

Appendix N
Traffic Study



Appendices

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IRVINE BUSINESS COMPLEX VISION PLAN
Traffic Study

Prepared for:



City of Irvine

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to facilitate double sided printing



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ES.1 EXECUTIVE SUMMARY

ES.1.1 Introduction

This traffic study has been prepared to address potential impacts from implementation of the Irvine Business Complex (IBC) Residential Mixed Use Vision Plan and Overlay Zoning Code. The analysis focused on the identification of potential traffic impacts on the current circulation system as it is transformed into a mixed-use community from its current offerings of office, commercial, and industrial uses. Under consideration is a General Plan and Zoning Code Amendment to establish a cap of 15,000 dwelling units (DU) for the IBC area, with a corresponding reduction of non-residential square footage. Since it is assumed that known pending units (with the exception of 776 units at Park Place projected to be built by Post-2030) will be completed by 2015 and the remaining units will be completed Post-2030, this traffic study provides an assessment of the existing conditions without project, existing conditions with project, and six different future scenarios.

The total residential units approved under the current General Plan maximum are 9,015 (based on 4,779 existing, 1,814 under construction, and 2,422 approved but not yet constructed). The proposed new maximum would be 15,000 residential units, thereby allowing for an additional 5,985 units (consisting of 2,035 units currently in process and 3,950 potential new units). These figures are exclusive of additional density bonus units, which are exempt by state law from local intensity limitations. There are currently 232 existing density bonus units, 78 under construction, 130 approved but not yet built and 215 within current pending projects. Moreover, assuming the density bonus potential for each of the 3,950 potential new units is maximized at 35 percent of the base total, an additional 1,383 density bonus units are possible, for a total of 2,038 density bonus units above the 15,000-unit cap. This overall total of 17,038 units (15,000 base plus 2,038-density bonus) is the total unit count analyzed in this traffic study. There are no current applications pending for the potential 3,950 units (and 1,383 associated density bonus units), thus the location, density, and design are unknown at this time.

Project Description: General Plan and Zoning Code Amendment:

- **Cap of 15,000 dwelling units for the IBC (exclusive of 2,038 density bonus units exempt by state law)**
- **Represents increase of 5,985 units (consisting of 2,035 units currently in process and 3,950 potential new units) above current General Plan cap of 9,015 units.**
- **Conversion of office, manufacturing, and/or warehouse uses to retail use to accommodate demand from current and planned residential development.**
- **Build-out of remaining non-residential zoning potential.**
- **Recycling of under-utilized land uses to higher intensity uses.**
- **Overall total of 17,038 units (15,000 base plus 2,038 density bonus) is total unit count analyzed in this traffic study.**

By 2015

- **Buildout of 1,259 known pending units and associated 215 density bonus units**
- **Buildout of known pending non-residential projects**
- **No additional Transfers of Development Rights (TDRs) proposed beyond those proposed as part of known pending projects,**

By Post-2030

- **Buildout of 3,950 potential new units and associated 1,383 potential density bonus units, plus additional 776 approved units at Park Place.**
- **Conversion of office, manufacturing, and/or warehouse uses to retail use to accommodate demand from current and planned residential development.**
- **Build-out of remaining non-residential zoning potential.**
- **Recycling of under-utilized land uses to higher intensity uses.**
- **No additional TDRs proposed beyond current originating traffic analysis zones (TAZs)**



These potential residential units are assumed in the traffic study to be located within the same geographical area in which existing zoning potential is identified.

ES.1.2 Analysis Scope and Methodology

This traffic study has been prepared to address potential impacts due to an influx of residential uses in the IBC area using the prescribed methodologies of each of the six jurisdictions involved. The study has been developed by the City of Irvine, in which the IBC is located. The key traffic study components can be summarized as follows:

- Analysis of current, near-term (2015), and buildout (Post-2030) traffic conditions in the IBC area, as well as adjacent intersections in the Cities of Irvine, Tustin, Santa Ana, Newport Beach, and Costa Mesa and Caltrans
- Assessment of traffic analysis performance criteria for each jurisdiction
- Peak hour Intersection Capacity Utilization (ICU) analysis for study area intersections
- Daily and peak hour arterial segment analysis for study area arterial segments
- Peak hour volume/capacity (V/C) and Highway Capacity Software (HCS) analysis for study area freeway segments and ramps
- Development of tables and figures to summarize and graphically depict circulation system performance under existing conditions and five other project alternatives plus two additional buildout alternatives
- Identification of timing of mitigation measure requirements and summary of levels of service under mitigated conditions (where feasible)
- Evaluation of funding requirements and fair-share percentages for identified mitigation measures and implementation mechanism for improvements

To assess the impact of the land use changes from the implementation of the General Plan Amendment (GPA) for the IBC Vision Plan, a total of eight alternatives were analyzed:

- Existing Conditions
 - Current ground counts
 - With Proposed Project
- 2015 Scenarios
 - Cumulative
 - Baseline Without Proposed Project (existing land uses on the ground within IBC area)
 - With Proposed Project
- Post-2030 Scenarios
 - Cumulative
 - Baseline Without Proposed Project (existing land uses on the ground within IBC area)
 - With Proposed Project
 - Existing General Plan Buildout
 - With Proposed Project (MPAH Network)

The Existing Conditions Plus Project assessment is a requirement under the California Environmental Quality Act (CEQA).

ES.1.3 Project Related Traffic Impacts

Roadway System Deficiencies

Individual arterial segments that operate at a deficient LOS under daily conditions within the City of Irvine are candidates for peak hour analysis to determine performance during the AM and PM peak hour. The peak hour analysis conducted for each of the forecast future scenarios showed no arterial segments operating at a deficient level in either peak hour within the City of Irvine. Hence, no further analysis or mitigation is required. For arterial segments within the Cities of Newport Beach, Costa Mesa, and Tustin, daily arterial segment LOS analysis is valuable for long-range planning purposes but these Cities do not assess segment deficiencies under daily conditions. Deficiencies are assessed at intersections at either end of the arterial segment. Intersection deficiencies



for the IBC Vision have been assessed and conclusions discussed in the next section. Hence, there are no arterial segment deficiencies or project related impacts expected in future forecast scenarios for locations within Newport Beach, Costa Mesa, and Tustin. For the City of Santa Ana, daily arterial volume-to-capacity ratio (V/C) is used to assess deficiencies in the arterial network. An increase of 0.01 or more of the daily V/C ratio constitutes a project impact when compared with the no project conditions.

For arterial segments within the City of Santa Ana, daily arterial LOS analysis showed that the segment of MacArthur Boulevard, from Main Street to SR-55 has a significant project related impact under the Post-2030 future forecast conditions and will require mitigation.

MacArthur Boulevard between Main Street and SR-55 cannot be mitigated to below a level of significance without upgrading the road classification from a Major Arterial to a Principal Arterial. Reclassification would provide one additional lane in each direction and potentially require an amendment to the City of Santa Ana General Plan. This forecast deficiency constitutes a project related significant impact according to the City of Santa Ana's performance criteria. The City of Irvine is responsible for a fair-share of this improvement for the Post-2030 future scenario.

Intersection Deficiencies

Intersection analysis was conducted for all intersections within the defined IBC Vision study area, with additional intersections added to the original 1992 IBC Vision Plan study area at the request of adjacent jurisdictions. For each jurisdiction, the established and published criteria for evaluating significant impacts have been employed in this study. Project impacts are identified for the study area using the methodology for each respective jurisdiction.

For intersections with a project related significant impact, the Project would be responsible for its fair-share to improve the intersection back to an acceptable level of service (or existing conditions if the intersection is currently deficient). Cumulative deficiencies (where the intersection is deficient under future conditions with no project related impact) are also evaluated but the project is not responsible for a fair-share of the cost of the improvement. The project impacts are determined using the definition of significant impacts from each city's traffic impact analysis protocol, discussed in **Chapter 2**.

ES.1.4 Fair-share

The fair-share methodology is applied to locations for which the project is responsible for paying its fair-share of the cost of the arterial segment or intersection improvement. For significant project related impacts outside the City of Irvine for future scenarios, the cost of improvements would be on a fair-share basis. For intersections within the City of Irvine where there is a significant project related impact under the future scenarios, the improvement would be the full responsibility of the project. Cumulative deficiencies are identified as those intersections that fail in both the No Project and With Project conditions but do not have a project impact. Therefore, the Project will not be contributing toward improvements on cumulative deficient intersections. For significant project related impacts to arterial segments outside the City of Irvine in the future forecast scenarios the cost of improvements would be on a fair-share basis. Further discussion of fair-share is presented in **Chapter 6**.

To determine the fair-share cost allocation for each deficient intersection and arterial segment, fair-share analysis was conducted under each scenario. As the fair-share varied by project scenario, for cost assessment purposes, the highest forecast fair-share percentage for each intersection was reported. The cost of proposed improvements will be presented in a supplemental nexus report, subsequent to the finalization of the IBC Vision Environmental Impact Report (EIR). Under future forecast conditions there are a number of deficient intersections. **Table ES 1.1** demonstrates the deficiencies, project impacts, and fair-shares under each future scenario.



Table ES.1.1: Intersection/Arterial Segment Project Impacts/Cumulative Deficiencies

ID	Intersection	Jurisdiction	IBC Vision With Project (2015)		IBC Vision With Project (Post-2030)		Fair-share		
			Cumulative Deficiency	Project Impact	Cumulative Deficiency	Project Impact	2015 With Project	Post-2030 With Project	Expected Share (Vision Plan)
10	SR-55 Frontage Road SB Ramps at Paularino	CM			X				No Share
12	SR-55 SB Frontage Road at Baker Street	CM				X		8.0%	8.0%
13	SR-55 NB Frontage Road at Baker Street	CM				X		8.7%	8.7%
62	Campus Drive at Bristol Street NB	NB		X		X	29.8%	30.2%	30.2%
85	MacArthur Boulevard at Birch Street	NB				X		19.6%	19.6%
543	Bristol Street at Segerstrom Avenue	SA				X		12.7%	12.7%
723	Main Street at Dyer Road (Segerstrom Avenue)	SA				X		21.0%	21.0%
730	Grand Avenue at Warner Avenue	SA				X		15.8%	15.8%
3	Newport Avenue at Edinger Avenue	Tus			X				No Share
24	Newport Avenue at Walnut Avenue	Tus				X		6.3%	6.3%
36	Red Hill Avenue at El Camino Real	Tus	X						No Share
93	Tustin Ranch Road at El Camino Real	Tus		X		X	2.1%	0.1%	2.1%
111	Franklin Avenue at Walnut Avenue	Tus	X		X				No Share
134	Loop Road/Park Avenue at Warner Avenue	Tus		X		X	2.5%	11.6%	11.6%
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue	Tus	X						No Share
754	Red Hill Avenue at Carnegie Avenue/A Street	Tus				X		7.3%	7.3%
136	Jamboree Road at Barranca Avenue	Irv				X		100.0%	100.0%
141	Jamboree Road at Main Street	Irv				X		100.0%	100.0%
145	Jamboree Road at Michelson Drive	Irv		X		X	100.0%	100.0%	100.0%
188	Harvard Avenue at Michelson Drive	Irv			X			100.0%	100.0%
232	Culver Drive at I-405 NB Ramps	Irv				X		100.0%	100.0%
ID	Arterial Segment	Jurisdiction	IBC Vision With Project (2015)		IBC Vision With Project (Post-2030)		Fair-share		
			Cumulative Deficiency	Project Impact	Cumulative Deficiency	Project Impact	2015 With Project	Post-2030 With Project	Expected Share (Vision Plan)
1884	MacArthur between Main Street and SR-55 SB	SA				X		31.1%	31.1%



ES.1.5 Mitigation Strategies

The IBC Vision Traffic Study has proposed improvements for all intersections within the study area with a significant project related impact as well as all forecast cumulative deficiencies. The project is responsible for contributing its fair-share to future improvements at intersections where the project has a significant impact outside the City of Irvine. Proposed mitigation strategies have utilized other studies in adjacent jurisdictions and have been vetted through site analyses to propose improvements that are feasible and reasonable. **Table ES 1.2** displays the mitigation strategies for each deficient intersection within the IBC study area.

Table ES.1.2: Mitigation Strategies

Intersection ID #	Intersection Name	Jurisdiction	Improvement Strategy
2015 Project Impacts and Cumulative Deficiencies			
145	Jamboree Road at Michelson Drive (project impact)	Irvine	Add 3rd SB and EB left turn lanes (No WBT lane needed)
62	Campus Drive at Bristol Street NB (project impact)	NB	Apply Newport Beach's General Plan buildout improvement of 5th WBT lane
36	Red Hill Avenue at El Camino Real (cumulative deficiency)	Tustin	Reconfigure SB to 1.5,2.5,0
93	Tustin Ranch Road at El Camino Real (project impact)	Tustin	Add 4th SBT lane, Restripe EB to 1,0.5,1.5
111	Franklin Avenue at Walnut Avenue (cumulative deficiency)	Tustin	Add 3rd WBT lane
134	Loop Road/Park Avenue at Warner Avenue (project impact)	Tustin	Add 3rd EBT lane
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue (cumulative deficiency)	Tustin	Reconfigure SB to 1,1.5,1.5
P-2030 Impacts and Cumulative Deficiencies			
10	SR-55 Frontage Road SB Ramps at Paularino (cumulative deficiency)	CM	Improve SB to 1.5, 1, 0.5
12	SR-55 SB Frontage Road at Baker Street (project impact)	CM	Improve SB to 1.5, 1.5, 1, Restripe EB to 0, 2.5, 0.5
13	SR-55 NB Frontage Road at Baker Street (project impact)	CM	Restripe EB to 1,3,0, Add defacto NBR turn lane
141	Jamboree Road at Main Street (project impact)	Irvine	Improve NB and SB to 2.5,1, Change WB free right to WBR turn lane
145	Jamboree Road at Michelson Drive (project impact)	Irvine	Add 3rd EBL turn lane, 3rd SBL turn lane, and WBT lane
188	Harvard Avenue at Michelson Drive (cumulative deficiency)	Irvine	Add 2nd SBL turn lane
232	Culver Drive at I-405 NB Ramps (project impact)	Irvine	Restripe WB to 1.5,0,1.5
136	Jamboree Road at Barranca Avenue (project impact)	Irv/Tustin	Convert free NBR to standard right-turn, Add 5th NBT lane
62	Campus Drive at Bristol Street NB (project impact)	NB	Add 3rd SBR turn lane
85	MacArthur Boulevard at Birch Street (project impact)	NB	Improve EB to 2 EBL turn lanes and 2 EBT lanes
543	Bristol Street at Segerstrom Avenue (project impact)	SA	Add 3rd EBT and WBT lanes (Alternative 1), Add 4th NBT and SBT lanes (Alternative 2)
723	Main Street at Dyer Road (Segerstrom Avenue) (project impact)	SA	Add 3rd NBT lane, defacto NBR turn lane
730	Grand Avenue at Warner Avenue (project impact)	SA	Add 3rd WBT lane
1884*	MacArthur Boulevard between Main Street and SR-55 Southbound (project impact)	SA	Improve 6 lane divided arterial segment to 8 lane divided arterial segment
3	Newport Avenue at Edinger Avenue (cumulative deficiency)	Tustin	Convert SBR turn lane to Free Right turn lane
24	Newport Avenue at Walnut Avenue (project impact)	Tustin	Add defacto NBR turn lane and defacto WBR turn lane
93	Tustin Ranch Road at El Camino Real (project impact)	Tustin	Add 4th SBT lane, Restripe EB to 1,0.5,1.5
111	Franklin Avenue at Walnut Avenue (cumulative deficiency)	Tustin	Add 3rd WBT lane
134	Loop Road/Park Avenue at Warner Avenue (project impact)	Tustin	Add 3rd EBT lane
754	Red Hill Avenue at Carnegie Avenue/A Street (project impact)	Tustin	Add 4th NBT lane

* Arterial Segment Impact and Mitigation Strategy



Freeway/Tollway Mainline and Ramp Improvements

Since the City has no jurisdiction to implement the improvements on the Caltrans facilities and the required improvements are largely the result of background regional traffic, coordination between the City of Irvine and Caltrans is necessary to reach consensus on potential improvement measures. Any improvements identified would require a statement of overriding considerations in the Environmental Impact Report. Irvine will coordinate with Caltrans in the development of feasible alternative improvements such as Intelligent Transportation Strategies (ITS) that reduce congestion on freeway mainlines and ramps.

ES.1.6 MPAH and General Plan Amendment

The City of Irvine General Plan Circulation Element identifies certain roadway configurations that are no longer needed as determined in the IBC Vision Plan; therefore a General Plan Amendment subsequent to the approval of the IBC Vision EIR will downgrade arterial roadways as needed. The City of Irvine intends to downgrade the following arterial segments as a General Plan Amendment to the Circulation Element:

- Barranca Parkway between Red Hill Avenue and Jamboree Road (downgrade from 8-lane divided roadway to 7-lane divided roadway)
- Jamboree Road between Barranca Parkway and McGaw Avenue (downgrade from a 10-lane divided roadway to a 8-lane divided roadway)
- Main Street between Red Hill and Harvard (downgrade from 6-lane divided arterial with 2 auxiliary lanes to 6-lane divided roadway)
- MacArthur Boulevard between Fitch and Main Street (downgrade from 8-lane divided roadway to 7-lane divided roadway)
- Red Hill Avenue between Barranca Parkway and Main Street (downgrade from an 8-lane divided roadway to a 6-lane roadway)
- Alton Avenue between Red Hill Avenue and Jamboree Road (downgrade from a 6-lane divided roadway to 4-lane divided roadway)*
- Von Karman Avenue between Barranca Parkway and Michelson (downgrade from 6-lane roadway to 4-lane roadway)*

The arterial segment of Alton Parkway between Red Hill Avenue and Jamboree Road as well as the segment of Von Karman Avenue between Barranca Parkway and Michelson Drive as identified with an asterisk in the list above, are programmed into both the City of Irvine's General Plan and the Orange County Master Plan of Arterial Highways (MPAH). Both roadways are currently 4-lane roadways and expected to remain as 4-lane roadways in the future. Both the City's General Plan and the Orange County MPAH currently have these two segments programmed as 6-lane divided arterials in the buildout condition. The IBC Vision Plan traffic study has determined that 6 lanes are unnecessary for both of these roadway segments under buildout conditions. Thus, the City of Irvine will initiate an MPAH Amendment by entering into a cooperative study with the Orange County Transportation Authority (OCTA) to determine the feasibility of downgrading both Alton Parkway and Von Karman Avenue. Once this study is complete, both agencies can move forward with amendments to the General Plan and MPAH to downgrade both Alton Parkway between Red Hill Avenue and Jamboree Road as well as Von Karman Avenue between Barranca Parkway and Michelson Drive.

Additionally, the City of Irvine intends to remove the following interchange improvements:

- Alton Avenue Overcrossing at the SR-55 freeway with High Occupancy Vehicle (HOV) drop ramps
- Von Karman Avenue at the I-405 freeway HOV drop ramps

These interchange improvements are programmed in the Orange County MPAH as buildout improvements. However, the IBC Vision Plan traffic study has determined that these interchanges are unnecessary under build-out conditions. The City of Irvine will initiate an MPAH Amendment by entering into a cooperative study with OCTA and the affected local agencies to determine the feasibility of removing these interchange improvements from the MPAH.



1.0 INTRODUCTION

The Irvine Business Complex (IBC) Vision Plan Traffic Study has been prepared to address potential impacts due to an influx of residential uses to the IBC area. The analysis will focus on the identification of traffic impacts on transportation infrastructure as the IBC is transformed into a mixed-use community from its current offerings of mostly office and industrial uses. Under consideration is a General Plan Amendment and Zoning Code to provide for 15,000 dwelling units (DU) in the IBC, with a corresponding reduction of non-residential office equivalency square footage. Since it is assumed that known pending units (with the exception of 776 units at Park Place projected to be built by Post-2030) will be completed by 2015 and the remaining units will be completed Post-2030, this traffic study provides an assessment of existing conditions with and without the proposed project and six future scenarios, two each in 2015 and Post-2030, and two alternative buildout scenarios, discussed in **Chapter 7**.

Based on the shift in land uses within the IBC, an assessment of circulation system deficiencies throughout the study area are performed. As part of the mitigation for the General Plan Amendment and Zoning Code, a list of improvements will be recommended to ensure acceptable operating conditions throughout the study area with implementation of the IBC Vision. **Table 1.1** displays the land use quantities for the IBC Vision area for the various horizon years and scenarios studied.

Table 1.1: IBC Vision Plan Land Use

Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2008 With Project	17,038	1,731	2,880	33,716	13,180	164	598
2015 Cumulative Baseline No Project	5,011	1,341	2,322	26,381	14,701	348	174
2015 Cumulative With Project	10,929	1,482	2,572	27,810	14,196	348	598
Post-2030 Cumulative Baseline No Project	5,011	1,341	2,322	26,381	14,701	348	174
Post-2030 Cumulative With Project	17,038	1,731	2,880	33,716	13,180	164	598
Post-2030 Existing General Plan	9,455	1,637	2,630	36,034	14,724	450	476

Source: City of Irvine

* Note: Multi-family residential unit totals include density bonus units.

1.1 Purpose

The Irvine Business Complex (IBC) Vision Project evaluates an influx of residential uses to the IBC area. The traffic analysis will focus on identifying the appropriate infrastructure to serve the IBC as it transforms into a vibrant mixed-use community. Previous traffic studies that have explored the IBC and its impact on the surrounding circulation system include the *Irvine Industrial Complex—West EIR (Community Planning Services for the City of Irvine/Department of Community Development, 1982)*, the *IBC Supplemental EIR (Community Planning Services, City of Irvine, 1985)*, the *Conservation and Open Space EIR (Austin-Foust Associates, Inc., 1989)*, additional studies in 1989, and the *IBC General Plan Amendment and Rezoning Project EIR (Austin-Foust Associates, Inc., 1992)*.

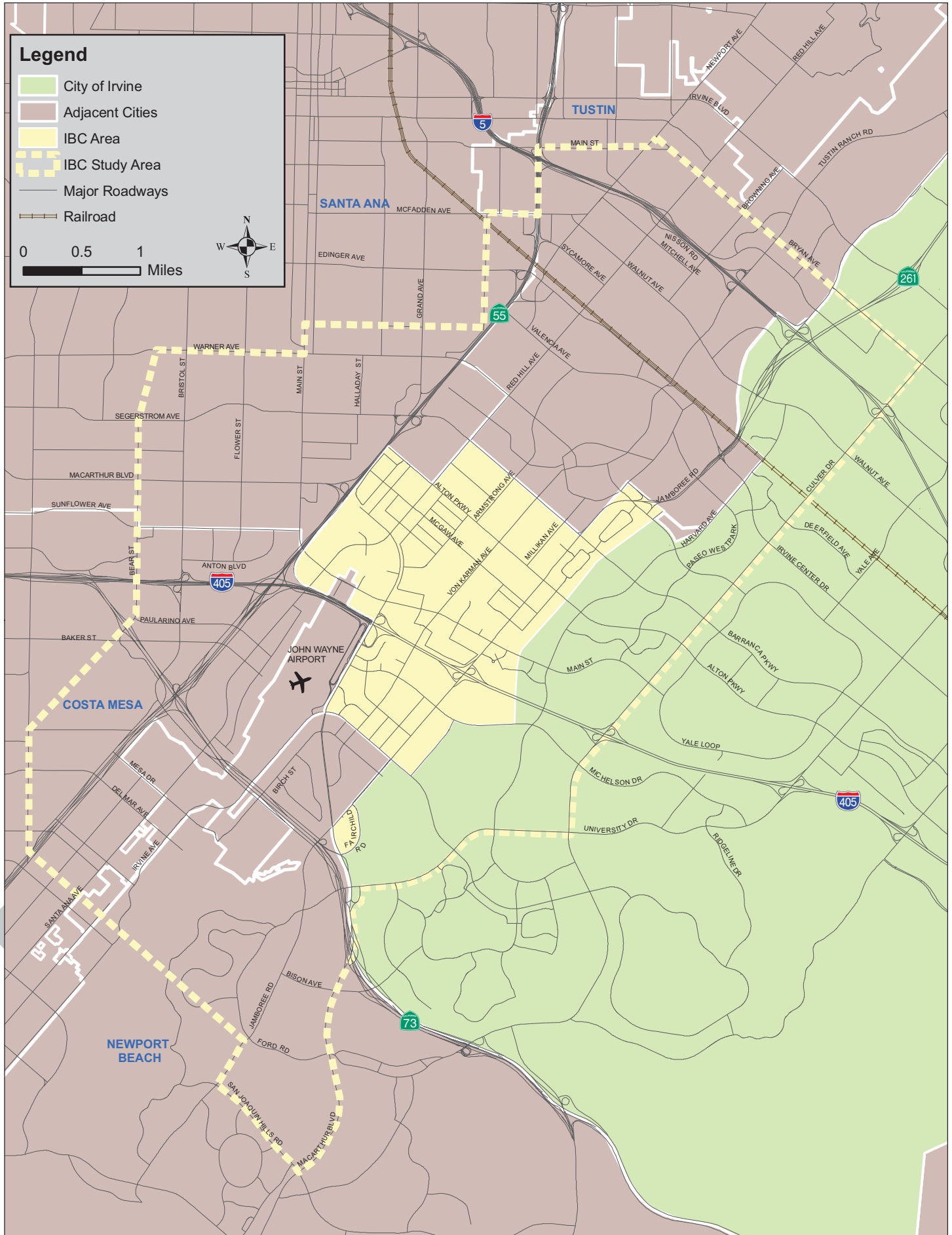
1.2 Study Area

The Irvine Business Complex, also referred to within the City of Irvine as Planning Area 36, is a fast developing mixed-use area that encompasses approximately 2,800 acres and located wholly within the City of Irvine. The IBC Vision study area consists of the current boundaries of the IBC and its surroundings in the City of Irvine, as well as the Cities of Newport Beach, Tustin, Santa Ana, Costa Mesa, and unincorporated Orange County. Additionally, the entirety of the “airport area” of Newport Beach is incorporated into the study area. To determine appropriate study area limits, a peak hour difference plot was developed between the No Project and With Project model runs and the extent to which project related trips were originating and terminating formed the study area boundaries. The study area boundaries extend south of Ford Road within the City of Newport Beach to encompass the intersections at



Jamboree Road and San Joaquin Hills Road and MacArthur Boulevard and San Joaquin Hills Road. These intersections, along with those along Bryan Avenue between Newport Avenue in the City of Tustin and Culver Drive in the City of Irvine were added to the IBC study area at the request of the Cities adjacent to the IBC. **Figure 1.1** displays the study area with studied intersections highlighted. The study area is served by five freeways, SR-73, SR-55, I-405, I-5, and SR-261.

Figure 1.1: IBC Vision Plan Study Area



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1.3 Project Description

The IBC Vision Plan Traffic Study analyzes the potential impacts on the circulation system based on the proposed amendment to the City of Irvine General Plan, placing a 15,000 dwelling unit limit (plus a maximum of 2,038 density bonus units pursuant to state law) on the residential development in the IBC area. The analysis presents areas of deficiency in the existing circulation system and future circulation systems and offers recommended mitigations to allow for a return to acceptable levels of service (LOS) or to the without project condition within the study area.

1.4 Transfer of Development Rights

Since 1992, the IBC Planning Area has had provisions in place to allow for Transfers of Development Rights (TDRs) through the creation of a trip budget system in which an allocation of AM, PM and ADT trip budget were assigned to each property in the IBC. Portions of these budgets could be transferred to other properties through a conditional use permit process and accompanying traffic study. In this manner, the overall IBC trip cap would be maintained, but would still allow developers the flexibility to build the types of projects they desire. Although the land use assumptions for the Vision Plan will supersede the 1992 assumptions, the existing TDRs and trip budgets will remain in place. The current IBC trip budget database will not change as a result of the IBC Vision Plan; however, as new land uses are proposed, the database will be updated accordingly and reconciled with the City's traffic model, which assumes buildout of the land use assumptions of the Vision Plan. Pending TDRs are assumed in the traffic analysis and the pending TDR assumptions are summarized in **Appendix J**.

1.5 Land Use Changes

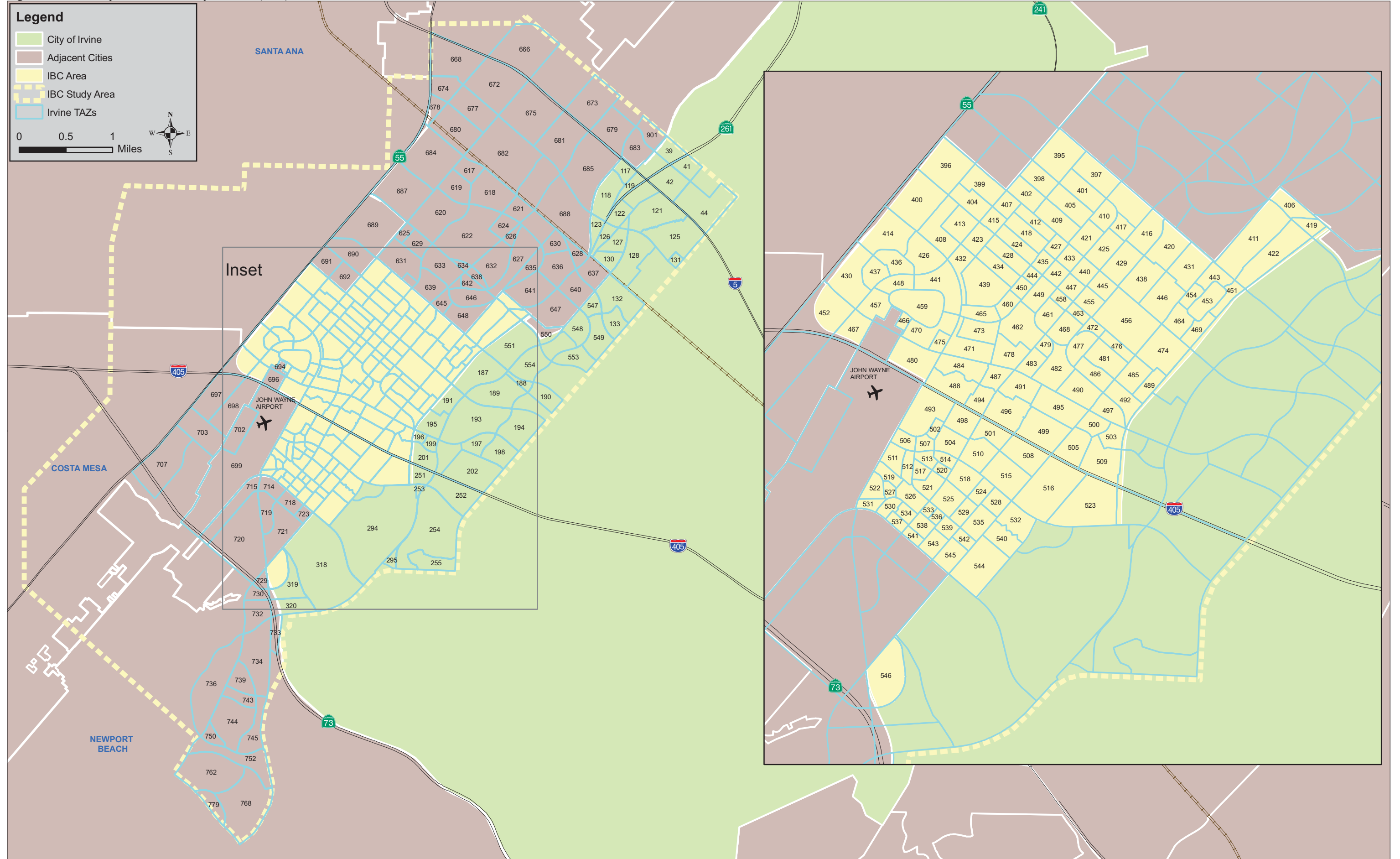
The General Plan Amendment and Zoning Code changes proposed by the City of Irvine for the IBC area are as follows:

- New cap on residential units would allow for 5,985 additional dwelling units (DU) in the IBC beyond which are currently approved. Currently, there are 4,779 existing residential units, 1,814 units under construction, and 2,422 residential units approved, for a total of 9,015 units, representing the present General Plan cap.
- The 5,985 additional dwelling units include 2,035 currently pending projects and 3,950 additional potential units. There are no current applications pending for these potential units, thus the location, density, and design are unknown at this time.
- 5,985 additional units remaining under the 15,000-unit cap will be offset by a corresponding reduction of non-residential square footage.
- These figures are exclusive of additional density bonus units, which are exempt by state law from local intensity limitations. There are currently 232 existing density bonus units, 78 under construction, 130 approved but not yet built and 215 within current pending projects. Moreover, assuming the density bonus potential for each of the 3,950 potential new units is maximized at 35 percent of the base total, an additional 1,383 density bonus units are possible, for a total of 2,038 density bonus units above the 15,000-unit cap.
- Conversion of office, manufacturing, and/or warehouse uses to retail use to accommodate demand from current and planned residential development (Refer to Table 1.1).
- Build-out of remaining non-residential zoning potential.
- Recycling of under-utilized land uses to higher intensity uses.
- This overall total of 17,038 units (15,000 base plus 2,038-density bonus) is the total unit count analyzed in this traffic study.

The IBC land use changes are based on the reallocation of trips within each geographical traffic analysis zone (TAZ), with the TAZ trip cap remaining the same. Thus, the increase in residential uses is a reallocation of trips for the IBC area. **Figure 1.2** displays the IBC study area with each TAZ annotated.

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Figure 1.2: IBC Study Area Traffic Analysis Zones (TAZ)





1.6 Transportation Setting

1.6.1 Rail

The City of Irvine and study area are currently served by rail transit at the Irvine Station off Barranca Parkway. The Tustin Metrolink Station, located on Edinger Avenue also provides connections to the IBC area. There are several Metrolink trains per day serving both stations, and Irvine station is also serviced by Amtrak. There is a current planning effort underway to implement a service expansion program by Metrolink by the year 2010. This expansion will reduce the headways of trains between Fullerton Metrolink station to the north of the study area and Laguna Niguel/Mission Viejo station to the south of the study area. This expansion will improve services at both the Irvine and Tustin Metrolink Stations.

1.6.2 Local Bus

The IBC is currently served by a number of local buses, operated by Orange County Transportation Authority (OCTA). The major routes and locations that serve the IBC are presented in **Figure 1.3**. The *i*Shuttle is another bus that serves the IBC and is discussed in detail in **Section 1.6.5**.

1.6.3 Bicycle and Riding and Hiking Trails

There is an extensive network of bicycle and riding and hiking trails that connect to destinations within the IBC area. Businesses within the IBC are required to provide bicycle racks or the provision of racks at their offices. Within the City of Irvine, there are 44.5 miles of off-street bikeways and 282 miles of on-street bikeways. The City of Irvine's Zoning ordinance requires at least five bicycle parking spaces for retail or office developments over 100,000 square feet. Additionally, community facilities, banks/savings and loans, restaurants, shopping centers over 50,000 square feet, hospitals, medical/dental offices, and churches also require bicycle parking. The Orange County Bicycle Master Plan, the City of Irvine Bicycle Transportation Plan, and the City of Irvine Circulation Element all address bicycle networks in the study area. The City of Irvine's bicycle system is shown in the **Figure 1.4**.

