planned Improvements	1.5	1.5	0	1.5	1.5	2>	2	**4**	1	1	4	d	0.79	0.70	C	B
4	Newport Bl / Hospital Rd																
	- Existing Lanes	1	3	1	1	3	1	2	1	1	1	2	0	0.67	0.84	B	D
	- General Plan Planned Improvements	**2**	3	1	1	3	1	2	1	1	1	2	0	0.60	0.75	A	C
5	Newport Bl / Via Lido																
	- Existing Lanes	0	3	1	2	3	0	0	0	0	1	0	2>	0.51	0.45	A	A
6	Newport Bl / 32nd St																
	- Existing Lanes	1	3	0	1	2	1	1.5	0.5	1	1	1	0	0.50	0.53	A	A
7	Riverside Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	1>	1	2	0	1	3	1	**1.03**	**1.02**	**F**	**F**
	- General Plan Planned Improvements	0.5	0.5	0	**1.5**	0.5	1>	**2**	**3**	0	1	3	0	0.73	**1.03**	C	**F**
	- General Plan Recommended Improvements:	0.5	0.5	0	**1.5**	0.5	**F**	**2**	**3**	0	1	3	0	0.73	0.90	C	D
	- Alternative 1 Improvements	0	0	0	**1**	0	**2>**	**2**	2	0	0	3	0	1.00	0.89	**E**	D
	- Alternative 2 Improvements	0.5	0.5	0	**1.5**	0.5	**F**	1	**3**	0	1	3	0	0.69	1.00	B	**E**
8	Tustin Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	0	1	2	0	0	3	0	**0.98**	0.80	**E**	C
	- General Plan Planned Improvements	0.5	0.5	0	0.5	0.5	0	1	**3**	0	0	3	0	0.67	0.80	B	C
9	MacArthur Bl / Campus Dr																
	- Existing Lanes	1	4	1	1	4	1	2	3	d	2	3	F	0.63	0.96	B	E
	- General Plan Planned Improvements	**2**	4	1	1	3.5	**1.5**	2	3	d	2	3	F	0.63	0.70	B	B
10	MacArthur Bl / Birch St																
	- Existing Lanes	1	3	1	1	4	0	1.5	1.5	0	1	2	F	0.45	0.62	A	B
11	Von Karman Av / Campus Dr																
	- Existing Lanes	1	2	F	1	2	0	1	2	1	1	2	0	0.63	0.81	B	D
	- General Plan Planned Improvements	1	2	F	1	2	0	**2**	2	0	1	2	0	0.56	0.74	A	C
12	MacArthur Bl / Von Karman Av																
	- Existing Lanes	1	3	1	1	3	1	1	2	F	2	1	F	0.64	0.54	B	A
13	Jamboree Rd / Campus Dr																
	- Existing Lanes	2	4	0	2	3	0	2	2	F	2	2	1	0.73	0.83	C	D
	- General Plan Planned Improvements	2	4	**1**	2	**4**	0	2	2	0	2	2	1	0.64	0.89	B	D
14	Jamboree Rd / Birch St																
	- Existing Lanes	1	3	0	1	3	F	1.5	0.5	F	0.5	0.5	0	0.59	0.61	A	B
	- General Plan Planned Improvements	1	3	0	1	**4**	F	1.5	0.5	F	0.5	0.5	0	0.49	0.51	A	A
15	Campus Dr / Bristol St (N)																
	- Existing Lanes	2	3	0	0	4	3>	0	0	0	1	4	0	0.62	0.75	B	C
	- General Plan Planned Improvements	2	**4**	0	0	4	3>	0	0	0	1	**5**	0	0.47	0.68	A	B
16	Birch St / Bristol St (N)																
	- Existing Lanes	2	2	0	0	1.5	2.5	0	0	0	1.5	3.5	0	0.63	0.58	B	A
17	Campus Dr - Irvine Av / Bristol St (S)																
	- Existing Lanes	0	5	0	1	3	0	1.5	2.5	2	0	0	0	0.83	0.65	D	B
18	Birch St / Bristol St (S)																
	- Existing Lanes	0	2.5	1.5	2	2	0	1.5	3.5	0	0	0	0	0.69	0.54	B	A
19	Irvine Av / Mesa Dr																
	- Existing Lanes	1	3	1	1	3	1	1	2	0	2	1	d	0.68	0.80	B	C
20	Irvine Av / University Dr																
	- Existing Lanes	1	2	1	1	2	1	1	1	1	1	1	d	**0.94**	**1.02**	**E**	**F**
	- General Plan Planned Improvements	1	**3**	0	1	**3**	1	**1.5**	**1.5**	1	1	1	d	0.66	0.74	B	C