1.6.4 Pedestrian

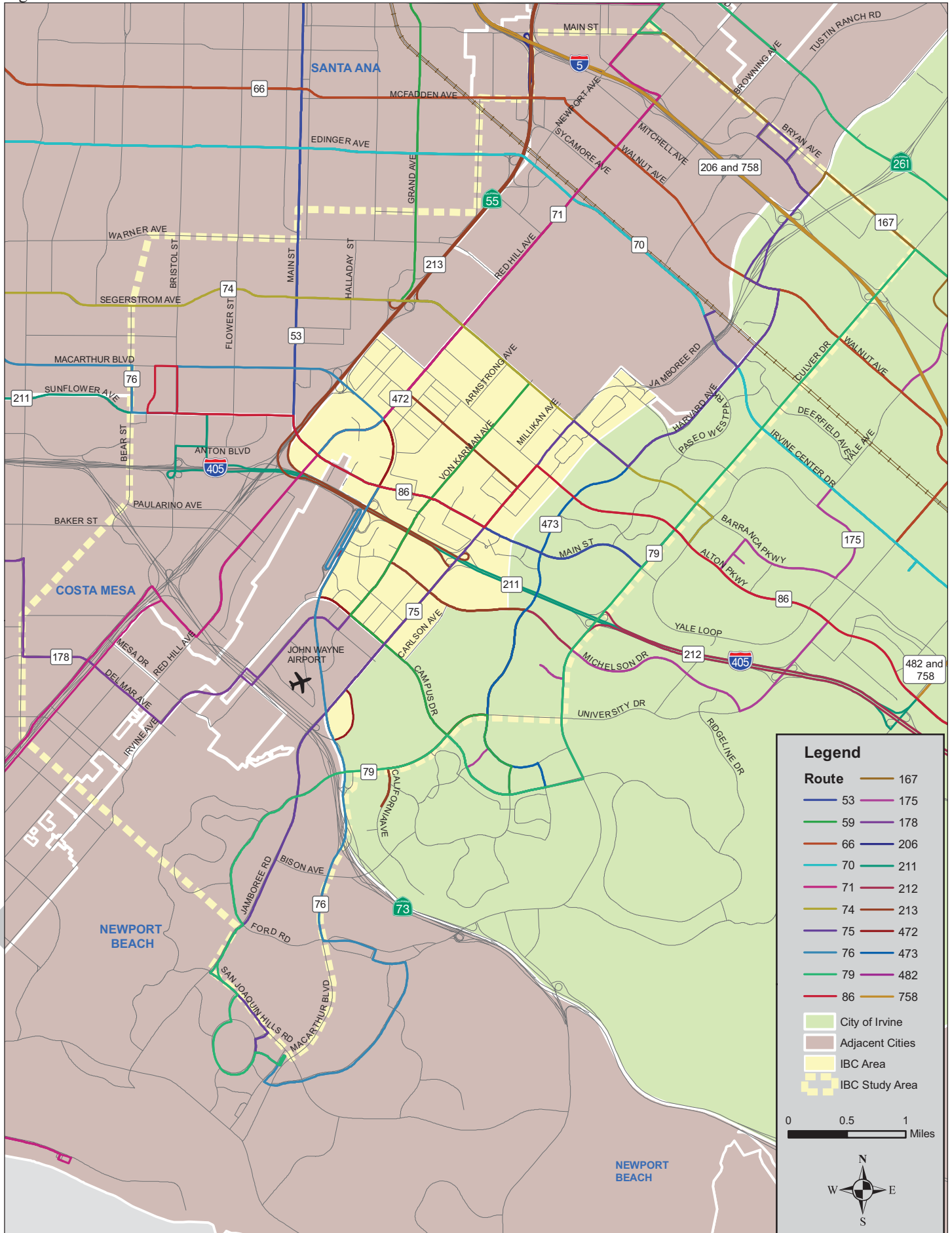
With the addition of residential units among the existing predominant office uses at the IBC, there is a growing need for pedestrian transportation amenities such as sidewalks, crosswalks, and other important connections throughout the study area. Development fees are expected to contribute to the enhancement of pedestrian facilities in the IBC area as the residential uses increase.

1.6.5 *i* Shuttle

The *I* Irvine Shuttle (The *i*shuttle) is a clean fuel, rubber tire shuttle bus that operates adjacent to and within the study area, primarily transporting commuters and residents throughout the IBC area and offering connections to the Tustin Metrolink Station and John Wayne Airport. The service began operation on June 9, 2008. The shuttle meets the morning and afternoon Metrolink trains and provides 30 minute headway frequent service from 5:30 AM to 9:30 AM and 2:30 PM and 7:30 PM on weekdays. The shuttle network consists of two main routes; A & B. Route A connects the Tustin Metrolink Station to John Wayne Airport via Von Karman Avenue. Route B connects the Tustin Metrolink Station to the IBC via Jamboree Road and Michelson Drive. Metrolink and OCTA Pass holders ride the shuttle free. Other commuters are charged one dollar fares. There is no weekend service for either of these routes. **Figure 1.5** displays the *i*Shuttle routes.

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Figure 1.3: OCTA Bus Routes

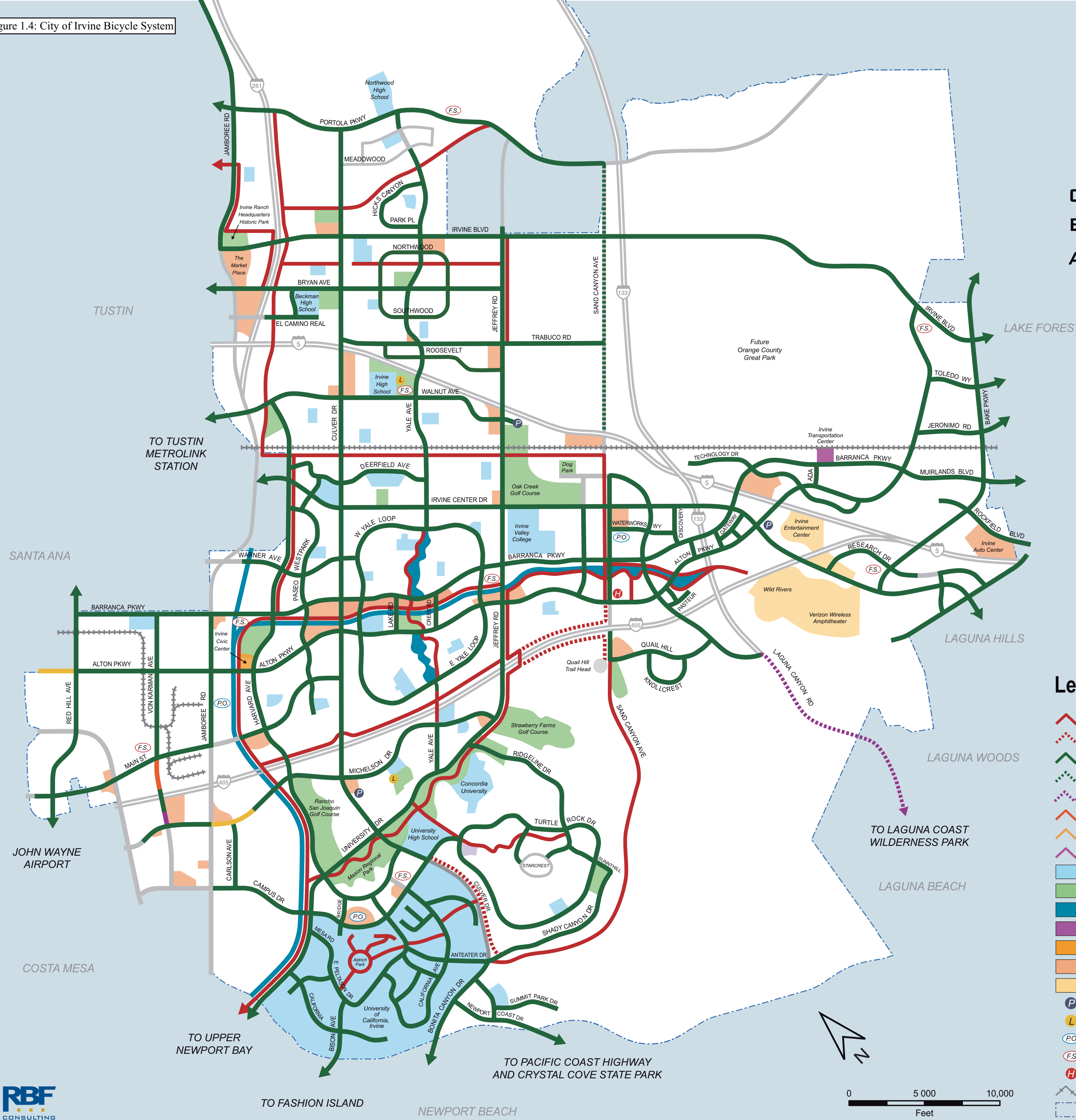


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Figure 1.4: City of Irvine Bicycle System



CITY OF IRVINE BIKEWAYS MAP AUGUST 2006



- ### Legend
- Off-Street Bikeway
 - Future Off-Street Bikeway (Planned for Construction)
 - On-Street Bikeway
 - Future On-Street Bikeway (Planned for Construction)
 - Future On-Street Signed Bike Route
 - On-Street Bikeway on East Side of Road
 - On-Street Bikeway on South Side of Road
 - On-Street Bikeway on West Side of Road
 - Schools, Universities
 - Parks
 - Waterways, Water Bodies
 - Transportation Center
 - City Hall, Police Department
 - Retail Center
 - Entertainment Center
 - Park & Ride
 - Library
 - Post Office
 - Fire Station
 - Hospitals
 - Railroad
 - Irvine City Boundary

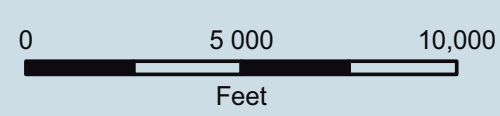


Figure 1.5 i Shuttle Routes



Route A (Mon -Fri)

5:30a - 9:30a

2:00p - 7:30p

Route B (Mon -Fri)

5:30a - 9:30a

2:00p - 7:30p

● Shuttle Stop

FOR MORE INFORMATION:

www.irvineshuttle.net

949-72-GOBUS



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1.7 Project Highlights

The key traffic study components can be summarized as follows:

- Analysis of current, near-term (2015), and buildout (Post-2030) traffic conditions in the IBC area, as well as adjacent intersections in the Cities of Irvine, Tustin, Santa Ana, Newport Beach, and Costa Mesa
- Assessment of traffic analysis performance criteria for each jurisdiction
- Peak Hour Intersection Capacity Utilization (ICU) analysis for study area intersections
- Daily and peak hour arterial segment analysis for study area arterial segments
- Peak hour Volume/Capacity (V/C) & Highway Capacity Software (HCS) analysis for study area freeway segments and ramps
- Development of tables and figures to summarize and graphically depict circulation system performance under existing conditions and nine other project alternatives
- Identification of timing of mitigation measure requirements and summary of levels of service under mitigated conditions
- Evaluation of funding requirements and fair-share percentages for identified mitigation measures and implementation mechanism for improvements

1.8 Report Organization

This report summarizes the present conditions, 2015, and Post-2030 conditions for the City of Irvine's IBC Vision Area. The analysis will identify roadway segments, intersections, freeway mainline segments, and ramps that are currently deficient, or that will become deficient based on the proposed land use changes. The report is organized as follows:

- Chapter 1: Introduction
- Chapter 2: Project Methodology
- Chapter 3: Existing Conditions
- Chapter 4: Future Conditions—2015
- Chapter 5: Future Conditions—Post-2030
- Chapter 6: Future Improvements and Mitigation
- Chapter 7: Buildout Alternatives Analysis
- Chapter 8: Conclusion
- Chapter 9: References
- Chapter 10: Glossary of Transportation Terms

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2.0 Methodology

2.1 Traffic Analysis Methodology

The primary objective of the IBC Vision Plan Traffic Study is to determine the potential traffic impacts of the influx of residential units into the IBC area as a result of a General Plan and Zoning Code Amendment to establish a cap of 15,000 dwelling units for the IBC area (17,038 dwelling units including density bonus units pursuant to state law), with a corresponding reduction of non-residential office equivalency square footage. The development of the study will revolve around current and forecasted land use data, as well as the current and forecasted circulation system within the study area. In order to assess potential impacts associated with the zone change, the following analyses were performed:

- Daily arterial segment volume-to-capacity (V/C) analysis
- Peak hour arterial segment V/C analysis (for deficient daily segments in the City of Irvine)
- A.M. and P.M. peak hour intersection analysis using Intersection Capacity Utilization (ICU)
- Freeway peak hour mainline segment V/C & Highway Capacity Manual (HCM) analysis using HCS software
- Freeway peak hour ramp V/C analysis & HCM analysis using HCS software

2.2 Traffic Forecasting Methodology

The Irvine Transportation Analysis Model (ITAM) Version 8.4 was developed in accordance with the Orange County Transportation Authority Subarea Modeling Guidelines and is consistent with the Orange County Transportation Analysis Model (OCTAM). Land use assumptions include input from the development community. Traffic counts were provided by the various jurisdictions and incorporated into the model. Future forecast volumes from ITAM are post-processed based on standard techniques that use existing count volumes as the basis for development of future daily and peak hour forecast volumes. The post-processing methodology, which applies the growth between the existing and future year model forecasts to existing count volume to develop future year forecast volumes, is consistent with standard practices and OCTAM methodology.

2.2.1 Trip Generation

Trip rates by socioeconomic data type are applied to calculate trip generation by trip purpose (home-based work, home-based other, home-based university and not home-based) for each Traffic Analysis Zone (TAZ) within the City. Trip generation calculates trips by production and attraction for each trip purpose. The number of trips generated by residential uses is a function of the number of occupied dwelling units, dwelling unit population density, number of employed residents and median household income, while that of non-residential uses is a function of the type of employees (retail, service and other). For schools, colleges and universities trip generation is a function of employees and students. **Appendix A** presents ITAM trip generation rates by trip purpose for each Socio-Economic Data (SED) category. Consistent with OCTAM, the ITAM trip generation module calculates trips based on five trip purposes: home-based work, home-based other, work-based other, other-based and home-based school trips.

2.2.2 Trip Distribution

ITAM trip distribution is based on OCTAM trip distribution output. Once trip generation productions and attractions are developed for the primary and secondary ITAM study areas based on land use and SED for the City, regional trip tables are factored to retain the trips generated within the primary and secondary study areas. The factoring process, referred to as the fratar process, maintains trip distribution patterns of the regional model while factoring to the revised study area trips generated by subarea model trip generation component. The outcome of the fratar process and subsequent trip table expansion into the refined ITAM traffic analysis zones is a set of trip matrices by trip purpose, which reflect the ITAM trip generation and OCTAM trip distribution patterns. The resulting trip production and attraction (P/A) tables by trip purpose are then converted to origin and destination (O/D) trip tables for four time periods (A.M., P.M., midday and night).



Table 2.1 shows the Socio-economic (SED) based trip rates for the IBC study area and **Table 2.2** shows the Trip Generation for each alternative within Planning Area 36. Detailed trip generation quantities by ITAM TAZ is included in **Appendix A**.

Table 2.1: Socioeconomic Based Trip Rates

Trip Type	Production/Attraction	Single Family	Multi-Family	Population	Employed Residents	Retail Employee	Service Employee	Other Employee	Students	Income
Home Based	Production	0.00	0.00	0.00	1.27	0.00	0.00	0.00	0.00	0.00
Work	Attraction	0.10	0.10	0.00	0.00	1.24	1.24	1.26	0.00	0.00
Other Based	Production	1.05	0.60	0.24	0.00	0.00	0.00	0.00	0.00	13.00
Work	Attraction	0.40	0.39	0.00	0.00	3.46	0.90	0.10	0.00	1.00
Home Based	Production	1.05	0.60	0.24	0.00	0.00	0.00	0.00	0.00	13.00
Other	Attraction	0.40	0.39	0.00	0.00	3.46	0.90	0.10	0.00	1.00
Home Based	Production	0.89	0.46	0.11	0.00	0.00	0.00	0.00	0.00	11.00
Shop	Attraction	0.00	0.00	0.00	0.00	5.54	0.00	0.00	0.00	0.00
Other Based	Production	0.44	0.43	0.00	0.00	5.20	1.08	0.24	0.00	2.00
Other	Attraction	0.41	0.45	0.00	0.00	4.84	1.10	0.20	0.00	2.00
Home Based	Production	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
University	Attraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Home Based	Production	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00
School	Attraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.00

Table 2.2: Trip Generation Summary for Future Forecast Scenarios

Time Period	2015 Cumulative Baseline No Project	2015 Cumulative With Project	Post-2030 Cumulative Baseline No Project	Post-2030 Cumulative With Project
AM Out	11,206	14,858	11,199	19,336
AM In	28,973	30,962	28,959	36,105
PM Out	27,304	29,982	27,283	35,513
PM In	17,378	20,793	17,363	25,795
ADT	508,790	578,825	508,798	697,308

2.2.3 Mode Choice

Subarea traffic models are generally vehicle-based models and hence, do not include a mode choice component. ITAM is a vehicle-based model that incorporates vehicle trip tables from the mode choice module of OCTAM.

2.2.4 Traffic Assignment

Trips in the O/D trip tables are assigned to ITAM roadway network for each time period using a 25 iteration equilibrium assignment. The trip tables in ITAM maintain two trip types for the purpose of assignment: drive alone and carpool.

2.2.5 Trip Budget

This traffic study has been prepared to address potential impacts from implementation of the Irvine Business Complex (IBC) Residential Mixed Use Vision Plan and Overlay Zoning. The analysis focused on the identification of traffic impacts imposed on current circulation system as it is transformed into a mixed-use community from its current offerings of office, commercial, and industrial uses. Under consideration is a General Plan Amendment and



Zoning Code to establish a cap of 15,000 dwelling units (DU) for the IBC area, with a corresponding reduction of non-residential square footage.

To identify the required amount of reduction in non-residential square footage under the buildout of the Vision Plan, the number of trips associated with the increase in residential units was calculated using the IBC database land use trip rates for multi-family residential units. The most conservative (highest) peak hour trip rate for each land use category from the IBC database expected to be reduced was multiplied by the appropriate quantity being reduced for industrial and office land uses. For industrial land uses the AM peak hour trip rate was utilized, for all other land use categories the PM peak hour trip rate was utilized. By reducing the quantities of the non-residential land uses to accommodate the increased number of residential units under the Vision Plan, the Proposed Project is trip neutral. Detailed information for specific reductions in land use quantities is included in the Land Use section of the DEIR.

Since it is assumed that known pending units (with the exception of 776 units at Park Place projected to be built by Post-2030) will be completed by 2015 and the remaining units will be completed Post-2030, this traffic study provides an assessment of the existing conditions without project, existing conditions with project, and six different future scenarios. The total residential units approved under the current General Plan maximum are 9,015 (based on 4,779 existing, 1,814 under construction, and 2,422 approved but not yet constructed). The proposed new maximum would be 15,000 residential units, thereby allowing for an additional 5,985 units (consisting of 2,035 units currently in process and 3,950 potential new units). These figures are exclusive of additional density bonus units, which are exempt by state law from local intensity limitations. There are currently 232 existing density bonus units, 78 under construction, 130 approved but not yet built and 215 within current pending projects. Moreover, assuming the density bonus potential for each of the 3,950 potential new units is maximized at 35 percent of the base total, an additional 1,383 density bonus units are possible, for a total of 2,038 density bonus units above the 15,000 unit cap. This overall total of 17,038 units (15,000 base plus 2,038 density bonus) is the total unit count analyzed in this traffic study. There are no current applications pending for the potential 3,950 units (and 1,383 associated density bonus units), thus the location, density, and design are unknown at this time. The potential residential units were assumed in the traffic study to be located within the same geographical area in which existing zoning potential is identified.

2.3 Traffic Counts

The intersection counts for the IBC Vision Traffic Study were collected from a variety of sources to ensure the most accurate counts were represented in the ITAM model. The peak period counts, as determined by the City are generally between 7:00 AM - 10:00 AM in the morning peak period, and 3:30 PM - 6:30 PM in the evening peak period. For this study, the peak period was vetted as 7:00 AM - 9:00 AM and 4:00 PM - 6:30 PM for counts within the City of Irvine and 7:00 - 9:00 AM and 4:00 - 6:00 PM for counts outside the City of Irvine.

2.4 Intersection Analysis

For existing and future conditions, levels of service at intersections were calculated through application of the Intersection Capacity Utilization (ICU) method. ICU is a methodology to quantify the LOS for an intersection. The methodology calculates the ratio of the sum of critical turning movement volumes to saturated flow rates. The ICU output is analogous to the intersection's V/C ratio.

ICU analysis is performed through a stand alone program written for the City of Irvine. The program was applied to existing traffic counts or forecast turning movement volumes generated through ITAM to develop ICU worksheets and summary table for all study intersections for existing and future scenarios. ICU worksheets are included as **Appendix B**. HCM ramp termini intersection worksheets are included in **Appendix I** for Caltrans planning purposes. Developed by Austin Foust Associates (AFA); the assumptions for this analysis are consistent with the countywide Congestion Management Program (CMP) assumptions as follows:

- 1,700 vehicles per hour of green time in through lanes (1,600 for Newport Beach and Costa Mesa)
- 1,700 vehicles per hour of green time in turn lanes (1,600 for Newport Beach and Costa Mesa)
- 5 percent of total intersection capacity is lost due to the clearance interval (Newport Beach and Costa Mesa did not assume a 5% clearance interval)
- De-facto right-turn lane is assumed in the ICU calculation if 19 feet from edge of outside of through-lane exists and parking is prohibited during peak periods.



- A credit of 0.05 is applied to the ICU if an intersection is identified with an Advanced Traffic Management System (ATMS) (ATMS credit is not applied to intersections within IBC)

2.5 Arterial Analysis

The arterial roadway criteria involve the use of ADT V/C ratios supplemented by the City of Irvine's Link Capacity Analysis guidelines that require that arterial deficiencies identified based on ADT V/C ratios be further examined using peak hour data. LOS E (V/C not to exceed 1.00) is the performance standard specified in the CMP for arterials that are part of the CMP roadway network and is applied in this analysis as the performance standard for CMP arterials outside the City of Irvine. LOS E is also the adopted performance standard for arterials in City of Irvine Planning Area 36, the IBC area. LOS D (V/C not to exceed 0.90) is the performance standard that has been adopted for the remainder of the study area circulation system by the local jurisdictions in the study area.

The City's Traffic Impact Analysis Guidelines mandate a peak hour link analysis on all links that exceed the permissible LOS threshold applicable to the segment. The peak hour link analysis methodology was approved in 1996 by the City's Transportation and Infrastructure Commission.

A peak hour link analysis determines directional AM and PM peak hour V/C ratios for each link that exceeds the daily LOS threshold. The peak hour capacity is determined by multiplying the mid-block number of lanes for each direction by a lane capacity of 1,600 vehicles per hour, except when the distance between controlled intersections is greater than a mile. In such situations, the peak hour lane capacity is assumed to be 2,000 vehicles per hour. Existing peak hour segment volumes are determined from the peak hour intersection directional approach and departure count volumes. Future forecast peak hour analysis is based on intersection approach and departure volumes of the upstream and downstream intersections. In order to be consistent with the methodology applied to determine Future Interim Year 2015 peak hour segment volumes, intersection count volumes were used to determine arterial segment peak hour volumes for the existing peak hour segment analysis. The peak hour link analysis is only applied to roadway segments within the City of Irvine. The Cities of Newport Beach, Tustin, and Costa Mesa evaluate daily ADT and assess impacts at the intersection. The City of Santa Ana evaluates both daily LOS and impacted segments.

If the directional peak hour V/C surpasses the City LOS threshold, additional lanes are required. The determination of whether the additional lanes will be through lanes or auxiliary lanes is based on the ICU analysis as well as improvement needs of the downstream intersection.

2.6 Freeway and Ramp Volume/Capacity & HCM Density Analysis

2.6.1 Freeway Mainlines

As there are several major state and interstate highways that traverse the study area, including sections of I-5, I-405, SR-55, SR-73, and SR-261, an analysis of project impacts on freeway mainline segments and ramps was performed for this project. Data was collected for the freeway mainline volumes from the Freeway Performance Measurement System (PeMS) which is a joint operation between the University of California, Berkeley and Caltrans. Average weekday peak period data was extracted and averaged over three days to obtain peak hour freeway volumes. An effort was made to extract data from PeMS consistent with the count dates for much of the arterial segment and intersection count volumes throughout the study area. Future forecast peak hour traffic volumes were obtained from the citywide traffic model.

The freeway mainline and freeway ramp criteria are based on peak hour V/C ratios. The freeway mainline capacities applied in this analysis of 2,000 vehicles per lane are based on information contained in the Caltrans Highway Design Manual and the Caltrans Ramp Meter Design Manual and has been verified through discussions with Caltrans staff. The LOS D/E cusp (V/C not to exceed 0.89) has been established by Caltrans as the operating standard for freeway mainline segments and freeway ramps within the study area. **Table 2.3** presents the V/C ranges for freeway/tollway segments.



Additionally, select Caltrans freeway mainlines and ramps were analyzed using HCM density analysis criteria. The analysis itself consists of utilizing HCS software and processes inputs of speed, peak hour factor, peak hour volume, truck and RV percentages, and number of lanes to produce a traffic density measure by the number of passenger vehicles per mile per lane which correlates to an LOS indicating the amount of congestion on a particular facility. The HCS software package applies HCM methodology and formulae for the various types of HCM analyses. For ramps, similar inputs produce the density measure but with the added element of adjacent freeway mainline and ramp volumes. Adjacent mainline and ramp volumes contribute to congestion levels on the ramps that are evaluated as higher volumes result in increased difficulty in merging to or diverging from the mainline facility. HCM analysis is developed for Caltrans planning purposes and was not used to identify project impacts.

2.6.2 Freeway Ramps

For freeway ramps, a similar methodology was employed to collect data for ramps that were within the study area but not associated with any intersection counts taken for the study. Ramp volumes collected from PeMS, were taken on the same dates as the mainlines. For existing conditions with the Proposed Project, the existing counts were added to the difference in the raw model data between existing conditions and Post-2030 Cumulative With Project. The freeway ramps that corresponded to intersection counts collected under the count program were post-processed in the model and the volume output utilized in the freeway ramp analysis.

The freeway ramp criteria are based on peak hour V/C ratios. The freeway ramp capacities applied in this analysis are based on information contained in the Caltrans Highway Design Manual and the Caltrans Ramp Meter Design Manual and have been verified through discussions with Caltrans staff. LOS D/E cusp (V/C not to exceed 0.89) has been established by Caltrans as the operating standard for freeway ramps within the study area. The V/C and LOS relationship for freeway ramps are identical to those used for freeway mainline segments and the V/C ranges are presented in **Table 2.3**.

2.7 Performance Criteria

For the neighboring cities of Santa Ana, Costa Mesa, Tustin, and Newport Beach, there are slightly different classifications for the levels of service, volume to capacity relationships and intersection capacity utilization. Circulation system performance is defined by its LOS. LOS analysis is performed for arterial segments, intersections, freeway mainline segments and freeway ramps. Arterial segment LOS calculations are based on a V/C ratio, while the City adopted intersection capacity utilization (ICU) methodology is applied for intersections, and V/C ratio combined with HCM density analysis is applied for freeway segments and ramps.

The City of Irvine and adjacent communities have established performance criteria for circulation system operations. The list below describes the LOS at each level, based on the City of Irvine's Traffic Performance Criteria, located within the City's General Plan.

- LOS A— V/C ratio ranges from 0.0 to 0.60. Traffic volumes are generally low and speed is not restricted by other vehicles. All signal cycles clear with no vehicles waiting through more than one original cycle
- LOS B— V/C ratio ranges from 0.61 to 0.70. At this LOS, traffic volumes begin to be affected by other traffic. Between one and ten percent of the signal cycles have one or more vehicles that have to wait through more than one signal cycle during peak traffic periods
- LOS C— V/C ratio ranges from 0.71 to 0.80. At this LOS, operating speeds and maneuverability are controlled by other traffic. Between 11 and 30 % of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak periods
- LOS D— V/C ratio ranges from 0.81 to 0.90. At this LOS, traffic will operate at tolerable operating speeds, although with restricted maneuverability
- LOS E— V/C ratio ranges from 0.91 to 1.00. Traffic will experience restricted speeds and vehicles will frequently have to wait through two or more cycles at signalized intersections. Any additional traffic will result in the breakdown of the carrying capacity of the system
- LOS F— V/C ratio exceeds 1.00. Long traffic queues, unstable traffic flow, heavy congestion, overall traffic volumes are less than at LOS E



Table 2.3 summarizes the V/C ranges that correspond to LOS A through F for arterial roadways freeway mainline segments and freeway ramps. The V/C ranges listed for arterial roads are designated in the Orange County Congestion Management Program (CMP) as well as the General Plans for the County of Orange and the Cities within the study area.

Table 2.3: V/C Ratio and LOS

LOS	Arterial Segment V/C Ratio	Freeway Segment/Ramp V/C Ratio
A	0-0.60	0-0.30
B	0.61-0.70	0.31-0.50
C	0.71-0.80	0.51-0.71
D	0.81-0.90	0.72-0.89
E	0.91-1.00	0.90-1.00
F	>1.00	>1.00

Source: City of Irvine Traffic Impact Analysis Guidelines, 2006
HCM 2000

The arterial roadway criteria involves the use of average daily traffic (ADT) V/C ratios supplemented by the City of Irvine’s Link Capacity Analysis guidelines which require that arterial deficiencies identified based on ADT V/C ratios be further examined using peak hour data. LOS E (V/C not to exceed 1.00) is the performance standard specified in the CMP for arterials that are part of the CMP roadway network and is applied in this analysis as the performance standard for CMP arterials outside the City of Irvine. LOS D (V/C not to exceed 0.90) is the performance standard that has been adopted for the remainder of the study area arterial segments by the local jurisdictions in the study area.

The intersection criteria involve the use of peak hour ICU values. The ICU ranges that correspond to LOS A through F are the same as the V/C ranges shown in **Table 2.3** for arterial roads. The local jurisdictions within the study area have adopted various parameters for calculating ICU values and intersection LOS standards. LOS E (ICU not to exceed 1.00) is the performance standard specified in the Orange County Congestion Management Program (CMP) for CMP intersections. Additionally the LOS E standard is applied to all intersections within the IBC and certain intersections in the City of Santa Ana along MacArthur Boulevard. LOS D (ICU not to exceed 0.90) is the performance standard that has been adopted by the local jurisdictions for all of the other intersections in the study area.

Deficient intersections within the IBC study area fall under two categories of deficiencies, project related impact and cumulative deficiency. Project impacts are determined using the definition of significant impacts from each city’s traffic impact analysis protocol. For Costa Mesa, Santa Ana, and Tustin, significant impacts are identified as an increase in intersection ICU of 0.01 or greater under With Project conditions of a deficient intersection when compared between the With Project and No Project scenarios. For the City of Newport Beach, a project impact is identified as an increase of 0.01 or more of the critical movement of a deficient intersection. Cumulative deficiencies are identified as those intersections that fail in both the No Project and With Project conditions but do not have a project impact as identified by the above noted criteria and therefore do not require improvements. The City of Irvine threshold for defining project impacts is an increase of 0.02 or greater of an intersection ICU. For intersections with shared jurisdictional boundaries, the more conservative methodology was employed.

V/C ratios describe the overall volume on the facility based on the available capacity. The freeway V/C ranges that are used to identify freeway deficiencies are presented in **Table 2.3**. In consultation with Caltrans staff, project impact thresholds for freeway mainlines and ramps are based on a methodology that utilizes V/C ratios and project trip contribution to a facility. Project impacts are identified by determining whether or not a freeway mainline segment or ramp is near deficiency (LOS D/E cusp, or V/C=0.89) and calculating the difference in peak hour trips between the No Project and With Project scenarios. If the Proposed Project causes a mainline segment or ramp to deteriorate from better than the LOS D/E cusp (V/C<0.89) to worse than the LOS D/E cusp and adds 200 peak hour trips (mainline segments) or 30 peak hour trips (ramps) once beyond the D/E cusp, then the location has a project impact. Additionally, if the mainline segment or ramp under the No Project condition is operating worse than the LOS D/E cusp (V/C>=0.89) and the Proposed Project adds 200 peak hour trips or greater (mainline segment) or 30 peak hour trips or greater (ramps), then the location has a project impact.



In addition to the V/C analysis, if a freeway mainline or ramp operates at worse than LOS D/E cusp ($V/C > 0.89$), but better than the LOS E/F cusp ($V/C < 1.00$), and the project contributes greater than 200 vehicles per hour to the mainline or 30 vehicles per hour to the ramps, a peak hour density analysis based on the Highway Capacity Manual (HCM) was conducted to account for number of lanes, speed, large vehicle volume, and type of terrain. No HCM analysis was conducted for mainline segments or ramps with a V/C ratio of < 0.89 or > 1.00 and no HCM analysis was conducted for locations between the V/C range of the LOS D/E cusp ($V/C > 0.89$), but better than the LOS E/F cusp ($V/C < 1.00$) if the project does not contribute greater than 200 vehicles per hour to the mainline or 30 vehicles per hour to the ramps. This additional level of analysis for locations just over the V/C LOS deficiency threshold was conducted to evaluate operating conditions for Caltrans planning purposes. Resulting densities from the HCM analysis indicate how well traffic flow is accommodated by a freeway or ramp. Higher densities indicate greater congestion on the facility and less ability for vehicles to weave and pass, as well as limiting speed. The output or density is the number of passenger vehicles per mile per lane of freeway. The LOS thresholds for freeway mainline segments and ramps are shown in **Table 2.4** and **Table 2.5**. According to the HCM, LOS E (> 45.0 for freeway mainlines segments, > 35.0 for ramps) is the maximum density at which sustained flows at capacity are expected to occur. The HCM density analysis does not take into account high-occupancy vehicle (HOV) lanes, as those are classified as separate facilities by the HCM. The analysis also does not take into consideration metering on the ramps. HCS worksheets for the freeway mainline segments and ramps that fall under the conditions described above are included in **Appendix C** and **D**.

Table 2.4: Freeway Mainline Segment Density LOS

Freeway Mainline Segment Density (pc/mi/ln)	LOS
0-11.0	A
11.0-18.0	B
18.0-26.0	C
26.0-35.0	D
35.0-45.0	E
> 45.0	F

Source: Highway Capacity Manual, 2000

Table 2.5: Freeway Ramp Density LOS

Freeway Ramp Density (pc/mi/ln)	LOS
0-10.0	A
10.0-20.0	B
20.0-28.0	C
28.0-35.0	D
> 35.0	E
Exceeds HCM Limits	F

Source: Highway Capacity Manual, 2000

Table 2.6, **Table 2.7**, and **Table 2.8** summarize the arterial segment, intersection, and freeway and ramp performance criteria for all five jurisdictions within the study area.



Table 2.6: Circulation System Performance Criteria — Arterial Segments

Arterial Roads V/C Calculation Methodology			
Level of service to be based on average daily traffic (ADT) volume/capacity (V/C) ratios calculated using the following capacities:			
City of Irvine	Major Arterial	8 lane	72,000
		6 lane	54,000
	Primary Arterial	4 lane	32,000
	Secondary Arterial	4 lane	28,000
	Commuter	2 lane	13,000
City of Santa Ana	Principal Arterial	8 lane	75,000
	Major Arterial	6 lane	56,300
	Primary Arterial	4 lane	37,500
	Secondary Arterial	4 lane	24,000
	Collector/Commuter	2 lane	12,500
City of Tustin	Major Arterial	8 lane	75,000
		6 lane	56,300
	Primary Arterial	4 lane	37,500
	Secondary Arterial	4 lane	25,000
	Commuter	2 lane	12,500
City of Costa Mesa	Major Arterial	8 lane	75,000
		6 lane	56,000
	Primary Arterial	4 lane	38,000
	Secondary Arterial	4 lane	25,000
	Commuter	2 lane	12,500
City of Newport Beach	Principal Arterial	8 lane	68,000
	Augmented Arterial	6 lane	58,000*
	Primary Arterial	4 lane	40,000
	Secondary Arterial	4 lane	23,000
	Commuter	2 lane	10,000
Arterial Roads V/C Calculation Methodology			
Level of service to be based on average daily traffic (ADT) volume/capacity (V/C) ratios calculated using the following capacities:			
*Figure for Major Arterial without Turn Lane is 51,000. 58,000 was used in traffic analysis as the typical capacity (Source: City of Newport Beach).			
As required by the City of Irvine and Neighboring Cities Link Capacity Analysis guidelines, ADT is the standard reference; however, arterial deficiencies identified based on ADT V/C ratios were further examined using peak hour data.			
Performance Standard:			
Level of Service E for segments within the Planning Area 36 (IBC area), CMP arterials inside and outside the City of Irvine, and Smart Streets (Irvine Boulevard, Edinger Avenue, Jamboree Road South of Irvine Boulevard) in the City of Tustin.			
All other arterials: Level of Service D (peak hour V/C less than or equal to 0.90).			

Table 2.7: Circulation System Performance Criteria — Intersections

Intersections ICU Calculation Methodology
Level of service to be based on peak hour intersection capacity utilization (ICU) values calculated using the following assumptions:
Saturation Flow Rate: 1,700 vehicles/hour/lane (1,600 for the City of Newport Beach and Costa Mesa)
Clearance Interval: 0.05 (no clearance interval for the City of Newport Beach and Costa Mesa)
Right-Turn-On-Red Utilization Factor*: 0.00 for County of Orange intersections, 0.75 for intersections in all other jurisdictions. (applies to all jurisdictions in the study area—defaulted in the ICU analysis)
* “De-facto” right-turn lane is assumed in the ICU calculation if 19 feet from edge of outside of through-lane exists and parking is prohibited during peak periods.
Performance Standard:
IBC Area, CMP, Airport intersections between IBC and Newport Beach, and certain intersections in Santa Ana, including Main at MacArthur and SR-55 at MacArthur: Level of Service E (peak hour ICU less than or equal to 1.00). All other locations within the study area: Level of Service D (peak hour ICU less than or equal to 0.90)
Mitigation Requirement:
For peak hour ICU within the City of Irvine greater than the acceptable level of service, mitigation of the project contribution is required to bring location back to acceptable level of service or to existing conditions if project contribution is greater than or equal to 0.02. The Cities of Santa Ana, Tustin, and Costa Mesa require mitigation for deficient intersections that fail under peak hour conditions and the project contribution is greater than or equal to 0.01. Newport Beach requires mitigation for deficient intersections where the intersection critical movement increases by greater than or equal to 0.01.



Table 2.8: Circulation System Performance Criteria — Freeway Mainlines and Ramps (V/C Analysis)

<p>Freeway Segment and Freeway Ramp Calculation Methodology Level of service to be based on peak hour volume/capacity (V/C) ratios calculated using the following assumptions:</p>
<p>V/C Calculation Methodology Freeway Mainline Segments General purpose lane capacity of 2,000 passenger cars per hour per lane. Freeway Ramps Metered On-Ramps A maximum capacity of 900 vehicles per hour for a one-lane metered on-ramp with only one mixed-flow lane at the meter. A maximum capacity of 1,080 (20% greater than 900) vph for a one-lane metered on-ramp with one mixed-flow lane at the meter plus one high occupancy vehicle (HOV) preferential lane at the meter. A maximum capacity of 1,500 vph for a one-lane metered on-ramp with two mixed-flow lanes at the meter. A maximum capacity of 1,800 vph for a two-lane metered on-ramp with two-mixed flow lanes at the meter. Toll Ramps (On-Ramps and Off-Ramps) A maximum capacity of 1,500 vph for a one-lane toll ramp with one cash (stopped) lane and one FasTrak (unstopped) lane. Non-Metered and Non-Tolled On-Ramps and Off-Ramps A maximum capacity of 1,500 vph for a one-lane ramp. A maximum capacity of 2,250 (50% greater than 1,500) vph for a two-lane on-ramp that tapers to one merge lane at or beyond the freeway mainline gore point and for a two-lane off-ramp with only one auxiliary lane.</p>
<p>A maximum capacity of 3,000 vph for a two-lane on-ramp that does not taper to one merge lane and for a two-lane off-ramp with two auxiliary lanes.</p>
<p>Performance Standard Mainlines: Level of Service D/E cusp (peak hour V/C less than or equal to 0.89). Ramps: Level of Service D/E cusp (peak hour V/C less than or equal to 0.89).</p>
<p>Mitigation Requirement: For the locations identified as project impacts resulting from the impact threshold methodology agreed to by the City of Irvine and Caltrans, opportunities for feasible mitigation alternatives including Intelligent Transportation Management Strategies (ITMS) will be considered in order to mitigate the project impacts to pre-project conditions. Freeway Mainline Segments: A significant impact occurs when: a. The segment LOS is better than D/E cusp (<0.89) without the project and the project adds additional trips that degrades the segment beyond the LOS D/E cusp and the project contributes more than 200 vehicles per hour once beyond the LOS D/E cusp, or b. The segment is at LOS D/E cusp or worse (≥ 0.89) without project and the project contributes greater than 200 vehicle trips per hour. Off-Ramps and On-Ramps: A significant impact occurs when: a. The ramp LOS is better than D/E cusp (<0.89) without the project and the project adds additional trips that degrades the segment beyond the LOS D/E cusp and the project contributes more than 30 vehicles per hour once beyond the LOS D/E cusp, or b. The ramp is at LOS D/E cusp or worse (≥ 0.89) without the project and the project contributes greater than 30 vehicle trips per hour.</p>

The IBC area has a number of circulation system improvements that have been programmed into the model for each of the respective analysis years. **Table 2.9** and **Table 2.10** indicate the committed roadway and intersection improvements for the IBC area for the 2015 and buildout scenarios. Only IBC improvements identified in the 1992 IBC Rezone EIR that are already built or fully funded are assumed in the future No Project and With Project scenarios studied to identify impacts and mitigations. Each scenario analyzed incorporates the intersection improvements programmed for the scenario year. A full listing of all intersections improvements is included in **Appendix E**.



Table 2.9: Study Area Committed Roadway Improvements

Funding Status of 1992 IBC Roadway Improvements			
Stage I	Location	Improvements	Status
	Main – Sunflower to San Diego Creek	Widen to 6 lanes	Complete
	Jamboree – Barranca to Michelson including the I-405 interchange	Widen to 8 lanes	Complete
	MacArthur – Main to Douglas including I-405 interchange	Widen to 8 lanes	Complete
	Dyer – SR-55 to Red Hill	Widen to 8 lanes	Not Funded
	MacArthur – SR-55 to Red Hill	Widen to 8 lanes – Phase II (4 th EBT; 4 th WBT)	Not Funded
	Barranca – Red Hill to Jamboree	Widen to 7 lanes (4 th WBT)	Fully Funded-Tustin Legacy Improvement
	Barranca – Red Hill to Jamboree	Widen to 8 lanes (4 th EBT)	Not Funded
Stage II	Location	Improvements	Status
	Michelson @ San Diego Creek	Widen bridge to 4 lanes	Complete
	Red Hill @ I-405	Widen overcrossing to 6 lanes	Not Funded
	MacArthur - Red Hill to Main	Widen to 8 lanes (only 7 lanes done)	Not Funded
	Red Hill – Barranca to Main	Widen to 8 lanes (4 th NBT; 4 th SBT)	Not Funded
	Alton – San Diego Creek to Red Hill	Widen to 6 lanes	Not Funded
	Alton @ SR-55	Construct 5 lane overcrossing	Not Funded
	Main – Jamboree to Harvard	Add EB and WB auxiliary lanes	Not Funded
Stage III	Location	Improvements	Status
	Von Karman – Main to Michelson	Widen overcrossing to 6 lanes	Not Funded
	Dyer - SR 55 to Red Hill	Widen to 8 lanes - Phase II	Not Funded
	Von Karman/I-405 and Alton/SR-55	Estimated IBC Cost Share - HOV Ramps	Not Funded
	Red Hill – Edinger to Barranca	Valencia to Barranca—Widen to 7 lanes (4 th NBT)	Not Funded
		Valencia to Edinger (4 th NBT)	Not Funded
		Edinger to Barranca (4 th SBT)	Not Funded
	Von Karman – Barranca to Main	Widen to 6 lanes (3 rd NBT; 3 rd SBT)	Not Funded
	Jamboree – Barranca to McGaw	Widen to 10 lanes (5 th NBT; 5 th SBT)	Not Funded
	Barranca – Von Karman to Jamboree	Add EB auxiliary lane	Not Funded
	Main – Red Hill to Harvard	Add EB and WB auxiliary lanes	Not Funded

Legend:

EBL = Eastbound Left	NBL = Northbound Left
EBT = Eastbound Through Lane	NBT = Northbound Through Lane
EBR = Eastbound Right	NBR = Northbound Right
WBL = Westbound Left	SBT = Southbound Through Lane
WBT = Westbound Through Lane	SBR = Southbound Right
WBR = Westbound Right	VLD = Variable Lane Deployment



Table 2.10: Study Area Committed Intersection Improvements

Funding Status of 1992 IBC Intersection Improvements				
Stage I	ID	Location	Improvements	Status
	49	Red Hill & Main	3 rd EBT; 3 rd WBT	Complete
	78	MacArthur & Main	4 th SBT; 3 rd EBT; Free WBR	Complete
	79	MacArthur & I-405 NB Ramp	Free 2 nd NBR; 4 th SBT; 4 th NBT; Free 2 nd WBR	Complete
	80	MacArthur & I-405 SB	2 nd SBL; 4 th SBT; 4 th NBT	Complete
	82	MacArthur & Michelson	4 th SBT; 4 th NBT; NBR; WBT	Complete
	84	MacArthur & Campus	4 th SBT; 3 rd EBT; 3 rd WBT	Complete
	138	Jamboree & Alton	3 rd WBT; 4 th NBT; 4 th SBT	Complete
	141	Jamboree & Main	4 th SBT; 4 th NBT; 3 rd WBT; 3 rd EBT	Complete
	143	Jamboree & I-405 NB Ramp	3 rd NBT & 4 th SBT	Complete
	144	Jamboree & I-405 SB	4 th SBT; 3 rd & 4 th NBT	Complete
	145	Jamboree & Michelson	4 th SBT; 4 th NBT	Complete
	188	Harvard & Michelson	2 nd EBL	Complete
	42	Red Hill & Dyer/Barranca	2 nd WBL; 4 th EBT; 4 th WBT	Fully Funded
	47	Red Hill & MacArthur	3 rd WBT; 3 rd EBT	Fully Funded
	47	Red Hill & MacArthur	4 th WBT; 4 th EBT	Not Funded
	82	MacArthur & Michelson	2 nd NBL	Not Funded
	84	MacArthur & Campus	EBR	Not Funded
	143	Jamboree & I-405 NB Ramp	4 th NBT	Not Funded
	145	Jamboree & Michelson	EBR	Not Funded
	188	Harvard & Michelson	Free SBR	Not Funded
Stage II	ID	Location	Improvements	Status
	133	Jamboree & Irvine Center Drive	Grade Separation	Complete
	138	Jamboree & Alton	2 nd NBL; 2 nd SBL; 3 rd EBT	Complete
	150	MacArthur & Jamboree	NBR; 2 nd NBL	Complete
	42	Red Hill & Dyer/Barranca	4 th SBT; 4 th NBT; 2 nd EBL	Fully Funded
	47	Red Hill & MacArthur	3 rd SBT; 3 rd NBT; 2 nd NBL	Fully Funded
	47	Red Hill & MacArthur	4 th NBT	Not Funded
	49	Red Hill & Main	3 rd & 4 th SBT; 3 rd NBT; Free NBR	Not Funded
	78	MacArthur & Main	Replace 1 WBT (VLD) with 3 rd WBL (VLD)	Not Funded
	136	Jamboree & Barranca	Grade Separation	Not Funded
	138	Jamboree & Alton	5 th NBT; 5 th SBT	Not Funded
	184	Harvard & Barranca	WBR; 2 nd SBL; 2 nd NBL	Not Funded
	186	Harvard & Main	Free SBR	Not Funded
Stage III	ID	Location	Improvements	Status
	234	Culver & Michelson	2 nd NBL; SBR; WBR	Complete
	47	Red Hill & MacArthur	Replace 1 SBT (VLD) with 3 rd SBL (VLD); Replace 1 EBT (VLD) with 3 rd EBL (VLD)	Not Funded
	97	Von Karman & Barranca	Free NBR; 2 nd WBL; 4 th WBT; 4 th EBT	Not Funded
	136	Jamboree & Barranca	Free EBR	Not Funded
	141	Jamboree & Main	4 th EBT	Not Funded

Legend:

- | | |
|------------------------------|--------------------------------|
| EBL = Eastbound Left | NBL = Northbound Left |
| EBT = Eastbound Through Lane | NBT = Northbound Through Lane |
| EBR = Eastbound Right | NBR = Northbound Right |
| WBL = Westbound Left | SBT = Southbound Through Lane |
| WBT = Westbound Through Lane | SBR = Southbound Right |
| WBR = Westbound Right | VLD = Variable Lane Deployment |



2.7.1 Advanced Traffic Management System (ATMS) Credit

The following intersections were afforded an ATMS credit through approved traffic studies. Four different intersections have ATMS already paid under the program and ATMS credit applied in 2015 and six intersections have ATMS applied in Post-2030. None of the intersections utilizing ATMS are located in Planning Area 36 (IBC area). No ATMS will be applied as mitigation to impacted intersections within the IBC area.

2015 ATMS Applied Intersections

190 - University Drive at Campus Drive	226 - Culver Drive at Irvine Center Drive
229 - Culver Drive at Alton Parkway	235 - Culver Drive at University Drive

Post-2030 ATMS Applied Intersections

190 - University Drive at Campus Drive	224 - Culver Drive at Walnut Avenue
226 - Culver Drive at Irvine Center Drive	228 - Culver Drive at Barranca Parkway
229 - Culver Drive at Alton Parkway	235 - Culver Drive at University Drive



3.0 Existing Conditions

3.1 Introduction

This section describes the current state of the existing land uses and circulation system within the study area. The City of Irvine’s traffic model, the Irvine Transportation Analysis Model (ITAM) 8.1 was applied to forecast future traffic conditions for the study area. While the IBC mostly encompasses streets and intersections within the City of Irvine, key intersections from the surrounding cities, within the sphere of influence of the IBC area were included in the study area to provide an appropriate assessment of the potential impacts of the proposed project to surrounding jurisdictions. There are 275 different arterial segments, 224 intersections, 30 northbound and southbound freeway mainline segments, and 98 freeway ramps within the study area that are analyzed as part of the IBC Vision traffic analysis.

3.2 Existing Land Use

The current setting for land use is focused on the IBC as a major employment center and office park complex. Recent development patterns have been slowly transforming the IBC into a mixed-use community, through integration of residential and supporting land uses. To evaluate traffic impacts throughout the study area, existing, 2015, and Post-2030 land use impacts on the circulation system are evaluated. The number of residential units studied under each scenario is illustrated in **Table 1.1**. The number of residential units and anticipated locations of the additional units have been determined by the City of Irvine through a process of identifying available growth opportunities and maximizing land use efficiency and are included in the 2015 and post-2030 forecasting sections. **Table 3.1** presents the land use quantities by ITAM code for the IBC traffic study area. Land use quantities for 2008 Existing Conditions (No Project) have been developed by the City of Irvine and are illustrated in **Table 3.1** and **Appendix J** presents land use quantities by type and by IBC TAZs as well as a land use summary by individual project. The Existing Conditions (No Project) scenario uses the Land Uses for 2008.

Table 3.1: Existing Land Use Summary

Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174

Source: City of Irvine, ITAM

3.3 Existing Daily Arterial Segment Analysis

Under existing conditions, traffic within the City and adjacent jurisdictions is generally heaviest in the north-south direction, with Jamboree Road and Culver Drive being the City’s highest utilized north-south corridors. In addition, other heavily traveled north-south arterials include MacArthur Boulevard, University Drive, Main Street in Santa Ana, Edinger Avenue in the City of Tustin, MacArthur Boulevard in Newport Beach and Bristol Street in Costa Mesa. The heaviest traveled segments on these arterials served up to 78,500 vehicles per day (vpd). Along the east-west direction, the main thoroughfares are Main Street and Barranca Parkway, where some of the heavily used segments carry on average between 25,000 and 38,700 vehicles daily.

The following were some of the most heavily traveled arterial segments within the study area:

Jamboree Road (Irvine)

- o El Camino Real to I-5 NB On-Ramp (61,500 vpd)
- o I-5 NB Ramps to I-5 SB Off-Ramp (65,000 vpd)
- o Warner Avenue to Edinger Avenue (78,500 vpd)
- o Edinger Avenue to Walnut Avenue (71,900 vpd)



- Warner Avenue to Barranca Parkway (69,500 vpd)
- Michelson Drive to I-405 southbound off-ramp (69,500 vpd)

MacArthur Boulevard (Newport Beach)

- Bison to Ford (75,900 vpd)

Bristol Street (Costa Mesa)

- Anton Boulevard to I-405 NB Ramps (62,500 vpd)
- I-405 NB Ramps to I-405 SB Ramps (63,000 vpd)

Table 3.2 presents the study area arterial roadway segments, including information on daily traffic count, V/C ratio and LOS on each segment. Existing arterial traffic conditions were analyzed based on the existing counts and lane configurations. Deficient segments within the City of Irvine were further analyzed for peak hour performance. Alternative methodologies by other cities within the study area called for a different analysis approach. As noted, LOS E or F indicates a deficient segment for all arterial segments outside Planning Area (PA) 36 within the City of Irvine. PA 36 segments are considered deficient at LOS F.

Table 3.2: Existing Daily Arterial LOS Summary

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Existing Conditions		
					Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	7,620	0.20	A
2721	Baker Street	Bear Street to Bristol Street		CM	23,497	0.62	B
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	27,498	0.49	A
1294	Baker Street	SR 55 SB to SR 55 NB		CM	24,275	0.43	A
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	13,718	0.24	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	4,699	0.08	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	17,577	0.31	A
2733	Bristol Street	Seegerstrom Avenue to West Alton Avenue		CM	35,789	0.64	B
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	38,850	0.69	B
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	22,305	0.40	A
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	42,108	0.75	C
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	62,602	0.83	D
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	63,048	0.84	D
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	40,727	0.73	C
2732	Bristol Street	Paularino Avenue to Baker Street		CM	34,095	0.61	B
2730	Bristol Street	Baker Street to SR 55		CM	24,713	0.44	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	20,914	0.37	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	12,232	0.32	A
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	7,069	0.57	A
2772	Flower Street	Seegerstrom Avenue to MacArthur Boulevard		CM	9,756	0.26	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	8,180	0.22	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	6,193	0.16	A
2756	Main Street	Sunflower Avenue to SR-55		CM	20,195	0.53	A
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	5,469	0.44	A
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	5,674	0.45	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	8,487	0.68	B
2742	Paularino Avenue	Bear Street to Bristol Street		CM	7,632	0.61	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	16,284	0.43	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	15,141	0.40	A
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	3,967	0.10	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	10,781	0.28	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	16,060	0.42	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	15,961	0.42	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	14,182	0.37	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	9,020	0.24	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	5,684	0.45	A



Table 3.2: Existing Daily Arterial LOS Summary

ID	Arterial	Segment Limits	P/A 36 City of Irvine	Jurisdiction	Existing Conditions		
					Volume	V/C	LOS
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4,578	0.14	A
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	12,332	0.39	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	14,649	0.46	A
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	15,133	0.28	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	15,645	0.29	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	15,465	0.29	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	12,620	0.23	A
783	Alton Parkway	San Marino to Culver Drive		Irv	21,617	0.40	A
735	Barranca Parkway (Dyer Road)	Pullman to Red Hill Avenue		Irv	24,454	0.45	A
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	30,266	0.56	A
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	29,815	0.55	A
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	22,039	0.41	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	24,517	0.45	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	21,003	0.39	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	19,905	0.37	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	21,004	0.39	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	21,643	0.40	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	21,001	0.66	B
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	17,921	0.56	A
539	Bryan Avenue	El Camino Real to Rubicon		Irv	14,726	0.46	A
540	Bryan Avenue	Rubicon to Culver		Irv	18,343	0.57	A
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	16,279	0.30	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	12,892	0.40	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	11,823	0.37	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	10,315	0.32	A
877	Campus Drive	Jamboree Road to Carlson Avenue	a	Irv	20,089	0.63	B
879	Campus Drive	Carlson Avenue to University		Irv	18,247	1.40	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	3,901	0.12	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	36,738	0.74	C
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	49,687	0.92	E
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	44,077	0.82	D
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	42,201	0.78	C
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	38,904	0.67	B
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	41,580	0.77	C
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	40,870	0.76	C
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	44,253	0.82	D
220	Culver Drive	Alton Parkway to Main Street		Irv	45,204	0.84	D
221	Culver Drive	Main Street to San Leandro		Irv	49,711	0.92	E
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	54,428	1.01	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	53,319	0.99	E
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	39,658	0.73	C
226	Culver Drive	Sandburg Way to University Drive		Irv	32,408	0.60	A
1206	El Camino Real	Jamboree Road to Alliance		Irv	20,876	0.65	B
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4,393	0.14	A
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	9,179	0.71	C
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	11,387	0.88	D
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	10,273	0.43	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	12,508	0.39	A
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	11,065	0.35	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	12,686	0.40	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	15,295	0.48	A
2829	Harvard Avenue	San Juan to San Leon		Irv	14,888	0.47	A



Table 3.2: Existing Daily Arterial LOS Summary

ID	Arterial	Segment Limits	P/A 36 City of Irvine	Jurisdiction	Existing Conditions		
					Volume	V/C	LOS
178	Harvard Avenue	San Leon to Alton Parkway		Irv	16,362	0.51	A
179	Harvard Avenue	Alton Parkway to San Marino		Irv	18,655	0.58	A
180	Harvard Avenue	San Marino to Main Street		Irv	19,291	0.60	A
181	Harvard Avenue	Main Street to Coronado		Irv	13,552	0.42	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	20,167	0.63	B
183	Harvard Avenue	Michelson Drive to University Drive		Irv	8,672	0.67	B
675	Irvine Center Drive	Harvard Avenue to Hearthstone		Irv	17,848	0.33	A
676	Irvine Center Drive	Hearthstone to Culver Drive		Irv	15,815	0.29	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	39,163	0.54	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	61,511	0.91	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	65,707	1.22	F
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	57,976	1.07	F
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	54,497	1.21	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)*		Irv	71,936	0.40	A
136	Jamboree Road	Edinger Avenue to Warner Avenue*		Irv	78,493	0.44	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	69,451	0.39	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	50,727	0.70	B
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	49,220	0.68	B
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	46,536	0.65	B
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	45,004	0.63	B
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	53,259	0.74	C
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	52,524	0.65	B
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	69,470	0.86	D
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	51,529	0.82	D
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	45,645	0.72	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	40,300	0.75	C
152	Jamboree Road	Birch Street to Fairchild Road		Irv	32,438	0.51	A
154	Jamboree Road	Fairchild Road to Koll Center		Irv	33,237	0.62	B
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	26,722	0.49	A
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	35,926	0.80	C
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	15,788	0.25	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	25,505	0.40	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	33,677	0.42	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	48,662	0.64	B
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	40,604	0.56	A
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	33,358	0.46	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	30,151	0.56	A
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	34,000	0.63	B
817	Main Street	McDermott to Red Hill Avenue	a	Irv	18,121	0.34	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	16,818	0.31	A
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	26,160	0.48	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	35,615	0.53	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	17,820	0.30	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	16,082	0.30	A
823	Main Street	Siglo to Jamboree Road	a	Irv	22,024	0.41	A
824	Main Street	Jamboree Road to Union	a	Irv	19,037	0.33	A
825	Main Street	Veneto to Harvard Avenue		Irv	10,456	0.19	A
826	Main Street	Harvard Avenue to San Mateo		Irv	11,382	0.36	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	8,757	0.27	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	3,630	0.11	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	5,653	0.18	A
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	6,451	0.20	A



Table 3.2: Existing Daily Arterial LOS Summary

ID	Arterial	Segment Limits	P/A 36 City of Irvine	Jurisdiction	Existing Conditions		
					Volume	V/C	LOS
1449	McGaw Avenue	Jamboree Road to Murphy Avenue		Irv	2,462	0.08	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	14,917	0.33	A
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	10,836	0.34	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	10,559	0.28	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	17,973	0.42	A
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	14,864	0.35	A
847	Michelson Drive	Carlson Avenue to Prince		Irv	16,704	0.45	A
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	16,553	0.52	A
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	11,741	0.37	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	16,629	0.52	A
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	26,611	0.49	A
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	26,630	0.49	A
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	26,216	0.49	A
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	34,187	0.63	B
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	9,780	0.31	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	12,554	0.39	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	23,581	0.74	C
188	University Drive	California Avenue to Mesa Road		Irv	32,837	1.03	F
187	University Drive	Mesa Road to Campus Drive		Irv	33,673	1.05	F
880	University Drive	Campus Drive to Harvard Avenue		Irv	26,248	0.49	A
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	21,301	0.39	A
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	21,676	0.40	A
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	16,770	0.52	A
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	16,349	0.51	A
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	17,271	0.54	A
103	Von Karman Avenue	Anchor to Main Street	a	Irv	17,763	0.56	A
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	18,765	0.50	A
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	20,193	0.54	A
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	16,840	0.53	A
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	16,346	0.51	A
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	14,234	0.44	A
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	21,169	0.56	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	18,580	0.32	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	18,125	0.40	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	16,040	0.50	A
597	Walnut Avenue	Mall Street to Culver Drive		Irv	20,951	0.65	B
728	Warner Avenue	Construction North to Harvard Avenue		Irv	8,225	0.26	A
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	5,766	0.18	A
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	6,493	0.20	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	10,372	0.26	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	15,579	0.39	A
874	Birch Street	East of MacArthur Boulevard		NB	20,327	0.51	A
69	Birch Street	West of MacArthur Boulevard		NB	11,707	0.29	A
875	Birch Street	East of Von Karman Avenue		NB	20,327	0.51	A
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	9,087	0.16	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	13,411	0.34	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive*		NB	7,430	0.31	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue*		NB	12,689	0.53	A
1303	Bristol Street SB	Campus Drive to Birch Street*		NB	18,109	0.75	C
1305	Bristol Street NB	Birch Street to Campus Drive*		NB	15,273	0.64	B
1312	Bristol Street SB	West of Jamboree Road*		NB	22,446	0.56	A
1580	Bristol Street NB	West of Jamboree Road*		NB	20,045	0.84	D



Table 3.2: Existing Daily Arterial LOS Summary

ID	Arterial	Segment Limits	P/A 36 City of Irvine	Jurisdiction	Existing Conditions		
					Volume	V/C	LOS
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	27,671	0.48	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	9,051	0.23	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	22,879	0.39	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	24,237	0.61	B
2768	Irvine Avenue	South of University Drive		NB	22,253	0.56	A
156	Jamboree Road	South of MacArthur Boulevard		NB	28,826	0.50	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	46,597	0.80	C
157	Jamboree Road	South of Bristol Street		NB	48,897	0.84	D
159	Jamboree Road	University Drive to Bison Avenue		NB	42,624	0.73	C
1777	Jamboree Road	Bison Avenue to Ford Road		NB	33,614	0.58	A
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	21,187	0.31	A
75	MacArthur Boulevard	South of Birch Street		NB	23,445	0.40	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	23,568	0.41	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	43,429	0.75	C
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	75,856	1.12	F
2767	University Drive	East of Irvine Avenue		NB	823	0.08	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	14,628	0.30	A
112	Von Karman Avenue	South of Campus Drive		NB	10,305	0.26	A
113	Von Karman Avenue	South of Birch Street		NB	11,237	0.28	A
2795	Dyer Road	Main Street to Halladay Street		SA	25,688	0.46	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	30,243	0.54	A
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	43,265	0.77	C
734	Dyer Road	SR-55 NB to Pullman Street		SA	29,458	0.52	A
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	22,946	0.41	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	21,501	0.38	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	4,687	0.39	A
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	1,748	0.15	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	31,093	0.55	A
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	47,010	0.83	D
2796	Main Street	Segerstrom Avenue to Alton Avenue		SA	20,603	0.37	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	23,743	0.42	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	28,675	0.51	A
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	30,103	0.53	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	3,092	0.08	A
2736	Segerstrom Avenue	Bristol Street to Flower Street		SA	11,560	0.31	A
2771	Segerstrom Avenue	Flower Street to Main Street		SA	18,676	0.50	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	18,190	0.32	A
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	40,204	0.71	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	18,032	0.32	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	19,454	0.35	A
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4,501	0.24	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	15,300	0.61	B
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	16,200	0.65	B
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	16,700	0.45	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	16,800	0.45	A
44	Edinger Avenue	West of Newport Avenue		Tus	34,312	0.61	B
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	20,215	0.36	A
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	22,340	0.40	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	13,735	0.55	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	8,973	0.72	C
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	8,392	0.34	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	13,574	0.36	A



Table 3.2: Existing Daily Arterial LOS Summary

ID	Arterial	Segment Limits	P/A 36 City of Irvine	Jurisdiction	Existing Conditions		
					Volume	V/C	LOS
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	22,340	0.40	A
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	13,952	0.25	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	7,350	0.59	A
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	4,417	0.35	A
6	Newport Avenue	El Camino Real to I-5		Tus	28,516	0.76	C
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	31,417	0.84	D
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	29,223	0.78	C
49	Newport Avenue	North of Sycamore Avenue		Tus	9,604	0.38	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	18,205	0.73	C
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	5,593	0.45	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	3,915	0.31	A
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	43,222	0.77	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	38,996	0.69	B
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	38,235	0.68	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	26,681	0.47	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	25,830	0.46	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	27,502	0.49	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	29,957	0.53	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	25,507	0.45	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	26,723	0.47	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	29,570	0.53	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	9,036	0.36	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	7,758	0.62	B
85	Tustin Ranch Road	North of I-5		Tus	32,560	0.58	A
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	21,087	0.37	A
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	3,690	0.30	A
587	Walnut Avenue	East of Newport Avenue		Tus	15,375	0.62	B
589	Walnut Avenue	East of Red Hill Avenue		Tus	15,579	0.42	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	19,862	0.53	A
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	18,249	0.49	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	13,682	0.24	A

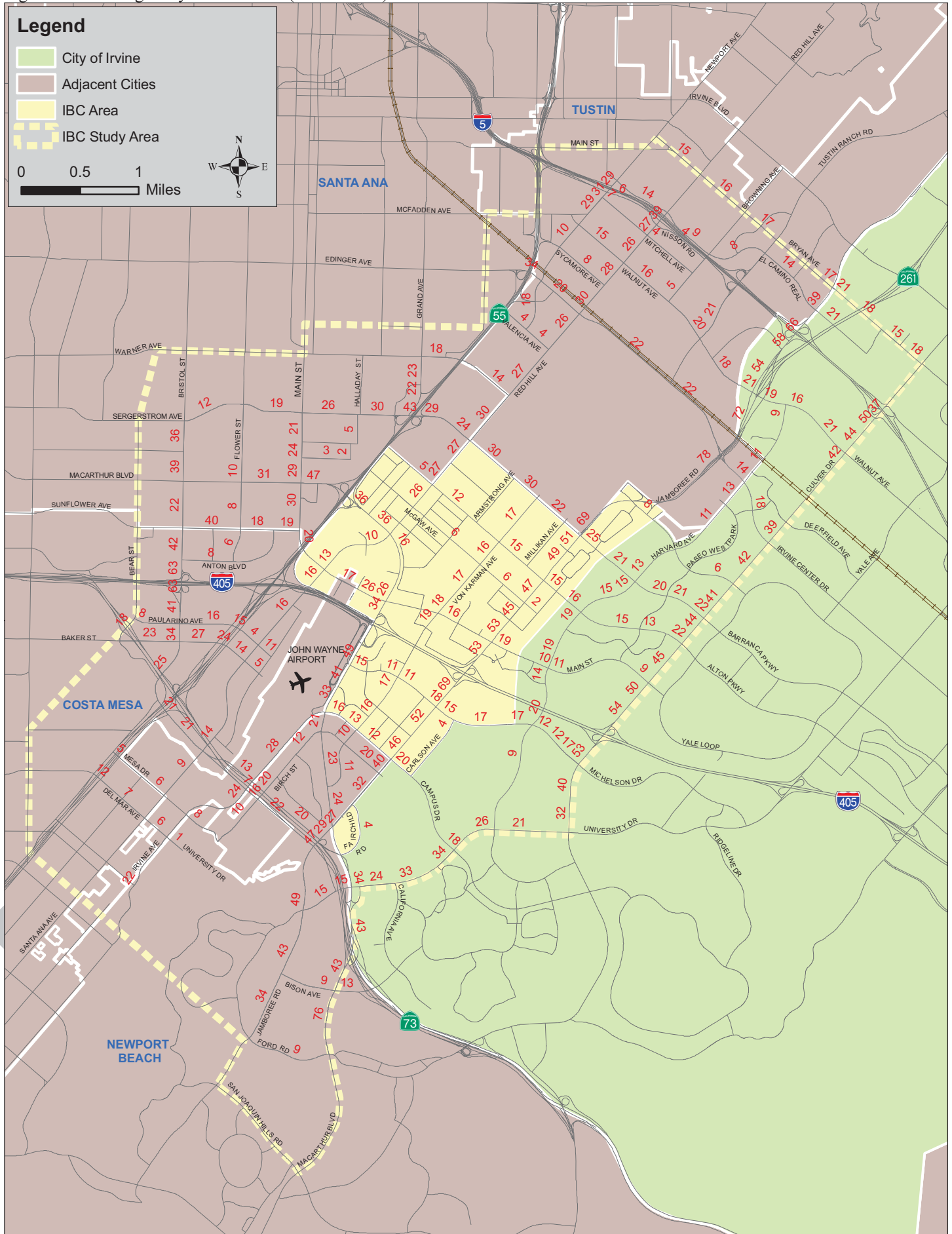
The arterial analysis indicates that the following 12 segments are deficient under the Existing Year 2008 daily conditions:

- o 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- o 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- o 221—Culver Drive from Main Street to San Leandro (Irvine)
- o 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- o 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- o 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)
- o 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- o 131—Jamboree Road from I-5 SB Off-Ramp to Michelle Drive (Irvine)
- o 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- o 188—University Drive from California Avenue to Mesa Road (Irvine)
- o 187—University Drive from Mesa Road to Campus Drive (Irvine)
- o 1301: MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)

Figure 3.1 and Figure 3.2 present the daily Existing ADT and LOS for all major arterials within the IBC study area.