TABLE 5-4: EXISTING & GENERAL PLAN IMPROVEMENT GEOMETRICS
GENERAL PLAN HOUSING ELEMENT UPDATE (RHNA) - PEAK HOUR INTERSECTION OPERATIONS

ID	Intersection	Intersection Approach Lanes[1]												Peak Hour ICU (V/C)[2]		Peak Hour LOS[3]	
		Northbound			Southbound			Eastbound			Westbound						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
21	Irvine Av / Santiago Dr																
	- Existing Lanes	1	2	0	1	2	d	0.5	0.5	1	0.5	0.5	d	0.76	0.81	C	D
22	Irvine Av / Highland Dr																
	- Existing Lanes	1	2	d	1	2	d	0.5	0.5	d	0.5	0.5	d	0.66	0.69	B	B
23	Irvine Av / Dover Dr																
	- Existing Lanes	1	2	d	1	2	d	1	1	0	1	1	1	0.69	0.78	B	C
24	Irvine Av / Westcliff Dr																
	- Existing Lanes	2	2	d	2	2	d	2	2	0	1	2	0	0.56	0.76	A	C
25	Dover Dr / Westcliff Dr																
	- Existing Lanes	2	2	0	0	1	1	2	0	F	0	0	0	0.54	0.50	A	A
26	Dover Dr / 16th St																
	- Existing Lanes	1	2	d	1	2	d	0.5	0.5	d	1	1	1	0.65	0.58	B	A
27	Dover Dr / Coast Hwy																
	- Existing Lanes	1	2	0	3	1	1	2	3	0	1	3	F	0.91	0.88	E	D
28	Bayside Dr / Coast Hwy																
	- Existing Lanes	2.5	0.5	0	1	1	d	1	3	1	1	4	0	0.86	0.89	D	D
29	MacArthur Bl / Jamboree Rd																
	- Existing Lanes	2	3	1>	2	3	F	2	4	1	3	3	1	0.59	0.76	A	C
30	Jamboree Rd / Bristol St (N)																
	- Existing Lanes	2	2.5	1.5	0	3.5	1.5	0	0	0	0	0	0	0.51	0.70	A	B
31	Bayview Pl / Bristol St (S)																
	- Existing Lanes	0	0	2	0	0	0	0	4	1	0	0	0	0.61	0.55	B	A
32	Jamboree Rd / Bristol St (S)																
	- Existing Lanes	0	5	0	0	4	0	1.5	1.5	2	0	0	0	0.82	0.72	D	C
	- General Plan Planned Improvements	0	**6**	0	0	4	0	1.5	1.5	2	0	0	0	0.77	0.67	C	B
33	Jamboree Rd / Bayview Wy																
	- Existing Lanes	1	4	0	1	4	1	2	1	1	1	1	1	0.55	0.70	A	B
34	Jamboree Rd / Eastbluff Dr - University Dr																
	- Existing Lanes	1	3	1	2	3	1	1.5	0.5	1	1.5	1.5	F	0.70	0.72	B	C
35	Jamboree Rd / Bison Av																
	- Existing Lanes	0	3	d	2	3	1	1	0	1	2	0	2	0.62	0.56	B	A
36	Jamboree Rd / Eastbluff Dr - Ford Dr																
	- Existing Lanes	2	3	0	1	3	1	1.5	1.5	F	1.5	1.5	1	0.75	0.74	C	C
37	Jamboree Rd / San Joaquin Hills Rd																
	- Existing Lanes	1	3	F	2	3	F	1.5	1.5	1	1.5	1.5	1	0.79	0.69	C	B
38	Jamboree Rd / Santa Barbara Dr																
	- Existing Lanes	1	3	1	2	3	1	1	1	1	1.5	0.5	1	0.68	0.79	B	C
39	Jamboree Rd / Coast Hwy																
	- Existing Lanes	1	2	0	1	2	F	3	4	0	2	4	1	0.85	0.74	D	C
40	Santa Cruz Dr / San Joaquin Hills Rd																
	- Existing Lanes	2	1	0	1	2	0	1	3	0	1	3	0	0.42	0.51	A	A
41	Santa Rosa Dr / San Joaquin Hills Rd																
	- Existing Lanes	1	1	1>	1	1	1	1	3	0	2	3	0	0.35	0.55	A	A
42	Newport Center Dr / Coast Hwy																
	- Existing Lanes	0	0	0	2	0	F	2	3	0	0	3	F	0.42	0.55	A	A
44	Avocado Av / San Miguel Dr																
	- Existing Lanes	1	1	1>	2	1	0	1	3	0	2	2	d	0.32	0.67	A	B
45	Avocado Av / Coast Hwy																
	- Existing Lanes	1	1	1	2	1	F	1	3	d	1	3	1	0.58	0.59	A	A
46	SR-73 NB Ramps / Bison Av																
	- Existing Lanes	1.5	0	1.5	0	0	0	1	2	0	0	2	1	0.42	0.45	A	A