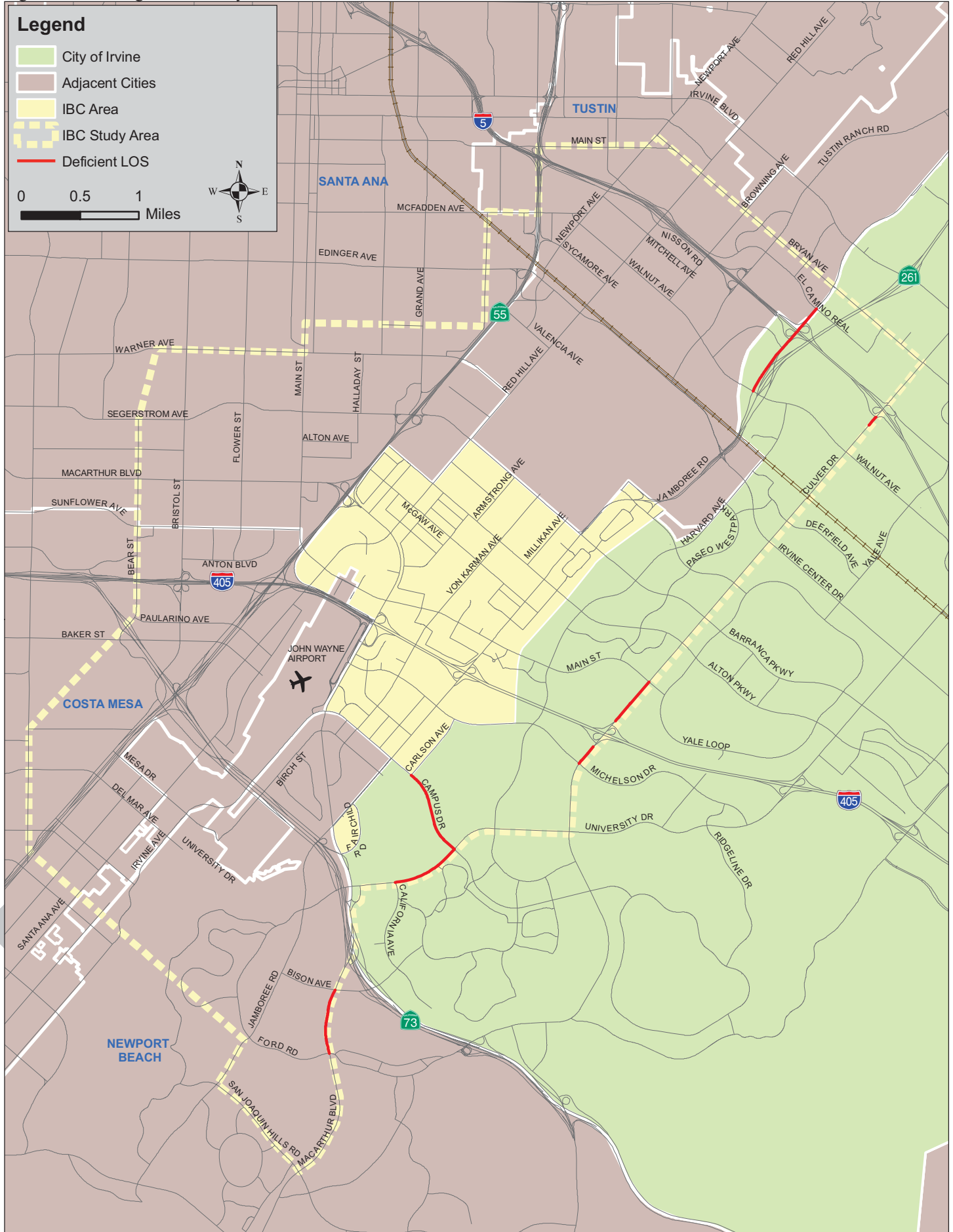
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Figure 3.1: Existing Daily Arterial ADT (in thousands)



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Figure 3.2: Existing Arterial Daily Deficiencies



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3.4 Existing Peak Hour Link Analysis

As noted in **Chapter 2**, the City’s *Traffic Impact Analysis Guidelines* mandate a peak hour link analysis on all links that exceed the permissible daily LOS threshold applicable to the segment. The City’s acceptable threshold is LOS D, unless the arterial segment is located within the IBC area (Planning Area #36), where LOS E is acceptable. Based on the findings presented in **Table 3.2**, deficient arterial segments within Irvine were further evaluated under peak hour conditions. Adjacent jurisdictions do not evaluate segments under peak hour conditions.

Peak hour directional traffic volumes were directly obtained from peak hour counts for upstream and downstream intersections for each deficient arterial segment. When analyzing an arterial link for peak hour analysis, directional traffic volumes were obtained from turning movement counts reported at the adjacent intersections.

Table 3.3 presents the results of peak hour link analysis, indicating that all arterial segments that are deficient under daily conditions operate at an acceptable LOS in both peak hours, performing at LOS C or better, and hence no mitigation measures are recommended at this time for these facilities for segments within the City of Irvine.

Table 3.3: Existing Arterial Peak Hour Link Analysis

Arterial	Segment Limits	Facility Type	Existing Volume				AM				PM			
			AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
			NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Campus Drive	Carlson Avenue to University	2U	592	548	751	929	0.37	A	0.34	A	0.47	A	0.58	A
Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,244	2,233	2,027	2,117	0.26	A	0.47	A	0.42	A	0.44	A
Culver Drive	Main Street to San Leandro	6D	1,182	2,649	2,504	1,635	0.25	A	0.55	A	0.52	A	0.34	A
Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,097	1,940	2,576	1,624	0.23	A	0.40	A	0.54	A	0.34	A
Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,184	1,894	2,074	1,553	0.25	A	0.39	A	0.43	A	0.32	A
Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D +AUX	1,486	2,676	2,447	1,235	0.23	A	0.42	A	0.38	A	0.22	A
Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	6D	1,880	2,685	3,254	1,778	0.39	A	0.56	A	0.68	B	0.37	A
Jamboree Road	I-5 SB Off-Ramp to Michelle Drive	6D	1,802	3,015	3,451	2,035	0.38	A	0.63	B	0.72	C	0.42	A
Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,505	2,251	1,540	2,160	0.31	A	0.47	A	0.32	A	0.68	B
University Drive	California Avenue to Mesa Road	4D	896	1,580	2,033	1,071	0.49	A	0.28	A	0.33	A	0.64	B
University Drive	Mesa Road to Campus Drive	4D	862	1,569	1,892	1,094	0.49	A	0.27	A	0.34	A	0.59	A

There are no segments within the City of Irvine that fail under peak hour existing conditions. For segments outside the City of Irvine, the jurisdiction’s segment analysis guidelines are applied. As noted in **Chapter 2**, Costa Mesa, Newport Beach, and Tustin, outside the City of Irvine assesses segment impacts at the intersection level. Improvements at the intersections that feed into deficient arterial segments should eliminate deficiencies. For segments in the City of Santa Ana, deficiencies are addressed in the daily condition. There are no arterial segments in Santa Ana that are deficient under existing conditions.

3.5 Existing Intersection Analysis

As part of this study, 224 intersections were analyzed for peak hour conditions under existing conditions with the exception of 20 future intersections that are expected to be built in the City of Tustin as a part of the Tustin Legacy development. The City’s acceptable LOS threshold for intersections is LOS D or better, while in Planning Area 36 (IBC area) and for CMP intersections outside the City of Irvine, is LOS E or better. **Table 3.4** summarizes the results for Existing Year 2008 intersection ICU and LOS and **Appendix B** presents detailed ICU worksheets for



each intersection. For existing conditions, turning movement counts were collected in late 2007 and 2008 on a typical weekday to best reflect traffic activity during the peak hour. The intersection analysis reports intersection ICU and the corresponding LOS. For shared jurisdictions, the more conservative methodology was utilized.

Table 3.4: Existing Intersection Peak Hour LOS Summary

ID	Intersection	Planning Area 36 (Irvine) or CMP location	Jurisdiction	Existing Conditions			
				AM		PM	
				ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino		CM	0.71	C	0.56	A
11	SR-55 Frontage Road NB Ramps at Paularino		CM	0.54	A	0.71	C
12	SR-55 SB Frontage Road at Baker Street		CM	0.63	B	0.65	B
13	SR-55 NB Frontage Road at Baker Street		CM	0.69	B	0.74	C
50	Red Hill Avenue at Paularino Avenue		CM	0.44	A	0.63	B
51	Red Hill Avenue at Baker Street		CM	0.45	A	0.69	B
52	Red Hill Avenue at Bristol Street		CM	0.35	A	0.44	A
541	Bear Street at Baker Street		CM	0.55	A	0.80	C
542	Bear Street at Paularino Avenue		CM	0.39	A	0.55	A
545	Bristol Street at Sunflower Avenue		CM	0.58	A	0.70	B
546	Bristol Street at Anton Boulevard		CM	0.29	A	0.59	A
547	Bristol Street and Paularino Avenue		CM	0.51	A	0.75	C
548	Bristol Street at Baker Street		CM	0.50	A	0.64	B
549	Newport Boulevard SB at Bristol Street		CM	0.24	A	0.48	A
550	Newport Boulevard NB at Bristol Street		CM	0.27	A	0.38	A
715	Bristol Street at I-405 NB Off Ramps		CM	0.43	A	0.65	B
716	Bristol Street at I-405 SB Off Ramps		CM	0.54	A	0.59	A
717	Bear Street at SR-73 SB Ramps		CM	0.48	A	0.79	C
718	Bear Street at SR-73 NB Ramps		CM	0.36	A	0.64	B
721	Flower Street at Sunflower Avenue		CM	0.26	A	0.43	A
722	Anton Boulevard at Sunflower Avenue		CM	0.34	A	0.34	A
726	Main Street at Sunflower Avenue		CM	0.39	A	0.71	C
735	Newport Boulevard NB at Del Mar Avenue		CM	0.72	C	0.44	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue		CM	0.28	A	0.39	A
737	Newport Boulevard NB at Mesa Road		CM	0.23	A	0.32	A
738	Newport Boulevard SB at Mesa Road		CM	0.19	A	0.53	A
45	Red Hill Avenue at McGaw Avenue	a	Irv	0.49	A	0.63	B
47	Red Hill Avenue at MacArthur Avenue	a	Irv	0.74	C	0.89	D
48	Red Hill Avenue at Sky Park North	a	Irv	0.41	A	0.57	A
49	Red Hill Avenue at Main Street	a	Irv	0.62	B	0.83	D
70	Gillette Avenue at Main Street	a	Irv	0.36	A	0.70	B
77	MacArthur Boulevard at Sky Park East	a	Irv	0.26	A	0.38	A
78	MacArthur Boulevard at Main Street	a	Irv	0.50	A	0.66	B
79	MacArthur Boulevard at I-405 NB Ramps	a	Irv	0.64	B	0.64	B
80	MacArthur Boulevard at I-405 SB Ramps	a	Irv	0.56	A	0.69	B
82	MacArthur Boulevard at Michelson Drive	a	Irv	0.55	A	0.78	C
83	MacArthur Boulevard at Douglas Avenue	a	Irv	0.34	A	0.38	A
87	Dupont Drive at Michelson Drive	a	Irv	0.31	A	0.39	A
98	Von Karman Avenue at Alton Parkway	a	Irv	0.65	B	0.71	C
99	Von Karman Avenue at McGaw Avenue	a	Irv	0.54	A	0.72	C
100	Von Karman Avenue at Main Street	a	Irv	0.63	B	0.72	C
101	Von Karman Avenue at Morse Avenue	a	Irv	0.45	A	0.54	A
102	Von Karman Avenue at Michelson Drive	a	Irv	0.55	A	0.75	C
103	Von Karman Avenue at Dupont Drive	a	Irv	0.39	A	0.50	A



Table 3.4: Existing Intersection Peak Hour LOS Summary

ID	Intersection	Planning Area 36 (Irvine) or CMP location	Jurisdiction	Existing Conditions			
				AM		PM	
				ICU	LOS	ICU	LOS
104	Von Karman Avenue at Martin	a	Irv	0.33	A	0.52	A
115	Millikan Avenue at Alton Parkway	a	Irv	0.39	A	0.39	A
116	Cartwright Road at Main Street	a	Irv	0.35	A	0.54	A
119	Teller Avenue at Michelson Drive	a	Irv	0.41	A	0.51	A
128	Jamboree Road at I-5 NB Ramps	b	Irv	0.66	B	0.83	D
129	Jamboree Road at I-5 SB Ramps	b	Irv	0.74	C	0.76	C
130	Jamboree Road at Michelle Drive		Irv	0.79	C	0.78	C
131	Jamboree Road SB at Walnut Avenue		Irv	0.49	A	0.45	A
132	Jamboree Road NB at Walnut Avenue		Irv	0.32	A	0.44	A
137	Jamboree Road at Beckman Avenue	a	Irv	0.62	B	0.70	B
138	Jamboree Road at Alton Parkway	a	Irv	0.72	C	0.80	C
139	Jamboree Road at McGaw Avenue	a	Irv	0.55	A	0.62	B
140	Jamboree Road at Kelvin Avenue	a	Irv	0.60	A	0.60	A
141	Jamboree Road at Main Street	a	Irv	0.80	C	0.87	D
143	Jamboree Road at I-405 NB Ramps	a,b	Irv	0.65	B	0.82	D
144	Jamboree Road at I-405 SB Ramps	a,b	Irv	0.79	C	0.86	D
145	Jamboree Road at Michelson Drive	a	Irv	0.66	B	0.97	E
146	Jamboree Road at Dupont Road	a	Irv	0.62	B	0.69	B
164	Construction Circle South at Barranca Parkway	a	Irv	0.35	A	0.53	A
168	Murphy Avenue at Alton Parkway	a	Irv	0.37	A	0.64	B
170	Union at Main Street	a	Irv	0.37	A	0.56	A
171	Veneto at Main Street		Irv	0.36	A	0.51	A
174	Carlson Avenue at Michelson Drive	a	Irv	0.41	A	0.53	A
175	Carlson Avenue at Campus Drive	a	Irv	0.64	B	0.71	C
180	Harvard Avenue at Walnut Avenue		Irv	0.42	A	0.46	A
183	Harvard Avenue at Warner Avenue		Irv	0.45	A	0.47	A
184	Harvard Avenue at Barranca Parkway		Irv	0.54	A	0.56	A
185	Harvard Avenue at Alton Parkway		Irv	0.63	B	0.68	B
186	Harvard Avenue at Main Street		Irv	0.51	A	0.68	B
187	Harvard Avenue at Coronado		Irv	0.50	A	0.51	A
188	Harvard Avenue at Michelson Drive		Irv	0.61	B	0.83	D
189	Harvard Avenue at University Drive		Irv	0.70	B	0.68	B
190	University Drive at Campus Drive		Irv	0.74	C	0.71	C
191	Mesa Road at University Drive		Irv	0.52	A	0.73	C
192	California Avenue at University Drive		Irv	0.75	C	0.82	D
196	Hearthstone Boulevard at Irvine Center Drive		Irv	0.38	A	0.46	A
198	Paseo Westpark at Warner Avenue		Irv	0.36	A	0.34	A
199	Paseo Westpark at Barranca Parkway		Irv	0.43	A	0.48	A
200	Paseo Westpark at Alton Parkway		Irv	0.47	A	0.49	A
201	Paseo Westpark at Main Street		Irv	0.58	A	0.46	A
221	Culver Drive at Bryan Avenue		Irv	0.70	B	0.54	A
222	Culver Drive at Trabuco Road		Irv	0.52	A	0.58	A
223	Culver Drive at I-5 SB Ramps		Irv	0.57	A	0.68	B
224	Culver Drive at Walnut Avenue		Irv	0.74	C	0.72	C
225	Culver Drive at Deerfield Drive		Irv	0.74	C	0.71	C
226	Culver Drive at Irvine Center Drive		Irv	0.60	A	0.56	A
227	Culver Drive at Warner Avenue		Irv	0.66	B	0.60	A



Table 3.4: Existing Intersection Peak Hour LOS Summary

ID	Intersection	Planning Area 36 (Irvine) or CMP location	Jurisdiction	Existing Conditions			
				AM		PM	
				ICU	LOS	ICU	LOS
228	Culver Drive at Barranca Parkway		Irv	0.76	C	0.67	B
229	Culver Drive at Alton Parkway		Irv	0.70	B	0.73	C
230	Culver Drive at Main Street		Irv	0.69	B	0.63	B
231	Culver Drive at San Leandro		Irv	0.70	B	0.54	A
232	Culver Drive at I-405 NB Ramps		Irv	0.46	A	0.85	D
233	Culver Drive at I-405 SB Ramps		Irv	0.48	A	0.57	A
234	Culver Drive at Michelson Drive		Irv	0.49	A	0.72	C
235	Culver Drive at University Drive		Irv	0.51	A	0.71	C
337	Von Karman Avenue at Quartz	a	Irv	0.53	A	0.67	B
439	Bixby at Michelson Drive		Irv	0.22	A	0.39	A
440	Siglo at Main Street		Irv	0.37	A	0.49	A
472	Obsidian at Michelson Drive	a	Irv	0.41	A	0.30	A
84	MacArthur Boulevard at Campus Drive	a	Irv/NB	0.49	A	0.82	D
105	Von Karman Avenue at Campus Drive	a	Irv/NB	0.52	A	0.78	C
121	Teller Avenue at Campus Drive	a	Irv/NB	0.27	A	0.36	A
147	Jamboree Road at Campus Drive	a	Irv/NB	0.61	B	0.70	B
149	Jamboree Road at Fairchild Road	a	Irv/NB	0.63	B	0.63	B
150	Jamboree Road at MacArthur Boulevard	a,b	Irv/NB	0.71	C	0.72	C
176	Fairchild Avenue at MacArthur Boulevard	a	Irv/NB	0.78	C	0.60	A
193	MacArthur Boulevard NB at University Drive		Irv/NB	0.44	A	0.55	A
194	MacArthur Boulevard SB at University Drive		Irv/NB	0.40	A	0.36	A
195	SR-73 SB Ramps at University Drive		Irv/NB	0.49	A	0.45	A
43	Red Hill Avenue at Deere Avenue	a	Irv/SA	0.45	A	0.71	C
44	Red Hill Avenue at Alton Parkway	a	Irv/SA	0.51	A	0.87	D
9	SR-55 NB Ramps at MacArthur Boulevard	a	Irv/SA	0.73	C	0.55	A
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a	Irv/SA/Tus	0.82	D	0.95	E
71	Armstrong Avenue at Barranca Avenue	a	Irv/Tus	0.42	A	0.41	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca Parkway	a	Irv/Tus	0.50	A	0.65	B
112	Myford Road at Michelle Drive		Irv/Tus	0.16	A	0.33	A
113	Myford Road at Walnut Avenue		Irv/Tus	0.40	A	0.46	A
114	Millikan Avenue/District Way at Barranca Parkway	a	Irv/Tus	0.56	A	0.60	A
126	Jamboree Road at Bryan Avenue		Irv/Tus	0.68	B	0.56	A
127	Jamboree Road at El Camino Real		Irv/Tus	0.65	B	0.63	B
134	Loop Road/Park Avenue at Warner Avenue		Irv/Tus	0.61	B	0.86	D
136	Jamboree Road at Barranca Avenue	a	Irv/Tus	0.75	C	0.89	D
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive		Irv/Tus	0.48	A	0.44	A
182	Harvard Avenue at Paseo Westpark/Moffett Drive		Irv/Tus	0.34	A	0.36	A
441	Loop Road at Jamboree Road SB Ramps		Irv/Tus	Not Analyzed Under Existing Conditions			
61	Campus Drive at Airport Way		NB	0.33	A	0.62	B
62	Campus Drive at Bristol Street NB		NB	0.58	A	0.86	D
63	Campus Drive at Bristol Street SB		NB	0.72	C	0.49	A
64	Birch Street at Bristol Street NB		NB	0.59	A	0.55	A
65	Birch Street at Bristol Street SB		NB	0.36	A	0.41	A
85	MacArthur Boulevard at Birch Street		NB	0.59	A	0.75	C
106	Von Karman Avenue at Birch Street		NB	0.35	A	0.48	A
107	Von Karman Avenue at MacArthur Boulevard		NB	0.34	A	0.47	A
148	Jamboree Road at Birch Street		NB	0.47	A	0.53	A



Table 3.4: Existing Intersection Peak Hour LOS Summary

ID	Intersection	Planning Area 36 (Irvine) or CMP location	Jurisdiction	Existing Conditions			
				AM		PM	
				ICU	LOS	ICU	LOS
151	Jamboree Road at Bristol Street NB		NB	0.49	A	0.64	B
153	Jamboree Road at Bristol Street SB		NB	0.60	A	0.64	B
154	Jamboree Road at Eastbluff Drive		NB	0.58	A	0.60	A
155	Jamboree Road at Bison Avenue		NB	0.48	A	0.54	A
156	Jamboree Road at Ford Road		NB	0.68	B	0.78	C
178	MacArthur Boulevard at Bison Avenue		NB	0.60	A	0.65	B
179	MacArthur Boulevard at Ford Road		NB	0.72	C	0.77	C
733	Irvine Avenue at Mesa Drive		NB/OC	0.53	A	0.81	D
734	Irvine Avenue at University Drive/Del Mar Avenue		NB/OC	0.52	A	0.67	B
741	Jamboree Road at San Joaquin Hills Road		NB	0.56	A	0.56	A
742	MacArthur Boulevard at San Joaquin Hills Road		NB	0.65	B	0.82	D
4	SR-55 SB Ramps at Edinger Avenue	b	SA	0.68	B	0.73	C
5	Hotel Terrace Drive at Dyer Road		SA	0.50	A	0.59	A
6	Grand Avenue at Dyer Road		SA	0.59	A	0.79	C
7	SR-55 NB Ramps at Dyer Road		SA	0.70	B	0.77	C
8	SR-55 SB Ramps at MacArthur Boulevard	c	SA	0.68	B	0.60	A
29	Pullman Street at Barranca Parkway		SA	0.43	A	0.72	C
543	Bristol Street at Segerstrom Avenue		SA	0.62	B	0.74	C
544	Bristol Street at MacArthur Boulevard		SA	0.60	A	0.77	C
719	Flower Street at Segerstrom Avenue		SA	0.61	B	0.64	B
720	Flower Street at MacArthur Boulevard		SA	0.49	A	0.75	C
723	Main Street at Segerstrom Avenue		SA	0.61	B	0.68	B
724	Main Street at Alton Avenue		SA	0.29	A	0.40	A
725	Main Street and MacArthur Boulevard (w/o SR-55)	c	SA	0.60	A	0.60	A
727	Halladay Street at Dyer Road		SA	0.53	A	0.58	A
728	Halladay Street East at Alton Parkway		SA	0.20	A	0.27	A
729	Halladay Street West at Alton Parkway		SA	0.19	A	0.23	A
730	Grand Avenue at Warner Avenue		SA	0.46	A	0.69	B
731	Grand Avenue at SR-55 SB Ramps		SA	0.50	A	0.45	A
3	Newport Avenue at Edinger Avenue		Tus	0.56	A	0.52	A
14	Walnut Avenue to McFadden Avenue		Tus	0.38	A	0.45	A
18	Newport Avenue at Bryan Avenue		Tus	0.53	A	0.62	B
19	Newport Avenue at Main Street		Tus	0.27	A	0.59	A
20	Newport Avenue at El Camino Real		Tus	0.58	A	0.67	B
21	Newport Avenue at I-5 NB Ramps		Tus	0.58	A	0.52	A
22	Newport Avenue at I-5 SB Ramps		Tus	0.59	A	0.71	C
23	Newport Avenue at McFadden Avenue		Tus	0.64	B	0.45	A
24	Newport Avenue at Walnut Avenue		Tus	0.68	B	0.70	B
25	Newport Avenue at Sycamore Avenue		Tus	0.45	A	0.45	A
27	Del Amo Avenue at Edinger Avenue		Tus	0.31	A	0.28	A
35	Red Hill Avenue at Bryan Avenue		Tus	0.57	A	0.58	A
36	Red Hill Avenue at El Camino Real		Tus	0.69	B	1.11	F
37	Red Hill Avenue at Nisson Road		Tus	0.60	A	0.64	B
38	Red Hill Avenue at Walnut Avenue		Tus	0.83	D	0.76	C
39	Red Hill Avenue at Sycamore Avenue		Tus	0.70	B	0.56	A
40	Red Hill Avenue at Edinger Avenue		Tus	0.69	B	0.69	B
55	Browning Avenue at Bryan Avenue		Tus	0.37	A	0.55	A



Table 3.4: Existing Intersection Peak Hour LOS Summary

ID	Intersection	Planning Area 36 (Irvine) or CMP location	Jurisdiction	Existing Conditions			
				AM		PM	
				ICU	LOS	ICU	LOS
56	Browning Avenue at El Camino Real		Tus	0.30	A	0.44	A
58	Browning Avenue at Walnut Avenue		Tus	0.40	A	0.49	A
92	Tustin Ranch Road at Bryan Avenue		Tus	0.60	A	0.66	B
93	Tustin Ranch Road at El Camino Real		Tus	0.90	D	0.69	B
94	Tustin Ranch Road at I-5 NB Ramps		Tus	0.53	A	0.45	A
95	Tustin Ranch Road at I-5 SB Ramps		Tus	0.67	B	0.48	A
96	Tustin Ranch Road at Walnut Avenue		Tus	0.81	D	0.76	C
109	Myford Road at Bryan Avenue		Tus	0.37	A	0.36	A
110	Myford Road at El Camino Real		Tus	0.22	A	0.39	A
111	Franklin Avenue at Walnut Avenue		Tus	0.43	A	0.90	D
133	Jamboree Road at Edinger Avenue	b	Tus	0.35	A	0.49	A
445	Tustin Ranch Road at Warner Avenue North		Tus	Not Analyzed Under Existing Conditions			
446	Tustin Ranch Road at Warner Avenue South		Tus				
447	Armstrong Avenue/Severyns Road at Valencia Avenue		Tus				
448	Armstrong Avenue at Warner Avenue		Tus				
453	Red Hill Avenue at Valencia Avenue		Tus	0.55	A	0.62	B
454	Tustin Ranch Road at Valencia Avenue		Tus	Not Analyzed Under Existing Conditions			
455	East Connector-Jamboree Plaza at Edinger Avenue		Tus				
456	North Loop Road at Valencia Avenue		Tus				
457	North Loop Road at Moffett Drive		Tus				
478	Red Hill Avenue at I-5 NB Ramps		Tus	0.73	C	0.59	A
479	Red Hill Avenue at I-5 SB Ramps		Tus	0.79	C	0.72	C
480	Tustin Ranch Road Connector at Edinger Avenue		Tus	Not Analyzed Under Existing Conditions			
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue		Tus	0.56	A	0.74	C
739	Newport Avenue at Mitchell Avenue		Tus	0.66	B	0.63	B
740	Red Hill Avenue at Mitchell Avenue		Tus	0.71	C	0.65	B
743	Newport Avenue at Valencia Avenue		Tus	Not Analyzed Under Existing Conditions			
745	Tustin Ranch Road at Park Avenue		Tus				
746	Kensington Park Drive at Edinger Avenue		Tus				
747	Kensington Park Drive at Valencia Avenue		Tus				
748	Armstrong Avenue at A Street		Tus				
749	Park Avenue at A Street		Tus				
750	Legacy Road at Warner Avenue		Tus				
751	Tustin Ranch Road at Legacy Road		Tus				
752	Legacy Road at North Loop Road		Tus				
753	Tustin Ranch Road at Edinger Avenue Connector		Tus				
28	Pullman Street at Warner Avenue		Tus/SA	0.30	A	0.37	A
41	Red Hill Avenue at Warner Avenue		Tus/SA	0.64	B	0.47	A
754	Red Hill Avenue at Carnegie Avenue/A Street		Tus/SA	0.38	A	0.53	A

- Denotes intersection operating at a deficient LOS
- a Intersection within Irvine Planning Area 36--LOS E Acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E Deficiency Acceptable

Based on existing count volumes, there is one intersection within the study area that is currently operating at a deficient LOS. In order to meet the growing demand for travel within the study area, this intersection will need to be improved to operate efficiently. These deficiencies establish a baseline for future land use changes and growth in the



IBC study area. Although there are some intersections operating at LOS E, such as Jamboree at Michelson (intersection #145) those intersections are not considered deficient because they either are within the City of Irvine's Planning Area 36 or are CMP intersections where LOS E is acceptable. There is one deficient intersection under existing conditions:

- #36: Red Hill Avenue at El Camino Real (Tustin)—PM Peak Hour LOS 1.11

Figure 3.3 and **Figure 3.4** graphically depict intersection performance under existing conditions. Mitigation measures and necessary improvements are discussed in detail in **Chapter 6: Mitigation**.

3.6 Existing Freeway Mainline Analysis

There are five major freeways that traverse the study area, in either the IBC itself or the adjacent areas. Existing freeway count data was extracted for a typical weekday from the California Department of Transportation (Caltrans) Performance Management System (PeMS). The PeMS system is managed by the Department of Electrical Engineering and Computer Science at the University of California, Berkeley, in cooperation with the Caltrans, the California Partners for Advanced Transit and Highways, and the Berkeley Transportation System. The Highway Capacity Manual (HCM) analysis was performed for both the freeway mainlines and ramps. The analysis generates a density for each freeway segment based on the volume and lane configuration. The density output represents the number of passenger cars, per mile, per lane (pc/mi/ln) and provides an indication of congestion levels. **Table 3.5** presents the LOS range which indicates the mainline segments that operate at a deficient LOS.

There are several freeway segments that currently operate at a deficient LOS. The deficient segments include:

AM Peak Hour:

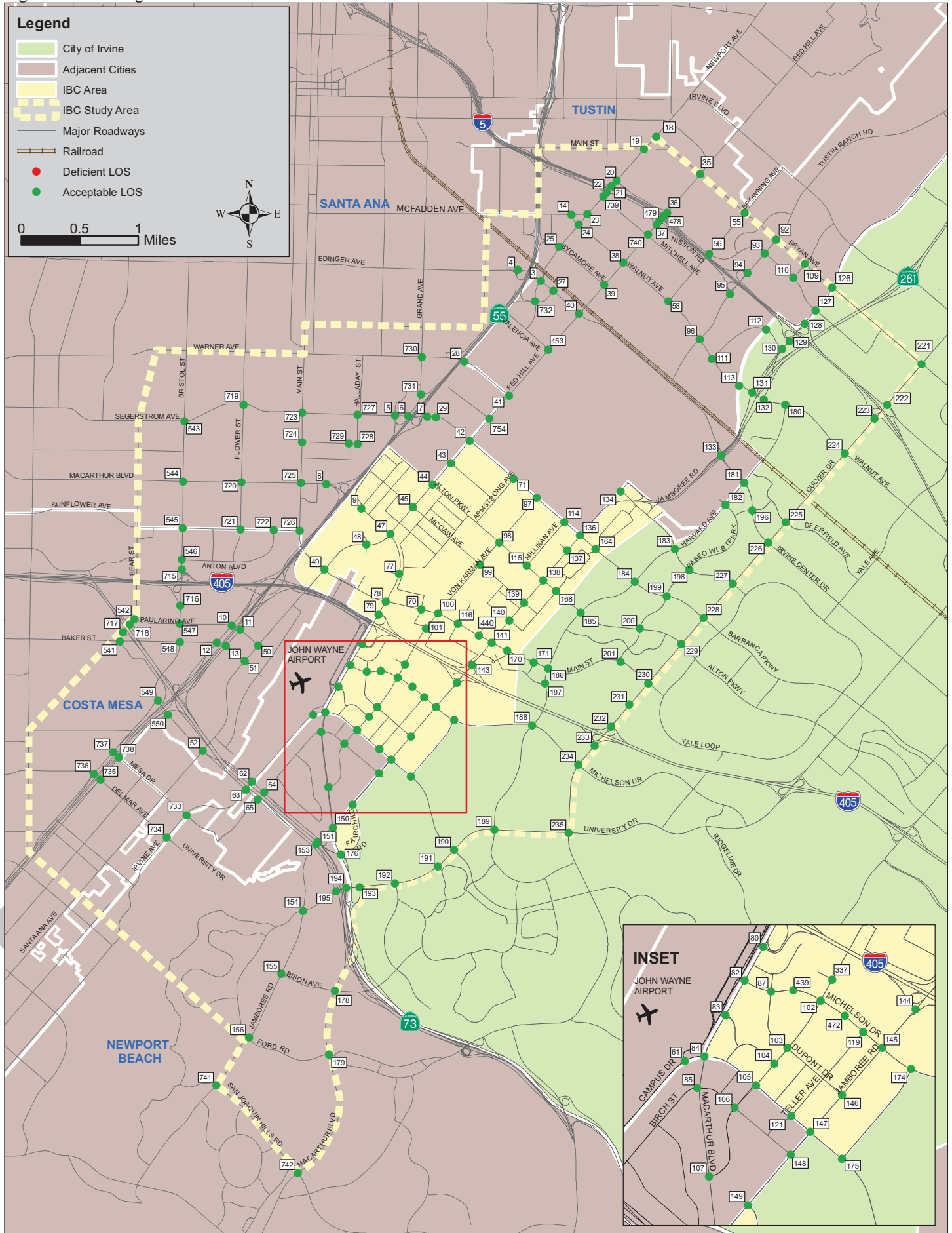
- I-5 Northbound between Red Hill Avenue and Newport Avenue
- I-5 Northbound between Newport Avenue and SR-55
- I-5 Southbound between Newport Avenue and SR-55
- I-405 Southbound between Culver Drive and Jamboree Road
- I-405 Southbound between Jamboree Road and MacArthur Boulevard
- SR-55 Northbound between I-405 and MacArthur Boulevard
- SR-73 Southbound between Campus Drive and SR-55

PM Peak Hour:

- I-5 Southbound between Newport Avenue and SR-55
- I-405 Southbound between Culver Drive and Jamboree Road
- SR-73 Southbound between Campus Drive and SR-55

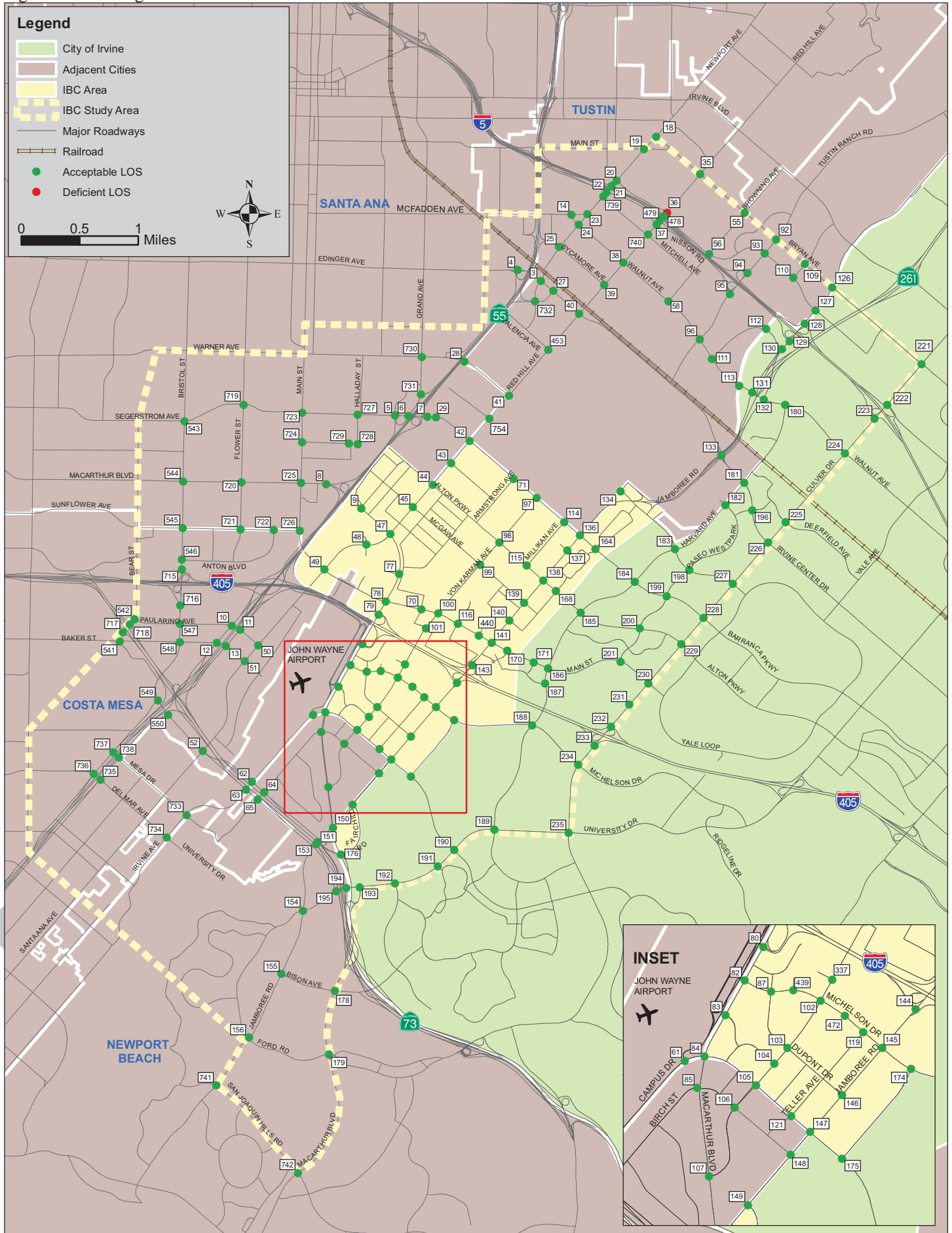
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Figure 3.3: Existing AM Peak Hour Intersection Deficiencies



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Figure 3.4: Existing PM Peak Hour Intersection Deficiencies



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Table 3.5: Existing Peak Hour Freeway Mainline LOS

Location		Freeway Lanes			Existing Conditions									
		Direction	Lanes	Peak Hour Capacity	AM Peak Hour					PM Peak Hour				
					Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS
I-5	Culver Drive to Jamboree Road	NB	5	10,000	8,723	0.87	D			7,847	0.78	D		
		SB	5	10,000	6,766	0.68	C			7,371	0.74	D		
	Jamboree Road to Tustin Ranch Road	NB	5	10,000	8,411	0.84	D			7,360	0.74	D		
		SB	5	10,000	7,382	0.74	D			7,446	0.74	D		
	Tustin Ranch Road to Red Hill Avenue	NB	5	10,000	8,542	0.85	D			8,005	0.80	D		
		SB	5	10,000	8,275	0.83	D			8,145	0.81	D		
	Red Hill Avenue to Newport Avenue	NB	5	10,000	9,036	0.90	E			8,033	0.80	D		
		SB	5	10,000	7,964	0.80	D			8,117	0.81	D		
	Newport Avenue to SR-55	NB	5	10,000	9,667	0.97	E			8,776	0.88	D		
		SB	4	8,000	8,659	1.08	F			9,063	1.13	F		
I-405	North of SR-55	NB	5	10,000	8,036	0.80	D			6,069	0.61	C		
		SB	5	10,000	7,464	0.75	D			8,680	0.87	D		
	Culver Drive to Jamboree Road	NB	5	10,000	8,947	0.89	D			7,264	0.73	D		
		SB	4	8,000	7,458	0.93	E			7,428	0.93	E		
	Jamboree Road to MacArthur Boulevard	NB	5	10,000	8,752	0.88	D			8,442	0.84	D		
		SB	5	10,000	9,047	0.90	E			7,925	0.79	D		
	MacArthur Boulevard to SR-55	NB	6	12,000	7,638	0.64	C			9,119	0.76	D		
		SB	6	12,000	10,660	0.89	D			7,982	0.67	C		
	SR-55 to Bristol Street	NB	5	10,000	4,745	0.47	B			4,871	0.49	B		
		SB	5	10,000	7,881	0.79	D			5,982	0.60	C		
SR-55	Bristol Street to SR-73	NB	5	10,000	4,756	0.48	B			4,659	0.47	B		
		SB	5	10,000	8,119	0.81	D			5,494	0.55	C		
	South of Victoria Street	NB	4	8,000	3,730	0.47	B			3,161	0.40	B		
		SB	3	6,000	2,506	0.42	B			3,249	0.54	C		
	Victoria Street to Fair Drive	NB	4	8,000	4,094	0.51	C			3,909	0.49	B		
		SB	4	8,000	2,822	0.35	B			4,528	0.57	C		
	Fair Drive to SR-73	NB	4	8,000	4,893	0.61	C			4,547	0.57	C		
		SB	4	8,000	3,462	0.43	B			6,256	0.78	D		
	SR-73 to Baker Street	NB	4	8,000	4,801	0.60	C			3,060	0.38	B		
		SB	4	8,000	2,909	0.36	B			3,836	0.48	B		
	Baker Street to I-405	NB	4	8,000	3,874	0.48	B			1,990	0.25	A		
		SB	4	8,000	3,331	0.42	B			4,051	0.51	C		
	I-405 to MacArthur Boulevard	NB	4	8,000	7,949	0.99	E			4,371	0.55	C		
		SB	4	8,000	3,231	0.40	B			5,950	0.74	D		
	MacArthur Boulevard to Dyer Road	NB	4	8,000	7,120	0.89	D			5,363	0.67	C		
		SB	4	8,000	4,232	0.53	C			5,407	0.68	C		
	Dyer Road to Edinger Avenue	NB	5	10,000	6,502	0.65	C			7,306	0.73	D		
		SB	4	8,000	4,947	0.62	C			5,168	0.65	C		
Edinger Avenue to McFadden Street/Sycamore Avenue	NB	6	12,000	6,481	0.54	C			8,026	0.67	C			
	SB	5	10,000	5,164	0.52	C			5,305	0.53	C			
McFadden Street/Sycamore Avenue to I-5	NB	6	12,000	7,094	0.59	C			8,828	0.74	D			
	SB	5	10,000	4,805	0.48	B			5,403	0.54	C			
North of I-5	NB	5	10,000	4,312	0.43	B			5,259	0.53	C			



Table 3.5: Existing Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Existing Conditions										
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
	SB	5	10,000	4,036	0.40	B				4,157	0.42	B		
SR-73	MacArthur Boulevard to University Drive	NB	3	6,000	4,498	0.75	D			2,846	0.47	B		
		SB	3	6,000	2,582	0.43	B			4,252	0.71	C		
	University Drive to Jamboree Road	NB	3	6,000	4,498	0.75	D			2,846	0.47	B		
		SB	3	6,000	2,825	0.47	B			4,862	0.81	D		
	Jamboree Road to Birch Street	NB	3	6,000	5,018	0.84	D			3,441	0.57	C		
		SB	3	6,000	4,134	0.69	C			4,980	0.83	D		
	Birch Street to Campus Drive	NB	3	6,000	3,957	0.66	C			2,927	0.49	B		
		SB	3	6,000	4,134	0.69	C			4,980	0.83	D		
	Campus Drive to SR-55	NB	3	6,000	4,850	0.81	D			5,180	0.86	D		
		SB	3	6,000	6,190	1.03	F			5,949	0.99	E		
	SR-55 to Bear Street	NB	3	6,000	2,188	0.36	B			3,036	0.51	C		
		SB	3	6,000	4,937	0.82	D			4,433	0.74	D		
	Bear Street to I-405	NB	3	6,000	2,211	0.37	B			2,341	0.39	B		
		SB	3	6,000	4,246	0.71	C			3,937	0.66	C		
SR-261	SR-261 south of El Camino Real	NB	2	4,000	346	0.09	A			2,393	0.60	C		
		SB	2	4,000	2,412	0.60	C			354	0.09	A		

3.7 Existing Freeway Ramp Analysis

Freeway ramp analysis differs from the mainline analysis in that it assesses five key elements:

- o Freeway mainline volume
- o Number of lanes on the freeway
- o Number of lanes on the ramp
- o Adjacent ramp volumes
- o Percentage of trucks on the freeway and ramps.

Table 3.6 presents the LOS for Freeway Ramps within the study area. Ramps with a V/C LOS greater than LOS D are deficient. The following ramps are deficient under existing conditions:

AM Peak Hour:

- o I-405 Southbound Off-Ramp to Jamboree Road
- o I-405 Northbound Off-Ramp to Jamboree Road
- o I-405 Northbound Off-Ramp to MacArthur Boulevard
- o SR-55 Northbound On-Ramp from Paularino Avenue
- o SR-55 Southbound Off-Ramp to MacArthur Boulevard
- o SR-55 Northbound Off-Ramp to Dyer Road
- o SR-73 Northbound On-Ramp from MacArthur Boulevard
- o SR-73 Southbound Off-Ramp to Campus Drive
- o SR-261 Southbound On-Ramp from Jamboree Road



PM Peak Hour:

- I-405 Southbound Off-Ramp to Jamboree Road
- I-405 Northbound On-Ramp from MacArthur Boulevard
- SR-55 Northbound On-Ramp from Paularino Avenue
- SR-55 Southbound Direct On-Ramp from MacArthur Boulevard
- SR-55 Northbound Loop On-Ramp from Dyer Road
- SR-73 Northbound On-Ramp from MacArthur Boulevard
- SR-73 Southbound Off-Ramp to Bison Avenue
- SR-73 Northbound On-Ramp from Campus Drive
- SR-261 Northbound Off-Ramp to Jamboree Road



Table 3.6: Existing Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
I-5	Culver Drive	SB On Direct	1	1,000	238	0.26	A			296	0.33	B		
		SB On Loop	1	1,000	312	0.35	B			224	0.25	A		
		SB Off	2	500	919	0.31	B			1,603	0.53	C		
		NB On Loop	1	1,000	1,023	0.68	C			749	0.50	B		
		NB On Direct	1	1,000	613	0.41	B			274	0.18	A		
		NB Off	1	500	325	0.22	A			773	0.52	C		
	Jamboree Road	SB On Direct	1	1,000	367	0.24	A			915	0.61	C		
		SB On Loop	1	1,000	506	0.47	B			434	0.40	B		
		SB Off	2	500	1,489	0.50	B			1,424	0.47	B		
		NB On Loop	1	1,000	432	0.40	B			280	0.26	A		
		NB On Direct	1	1,000	355	0.33	B			412	0.38	B		
		NB Off	1	500	1,099	0.73	D			1,179	0.79	D		
	Tustin Ranch Road	SB On	1	1,000	669	0.45	B			383	0.26	A		
		NB On	2	1,000	371	0.21	A			1,117	0.62	C		
		NB Off	1	500	240	0.16	A			472	0.31	B		
		SB Off	2	500	1,562	0.69	C			1,082	0.48	B		
	Red Hill Avenue	SB On	1	1,000	994	0.66	C			739	0.49	B		
		NB On	1	1,000	1,029	0.69	C			773	0.52	C		
NB Off		1	500	535	0.36	B			745	0.50	B			
SB Off		1	500	683	0.46	B			711	0.47	B			
Newport Boulevard	SB Off	1	500	695	0.46	B			946	0.63	C			
	NB On	1	1,000	631	0.42	B			743	0.50	B			
I-405	Culver Drive	SB On Direct	1	1,000	251	0.17	A			295	0.20	A		
		SB On Loop	1	1,000	197	0.22	A			514	0.57	C		
		SB Off	2	500	832	0.28	A			1,375	0.46	B		
		NB On Loop	1	1,000	555	0.37	B			399	0.27	A		
		NB On Direct	1	1,000	926	0.62	C			656	0.44	B		
		NB Off	1	500	1,092	0.73	D			1,239	0.83	D		
	Jamboree Road	SB On Direct	2	1,000	475	0.26	A			974	0.54	C		
		SB On Loop	1	1,000	271	0.18	A			641	0.43	B		
		SB Off	2	500	2,335	1.04	F			2,112	0.94	E		
		NB On Loop	1	1,000	494	0.33	B			899	0.60	C		
		NB On Direct	2	1,000	1,623	0.74	D			1,144	0.52	C		
		NB Off	1	500	2,312	1.03	F			865	0.38	B		
	MacArthur Boulevard	SB Direct On	2	1,000	529	0.18	A			1,235	0.41	B		
		SB Off	2	500	2,142	0.71	C			1,292	0.43	B		
		NB On	1	1,000	437	0.29	A			1,527	1.02	F		
		NB Off	1	500	1,551	1.03	F			850	0.57	C		
	Bristol Street	SB Loop On	1	1,000	975	0.65	C			1,328	0.89	D		
		SB Off	2	500	1,213	0.54	C			840	0.37	B		
NB On Loop		1	1,000	179	0.20	A			279	0.31	B			
NB On Direct		1	1,000	570	0.38	B			835	0.56	C			
NB Off		1	500	738	0.49	B			1,326	0.88	D			



Table 3.6: Existing Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
SR-55	Victoria Street	SB Direct On	1	1,000	102	0.07	A			80	0.05	A		
		SB Off	2	500	418	0.19	A			1,359	0.60	C		
		NB Direct On	2	1,000	438	0.24	A			856	0.48	B		
		NB Off	1	500	74	0.05	A			108	0.07	A		
	Fair Drive	SB Direct On	1	1,000	140	0.16	A			180	0.20	A		
		SB Off	2	500	780	0.35	B			1,908	0.85	D		
		NB Direct On	1	1,000	964	0.64	C			811	0.54	C		
		NB Off	1	500	165	0.11	A			173	0.12	A		
	Baker Street	SB On	1	1,000	363	0.40	B			676	0.75	D		
		SB Off	1	500	785	0.52	C			891	0.59	C		
		NB Off	1	500	927	0.62	C			1,070	0.71	C		
	Paularino Avenue	SB Off	1	500	1,310	0.87	D			931	0.62	C		
		NB On	1	1,000	1,147	1.27	F			1,287	1.43	F		
	MacArthur Boulevard	SB On Direct	1	1,000	695	0.77	D			947	1.05	F		
		SB On Loop	1	1,000	135	0.15	A			658	0.73	D		
		SB Off	1	500	1,831	1.22	F			1,062	0.71	C		
		NB On Loop	1	1,000	606	0.67	C			740	0.82	D		
		NB On Direct	1	1,000	246	0.16	A			1,148	0.77	D		
	Dyer Road	NB Off	2	500	1,681	0.75	D			896	0.40	B		
		SB On	1	1,000	801	0.53	C			1,179	0.79	D		
		SB Off Loop	1	500	801	0.53	C			369	0.25	A		
		SB Off to Grand	1	500	715	0.48	B			571	0.38	B		
		NB On Direct	1	1,000	325	0.22	A			1,205	0.80	D		
	Edinger Avenue	NB On Loop	1	1,000	551	0.61	C			1,023	1.14	F		
NB Off		1	500	1,494	1.00	E			285	0.19	A			
SB On		1	1,000	343	0.23	A			406	0.27	A			
SB Off		1	500	560	0.37	B			543	0.36	B			
McFadden Avenue	NB On	1	1,000	539	0.36	B			946	0.63	C			
	NB Off	1	500	560	0.37	B			226	0.15	A			
	SB On	1	1,000	748	0.50	B			414	0.28	A			
	SB Off	2	500	389	0.17	A			512	0.23	A			
McFadden Avenue	NB On	1	1,000	868	0.58	C			1,036	0.69	C			
	NB Off	1	500	255	0.17	A			234	0.16	A			

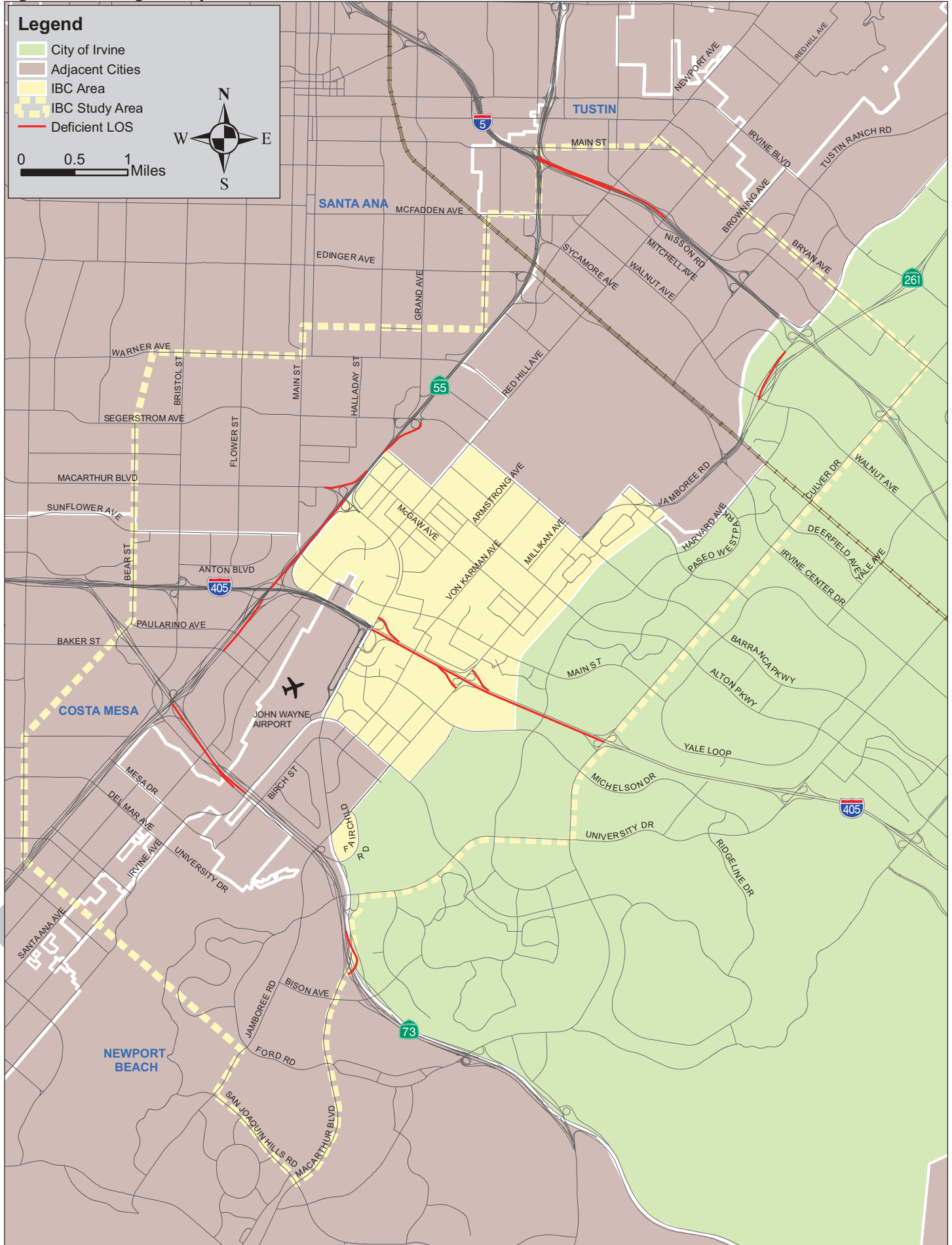


Table 3.6: Existing Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
SR-73	MacArthur Boulevard	SB On	1	1,000	59	0.04	A			1,290	0.86	D		
		SB Off	2	500	1,321	0.44	B			1,269	0.42	B		
		NB On	1	1,000	1,241	1.38	F			1,334	1.48	F		
	University Drive	SB Off	1	500	418	0.28	A			310	0.21	A		
		NB On	1	1,000	72	0.05	A			142	0.09	A		
	Bison Avenue	SB On	1	1,000	76	0.05	A			422	0.28	A		
		SB Off	1	500	578	0.39	B			1,641	1.09	F		
		NB On	1	1,000	272	0.18	A			996	0.66	C		
	Jamboree Road	SB On	1	1,000	368	0.25	A			816	0.54	C		
		SB Off	2	500	1,677	0.75	D			934	0.42	B		
		NB On	1	1,000	520	0.35	B			595	0.40	B		
	Birch Street	NB Off	1	500	1,061	0.71	C			514	0.34	B		
	Campus Drive	SB Off	2	500	2,056	0.91	E			969	0.43	B		
		NB On	1	1,000	893	0.60	C			2,253	1.50	F		
SR-73 at Bear	SB On	1	1,000	966	0.64	C			747	0.50	B			
	SB Off	1	500	275	0.18	A			251	0.17	A			
	NB Off	1	500	603	0.40	B			1,170	0.78	D			
	NB On	1	1,000	626	0.42	B			475	0.32	B			
SR-261	Jamboree Road	SB On	1	1,000	1,636	1.09	F			997	0.66	C		
		NB Off	1	250	782	0.52	C			2,008	1.34	F		
	Walnut Avenue	NB On	1	1,000	52	0.03	A			325	0.22	A		
		SB Off	1	500	601	0.40	B			121	0.08	A		

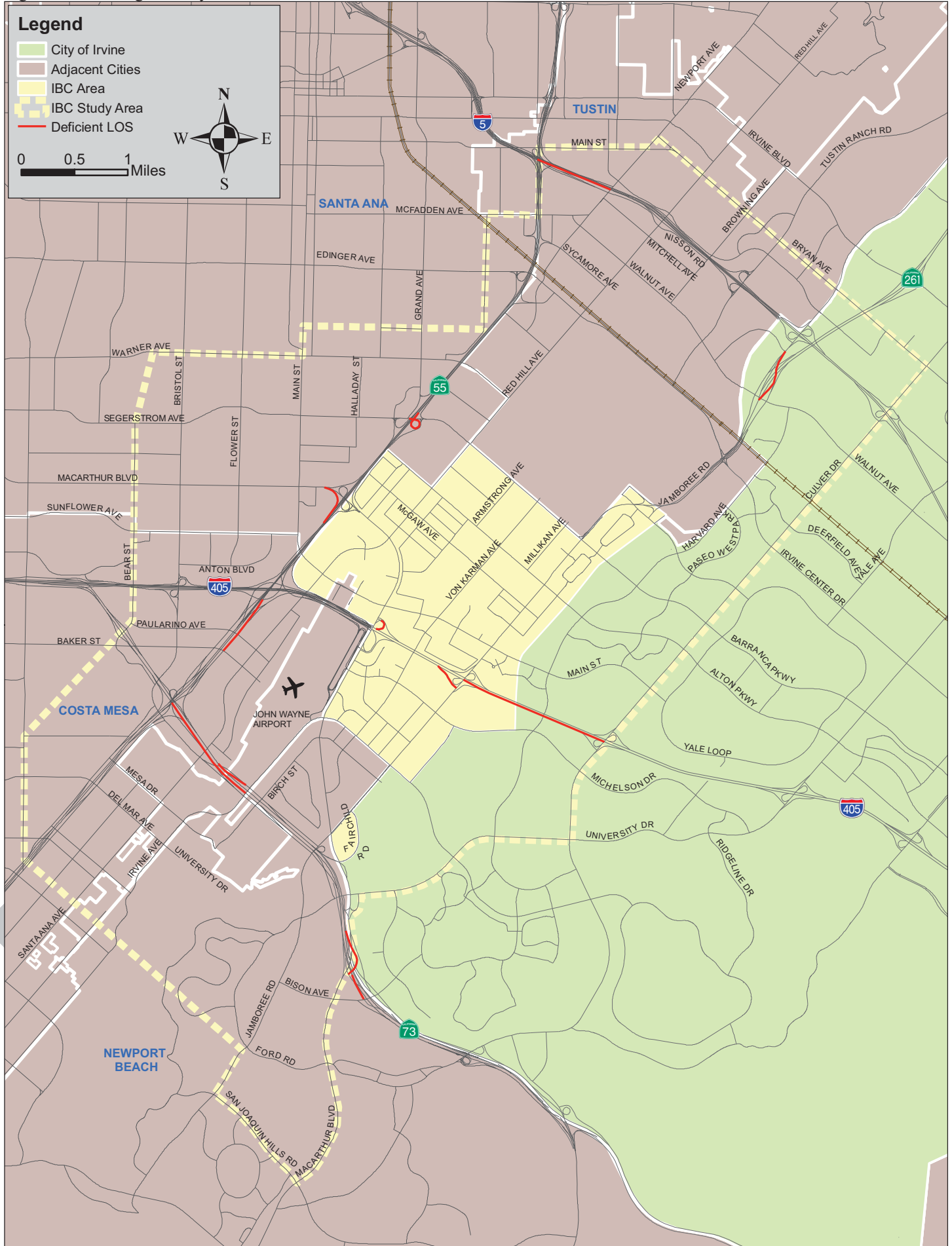
Figure 3.5 and Figure 3.6 present the Existing Condition deficiencies for the freeway mainlines and ramps.

Figure 3.5: Existing Freeway AM Peak Hour Deficiencies



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Figure 3.6: Existing Freeway PM Peak Hour Deficiencies



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3.8 Existing With Project

As required under the California Environmental Quality Act (CEQA), an evaluation of existing conditions with the project scenario overlaid is required. This theoretical scenario provides an early glimpse of potential impacts associated with implementation of the proposed project. Although this is not a feasible scenario for the IBC Vision, as the project cannot be implemented immediately, it provides a basis for evaluation of potential project impacts. In the analysis, the delta in the number of trips between the proposed project and Existing No Project forecasts were added to the existing counts to determine the Existing With Project conditions. The Existing With Project is intended to identify project trips and not the trips from other ambient land uses through the buildout of the project. Since it is unreasonable to assume that all the project trips from the full buildout of the IBC Vision will happen at once, the anticipated project impacts should be considered only within the context of a full buildout of the roadway system servicing the IBC and surrounding areas. **Table 3.7** presents the land use quantities by ITAM code for the IBC traffic study area, while **Appendix J** presents land use quantities by type and by IBC TAZ as well as a land use summary by individual project. Land use quantities for 2008 Existing Conditions (With Project) have been developed by the City of Irvine. **Figure 3.7** through **Figure 3.9** demonstrate the total quantities and percentage differences in three main land use categories, Residential Units, Office Mix, and Industrial Mix between Existing No Project and Existing With Project scenarios.

Table 3.7: Existing With Project Land Use Summary

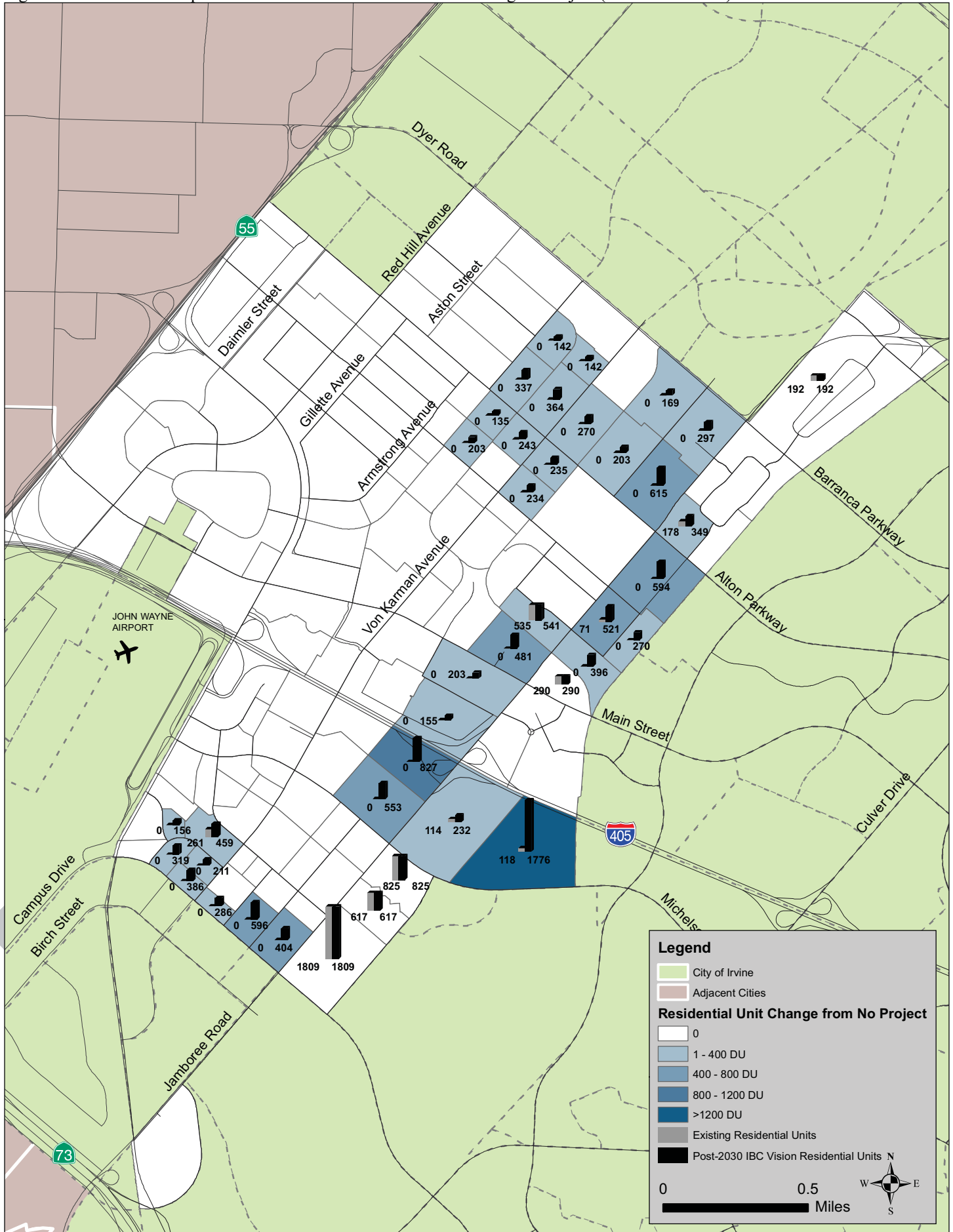
Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2008 With Project	17,038	1,731	2,880	33,716	13,180	164	598
Percent Growth (2008 With Project vs. 2008 No Project)	240%	29%	24%	28%	-10%	-53%	244%

3.9 Existing With Project Daily Arterial Segment Analysis

Under Existing With Project conditions, traffic patterns throughout the city are generally consistent with existing conditions. **Table 3.8** presents the study area arterial roadway segments, including information on ADT, V/C ratio and LOS on each segment. Existing With Project arterial traffic conditions were analyzed based on the ADT and lane configurations. Deficient segments within the City of Irvine were further analyzed for peak hour performance. The peak hour analysis methodology is consistent with existing conditions.