TABLE 5-4: EXISTING & GENERAL PLAN IMPROVEMENT GEOMETRICS
GENERAL PLAN HOUSING ELEMENT UPDATE (RHNA) - PEAK HOUR INTERSECTION OPERATIONS

		Intersection Approach Lanes[1]												Peak Hour ICU (V/C)[2]		Peak Hour LOS[3]	
		Northbound			Southbound			Eastbound			Westbound						
ID	Intersection	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
47	SR-73 SB Ramps / Bison Av																
	- Existing Lanes	0	0	0	2	0	F	0	2	1	2	2	0	0.45	0.27	A	A
48	MacArthur Bl / Bison Av																
	- Existing Lanes	2	4	F	2	4	1>	2	2	F	2	2	1>	0.71	0.64	C	B
49	MacArthur Bl / Ford Rd																
	- Existing Lanes	2	4	F	2	4	F	2	2	1	2	2	F	0.79	0.80	C	C
	- General Plan Planned Improvements	2	4	F	**3**	4	F	2	2	1	2	2	F	0.73	0.71	C	C
50	MacArthur Bl / San Joaquin Hills Rd																
	- Existing Lanes	2	3	1	2	3	F	3	3	0	1	2	F	0.67	0.80	B	C
	- General Plan Planned Improvements	2	**4**	0	**3**	3	F	3	3	0	1	2	F	0.56	0.65	A	B
51	MacArthur Bl / San Miguel Dr																
	- Existing Lanes	2	3	1	2	3	1	3	2	d	2	2	d	0.62	0.58	B	A
52	MacArthur Bl / Coast Hwy																
	- Existing Lanes	0	0	0	2	0	F	2	3	0	0	3	F	0.58	0.68	A	B
53	SR-73 NB Ramps / Bonita Canyon Dr																
	- Existing Lanes	2	0	1	0	0	0	0	2	1	2	2	0	0.49	0.43	A	A
54	SR-73 SB Ramps / Bonita Canyon Dr																
	- Existing Lanes	2	0	1	0	0	0	1	2	1	2	3	0	0.44	0.39	A	A
55	San Miguel Dr / Spyglass Hill Rd																
	- Existing Lanes	1	2	d	1	2	d	0.5	0.5	1	1	1	0	0.37	0.39	A	A
56	San Miguel Dr / San Joaquin Hills Rd																
	- Existing Lanes	1	2	d	1	2	d	2	3	d	1	3	d	0.47	0.54	A	A
57	Goldenrod Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	0	1	2	0	1	2	0	0.75	0.71	C	C
58	Marguerite Av / San Joaquin Hills Rd																
	- Existing Lanes	1.5	0.5	1	1	1	0	1	2	1>	1	3	0	0.46	0.48	A	A
59	Marguerite Av / Coast Hwy																
	- Existing Lanes	1	1	0	1	1	0	1	2	1	1	2	d	0.70	0.73	B	C
60	Spyglass Hill Rd / San Joaquin Hills Rd																
	- Existing Lanes	1	1	0	1	1	0	1	2	1	1	2	1	0.47	0.34	A	A
61	Poppy Av / Coast Hwy																
	- Existing Lanes	0.5	0.5	0	0.5	0.5	0	1	2	d	1	2	0	0.66	0.63	B	B
62	Newport Coast Dr / SR-73 NB Ramps																
	- Existing Lanes	0	2	F	0	2	0	0	0	0	1.5	0	0.5	0.32	0.39	A	A
64	Newport Coast Dr / San Joaquin Hills Rd																
	- Existing Lanes	2	3	0	1	3	1	1	0	2>	0	0	0	0.56	0.50	A	A
65	Newport Coast Dr / Coast Hwy																
	- Existing Lanes	1	1	d	2	1	F	1	3	1	1	3	F	0.51	0.57	A	A
66	Newport Bl (W) / Coast Hwy																
	- Existing Lanes	0	0	0	2	0	1	0	2	F	0	3	F	**1.05**	0.83	**F**	D
	- General Plan Recommended Improvements	0	0	0	2	0	**F**	0	2	F	0	3	F	0.95	0.72	E	C
67	Orange / Coast Hwy																
	- Existing Lanes	0.5	0.5	1	0.5	0.5	1	1	3	D	1	3	1	**0.91**	0.77	**E**	C
	- General Plan Recommended Improvements:	0.5	0.5	**1>**	0.5	0.5	1	1	3	D	1	3	1	0.90	0.76	D	C