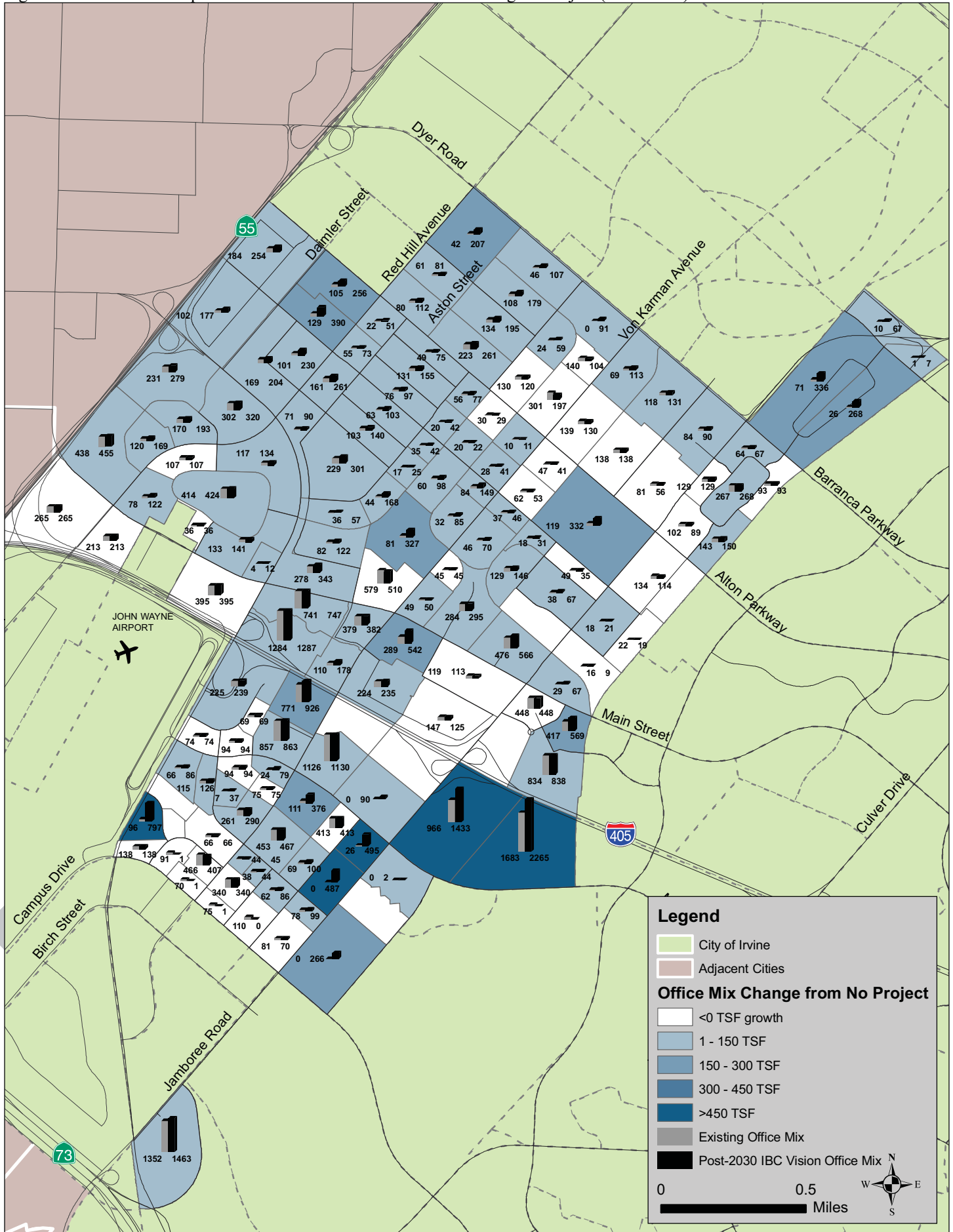
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Figure 3.7: Land Use Comparison between IBC Vision Plan and Existing No Project (Residential Units)



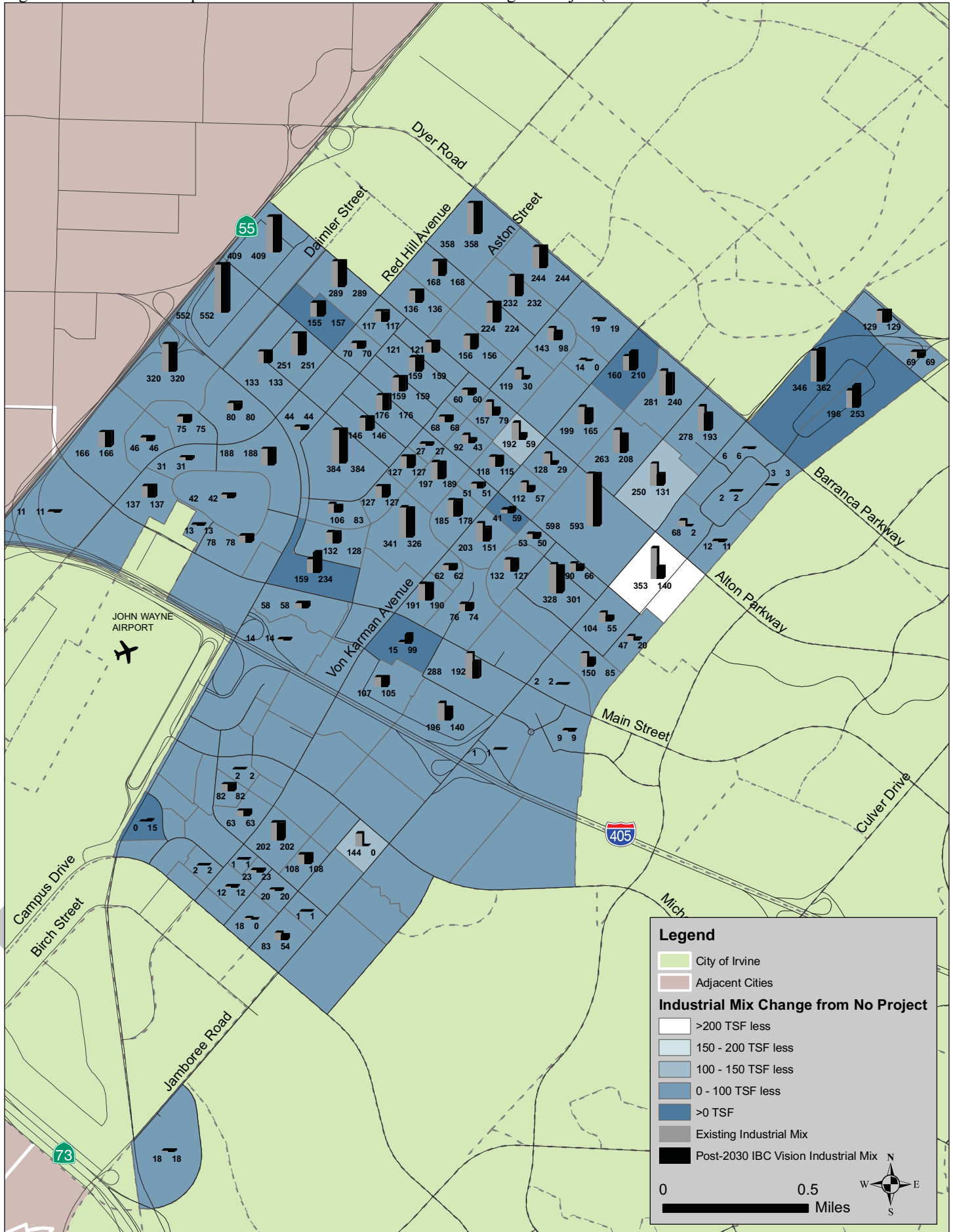
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Figure 3.8: Land Use Comparison between IBC Vision Plan and Existing No Project (Office Mix)



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Figure 3.9: Land Use Comparison between IBC Vision Plan and Existing No Project (Industrial Mix)



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Table 3.8: Existing With Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Existing Conditions			Existing Conditions with Project		
					Volume	V/C	LOS	Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	7,620	0.20	A	7,620	0.20	A
2721	Baker Street	Bear Street to Bristol Street		CM	23,497	0.62	B	23,970	0.63	B
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	27,498	0.49	A	28,050	0.50	A
1294	Baker Street	SR 55 SB to SR 55 NB		CM	24,275	0.43	A	24,860	0.44	A
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	13,718	0.24	A	14,446	0.26	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	4,699	0.08	A	4,704	0.08	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	17,577	0.31	A	17,577	0.31	A
2733	Bristol Street	Seegerstrom Avenue to West Alton Avenue		CM	35,789	0.64	B	36,320	0.65	B
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	38,850	0.69	B	39,526	0.71	C
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	22,305	0.40	A	22,609	0.40	A
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	42,108	0.75	C	42,412	0.76	C
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	62,602	0.83	D	62,765	0.84	D
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	63,048	0.84	D	63,130	0.84	D
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	40,727	0.73	C	41,000	0.73	C
2732	Bristol Street	Paularino Avenue to Baker Street		CM	34,095	0.61	B	34,404	0.61	B
2730	Bristol Street	Baker Street to SR 55		CM	24,713	0.44	A	25,252	0.45	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	20,914	0.37	A	21,993	0.39	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	12,232	0.32	A	12,460	0.33	A
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	7,069	0.57	A	7,172	0.57	A
2772	Flower Street	Seegerstrom Avenue to MacArthur Boulevard		CM	9,756	0.26	A	10,153	0.27	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	8,180	0.22	A	8,426	0.22	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	6,193	0.16	A	6,361	0.17	A
2756	Main Street	Sunflower Avenue to SR-55		CM	20,195	0.53	A	23,578	0.62	B
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	5,469	0.44	A	5,665	0.45	A
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	5,674	0.45	A	5,867	0.47	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	8,487	0.68	B	8,790	0.70	B
2742	Paularino Avenue	Bear Street to Bristol Street		CM	7,632	0.61	B	7,632	0.61	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	16,284	0.43	A	16,362	0.43	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	15,141	0.40	A	15,730	0.41	A
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	3,967	0.10	A	4,736	0.12	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	10,781	0.28	A	10,823	0.28	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	16,060	0.42	A	18,079	0.48	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	15,961	0.42	A	17,046	0.45	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	14,182	0.37	A	14,504	0.38	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	9,020	0.24	A	9,083	0.24	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	5,684	0.45	A	5,849	0.47	A
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4,578	0.14	A	6,426	0.20	A
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	12,332	0.39	A	15,570	0.49	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	14,649	0.46	A	17,294	0.54	A
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	15,133	0.28	A	17,290	0.32	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	15,645	0.29	A	18,823	0.35	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	15,465	0.29	A	17,014	0.32	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	12,620	0.23	A	14,061	0.26	A
783	Alton Parkway	San Marino to Culver Drive		Irv	21,617	0.40	A	22,485	0.42	A
735	Barranca Parkway (Dyer)	Pullman to Red Hill Avenue		Irv	24,454	0.45	A	28,883	0.53	A
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	30,266	0.56	A	34,530	0.64	B



Table 3.8: Existing With Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Existing Conditions			Existing Conditions with Project		
					Volume	V/C	LOS	Volume	V/C	LOS
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	29,815	0.55	A	33,732	0.62	B
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	22,039	0.41	A	25,261	0.47	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	24,517	0.45	A	26,477	0.49	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	21,003	0.39	A	21,777	0.40	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	19,905	0.37	A	20,161	0.37	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	21,004	0.39	A	21,405	0.40	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	21,643	0.40	A	22,064	0.41	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	21,001	0.66	B	21,342	0.67	B
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	17,921	0.56	A	17,940	0.56	A
539	Bryan Avenue	El Camino Real to Rubicon		Irv	14,726	0.46	A	14,814	0.46	A
540	Bryan Avenue	Rubicon to Culver		Irv	18,343	0.57	A	18,423	0.58	A
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	16,279	0.30	A	23,425	0.43	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	12,892	0.40	A	18,171	0.57	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	11,823	0.37	A	17,601	0.55	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	10,315	0.32	A	14,630	0.46	A
877	Campus Drive	Jamboree Road to Carlson Avenue	a	Irv	20,089	0.63	B	23,257	0.73	C
879	Campus Drive	Carlson Avenue to University		Irv	18,247	1.40	F	19,066	1.47	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	3,901	0.12	A	7,066	0.22	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	36,738	0.74	C	37,000	0.75	C
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	49,687	0.92	E	50,131	0.93	E
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	44,077	0.82	D	44,809	0.83	D
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	42,201	0.78	C	42,721	0.79	C
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	38,904	0.67	B	39,499	0.68	B
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	41,580	0.77	C	42,652	0.79	C
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	40,870	0.76	C	41,816	0.77	C
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	44,253	0.82	D	45,739	0.85	D
220	Culver Drive	Alton Parkway to Main Street		Irv	45,204	0.84	D	47,015	0.87	D
221	Culver Drive	Main Street to San Leandro		Irv	49,711	0.92	E	51,450	0.95	E
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	54,428	1.01	F	56,230	1.04	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	53,319	0.99	E	56,603	1.05	F
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	39,658	0.73	C	40,577	0.75	C
226	Culver Drive	Sandburg Way to University Drive		Irv	32,408	0.60	A	33,351	0.62	B
1206	El Camino Real	Jamboree Road to Alliance		Irv	20,876	0.65	B	20,952	0.65	B
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4,393	0.14	A	4,403	0.14	A
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	9,179	0.71	C	9,331	0.72	C
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	11,387	0.88	D	11,575	0.89	D
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	10,273	0.43	A	10,504	0.44	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	12,508	0.39	A	13,360	0.42	A
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	11,065	0.35	A	11,681	0.37	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	12,686	0.40	A	13,246	0.41	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	15,295	0.48	A	16,368	0.51	A
2829	Harvard Avenue	San Juan to San Leon		Irv	14,888	0.47	A	16,156	0.50	A
178	Harvard Avenue	San Leon to Alton Parkway		Irv	16,362	0.51	A	17,630	0.55	A
179	Harvard Avenue	Alton Parkway to San Marino		Irv	18,655	0.58	A	21,393	0.67	B
180	Harvard Avenue	San Marino to Main Street		Irv	19,291	0.60	A	22,085	0.69	B
181	Harvard Avenue	Main Street to Coronado		Irv	13,552	0.42	A	17,222	0.54	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	20,167	0.63	B	24,063	0.75	C



Table 3.8: Existing With Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Existing Conditions			Existing Conditions with Project		
					Volume	V/C	LOS	Volume	V/C	LOS
183	Harvard Avenue	Michelson Drive to University Drive		Irv	8,672	0.67	B	9,969	0.77	C
675	Irvine Center Drive	Harvard Avenue to Hearthstone		Irv	17,848	0.33	A	18,341	0.34	A
676	Irvine Center Drive	Hearthstone to Culver Drive		Irv	15,815	0.29	A	16,282	0.30	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	39,163	0.54	A	39,254	0.55	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	61,511	0.91	E	61,783	0.92	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	65,707	1.22	F	66,342	1.23	F
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	57,976	1.07	F	59,582	1.10	F
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	54,497	1.21	F	56,187	1.25	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)*		Irv	71,936	0.40	A	72,196	0.40	A
136	Jamboree Road	Edinger Avenue to Warner Avenue*		Irv	78,493	0.44	A	79,059	0.44	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	69,451	0.39	A	73,429	0.41	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	50,727	0.70	B	55,170	0.77	C
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	49,220	0.68	B	54,368	0.76	C
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	46,536	0.65	B	53,448	0.74	C
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	45,004	0.63	B	52,604	0.73	C
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	53,259	0.74	C	64,198	0.89	D
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	52,524	0.65	B	64,059	0.79	C
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	69,470	0.86	D	85,290	1.05	F
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	51,529	0.82	D	58,090	0.92	E
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	45,645	0.72	C	49,728	0.79	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	40,300	0.75	C	44,373	0.82	D
152	Jamboree Road	Birch Street to Fairchild Road		Irv	32,438	0.51	A	36,033	0.57	A
154	Jamboree Road	Fairchild Road to Koll Center		Irv	33,237	0.62	B	36,592	0.68	B
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	26,722	0.49	A	30,238	0.56	A
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	35,926	0.80	C	41,872	0.93	E
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	15,788	0.25	A	20,521	0.33	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	25,505	0.40	A	30,444	0.48	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	33,677	0.42	A	41,064	0.51	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	48,662	0.64	B	56,624	0.74	C
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	40,604	0.56	A	45,461	0.63	B
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	33,358	0.46	A	34,577	0.48	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	30,151	0.56	A	31,318	0.58	A
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	34,000	0.63	B	35,433	0.66	B
817	Main Street	McDermott to Red Hill Avenue	a	Irv	18,121	0.34	A	21,529	0.40	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	16,818	0.31	A	20,441	0.38	A
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	26,160	0.48	A	30,288	0.56	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	35,615	0.53	A	40,063	0.59	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	17,820	0.30	A	24,420	0.42	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	16,082	0.30	A	20,294	0.38	A
823	Main Street	Siglo to Jamboree Road	a	Irv	22,024	0.41	A	28,719	0.53	A
824	Main Street	Jamboree Road to Union	a	Irv	19,037	0.33	A	22,206	0.38	A
825	Main Street	Veneto to Harvard Avenue		Irv	10,456	0.19	A	12,070	0.22	A
826	Main Street	Harvard Avenue to San Mateo		Irv	11,382	0.36	A	12,195	0.38	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	8,757	0.27	A	9,303	0.29	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	3,630	0.11	A	7,297	0.23	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	5,653	0.18	A	10,793	0.34	A
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	6,451	0.20	A	9,976	0.31	A
1449	McGaw Avenue	Jamboree Road to Murphy Avenue		Irv	2,462	0.08	A	5,317	0.17	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	14,917	0.33	A	20,750	0.46	A



Table 3.8: Existing With Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Existing Conditions			Existing Conditions with Project		
					Volume	V/C	LOS	Volume	V/C	LOS
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	10,836	0.34	A	14,982	0.47	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	10,559	0.28	A	16,514	0.44	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	17,973	0.42	A	26,477	0.62	B
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	14,864	0.35	A	31,762	0.74	C
847	Michelson Drive	Carlson Avenue to Prince		Irv	16,704	0.45	A	32,775	0.87	D
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	16,553	0.52	A	24,802	0.78	C
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	11,741	0.37	A	16,351	0.51	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	16,629	0.52	A	21,439	0.67	B
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	26,611	0.49	A	31,012	0.57	A
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	26,630	0.49	A	30,729	0.57	A
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	26,216	0.49	A	31,810	0.59	A
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	34,187	0.63	B	43,437	0.80	C
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	9,780	0.31	A	12,577	0.39	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	12,554	0.39	A	14,838	0.46	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	23,581	0.74	C	24,269	0.76	C
188	University Drive	California Avenue to Mesa Road		Irv	32,837	1.03	F	33,775	1.06	F
187	University Drive	Mesa Road to Campus Drive		Irv	33,673	1.05	F	34,510	1.08	F
880	University Drive	Campus Drive to Harvard Avenue		Irv	26,248	0.49	A	27,057	0.50	A
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	21,301	0.39	A	22,059	0.41	A
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	21,676	0.40	A	22,355	0.41	A
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	16,770	0.52	A	19,320	0.60	A
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	16,349	0.51	A	21,013	0.66	B
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	17,271	0.54	A	23,089	0.72	C
103	Von Karman Avenue	Anchor to Main Street	a	Irv	17,763	0.56	A	24,114	0.75	C
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	18,765	0.50	A	26,367	0.70	B
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	20,193	0.54	A	26,566	0.71	C
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	16,840	0.53	A	21,734	0.68	B
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	16,346	0.51	A	21,599	0.67	B
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	14,234	0.44	A	17,626	0.55	A
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	21,169	0.56	A	21,797	0.58	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	18,580	0.32	A	19,018	0.33	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	18,125	0.40	A	18,503	0.41	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	16,040	0.50	A	16,258	0.51	A
597	Walnut Avenue	Mall Street to Culver Drive		Irv	20,951	0.65	B	21,014	0.66	B
728	Warner Avenue	Construction North to Harvard Avenue		Irv	8,225	0.26	A	8,649	0.27	A
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	5,766	0.18	A	6,336	0.20	A
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	6,493	0.20	A	6,978	0.22	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	10,372	0.26	A	10,936	0.27	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	15,579	0.39	A	15,868	0.40	A
874	Birch Street	East of MacArthur Boulevard		NB	20,327	0.51	A	22,552	0.56	A
69	Birch Street	West of MacArthur Boulevard		NB	11,707	0.29	A	13,610	0.34	A
875	Birch Street	East of Von Karman Avenue		NB	20,327	0.51	A	22,490	0.56	A
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	9,087	0.16	A	9,087	0.16	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	13,411	0.34	A	13,411	0.34	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive*		NB	7,430	0.31	A	8,753	0.36	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue*		NB	12,689	0.53	A	13,560	0.57	A
1303	Bristol Street SB	Campus Drive to Birch Street*		NB	18,109	0.75	C	18,109	0.75	C
1305	Bristol Street NB	Birch Street to Campus Drive*		NB	15,273	0.64	B	15,706	0.65	B
1312	Bristol Street SB	West of Jamboree Road*		NB	22,446	0.56	A	22,679	0.57	A



Table 3.8: Existing With Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Existing Conditions			Existing Conditions with Project		
					Volume	V/C	LOS	Volume	V/C	LOS
1580	Bristol Street NB	West of Jamboree Road*		NB	20,045	0.84	D	20,295	0.85	D
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	27,671	0.48	A	32,481	0.56	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	9,051	0.23	A	9,055	0.23	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	22,879	0.39	A	25,612	0.44	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	24,237	0.61	B	25,287	0.63	B
2768	Irvine Avenue	South of University Drive		NB	22,253	0.56	A	22,981	0.57	A
156	Jamboree Road	South of MacArthur Boulevard		NB	28,826	0.50	A	31,488	0.54	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	46,597	0.80	C	48,707	0.84	D
157	Jamboree Road	South of Bristol Street		NB	48,897	0.84	D	50,167	0.86	D
159	Jamboree Road	University Drive to Bison Avenue		NB	42,624	0.73	C	43,500	0.75	C
1777	Jamboree Road	Bison Avenue to Ford Road		NB	33,614	0.58	A	34,197	0.59	A
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	21,187	0.31	A	21,613	0.32	A
75	MacArthur Boulevard	South of Birch Street		NB	23,445	0.40	A	24,012	0.41	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	23,568	0.41	A	24,634	0.42	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	43,429	0.75	C	44,395	0.77	C
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	75,856	1.12	F	76,437	1.12	F
2767	University Drive	East of Irvine Avenue		NB	823	0.08	A	823	0.08	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	14,628	0.30	A	15,048	0.31	A
112	Von Karman Avenue	South of Campus Drive		NB	10,305	0.26	A	12,647	0.32	A
113	Von Karman Avenue	South of Birch Street		NB	11,237	0.28	A	13,437	0.34	A
2795	Dyer Road	Main Street to Halladay Street		SA	25,688	0.46	A	26,762	0.48	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	30,243	0.54	A	31,850	0.57	A
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	43,265	0.77	C	46,805	0.83	D
734	Dyer Road	SR-55 NB to Pullman Street		SA	29,458	0.52	A	34,399	0.61	B
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	22,946	0.41	A	24,130	0.43	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	21,501	0.38	A	22,666	0.40	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	4,687	0.39	A	4,864	0.41	A
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	1,748	0.15	A	1,959	0.16	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	31,093	0.55	A	32,817	0.58	A
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	47,010	0.83	D	50,079	0.89	D
2796	Main Street	Seegerstrom Avenue to Alton Avenue		SA	20,603	0.37	A	21,302	0.38	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	23,743	0.42	A	24,487	0.43	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	28,675	0.51	A	29,510	0.52	A
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	30,103	0.53	A	30,868	0.55	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	3,092	0.08	A	3,092	0.08	A
2736	Seegerstrom Avenue	Bristol Street to Flower Street		SA	11,560	0.31	A	12,092	0.32	A
2771	Seegerstrom Avenue	Flower Street to Main Street		SA	18,676	0.50	A	19,597	0.52	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	18,190	0.32	A	19,546	0.35	A
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	40,204	0.71	C	41,651	0.74	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	18,032	0.32	A	19,659	0.35	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	19,454	0.35	A	21,951	0.39	A
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4,501	0.24	A	4,582	0.24	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	15,300	0.61	B	15,507	0.62	B
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	16,200	0.65	B	16,499	0.66	B
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	16,700	0.45	A	17,016	0.45	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	16,800	0.45	A	17,190	0.46	A
44	Edinger Avenue	West of Newport Avenue		Tus	34,312	0.61	B	35,608	0.63	B
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	20,215	0.36	A	21,267	0.38	A



Table 3.8: Existing With Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Existing Conditions			Existing Conditions with Project		
					Volume	V/C	LOS	Volume	V/C	LOS
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	22,340	0.40	A	23,358	0.41	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	13,735	0.55	A	13,960	0.56	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	8,973	0.72	C	9,100	0.73	C
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	8,392	0.34	A	8,540	0.34	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	13,574	0.36	A	13,682	0.36	A
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	22,340	0.40	A	23,463	0.42	A
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	13,952	0.25	A	15,207	0.27	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	7,350	0.59	A	7,425	0.59	A
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	4,417	0.35	A	4,505	0.36	A
6	Newport Avenue	El Camino Real to I-5		Tus	28,516	0.76	C	28,628	0.76	C
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	31,417	0.84	D	31,587	0.84	D
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	29,223	0.78	C	29,306	0.78	C
49	Newport Avenue	North of Sycamore Avenue		Tus	9,604	0.38	A	9,607	0.38	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	18,205	0.73	C	18,633	0.75	C
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	5,593	0.45	A	5,735	0.46	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	3,915	0.31	A	3,943	0.32	A
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	43,222	0.77	C	43,573	0.77	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	38,996	0.69	B	39,327	0.70	B
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	38,235	0.68	B	38,596	0.69	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	26,681	0.47	A	27,132	0.48	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	25,830	0.46	A	26,413	0.47	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	27,502	0.49	A	28,010	0.50	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	29,957	0.53	A	30,812	0.55	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	25,507	0.45	A	26,313	0.47	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	26,723	0.47	A	28,728	0.51	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	29,570	0.53	A	33,241	0.59	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	9,036	0.36	A	9,036	0.36	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	7,758	0.62	B	7,775	0.62	B
85	Tustin Ranch Road	North of I-5		Tus	32,560	0.58	A	32,630	0.58	A
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	21,087	0.37	A	21,087	0.37	A
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	3,690	0.30	A	4,476	0.36	A
587	Walnut Avenue	East of Newport Avenue		Tus	15,375	0.62	B	15,627	0.63	B
589	Walnut Avenue	East of Red Hill Avenue		Tus	15,579	0.42	A	15,859	0.42	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	19,862	0.53	A	20,297	0.54	A
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	18,249	0.49	A	18,741	0.50	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	13,682	0.24	A	15,531	0.28	A

The arterial analysis indicates that the following segments are deficient when the proposed project trips are added to the existing traffic volumes:

- o 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- o 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- o 221—Culver Drive from Main Street to San Leandro (Irvine)
- o 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- o 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- o 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)
- o 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- o 131—Jamboree Road from I-5 SB Off-Ramp to Michelle Drive (Irvine)



- 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- 148—Jamboree Road from I-405 On-Ramp to Michelson Drive (Irvine)
- 188—University Drive from California Avenue to Mesa Road (Irvine)
- 187—University Drive from Mesa Road to Campus Drive (Irvine)
- 1301—MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)

Figure 3.10 and Figure 3.11 present the Existing With Project ADT and daily LOS for study area arterials.

3.10 Existing With Project Peak Hour Link Analysis

Table 3.9 presents the results of peak hour link analysis for the City of Irvine, indicating that all arterial segments that are deficient under daily conditions operate at an acceptable LOS in both peak hours, operating at LOS C or better, and hence no mitigation measures are recommended at this time for these facilities.

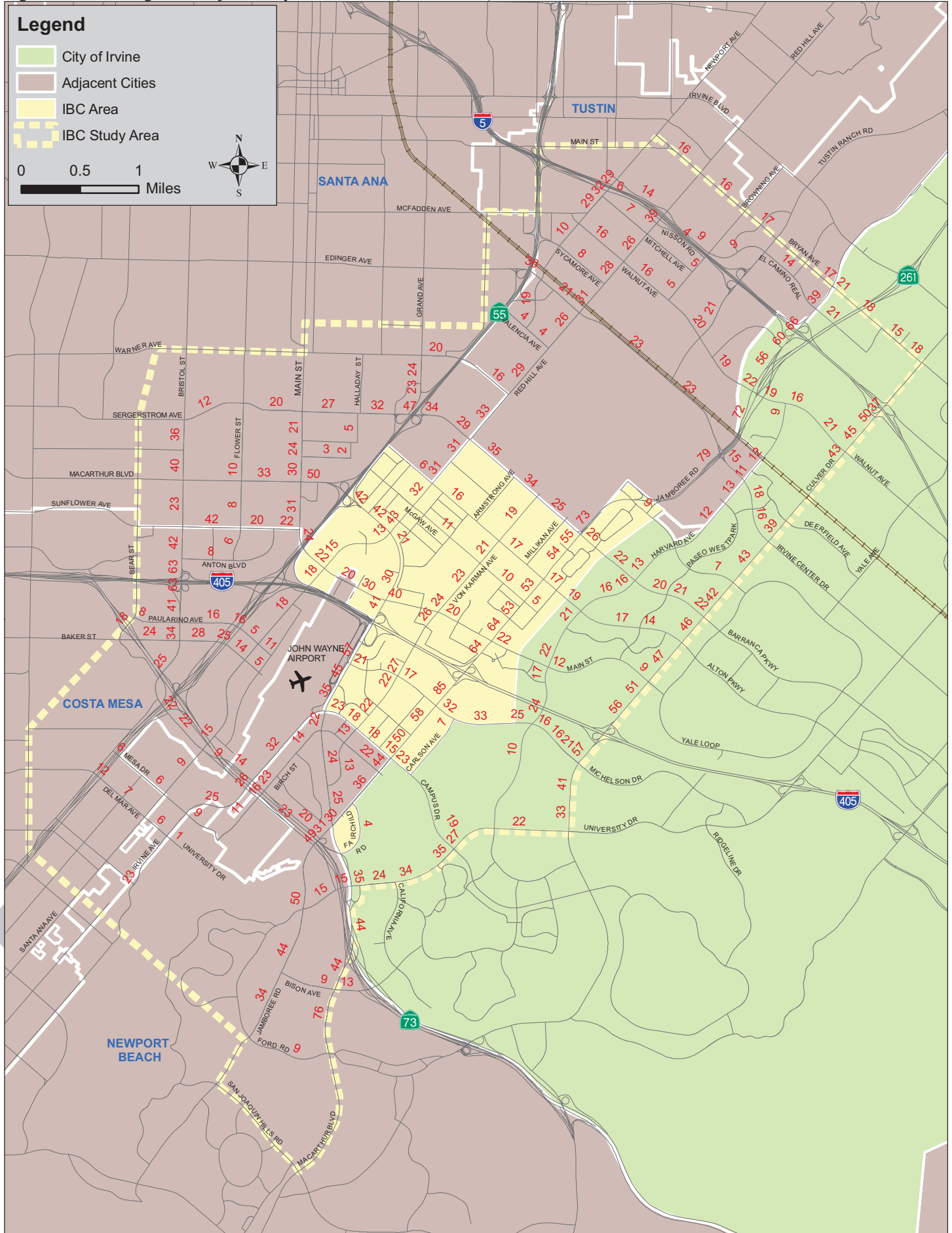
Table 3.9: Existing With Project Peak Hour Link Analysis

ID	Arterial	Segment Limits	Existing Volume Plus Project				AM				PM				
			Facility Type	AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
				NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
879	Campus Drive	Carlson Avenue to University	2U	629	566	771	972	0.39	A	0.35	A	0.48	A	0.61	A
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,244	2,233	2,033	2,153	0.26	A	0.47	A	0.42	A	0.45	A
221	Culver Drive	Main Street to San Leandro	6D	1,218	2,687	2,534	1,681	0.25	A	0.56	A	0.53	A	0.35	A
222	Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,139	1,960	2,576	1,624	0.24	A	0.41	A	0.54	A	0.34	A
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,184	1,896	2,139	1,613	0.25	A	0.40	A	0.45	A	0.34	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D +1AUX	1,505	2,679	2,447	1,235	0.24	A	0.42	A	0.38	A	0.22	A
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	6D	1,937	2,685	3,291	1,786	0.40	A	0.56	A	0.69	B	0.37	A
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive	6D	1,835	3,075	3,487	2,101	0.38	A	0.64	B	0.73	C	0.44	A
133	Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,634	2,175	2,963	1,190	0.34	A	0.45	A	0.62	B	0.37	A
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	Maj8D +2AUX	2,389	4,954	4,166	3,862	0.33	A	0.69	B	0.58	A	0.54	A
188	University Drive	California Avenue to Mesa Road	4D	958	1,626	1,930	1,108	0.51	A	0.30	A	0.35	A	0.60	A
187	University Drive	Mesa Road to Campus Drive	4D	867	1,630	1,928	1,130	0.51	A	0.27	A	0.35	A	0.60	A

There are no segments within the City of Irvine that fail under peak hour Existing With Project conditions. For segments outside the City of Irvine, the jurisdiction’s segment analysis guidelines are applied. As noted in **Chapter 2**, Costa Mesa, Newport Beach, and Tustin, outside the City of Irvine assesses segment impacts at the intersection level. Improvements at the intersections that feed into deficient arterial segments should eliminate deficiencies. For segments in the City of Santa Ana, deficiencies are addressed in the daily condition. There are no arterial segments in Santa Ana that are deficient under Existing With Project conditions.

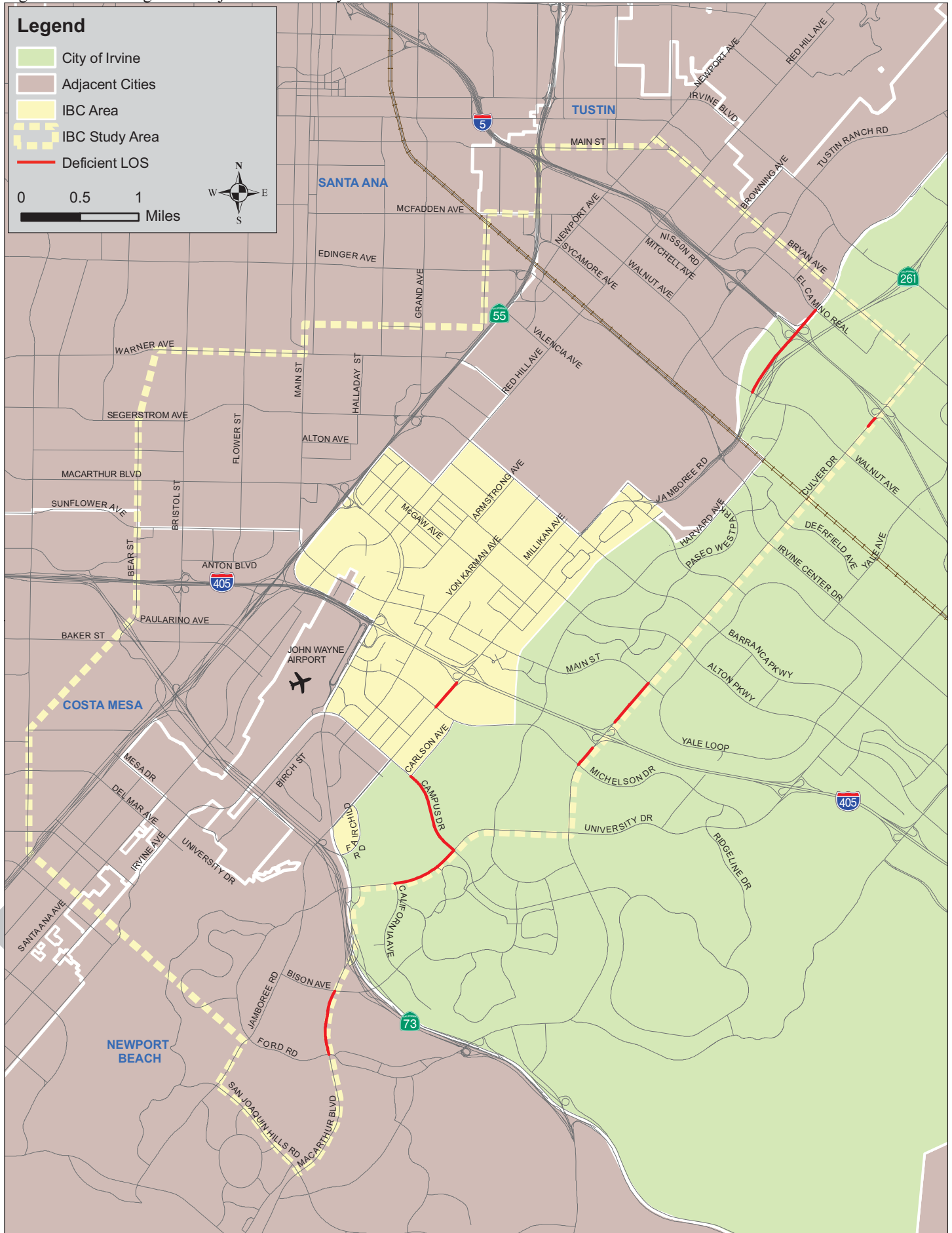
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Figure 3.10: Existing With Project Daily Arterial ADT (in thousands)



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Figure 3.11: Existing With Project Arterial Daily Deficiencies



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3.11 Existing With Project Peak Hour Intersection Analysis

Using the Existing With Project forecast volumes added to the existing counts, an ICU analysis was developed for study area intersections. The thresholds are consistent with existing conditions and the deficiencies are identified in red in **Table 3.10**. Detailed ICU worksheets are presented in **Appendix B**. **Figure 3.12** and **Figure 3.13** graphically display the AM and PM peak hour intersection deficiencies.

Table 3.10: Existing With Project Peak Hour Intersection LOS

ID	Intersection	Jurisdiction	Existing Conditions				Existing Conditions With Project			
			AM		PM		AM		PM	
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino	CM	0.71	C	0.56	A	0.73	C	0.60	A
11	SR-55 Frontage Road NB Ramps at Paularino	CM	0.54	A	0.71	C	0.55	A	0.74	C
12	SR-55 SB Frontage Road at Baker Street	CM	0.63	B	0.65	B	0.64	B	0.65	B
13	SR-55 NB Frontage Road at Baker Street	CM	0.69	B	0.74	C	0.71	C	0.77	C
50	Red Hill Avenue at Paularino Avenue	CM	0.44	A	0.63	B	0.45	A	0.70	B
51	Red Hill Avenue at Baker Street	CM	0.45	A	0.69	B	0.45	A	0.71	C
52	Red Hill Avenue at Bristol Street	CM	0.35	A	0.44	A	0.37	A	0.46	A
541	Bear Street at Baker Street	CM	0.55	A	0.80	C	0.55	A	0.81	D
542	Bear Street at Paularino Avenue	CM	0.39	A	0.55	A	0.39	A	0.55	A
545	Bristol Street at Sunflower Avenue	CM	0.58	A	0.70	B	0.58	A	0.70	B
546	Bristol Street at Anton Boulevard	CM	0.29	A	0.59	A	0.31	A	0.60	A
547	Bristol Street and Paularino Avenue	CM	0.51	A	0.75	C	0.51	A	0.75	C
548	Bristol Street at Baker Street	CM	0.50	A	0.64	B	0.51	A	0.64	B
549	Newport Boulevard SB at Bristol Street	CM	0.24	A	0.48	A	0.25	A	0.48	A
550	Newport Boulevard NB at Bristol Street	CM	0.27	A	0.38	A	0.28	A	0.39	A
715	Bristol Street at I-405 NB Off Ramps	CM	0.43	A	0.65	B	0.43	A	0.66	B
716	Bristol Street at I-405 SB Off Ramps	CM	0.54	A	0.59	A	0.54	A	0.59	A
717	Bear Street at SR-73 SB Ramps	CM	0.48	A	0.79	C	0.49	A	0.79	C
718	Bear Street at SR-73 NB Ramps	CM	0.36	A	0.64	B	0.36	A	0.65	B
721	Flower Street at Sunflower Avenue	CM	0.26	A	0.43	A	0.26	A	0.46	A
722	Anton Boulevard at Sunflower Avenue	CM	0.34	A	0.34	A	0.38	A	0.36	A
726	Main Street at Sunflower Avenue	CM	0.39	A	0.71	C	0.46	A	0.74	C
735	Newport Boulevard NB at Del Mar Avenue	CM	0.72	C	0.44	A	0.73	C	0.44	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue	CM	0.28	A	0.39	A	0.29	A	0.39	A
737	Newport Boulevard NB at Mesa Road	CM	0.23	A	0.32	A	0.24	A	0.33	A
738	Newport Boulevard SB at Mesa Road	CM	0.19	A	0.53	A	0.20	A	0.54	A
45	Red Hill Avenue at McGaw Avenue	a Irv	0.49	A	0.63	B	0.60	A	0.73	C
47	Red Hill Avenue at MacArthur Avenue	a Irv	0.74	C	0.89	D	0.83	D	0.97	E
48	Red Hill Avenue at Sky Park North	a Irv	0.41	A	0.57	A	0.44	A	0.63	B
49	Red Hill Avenue at Main Street	a Irv	0.62	B	0.83	D	0.66	B	0.90	D
70	Gillette Avenue at Main Street	a Irv	0.36	A	0.70	B	0.46	A	0.79	C
77	MacArthur Boulevard at Sky Park East	a Irv	0.26	A	0.38	A	0.30	A	0.41	A
78	MacArthur Boulevard at Main Street	a Irv	0.50	A	0.66	B	0.59	A	0.75	C
79	MacArthur Boulevard at I-405 NB Ramps	a Irv	0.64	B	0.64	B	0.72	C	0.69	B
80	MacArthur Boulevard at I-405 SB Ramps	a Irv	0.56	A	0.69	B	0.64	B	0.79	C
82	MacArthur Boulevard at Michelson Drive	a Irv	0.55	A	0.78	C	0.62	B	0.95	E
83	MacArthur Boulevard at Douglas Avenue	a Irv	0.34	A	0.38	A	0.45	A	0.54	A
87	Dupont Drive at Michelson Drive	a Irv	0.31	A	0.39	A	0.41	A	0.49	A
98	Von Karman Avenue at Alton Parkway	a Irv	0.65	B	0.71	C	0.73	C	0.81	D
99	Von Karman Avenue at McGaw Avenue	a Irv	0.54	A	0.72	C	0.72	C	0.87	D
100	Von Karman Avenue at Main Street	a Irv	0.63	B	0.72	C	0.80	C	0.82	D



Table 3.10: Existing With Project Peak Hour Intersection LOS

ID	Intersection		Jurisdiction	Existing Conditions				Existing Conditions With Project			
				AM		PM		AM		PM	
				ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
101	Von Karman Avenue at Morse Avenue	a	Irv	0.45	A	0.54	A	0.52	A	0.63	B
102	Von Karman Avenue at Michelson Drive	a	Irv	0.55	A	0.75	C	0.67	B	0.90	D
103	Von Karman Avenue at Dupont Drive	a	Irv	0.39	A	0.50	A	0.53	A	0.64	B
104	Von Karman Avenue at Martin	a	Irv	0.33	A	0.52	A	0.40	A	0.62	B
115	Millikan Avenue at Alton Parkway	a	Irv	0.39	A	0.39	A	0.42	A	0.43	A
116	Cartwright Road at Main Street	a	Irv	0.35	A	0.54	A	0.44	A	0.66	B
119	Teller Avenue at Michelson Drive	a	Irv	0.41	A	0.51	A	0.62	B	0.70	B
128	Jamboree Road at I-5 NB Ramps	b	Irv	0.66	B	0.83	D	0.66	B	0.83	D
129	Jamboree Road at I-5 SB Ramps	b	Irv	0.74	C	0.76	C	0.76	C	0.78	C
130	Jamboree Road at Michelle Drive		Irv	0.79	C	0.78	C	0.80	C	0.78	C
131	Jamboree Road SB at Walnut Avenue		Irv	0.49	A	0.45	A	0.52	A	0.50	A
132	Jamboree Road NB at Walnut Avenue		Irv	0.32	A	0.44	A	0.32	A	0.46	A
137	Jamboree Road at Beckman Avenue	a	Irv	0.62	B	0.70	B	0.68	B	0.73	C
138	Jamboree Road at Alton Parkway	a	Irv	0.72	C	0.80	C	0.76	C	0.85	D
139	Jamboree Road at McGaw Avenue	a	Irv	0.55	A	0.62	B	0.69	B	0.73	C
140	Jamboree Road at Kelvin Avenue	a	Irv	0.60	A	0.60	A	0.80	C	0.73	C
141	Jamboree Road at Main Street	a	Irv	0.80	C	0.87	D	0.89	D	0.98	E
143	Jamboree Road at I-405 NB Ramps	a,b	Irv	0.65	B	0.82	D	0.71	C	0.91	E
144	Jamboree Road at I-405 SB Ramps	a,b	Irv	0.79	C	0.86	D	0.91	E	0.96	E
145	Jamboree Road at Michelson Drive	a	Irv	0.66	B	0.97	E	0.77	C	1.21	F
146	Jamboree Road at Dupont Road	a	Irv	0.62	B	0.69	B	0.69	B	0.76	C
164	Construction Circle South at Barranca Parkway	a	Irv	0.35	A	0.53	A	0.44	A	0.61	B
168	Murphy Avenue at Alton Parkway	a	Irv	0.37	A	0.64	B	0.43	A	0.72	C
170	Union at Main Street	a	Irv	0.37	A	0.56	A	0.40	A	0.60	A
171	Veneto at Main Street		Irv	0.36	A	0.51	A	0.38	A	0.53	A
174	Carlson Avenue at Michelson Drive	a	Irv	0.41	A	0.53	A	0.62	B	0.73	C
175	Carlson Avenue at Campus Drive	a	Irv	0.64	B	0.71	C	0.69	B	0.76	C
180	Harvard Avenue at Walnut Avenue		Irv	0.42	A	0.46	A	0.42	A	0.46	A
183	Harvard Avenue at Warner Avenue		Irv	0.45	A	0.47	A	0.47	A	0.50	A
184	Harvard Avenue at Barranca Parkway		Irv	0.54	A	0.56	A	0.55	A	0.57	A
185	Harvard Avenue at Alton Parkway		Irv	0.63	B	0.68	B	0.66	B	0.70	B
186	Harvard Avenue at Main Street		Irv	0.51	A	0.68	B	0.58	A	0.74	C
187	Harvard Avenue at Coronado		Irv	0.50	A	0.51	A	0.56	A	0.56	A
188	Harvard Avenue at Michelson Drive		Irv	0.61	B	0.83	D	0.74	C	0.87	D
189	Harvard Avenue at University Drive		Irv	0.70	B	0.68	B	0.71	C	0.71	C
190	University Drive at Campus Drive		Irv	0.74	C	0.71	C	0.75	C	0.74	C
191	Mesa Road at University Drive		Irv	0.52	A	0.73	C	0.54	A	0.76	C
192	California Avenue at University Drive		Irv	0.75	C	0.82	D	0.76	C	0.83	D
196	Hearthstone Boulevard at Irvine Center Drive		Irv	0.38	A	0.46	A	0.38	A	0.47	A
198	Paseo Westpark at Warner Avenue		Irv	0.36	A	0.34	A	0.38	A	0.35	A
199	Paseo Westpark at Barranca Parkway		Irv	0.43	A	0.48	A	0.43	A	0.49	A
200	Paseo Westpark at Alton Parkway		Irv	0.47	A	0.49	A	0.47	A	0.52	A
201	Paseo Westpark at Main Street		Irv	0.58	A	0.46	A	0.59	A	0.52	A
221	Culver Drive at Bryan Avenue		Irv	0.70	B	0.54	A	0.71	C	0.55	A
222	Culver Drive at Trabuco Road		Irv	0.52	A	0.58	A	0.53	A	0.58	A
223	Culver Drive at I-5 SB Ramps		Irv	0.57	A	0.68	B	0.57	A	0.69	B
224	Culver Drive at Walnut Avenue		Irv	0.74	C	0.72	C	0.74	C	0.73	C
225	Culver Drive at Deerfield Drive		Irv	0.74	C	0.71	C	0.76	C	0.73	C



Table 3.10: Existing With Project Peak Hour Intersection LOS

ID	Intersection	Jurisdiction	Existing Conditions				Existing Conditions With Project				
			AM		PM		AM		PM		
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	
226	Culver Drive at Irvine Center Drive		Irv	0.60	A	0.56	A	0.62	B	0.58	A
227	Culver Drive at Warner Avenue		Irv	0.66	B	0.60	A	0.68	B	0.63	B
228	Culver Drive at Barranca Parkway		Irv	0.76	C	0.67	B	0.78	C	0.69	B
229	Culver Drive at Alton Parkway		Irv	0.70	B	0.73	C	0.72	C	0.76	C
230	Culver Drive at Main Street		Irv	0.69	B	0.63	B	0.72	C	0.66	B
231	Culver Drive at San Leandro		Irv	0.70	B	0.54	A	0.74	C	0.55	A
232	Culver Drive at I-405 NB Ramps		Irv	0.46	A	0.85	D	0.49	A	0.87	D
233	Culver Drive at I-405 SB Ramps		Irv	0.48	A	0.57	A	0.52	A	0.60	A
234	Culver Drive at Michelson Drive		Irv	0.49	A	0.72	C	0.52	A	0.74	C
235	Culver Drive at University Drive		Irv	0.51	A	0.71	C	0.54	A	0.72	C
337	Von Karman Avenue at Quartz	a	Irv	0.53	A	0.67	B	0.60	A	0.75	C
439	Bixby at Michelson Drive		Irv	0.22	A	0.39	A	0.40	A	0.52	A
440	Siglo at Main Street		Irv	0.37	A	0.49	A	0.50	A	0.57	A
472	Obsidian at Michelson Drive	a	Irv	0.41	A	0.30	A	0.52	A	0.42	A
84	MacArthur Boulevard at Campus Drive	a	Irv/NB	0.49	A	0.82	D	0.55	A	0.86	D
105	Von Karman Avenue at Campus Drive	a	Irv/NB	0.52	A	0.78	C	0.58	A	0.90	D
121	Teller Avenue at Campus Drive	a	Irv/NB	0.27	A	0.36	A	0.42	A	0.51	A
147	Jamboree Road at Campus Drive	a	Irv/NB	0.61	B	0.70	B	0.70	B	0.74	C
149	Jamboree Road at Fairchild Road	a	Irv/NB	0.63	B	0.63	B	0.66	B	0.67	B
150	Jamboree Road at MacArthur Boulevard	a,b	Irv/NB	0.71	C	0.72	C	0.78	C	0.76	C
176	Fairchild Avenue at MacArthur Boulevard	a	Irv/NB	0.78	C	0.60	A	0.78	C	0.63	B
193	MacArthur Boulevard NB at University Drive		Irv/NB	0.44	A	0.55	A	0.46	A	0.56	A
194	MacArthur Boulevard SB at University Drive		Irv/NB	0.40	A	0.36	A	0.41	A	0.37	A
195	SR-73 SB Ramps at University Drive		Irv/NB	0.49	A	0.45	A	0.50	A	0.47	A
43	Red Hill Avenue at Deere Avenue	a	Irv/SA	0.45	A	0.71	C	0.49	A	0.77	C
44	Red Hill Avenue at Alton Parkway	a	Irv/SA	0.51	A	0.87	D	0.59	A	0.94	E
9	SR-55 NB Ramps at MacArthur Boulevard	a	Irv/SA	0.73	C	0.55	A	0.79	C	0.58	A
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a	Irv/SA/Tus	0.82	D	0.95	E	0.91	E	1.01	F
71	Armstrong Avenue at Barranca Avenue	a	Irv/Tus	0.42	A	0.41	A	0.45	A	0.48	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca Parkway	a	Irv/Tus	0.50	A	0.65	B	0.53	A	0.71	C
112	Myford Road at Michelle Drive		Irv/Tus	0.16	A	0.33	A	0.16	A	0.33	A
113	Myford Road at Walnut Avenue		Irv/Tus	0.40	A	0.46	A	0.40	A	0.47	A
114	Millikan Avenue/District Way at Barranca Parkway	a	Irv/Tus	0.56	A	0.60	A	0.68	B	0.60	A
126	Jamboree Road at Bryan Avenue		Irv/Tus	0.68	B	0.56	A	0.68	B	0.56	A
127	Jamboree Road at El Camino Real		Irv/Tus	0.65	B	0.63	B	0.65	B	0.63	B
134	Loop Road/Park Avenue at Warner Avenue		Irv/Tus	0.61	B	0.86	D	0.61	B	0.88	D
136	Jamboree Road at Barranca Avenue	a	Irv/Tus	0.75	C	0.89	D	0.78	C	0.92	E
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive		Irv/Tus	0.48	A	0.44	A	0.51	A	0.46	A
182	Harvard Avenue at Paseo Westpark/Moffett Drive		Irv/Tus	0.34	A	0.36	A	0.34	A	0.38	A
441	Loop Road at Jamboree Road SB Ramps		Irv/Tus	Not analyzed under existing conditions							
61	Campus Drive at Airport Way		NB	0.33	A	0.62	B	0.40	A	0.67	B
62	Campus Drive at Bristol Street NB		NB	0.58	A	0.86	D	0.61	B	0.90	D
63	Campus Drive at Bristol Street SB		NB	0.72	C	0.49	A	0.74	C	0.52	A
64	Birch Street at Bristol Street NB		NB	0.59	A	0.55	A	0.61	B	0.56	A
65	Birch Street at Bristol Street SB		NB	0.36	A	0.41	A	0.36	A	0.43	A
85	MacArthur Boulevard at Birch Street		NB	0.59	A	0.75	C	0.62	B	0.81	D
106	Von Karman Avenue at Birch Street		NB	0.35	A	0.48	A	0.39	A	0.53	A
107	Von Karman Avenue at MacArthur Boulevard		NB	0.34	A	0.47	A	0.36	A	0.51	A



Table 3.10: Existing With Project Peak Hour Intersection LOS

ID	Intersection	Jurisdiction	Existing Conditions				Existing Conditions With Project				
			AM		PM		AM		PM		
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	
148	Jamboree Road at Birch Street		NB	0.47	A	0.53	A	0.51	A	0.60	A
151	Jamboree Road at Bristol Street NB		NB	0.49	A	0.64	B	0.53	A	0.68	B
153	Jamboree Road at Bristol Street SB		NB	0.60	A	0.64	B	0.61	B	0.65	B
154	Jamboree Road at Eastbluff Drive		NB	0.58	A	0.60	A	0.58	A	0.61	B
155	Jamboree Road at Bison Avenue		NB	0.48	A	0.54	A	0.49	A	0.55	A
156	Jamboree Road at Ford Road		NB	0.68	B	0.78	C	0.70	B	0.79	C
178	MacArthur Boulevard at Bison Avenue		NB	0.60	A	0.65	B	0.61	B	0.66	B
179	MacArthur Boulevard at Ford Road		NB	0.72	C	0.77	C	0.72	C	0.77	C
733	Irvine Avenue at Mesa Drive		NB/OC	0.53	A	0.81	D	0.55	A	0.84	D
734	Irvine Avenue at University Drive/Del Mar Avenue		NB/OC	0.52	A	0.67	B	0.53	A	0.68	B
741	Jamboree Road at San Joaquin Hills Road		NB	0.56	A	0.56	A	0.56	A	0.57	A
742	MacArthur Boulevard at San Joaquin Hills Road		NB	0.65	B	0.82	D	0.65	B	0.83	D
4	SR-55 SB Ramps at Edinger Avenue	b	SA	0.68	B	0.73	C	0.71	C	0.75	C
5	Hotel Terrace Drive at Dyer Road		SA	0.50	A	0.59	A	0.51	A	0.63	B
6	Grand Avenue at Dyer Road		SA	0.59	A	0.79	C	0.63	B	0.83	D
7	SR-55 NB Ramps at Dyer Road		SA	0.70	B	0.77	C	0.73	C	0.77	C
8	SR-55 SB Ramps at MacArthur Boulevard	c	SA	0.68	B	0.60	A	0.73	C	0.62	B
29	Pullman Street at Barranca Parkway		SA	0.43	A	0.72	C	0.49	A	0.75	C
543	Bristol Street at Segerstrom Avenue		SA	0.62	B	0.74	C	0.63	B	0.76	C
544	Bristol Street at MacArthur Boulevard		SA	0.60	A	0.77	C	0.62	B	0.79	C
719	Flower Street at Segerstrom Avenue		SA	0.61	B	0.64	B	0.63	B	0.66	B
720	Flower Street at MacArthur Boulevard		SA	0.49	A	0.75	C	0.51	A	0.78	C
723	Main Street at Segerstrom Avenue		SA	0.61	B	0.68	B	0.62	B	0.70	B
724	Main Street at Alton Avenue		SA	0.29	A	0.40	A	0.31	A	0.41	A
725	Main Street and MacArthur Boulevard (w/o SR-55)	c	SA	0.60	A	0.60	A	0.63	B	0.62	B
727	Halladay Street at Dyer Road		SA	0.53	A	0.58	A	0.55	A	0.60	A
728	Halladay Street East at Alton Parkway		SA	0.20	A	0.27	A	0.22	A	0.29	A
729	Halladay Street West at Alton Parkway		SA	0.19	A	0.23	A	0.21	A	0.25	A
730	Grand Avenue at Warner Avenue		SA	0.46	A	0.69	B	0.51	A	0.72	C
731	Grand Avenue at SR-55 SB Ramps		SA	0.50	A	0.45	A	0.53	A	0.47	A
3	Newport Avenue at Edinger Avenue		Tus	0.56	A	0.52	A	0.61	B	0.52	A
14	Walnut Avenue to McFadden Avenue		Tus	0.38	A	0.45	A	0.38	A	0.46	A
18	Newport Avenue at Bryan Avenue		Tus	0.53	A	0.62	B	0.54	A	0.62	B
19	Newport Avenue at Main Street		Tus	0.27	A	0.59	A	0.29	A	0.59	A
20	Newport Avenue at El Camino Real		Tus	0.58	A	0.67	B	0.58	A	0.67	B
21	Newport Avenue at I-5 NB Ramps		Tus	0.58	A	0.52	A	0.59	A	0.53	A
22	Newport Avenue at I-5 SB Ramps		Tus	0.59	A	0.71	C	0.61	B	0.73	C
23	Newport Avenue at McFadden Avenue		Tus	0.64	B	0.45	A	0.65	B	0.46	A
24	Newport Avenue at Walnut Avenue		Tus	0.68	B	0.70	B	0.69	B	0.71	C
25	Newport Avenue at Sycamore Avenue		Tus	0.45	A	0.45	A	0.45	A	0.46	A
27	Del Amo Avenue at Edinger Avenue		Tus	0.31	A	0.28	A	0.33	A	0.30	A
35	Red Hill Avenue at Bryan Avenue		Tus	0.57	A	0.58	A	0.58	A	0.59	A
36	Red Hill Avenue at El Camino Real		Tus	0.69	B	1.11	F	0.70	B	1.12	F
37	Red Hill Avenue at Nisson Road		Tus	0.60	A	0.64	B	0.61	B	0.64	B
38	Red Hill Avenue at Walnut Avenue		Tus	0.83	D	0.76	C	0.83	D	0.78	C
39	Red Hill Avenue at Sycamore Avenue		Tus	0.70	B	0.56	A	0.70	B	0.56	A
40	Red Hill Avenue at Edinger Avenue		Tus	0.69	B	0.69	B	0.74	C	0.71	C
55	Browning Avenue at Bryan Avenue		Tus	0.37	A	0.55	A	0.39	A	0.57	A



Table 3.10: Existing With Project Peak Hour Intersection LOS

ID	Intersection	Jurisdiction	Existing Conditions				Existing Conditions With Project			
			AM		PM		AM		PM	
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
56	Browning Avenue at El Camino Real	Tus	0.30	A	0.44	A	0.31	A	0.44	A
58	Browning Avenue at Walnut Avenue	Tus	0.40	A	0.49	A	0.41	A	0.50	A
92	Tustin Ranch Road at Bryan Avenue	Tus	0.60	A	0.66	B	0.61	B	0.67	B
93	Tustin Ranch Road at El Camino Real	Tus	0.90	D	0.69	B	0.90	D	0.69	B
94	Tustin Ranch Road at I-5 NB Ramps	Tus	0.53	A	0.45	A	0.53	A	0.45	A
95	Tustin Ranch Road at I-5 SB Ramps	Tus	0.67	B	0.48	A	0.67	B	0.48	A
96	Tustin Ranch Road at Walnut Avenue	Tus	0.81	D	0.76	C	0.66	B	0.76	C
109	Myford Road at Bryan Avenue	Tus	0.37	A	0.36	A	0.39	A	0.37	A
110	Myford Road at El Camino Real	Tus	0.22	A	0.39	A	0.22	A	0.39	A
111	Franklin Avenue at Walnut Avenue	Tus	0.43	A	0.90	D	0.44	A	0.91	E
133	Jamboree Road at Edinger Avenue	b	0.35	A	0.49	A	0.37	A	0.52	A
445	Tustin Ranch Road at Warner Avenue North	Tus	Not analyzed under existing conditions							
446	Tustin Ranch Road at Warner Avenue South	Tus								
447	Armstrong Avenue/Severyns Road at Valencia Avenue	Tus								
448	Armstrong Avenue at Warner Avenue	Tus								
453	Red Hill Avenue at Valencia Avenue	Tus	0.55	A	0.62	B	0.57	A	0.63	B
454	Tustin Ranch Road at Valencia Avenue	Tus	Not analyzed under existing conditions							
455	East Connector-Jamboree Plaza at Edinger Avenue	Tus								
456	North Loop Road at Valencia Avenue	Tus								
457	North Loop Road at Moffett Drive	Tus								
478	Red Hill Avenue at I-5 NB Ramps	Tus	0.73	C	0.59	A	0.75	C	0.59	A
479	Red Hill Avenue at I-5 SB Ramps	Tus	0.79	C	0.72	C	0.80	C	0.73	C
480	Tustin Ranch Road Connector at Edinger Avenue	Tus	Not analyzed under existing conditions							
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue	Tus								
739	Newport Avenue at Mitchell Avenue	Tus								
740	Red Hill Avenue at Mitchell Avenue	Tus								
743	Newport Avenue at Valencia Avenue	Tus								
745	Tustin Ranch Road at Park Avenue	Tus								
746	Kensington Park Drive at Edinger Avenue	Tus								
747	Kensington Park Drive at Valencia Avenue	Tus								
748	Armstrong Avenue at A Street	Tus								
749	Park Avenue at A Street	Tus								
750	Legacy Road at Warner Avenue	Tus								
751	Tustin Ranch Road at Legacy Road	Tus								
752	Legacy Road at North Loop Road	Tus								
753	Tustin Ranch Road at Edinger Avenue Connector	Tus								
28	Pullman Street at Warner Avenue	Tus/SA	0.30	A	0.37	A	0.33	A	0.40	A
41	Red Hill Avenue at Warner Avenue	Tus/SA	0.64	B	0.47	A	0.72	C	0.50	A
754	Red Hill Avenue at Carnegie Avenue/A Street	Tus/SA	0.38	A	0.53	A	0.43	A	0.56	A

- Denotes intersection operating at a deficient LOS
- a Intersection within Irvine Planning Area 36--LOS E Acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E Deficiency Acceptable

The Existing With Project analysis determined that four intersections within the study area would operate at a deficient LOS. Many of the deficiencies are temporary and are addressed as part of already planned circulation improvements within the study area. The deficient intersections include:



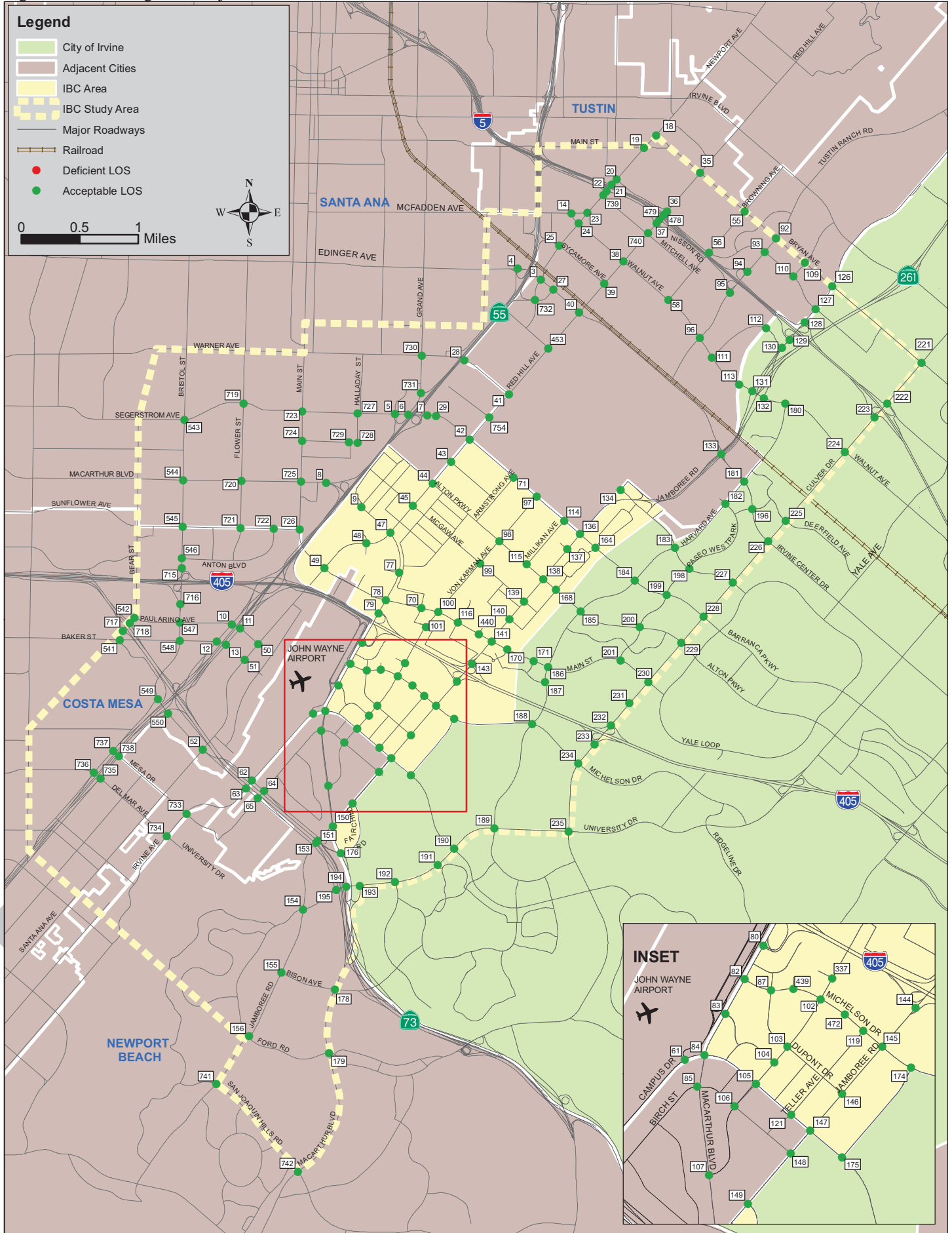
PM Peak Hour:

- #145: Jamboree Road at Michelson Drive (Irvine)—PM peak hour LOS 1.21
- #42: Red Hill Avenue at Barranca Parkway/Dyer Road (Irvine/Santa Ana/Tustin)—PM peak hour LOS 1.01
- #36: Red Hill Avenue at El Camino Real (Tustin)—PM peak hour LOS 1.12
- #111: Franklin and Walnut Avenue (Tustin)—PM peak hour LOS 0.91

3.12 Existing With Project Peak Hour Freeway Mainline Analysis

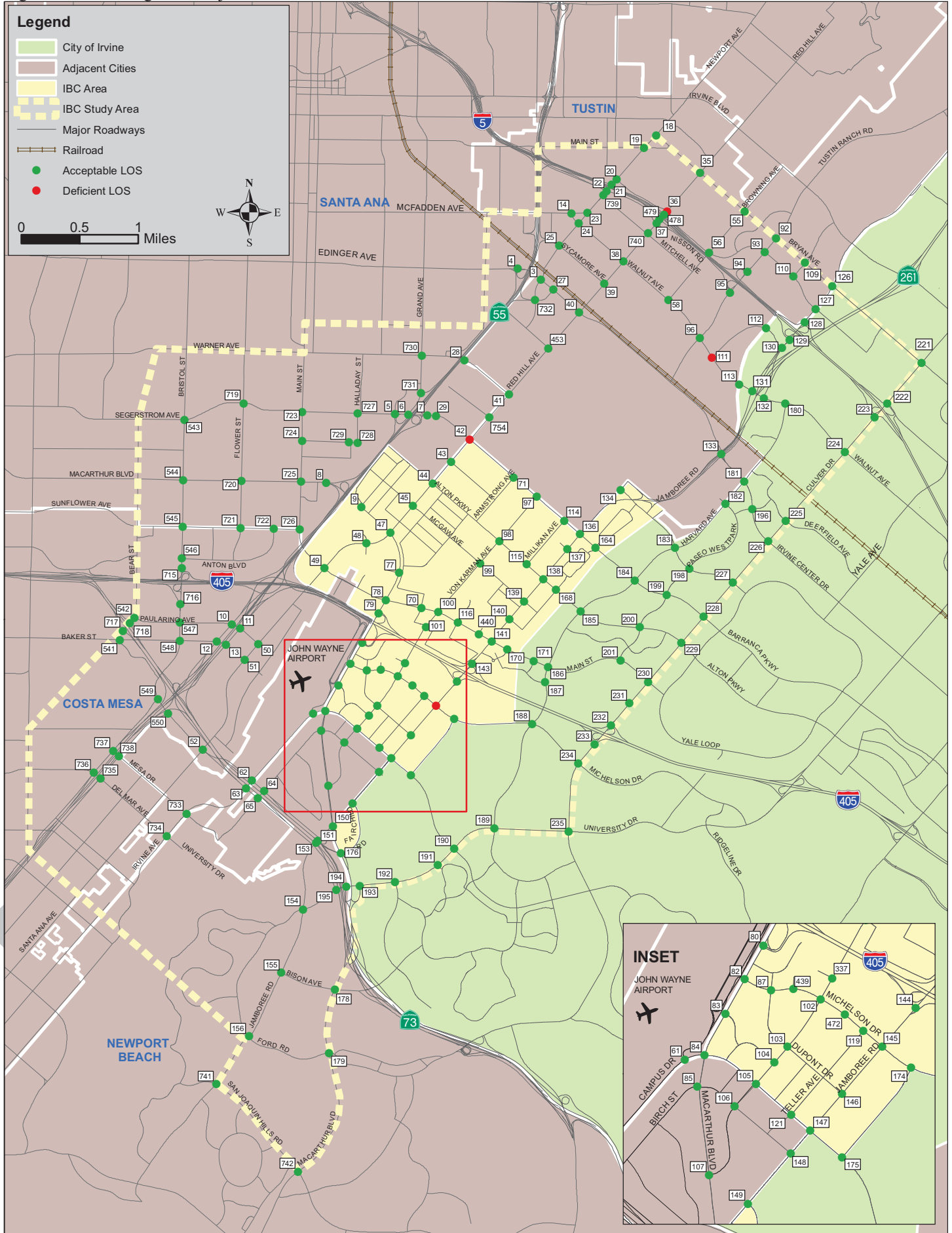
In order to project the project trips to be added by the proposed project, the delta between the ITAM 2008 Existing No Project and Existing With Project forecast volumes was added to the existing counts from PeMS. The volumes are similar to the Existing No Project scenario, with some increases and decreases representing the redistribution of trips with the increased residential land use under the IBC Vision Plan. **Table 3.11** displays the volume, density, and LOS for the freeway mainlines under the Existing With Project conditions, while **Appendix C** presents the HCS freeway mainline analysis worksheets.