[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; F = 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.

[4] TS = Traffic Signal

Shaded = LOS E Acceptable

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

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5.6 RECOMMENDED INTERSECTION IMPROVEMENTS

Planned General Plan improvements from the 2006 General Plan have been included in the analysis, but additional recommended improvements (General Plan Recommended Improvements) have also been identified where needed to provide acceptable LOS. ICU calculation worksheets using recommended and alternative improvement geometrics beyond those already included in the General Plan are included in Appendix 5.3).

Exhibit 5-7 shows the intersection lanes required to provide acceptable LOS. For intersection #7 (Riverside at Coast Highway), several different options would provide acceptable LOS at intersection #7 (Riverside at Coast Highway):

- Option 1: Convert the southbound right turn lane to a free right turn lane, in addition to the planned improvements of an additional southbound left turn lane, a 2nd eastbound left turn lane and a 3rd eastbound through lane. Elimination of the existing westbound right turn lane will occur concurrently.
- Option 2: Closure of the south leg of the intersection, with replacement driveway located at the western edge of the property. Reconfigure the southbound movements to include 1 left turn lane and two right turn lanes with overlap phase. Add 2nd eastbound left turn lane, but the currently planned 3rd eastbound through lane would no longer be necessary. Elimination of the existing westbound right turn lane will occur concurrently. This would require designating LOS E acceptable.
- Option 3: Convert the southbound right turn lane to a free right turn lane, in addition to the planned improvements of an additional southbound left turn lane and a 3rd eastbound through lane. Elimination of the existing westbound right turn lane will occur concurrently. This would require designating LOS E acceptable.

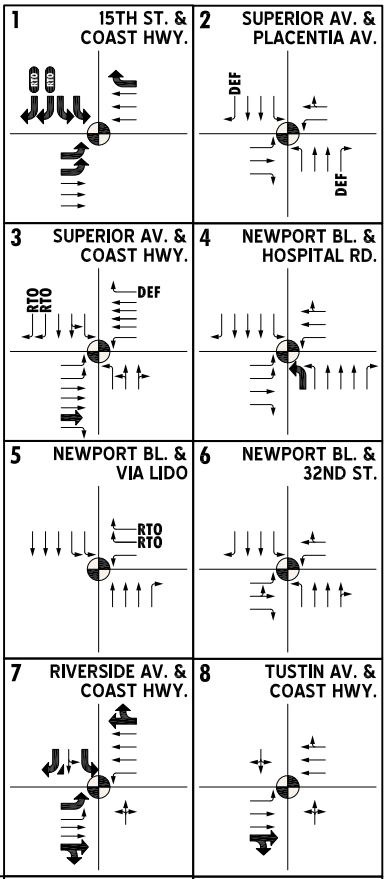
For intersection #66 (SB Newport Boulevard Off-Ramp at Coast Highway), converting the existing southbound right turn lane into a free right turn lane would provide LOS "E" conditions. It is recommended that the LOS criteria at this intersection be updated to LOS E conditions acceptable.

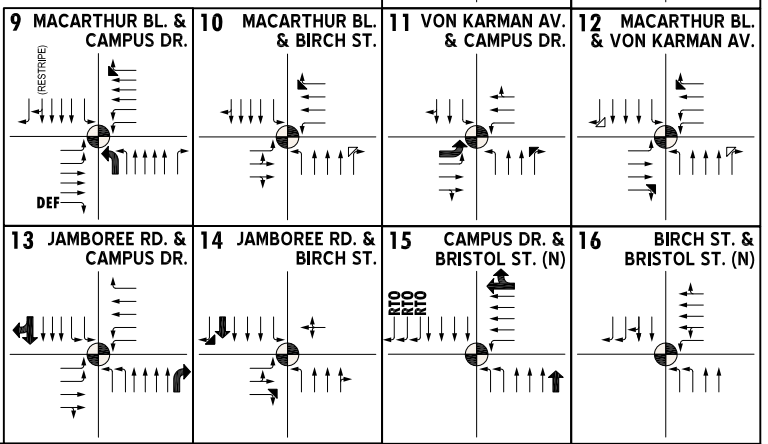
For intersection #67 (Orange at Coast Highway), providing northbound right turn overlap signal phasing would provide acceptable LOS conditions, or designate this intersection as LOS E acceptable per the 2006 General Plan Circulation Element.

EXHIBIT 5-7 (1 OF 2): INTERSECTION LANE REQUIREMENTS TO PROVIDE ACCEPTABLE LOS

LEGEND:

- (10) = INTERSECTION ID
- = TRAFFIC SIGNAL
- (S) = ALL WAY STOP
- = STOP SIGN
- = EXISTING LANE
- = EXISTING FREE RIGHT TURN
- = LANE IMPROVEMENT
- = FREE-RIGHT TURN LANE IMPROVEMENT
- RTO = EXISTING RIGHT TURN OVERLAP PHASE
- DEF = DEFACTO RIGHT TURN LANE
- RTO = RIGHT TURN OVERLAP PHASING IMPROVEMENT





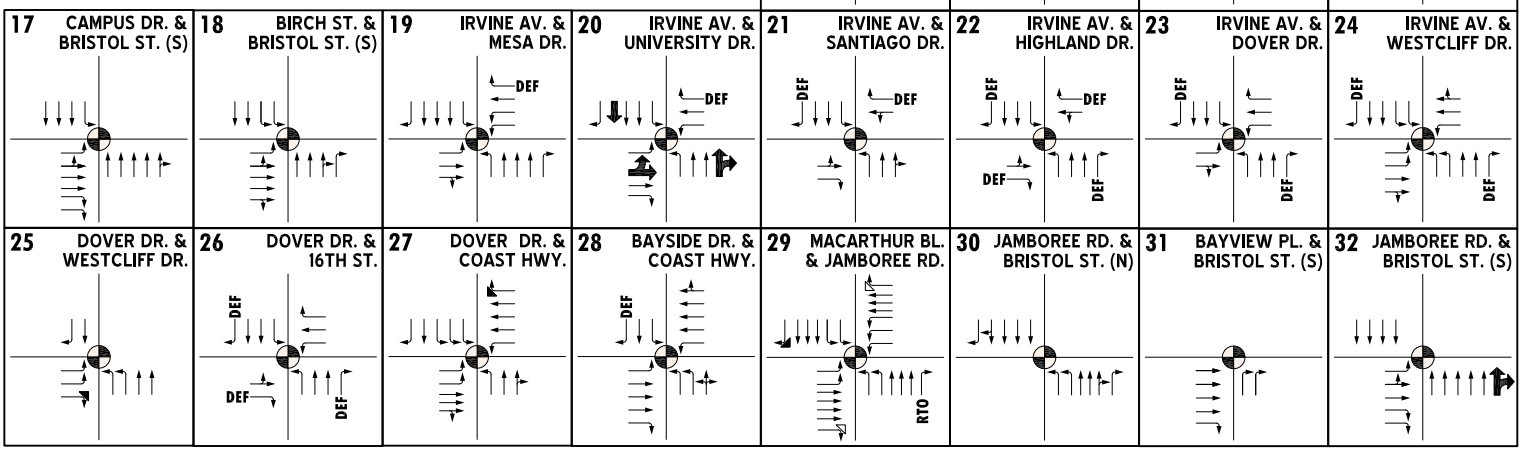
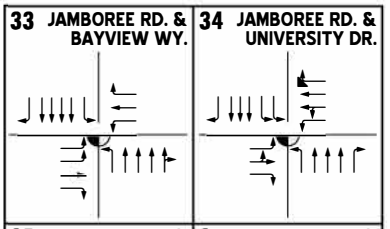
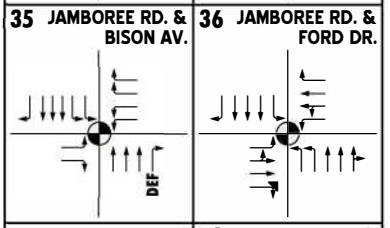
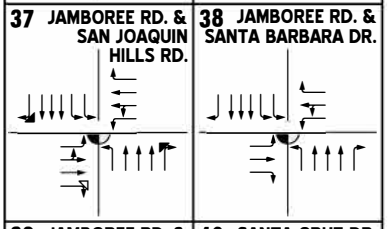
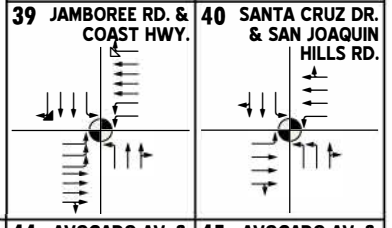


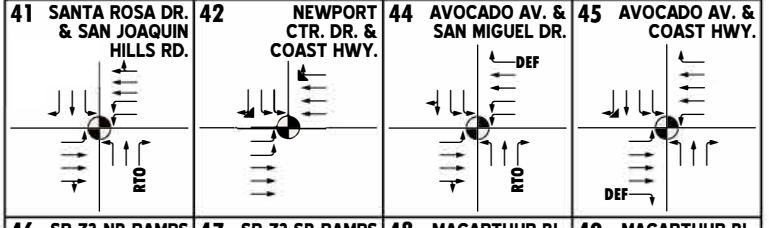
EXHIBIT 5-7 (2 OF 2): INTERSECTION LANE REQUIREMENTS TO PROVIDE ACCEPTABLE LOS

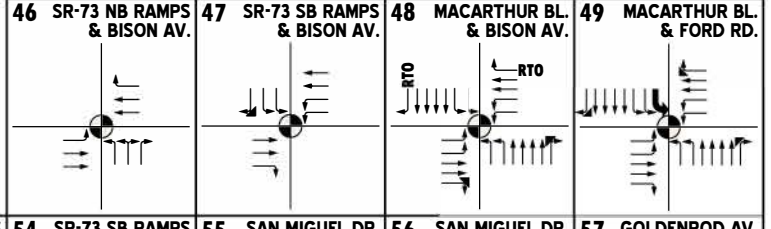






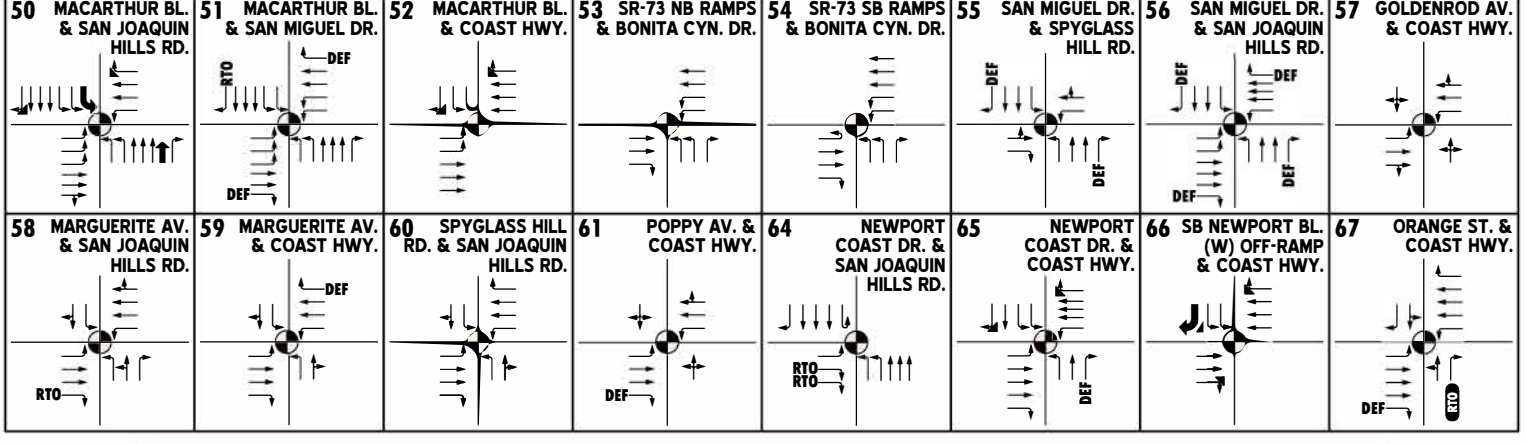






LEGEND:

- (10) = INTERSECTION ID
- = TRAFFIC SIGNAL
- (S) = ALL WAY STOP
- = STOP SIGN
- = EXISTING LANE
- = EXISTING FREE RIGHT TURN
- = LANE IMPROVEMENT
- = FREE-RIGHT TURN LANE IMPROVEMENT
- RTO = EXISTING RIGHT TURN OVERLAP PHASE
- DEF = DEFACTO RIGHT TURN LANE
- (RTO) = RIGHT TURN OVERLAP PHASING IMPROVEMENT



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6.0 CONCLUSIONS AND IMPROVEMENT NEEDS

The 10,087 dwelling units analyzed for the General Plan Housing Element Update (HEU) project are estimated to generate approximately 5,447 AM peak hour trips, 7,162 PM peak hour trips, and 83,823 daily trips throughout the City of Newport Beach. The introduction of residential into an area with predominantly existing employment use balances the land uses in the area and traffic volume increases may not be as substantial as expected.

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. The additional traffic volume from residential uses in a jobs-oriented environment generally occurs in directions where lane movements are less constrained in the peak hours.

Traffic is captured internally to individual Focus Areas (e.g. Airport Area and Newport Coast), and also interacts between Newport Center and the Airport Area, Newport Center and Coyote Canyon, and Newport Center and Banning Ranch / West Newport Mesa.

For Project traffic interacting with areas located outside the City of Newport Beach, volumes are focused westerly via Coast Highway and Superior Avenue, northerly via MacArthur Boulevard and Jamboree Road and along the SR-73 Freeway.

Average Daily Traffic (ADT) volumes for Newport Beach General Plan Housing Element Update (HEU) in the Airport Area increase by almost 2,500 vehicles per day (VPD) on certain segments between 2006 General Plan Baseline (Buildout Land Use), and Newport Beach General Plan Housing Element Update (HEU) conditions.

In the western portion of the City of Newport Beach, near Banning Ranch and West Newport Mesa, the highest volume increases between 2006 General Plan Baseline (Buildout Land Use) and Newport Beach General Plan Housing Element Update (HEU) conditions occur on Coast Highway west of Superior Avenue and on Superior Avenue north of Coast Highway.

Daily traffic volumes along Coast Highway between Newport Boulevard and Bayside Drive increase by up to 1,700 VPD.

Newport Center Focus Area volume increases of up to 1,500 VPD are shown along Jamboree Road, Santa Barbara Drive, MacArthur Boulevard, and Coast Highway. Segments providing access between Newport Center Focus Area and other parts of the City of Newport Beach and beyond (such as Coast Highway west of Jamboree Road and Jamboree Road north of San Joaquin Hills Road) have volume increases of almost 2,500 VPD.

MacArthur Boulevard between SR-73 and Bonita Canyon Drive, Bonita Canyon Drive east of MacArthur Boulevard, and San Joaquin Hills west of Newport Coast Drive experience increased traffic volumes in the vicinity of Coyote Canyon Focus Area.

For existing (2021) conditions, arterials in the study area generally appear to operate at an acceptable level except for the following locations:

- Campus Drive east of Jamboree Road
- Bristol Street North west of Campus Drive
- Bristol Street South west of Jamboree Road
- Irvine Avenue south of Del Mar Avenue
- Irvine Avenue north of 22nd Street
- Dover Drive east of 19th Street
- Coast Highway east of Newport Boulevard
- Coast Highway west of Dover Drive
- Bison Avenue east of SR-73 Tollway
- MacArthur Boulevard south of Bison Avenue
- Jamboree Road south of Ford Road
- MacArthur Boulevard south of Ford Road
- Bonita Canyon Drive east of MacArthur Boulevard
- Coast Highway between MacArthur Boulevard and Poppy Avenue

The following arterial segments are estimated to serve future volumes that exceed their theoretical planning level capacity for both 2006 General Plan Baseline (Buildout Land Use) and Newport Beach General Plan Housing Element Update (HEU) conditions:

- Newport Boulevard north of Coast Highway
- Coast Highway between Newport Boulevard and Dover Drive
- Coast Highway between Dover Drive and Bayside Drive
- Irvine Avenue south of Del Mar Avenue
- Dover Drive east of Irvine Avenue
- Campus Drive east of Jamboree Road
- Bristol Street North west of Campus Drive
- Bristol Street South west of Jamboree Road
- Jamboree Road between Bristol Street South and University Road
- Jamboree Road, between Ford Road & San Joaquin Hills Road
- MacArthur Boulevard between Bison Avenue and San Joaquin Hills Road
- Bonita Canyon Drive east of MacArthur Boulevard
- Coast Highway between MacArthur Boulevard and east of Poppy Avenue

Additional segments that exceed their theoretical planning level capacity under Newport Beach General Plan Housing Element Update (HEU) conditions:

- Irvine Avenue north of Santiago Drive
- Irvine Avenue south of Highland Drive

- MacArthur Boulevard between SR-73 and Bison Avenue

Based on the intersection LOS performance criteria, all study area intersections experience acceptable operations for existing (2021) conditions. The following intersections are estimated to experience unacceptable operations during peak hours for both 2006 General Plan Baseline (Buildout Land Use) and Newport Beach General Plan Housing Element Update (HEU) conditions using existing lanes:

- Superior Avenue at Coast Highway (AM)
- **Riverside Avenue at Coast Highway (AM/PM)**
- Tustin Avenue at Coast Highway (AM)
- Irvine Avenue at University Drive (AM/PM)
- **SB Newport Boulevard Off-Ramp at West Coast Highway (AM)**

Anticipated "General Plan Planned Improvements" improve 2 of the 5 deficient intersections to acceptable levels. The two locations displayed in bold in the list above represent a deficiency which remains after defined General Plan improvements are added to General Plan Housing Element Update (HEU) conditions (if there are General Plan improvements at that location).

One additional intersection experiences unacceptable operations for Newport Beach General Plan Housing Element Update (HEU) conditions using existing lanes:

- **Orange at Coast Highway (AM)**

Intersection lane improvements for Newport Boulevard West at Coast Highway, Riverside Avenue at Coast Highway, and Orange at Coast Highway are recommended in addition to those currently planned.

A potential change of designation to LOS E acceptable may be considered where proposed improvements might not be feasible. If the determination is made to update the acceptable LOS, the Circulation Element policy would need to be revised.

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