Figure 3.12: Existing With Project AM Peak Hour Intersection Deficiencies



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Figure 3.13: Existing With Project PM Peak Hour Intersection Deficiencies



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Table 3.1.1: Existing With Project Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Existing Conditions						Existing Conditions with Project								
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS			
1-5	Culver Drive to Jamboree Road	NB	5	10,000	8,723	0.87	D	7,847	0.78	D	8,726	0.87	D	7,980	0.80	D		
		SB	5	10,000	6,766	0.68	C	7,371	0.74	D	6,919	0.69	C	7,296	0.73	D		
	Jamboree Road to Tustin Ranch Road	NB	5	10,000	8,411	0.84	D	7,360	0.74	D	8,464	0.85	D	7,518	0.75	D		
		SB	5	10,000	7,382	0.74	D	7,446	0.74	D	7,559	0.76	D	7,397	0.74	D		
	Tustin Ranch Road to Red Hill Avenue	NB	5	10,000	8,542	0.85	D	8,005	0.80	D	8,603	0.86	D	8,163	0.82	D		
		SB	5	10,000	8,275	0.83	D	8,145	0.81	D	8,460	0.85	D	8,122	0.81	D		
	Red Hill Avenue to Newport Avenue	NB	5	10,000	9,036	0.90	E	8,033	0.80	D	9,119	0.91	E	8,200	0.82	D		
		SB	5	10,000	7,964	0.80	D	8,117	0.81	D	8,149	0.81	D	8,116	0.81	D		
	Newport Avenue to SR-55	NB	5	10,000	9,667	0.97	E	8,776	0.88	D	9,750	0.98	E	8,943	0.89	D		
		SB	4	8,000	8,659	1.08	F	9,063	1.13	F	8,864	1.11	F	9,063	1.13	F		
North of SR-55	NB	5	10,000	8,036	0.80	D	6,069	0.61	C	8,067	0.81	D	6,075	0.61	C			
	SB	5	10,000	7,464	0.75	D	8,680	0.87	D	7,510	0.75	D	8,697	0.87	D			
Culver Drive to Jamboree Road	NB	5	10,000	8,947	0.89	D	7,264	0.73	D	9,124	0.91	E	7,307	0.73	D			
	SB	4	8,000	7,458	0.93	E	7,428	0.93	E	7,484	0.94	E	7,475	0.93	E			
Jamboree Road to MacArthur Boulevard	NB	5	10,000	8,752	0.88	D	8,442	0.84	D	9,193	0.92	E	30.5	D	27.8	D		
	SB	5	10,000	9,047	0.90	E	7,925	0.79	D	9,407	0.94	E	31.6	D	27.0	D		
MacArthur Boulevard to SR-55	NB	6	12,000	7,638	0.64	C	9,119	0.76	D	8,103	0.68	C						
	SB	6	12,000	10,660	0.89	D	7,982	0.67	C	11,036	0.92	E	30.5	D	21.9	C		
SR-55 to Bristol Street	NB	5	10,000	4,745	0.47	B	4,871	0.49	B	4,849	0.48	B						
	SB	5	10,000	7,881	0.79	D	5,982	0.60	C	8,123	0.81	D						
Bristol Street to SR-73	NB	5	10,000	4,756	0.48	B	4,659	0.47	B	4,858	0.49	B						
	SB	5	10,000	8,119	0.81	D	5,494	0.55	C	8,321	0.83	D						



Table 3.11: Existing With Project Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Existing Conditions						Existing Conditions with Project								
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS
South of Victoria Street	NB	4	8,000	3,730	0.47	B		3,161	0.40	B		3,730	0.47	B		3,161	0.40	B
	SB	3	6,000	2,506	0.42	B		3,249	0.54	C		2,507	0.42	B		3,257	0.54	C
Victoria Street to Fair Drive	NB	4	8,000	4,094	0.51	C		3,909	0.49	B		4,227	0.53	C		3,990	0.50	B
	SB	4	8,000	2,822	0.35	B		4,528	0.57	C		2,863	0.36	B		4,555	0.57	C
Fair Drive to SR-73	NB	4	8,000	4,893	0.61	C		4,547	0.57	C		5,019	0.63	C		4,628	0.58	C
	SB	4	8,000	3,462	0.43	B		6,256	0.78	D		3,544	0.44	B		6,299	0.79	D
SR-73 to Baker Street	NB	4	8,000	4,801	0.60	C		3,060	0.38	B		4,801	0.60	C		3,095	0.39	B
	SB	4	8,000	2,909	0.36	B		3,836	0.48	B		3,007	0.38	B		3,838	0.48	B
Baker Street to I-405	NB	4	8,000	3,874	0.48	B		1,990	0.25	A		3,844	0.48	B		2,000	0.25	A
	SB	4	8,000	3,331	0.42	B		4,051	0.51	C		3,417	0.43	B		4,051	0.51	C
I-405 to MacArthur Boulevard	NB	4	8,000	7,949	0.99	E		4,371	0.55	C		8,204	1.03	F		4,546	0.57	C
	SB	4	8,000	3,231	0.40	B		5,950	0.74	D		3,393	0.42	B		6,116	0.76	D
MacArthur Boulevard to Dyer Road	NB	4	8,000	7,120	0.89	D		5,363	0.67	C		7,377	0.92	E		5,513	0.69	C
	SB	4	8,000	4,232	0.53	C		5,407	0.68	C		4,447	0.56	C		5,567	0.70	C
Dyer Road to Edinger Avenue	NB	5	10,000	6,502	0.65	C		7,306	0.73	D		6,803	0.68	C		7,444	0.74	D
	SB	4	8,000	4,947	0.62	C		5,168	0.65	C		5,164	0.65	C		5,295	0.66	C
Edinger Avenue to McFadden Street/Sycamore Avenue	NB	6	12,000	6,481	0.54	C		8,026	0.67	C		6,790	0.57	C		8,212	0.68	C
	SB	5	10,000	5,164	0.52	C		5,305	0.53	C		5,412	0.54	C		5,451	0.55	C
McFadden Street/Sycamore Avenue to I-5	NB	6	12,000	7,094	0.59	C		8,828	0.74	D		7,403	0.62	C		9,008	0.75	D
	SB	5	10,000	4,805	0.48	B		5,403	0.54	C		5,030	0.50	B		5,547	0.55	C
North of I-5	NB	5	10,000	4,312	0.43	B		5,259	0.53	C		4,574	0.46	B		5,350	0.54	C
	SB	5	10,000	4,036	0.40	B		4,157	0.42	B		4,064	0.41	B		4,274	0.43	B

SR-55



Table 3.11: Existing With Project Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Existing Conditions						Existing Conditions with Project										
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour							
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS		
SR-73	MacArthur Boulevard to University Drive	NB	3	6,000	4,498	0.75	D		2,846	0.47	B		4,563	0.76	D		2,873	0.48	B	
		SB	3	6,000	2,582	0.43	B		4,252	0.71	C		2,635	0.44	B		4,292	0.72	D	
	University Drive to Jamboree Road	NB	3	6,000	4,498	0.75	D		2,846	0.47	B		4,563	0.76	D		2,873	0.48	B	
		SB	3	6,000	2,825	0.47	B		4,862	0.81	D		2,840	0.47	B		4,901	0.82	D	
	Jamboree Road to Birch Street	NB	3	6,000	5,018	0.84	D		3,441	0.57	C		5,083	0.85	D		3,468	0.58	C	
		SB	3	6,000	4,134	0.69	C		4,980	0.83	D		4,190	0.70	C		5,027	0.84	D	
	Birch Street to Campus Drive	NB	3	6,000	3,957	0.66	C		2,927	0.49	B		4,022	0.67	C		2,954	0.49	B	
		SB	3	6,000	4,134	0.69	C		4,980	0.83	D		4,190	0.70	C		5,027	0.84	D	
	Campus Drive to SR-55	NB	3	6,000	4,850	0.81	D		5,180	0.86	D		4,986	0.83	D		5,317	0.89	D	
		SB	3	6,000	6,190	1.03	F		5,949	0.99	E		6,246	1.04	F		6,067	1.01	F	
	SR-55 to Bear Street	NB	3	6,000	2,188	0.36	B		3,036	0.51	C		2,282	0.38	B		3,067	0.51	C	
		SB	3	6,000	4,937	0.82	D		4,433	0.74	D		4,938	0.82	D		4,511	0.75	D	
Bear Street to I-405	NB	3	6,000	2,211	0.37	B		2,341	0.39	B		2,293	0.38	B		2,358	0.39	B		
	SB	3	6,000	4,246	0.71	C		3,937	0.66	C		4,246	0.71	C		4,013	0.67	C		
SR-261 south of El Camino Real	NB	2	4,000	346	0.09	A		2,393	0.60	C		427	0.11	A		2,451	0.61	C		
	SB	2	4,000	2,412	0.60	C		354	0.09	A		2,445	0.61	C		395	0.10	A		



Several freeway segments are forecast to operate at a deficient LOS under the Existing With Project scenario including the following:

AM Peak Hour:

- I-5 Northbound between Red Hill Avenue and Newport Avenue
- I-5 Northbound between Newport Avenue and SR-55
- I-5 Southbound between Newport Avenue and SR-55
- I-405 Northbound between Culver Drive and Jamboree Road
- I-405 Southbound between Culver Drive and Jamboree Road
- I-405 Northbound between Jamboree Road and MacArthur Boulevard
- I-405 Southbound between Jamboree Road and MacArthur Boulevard
- I-405 Southbound between MacArthur Boulevard and SR-55
- SR-55 Northbound between I-405 and MacArthur Boulevard
- SR-55 Northbound between MacArthur Boulevard and Dyer Road
- SR-73 Southbound between Campus Drive and SR-55

PM Peak Hour:

- I-5 Southbound between Newport Avenue and SR-55
- I-405 Southbound between Culver Drive and Jamboree Road
- SR-73 Southbound between Campus Drive and SR-55

The analysis demonstrates that four additional mainline segments become deficient under the Existing With Project V/C analysis: I-405 northbound between Culver Drive and Jamboree Road (AM peak hour), I-405 northbound between Jamboree Road and MacArthur Boulevard (AM peak hour), I-405 southbound between MacArthur Boulevard and SR-55 (AM peak hour), and SR-55 northbound between MacArthur Boulevard and Dyer Road (AM peak hour).

3.13 Existing With Project Peak Hour Freeway Ramp Analysis

Similarly, to the mainline analysis the Existing With Project scenario is determined by adding the delta between the ITAM Traffic Model 2008 Existing No Project and Existing With Project model forecasts to the existing counts from PeMS. **Table 3.12** exhibits the volume, density, and LOS for the freeway ramps under the Existing With Project conditions and **Appendix D** presents the HCS freeway ramp analysis worksheets.



Table 3.12: Existing With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions						Existing Conditions With Project									
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour						
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS				
Culver Drive	SB On Direct	1	1,000	238	0.26	A	296	0.33	B	238	0.26	A	296	0.33	B	300	0.33	B	
	SB On Loop	1	1,000	312	0.35	B	224	0.25	A	312	0.35	B	224	0.25	A	224	0.25	A	
	SB Off	2	500	919	0.31	B	1,603	0.53	C	926	0.31	B	1,603	0.53	C	1,603	0.53	C	
	NB On Loop	1	1,000	1,023	0.68	C	749	0.50	B	1,032	0.69	C	779	0.52	C	779	0.52	C	
	NB On Direct	1	1,000	613	0.41	B	274	0.18	A	625	0.42	B	274	0.18	A	274	0.18	A	
	NB Off	1	500	325	0.22	A	773	0.52	C	325	0.22	A	773	0.52	C	325	0.22	A	
Jamboree Road	SB On Direct	1	1,000	367	0.24	A	915	0.61	C	386	0.26	A	915	0.61	C	386	0.26	A	
	SB On Loop	1	1,000	506	0.47	B	434	0.40	B	512	0.47	B	434	0.40	B	434	0.40	B	
	SB Off	2	500	1,489	0.50	B	1,424	0.47	B	1,538	0.51	C	1,449	0.48	B	1,449	0.48	B	
	NB On Loop	1	1,000	432	0.40	B	280	0.26	A	482	0.45	B	280	0.26	A	314	0.29	A	
	NB On Direct	1	1,000	355	0.33	B	412	0.38	B	355	0.33	B	412	0.38	B	412	0.38	B	
	NB Off	1	500	1,099	0.73	D	1,179	0.79	D	1,099	0.73	D	1,187	0.79	D	1,187	0.79	D	
Tustin Ranch Road	SB On	1	1,000	669	0.45	B	383	0.26	A	672	0.45	B	383	0.26	A	383	0.26	A	
	NB On	2	1,000	371	0.21	A	1,117	0.62	C	379	0.21	A	1,117	0.62	C	1,117	0.62	C	
	NB Off	1	500	240	0.16	A	472	0.31	B	240	0.16	A	472	0.31	B	472	0.31	B	
	SB Off	2	500	1,562	0.69	C	1,082	0.48	B	1,573	0.70	C	1,108	0.49	B	1,108	0.49	B	
	SB On	1	1,000	994	0.66	C	739	0.49	B	994	0.66	C	744	0.50	B	744	0.50	B	
	NB On	1	1,000	1,029	0.69	C	773	0.52	C	1,051	0.70	C	784	0.52	C	784	0.52	C	
Red Hill Avenue	NB Off	1	500	535	0.36	B	745	0.50	B	535	0.36	B	747	0.50	B	747	0.50	B	
	SB Off	1	500	683	0.46	B	711	0.47	B	683	0.46	B	738	0.49	B	738	0.49	B	
	SB Off	1	500	695	0.46	B	946	0.63	C	716	0.48	B	947	0.63	C	947	0.63	C	
	NB On	1	1,000	631	0.42	B	743	0.50	B	631	0.42	B	743	0.50	B	743	0.50	B	



Table 3.12: Existing Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions						Existing Conditions With Project									
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour						
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	HCM Density	LOS	HCM Density	LOS
Culver Drive	SB On Direct	1	1,000	251	0.17	A	295	0.20	A	311	0.21	A	331	0.22	A				
	SB On Loop	1	1,000	197	0.22	A	514	0.57	C	197	0.22	A	525	0.58	C				
	SB Off	2	500	832	0.28	A	1,375	0.46	B	867	0.29	A	1,439	0.48	B				
	NB On Loop	1	1,000	555	0.37	B	399	0.27	A	633	0.42	B	429	0.29	A				
	NB On Direct	1	1,000	926	0.62	C	656	0.44	B	979	0.65	C	672	0.45	B				
	NB Off	1	500	1,092	0.73	D	1,239	0.83	D	1,168	0.78	D	1,299	0.87	D				
Jamboree Road	SB On Direct	2	1,000	475	0.26	A	974	0.54	C	570	0.32	B	1,089	0.61	C				
	SB On Loop	1	1,000	271	0.18	A	641	0.43	B	326	0.22	A	662	0.44	B				
	SB Off	2	500	2,335	1.04	F	2,112	0.94	E	2,819	1.25	F	2,720	1.21	F				
	NB On Loop	1	1,000	494	0.33	B	899	0.60	C	606	0.40	B	1,099	0.73	D				
	NB On Direct	2	1,000	1,623	0.74	D	1,144	0.52	C	1,841	0.84	D	1,232	0.56	C				
	NB Off	1	500	2,312	1.03	F	865	0.38	B	2,379	1.06	F	1,000	0.44	B				
MacArthur Boulevard	SB Direct On	2	1,000	529	0.18	A	1,235	0.41	B	569	0.19	A	1,289	0.43	B				
	SB Off	2	500	2,142	0.71	C	1,292	0.43	B	2,197	0.73	D	1,351	0.45	B				
	NB On	1	1,000	437	0.29	A	1,527	1.02	F	575	0.38	B	1,745	1.16	F				
	NB Off	1	500	1,551	1.03	F	850	0.57	C	1,665	1.11	F	877	0.58	C				
	SB Loop On	1	1,000	975	0.65	C	1,328	0.89	D	1,020	0.68	C	1,416	0.94	E	22.8	C		
	SB Off	2	500	1,213	0.54	C	840	0.37	B	1,218	0.54	C	840	0.37	B				
Bristol Street	NB On Loop	1	1,000	179	0.20	A	279	0.31	B	179	0.20	A	279	0.31	B				
	NB On Direct	1	1,000	570	0.38	B	835	0.56	C	570	0.38	B	835	0.56	C				
	NB Off	1	500	738	0.49	B	1,326	0.88	D	740	0.49	B	1,335	0.89	D				

I-405



Table 3.12: Existing Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions						Existing Conditions With Project					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Victoria Street	SB Direct On	1	1,000	102	0.07	A	80	0.05	A	102	0.07	A	80	0.05	A
	SB Off	2	500	418	0.19	A	1,359	0.60	C	459	0.20	A	1,377	0.61	C
	NB Direct On	2	1,000	438	0.24	A	856	0.48	B	571	0.32	B	937	0.52	C
	NB Off	1	500	74	0.05	A	108	0.07	A	74	0.05	A	108	0.07	A
Fair Drive	SB Direct On	1	1,000	140	0.16	A	180	0.20	A	140	0.16	A	182	0.20	A
	SB Off	2	500	780	0.35	B	1,908	0.85	D	821	0.36	B	1,926	0.86	D
	NB Direct On	1	1,000	964	0.64	C	811	0.54	C	964	0.64	C	811	0.54	C
	NB Off	1	500	165	0.11	A	173	0.12	A	172	0.11	A	173	0.12	A
Baker Street	SB On	1	1,000	363	0.40	B	676	0.75	D	376	0.42	B	733	0.81	D
	SB Off	1	500	785	0.52	C	891	0.59	C	785	0.52	C	946	0.63	C
	NB Off	1	500	927	0.62	C	1,070	0.71	C	957	0.64	C	1,095	0.73	D
	SB Off	1	500	1,310	0.87	D	931	0.62	C	1,310	0.87	D	931	0.62	C
Paularino Avenue	NB On	1	1,000	1,147	1.27	F	1,287	1.43	F	1,147	1.27	F	1,287	1.43	F
	SB On	1	1,000	695	0.77	D	947	1.05	F	698	0.78	D	947	1.05	F
	SB On Loop	1	1,000	135	0.15	A	658	0.73	D	140	0.16	A	673	0.75	D
	SB Off	1	500	1,831	1.22	F	1,062	0.71	C	1,891	1.26	F	1,071	0.71	C
MacArthur Boulevard	NB On Loop	1	1,000	606	0.67	C	740	0.82	D	606	0.67	C	741	0.82	D
	NB On Direct	1	1,000	246	0.16	A	1,148	0.77	D	276	0.18	A	1,148	0.77	D
	NB Off	2	500	1,681	0.75	D	896	0.40	B	1,709	0.76	D	921	0.41	B

SR-55



Table 3.12: Existing Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions						Existing Conditions With Project										
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour							
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C
Dyer Road	SB On	1	1,000	801	0.53	C	1,179	0.79	D	802	0.53	C	1,218	0.81	D					
	SB Off Loop	1	500	801	0.53	C	369	0.25	A	804	0.54	C	374	0.25	A					
	SB Off to Grand	1	500	715	0.48	B	571	0.38	B	715	0.48	B	571	0.38	B					
	NB On Direct	1	1,000	325	0.22	A	1,205	0.80	D	395	0.26	A	1,211	0.81	D					
	NB On Loop	1	1,000	551	0.61	C	1,023	1.14	F	551	0.61	C	1,023	1.14	F					
	NB Off	1	500	1,494	1.00	E	285	0.19	A	1,520	1.01	F	303	0.20	A					
	SB On	1	1,000	343	0.23	A	406	0.27	A	351	0.23	A	415	0.28	A					
	SB Off	1	500	560	0.37	B	543	0.36	B	599	0.40	B	572	0.38	B					
	NB On	1	1,000	539	0.36	B	946	0.63	C	565	0.38	B	994	0.66	C					
	NB Off	1	500	560	0.37	B	226	0.15	A	579	0.39	B	226	0.15	A					
Edinger Avenue	SB On	1	1,000	748	0.50	B	414	0.28	A	771	0.51	C	416	0.28	A					
	SB Off	2	500	389	0.17	A	512	0.23	A	389	0.17	A	512	0.23	A					
	NB On	1	1,000	868	0.58	C	1,036	0.69	C	868	0.58	C	1,045	0.70	C					
	NB Off	1	500	255	0.17	A	234	0.16	A	255	0.17	A	249	0.17	A					
McFadden Avenue	SB On	1	1,000	868	0.58	C	1,036	0.69	C	868	0.58	C	1,045	0.70	C					
	SB Off	2	500	389	0.17	A	512	0.23	A	389	0.17	A	512	0.23	A					
	NB On	1	1,000	868	0.58	C	1,036	0.69	C	868	0.58	C	1,045	0.70	C					
	NB Off	1	500	255	0.17	A	234	0.16	A	255	0.17	A	249	0.17	A					

SR-55 Continued



Table 3.12: Existing Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Existing Conditions																	
		Number of Lanes	Ramp Length	AM Peak Hour				PM Peak Hour				Existing Conditions With Project									
				Volume	V/C	LOS	HCM Density	LOS	HCM Density	Volume	V/C	LOS	HCM Density	Volume	V/C	LOS	HCM Density				
MacArthur Boulevard	SB On	1	1,000	59	0.04	A		1,290	0.86	D		66	0.04	A		1,330	0.89	D		16.6	B
	SB Off	2	500	1,321	0.44	B		1,269	0.42	B		1,349	0.45	B		1,286	0.43	B			
	NB On	1	1,000	1,241	1.38	F		1,334	1.48	F		1,285	1.43	F		1,339	1.49	F			
	SB Off	1	500	418	0.28	A		310	0.21	A		418	0.28	A		310	0.21	A			
	NB On	1	1,000	72	0.05	A		142	0.09	A		72	0.05	A		142	0.09	A			
	SB On	1	1,000	76	0.05	A		422	0.28	A		76	0.05	A		422	0.28	A			
Bison Avenue	SB Off	1	500	578	0.39	B		1,641	1.09	F		578	0.39	B		1,644	1.10	F			
	NB On	1	1,000	272	0.18	A		996	0.66	C		289	0.19	A		1,010	0.67	C			
	SB On	1	1,000	368	0.25	A		816	0.54	C		370	0.25	A		816	0.54	C			
Jamboree Road	SB Off	2	500	1,677	0.75	D		934	0.42	B		1,719	0.76	D		942	0.42	B			
	NB On	1	1,000	520	0.35	B		595	0.40	B		520	0.35	B		595	0.40	B			
	NB Off	1	500	1,061	0.71	C		514	0.34	B		1,061	0.71	C		514	0.34	B			
Campus Drive	SB Off	2	500	2,056	0.91	E		969	0.43	B		2,056	0.91	E		1,040	0.46	B			
	NB On	1	1,000	893	0.60	C		2,253	1.50	F		964	0.64	C		2,363	1.58	F			
	SB On	1	1,000	966	0.64	C		747	0.50	B		967	0.64	C		750	0.50	B			
SR-73 at Bear	SB Off	1	500	275	0.18	A		251	0.17	A		275	0.18	A		251	0.17	A			
	NB Off	1	500	603	0.40	B		1,170	0.78	D		615	0.41	B		1,185	0.79	D			
	NB On	1	1,000	626	0.42	B		475	0.32	B		626	0.42	B		475	0.32	B			
Jamboree Road	SB On	1	1,000	1,636	1.09	F		997	0.66	C		1,636	1.09	F		1,022	0.68	C			
	NB Off	1	250	782	0.52	C		2,008	1.34	F		837	0.56	C		2,039	1.36	F			
	NB On	1	1,000	52	0.03	A		325	0.22	A		62	0.04	A		360	0.24	A			
Walnut Avenue	SB Off	1	500	601	0.40	B		121	0.08	A		609	0.41	B		130	0.09	A			

SR-73

SR-261



The following freeway ramps are forecast to operate at a deficient LOS under the Existing With Project scenario:

AM Peak Hour:

- I-405 Southbound Off-Ramp to Jamboree Road
- I-405 Northbound Off-Ramp to Jamboree Road
- I-405 Northbound Off-Ramp to MacArthur Boulevard
- SR-55 Northbound On-Ramp from Paularino Avenue
- SR-55 Southbound Off-Ramp to MacArthur Boulevard
- SR-55 Northbound Off-Ramp to Dyer Road
- SR-73 Northbound On-Ramp from MacArthur Boulevard
- SR-73 Southbound Off-Ramp to Campus Drive
- SR-261 Southbound On-Ramp from Jamboree Road

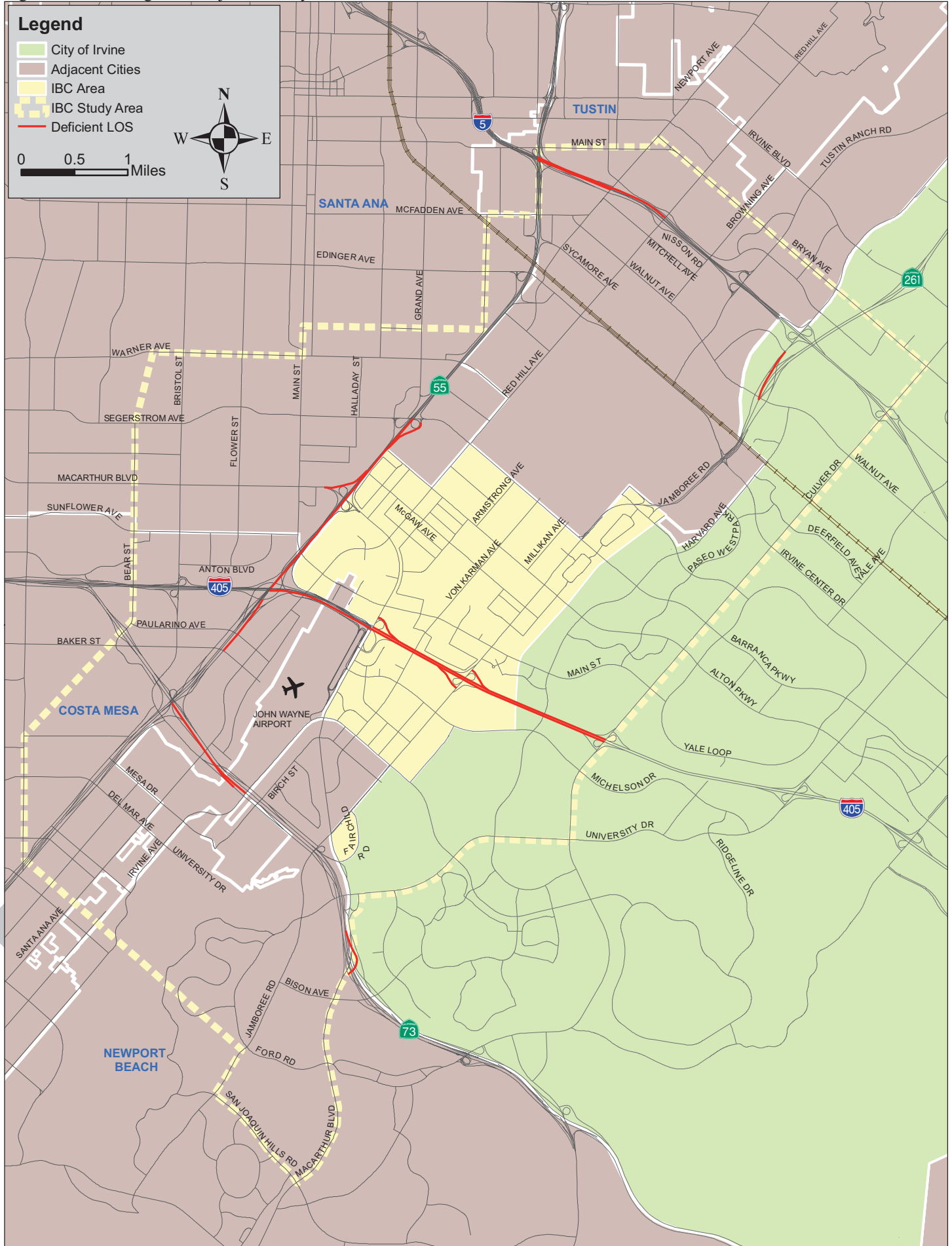
PM Peak Hour:

- I-405 Southbound Off-Ramp to Jamboree Road
- I-405 Northbound On-Ramp from MacArthur Boulevard
- I-405 Southbound Loop On-Ramp from Bristol Street
- SR-55 Northbound On-Ramp from Paularino Avenue
- SR-55 Southbound Direct On-Ramp from MacArthur Boulevard
- SR-55 Northbound Loop On-Ramp from Dyer Road
- SR-73 Northbound On-Ramp from MacArthur Boulevard
- SR-73 Southbound Off-Ramp to Bison Avenue
- SR-73 Northbound On-Ramp from Campus Drive
- SR-261 Northbound Off-Ramp to Jamboree Road

Figure 3.14 and **Figure 3.15** show the deficiencies for the freeway mainlines and ramps for the 2008 Existing With Project scenario. When compared to the Existing Conditions No Project, scenario, there is one additional ramp, which becomes deficient when the project trips are added to the existing network.

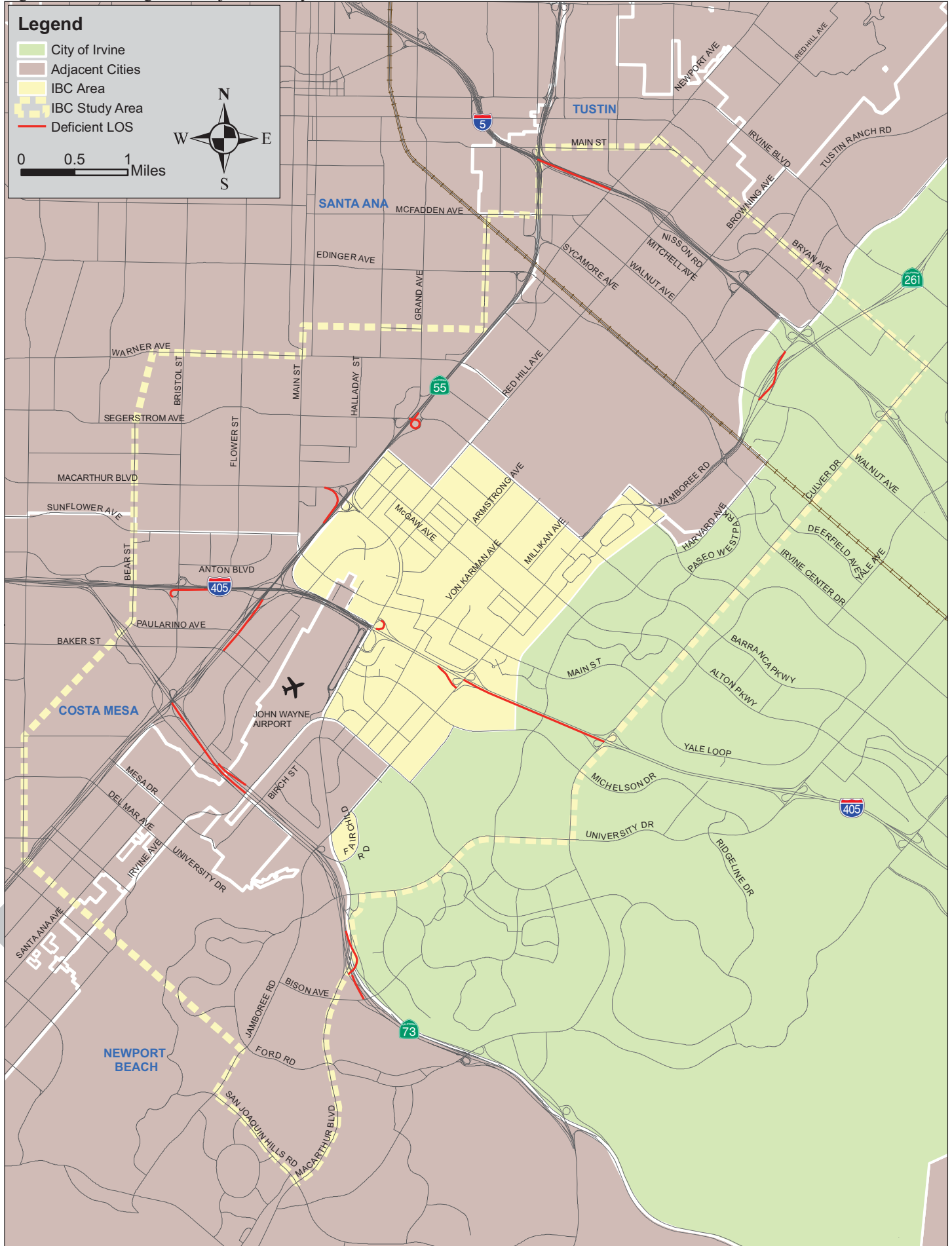
The Existing and Existing With Project analysis shows that while much of the study area is operating within acceptable traffic thresholds, there are several segments and intersections that are operating under a deficient LOS during daily and peak hour conditions. While the Existing With Project scenario is a theoretical exercise, the results indicate where project related trips are likely to be most concentrated in the future alternatives. Between the Existing and Existing With Project scenarios, there are a number of additional deficiencies. For intersections, in the Existing With Project condition there are three additional intersections that operate deficiently in the PM peak hour, besides Intersection #36 Red Hill Avenue at El Camino Real. These include Intersection #62 Campus Drive at Bristol Street NB, Intersection #145 Jamboree Road at Michelson Drive, and Intersection # 42 Red Hill Avenue at Barranca Parkway/Dyer Road, all located within the City of Irvine. For arterial segments, one additional segment fails under daily conditions (Jamboree Road from I-405 to Michelson) in the City of Irvine. For freeway mainlines four additional segments and one additional ramp become deficient under the With Project scenario in the AM and PM peak hours. Project related impacts and mitigation strategies are discussed in **Chapter 6**.

Figure 3.14: Existing With Project Freeway AM Peak Hour Deficiencies



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Figure 3.15: Existing With Project Freeway PM Peak Hour Deficiencies



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4.0 2015 Future Conditions

4.1 Introduction

The City of Irvine’s traffic model, the Irvine Traffic Analysis Model (ITAM) 8.4, was used to forecast the traffic data for the various horizon years and scenarios evaluated within the study area. In addition, key intersections from the surrounding cities, which are within the study area, were coded into the model to provide an appropriate assessment of the potential impacts of the proposed General Plan Amendment and Zoning Code to surrounding jurisdictions. The following describes the change in trips generated within the study area as a result of land use assumptions and development. Additionally, an assessment of deficiencies in the study area circulation system was performed to determine the appropriate mitigation requirements for implementing this IBC Vision General Plan Amendment and Zoning Code. Using the existing conditions as a baseline, two scenarios were developed for analysis under 2015 conditions.

2015 TRAFFIC SCENARIOS

- 1. Cumulative Baseline No Project**
- 2. Cumulative With Project**

As part of the IBC Vision plan, the 2,035 known pending residential units currently in process and associated 215 density bonus units would be expected to be completed by 2015, with the exception of 776 approved units at Park Place anticipated to be built after 2015; the remaining 3,950 units under the existing General Plan cap, the additional 776 units at Park Place, and associated 1,383 potential density bonus units are expected to be completed by project buildout or the Post-2030 timeframe. Each proposed scenario evaluates impacts to the circulation system based on the land use assumptions. For the interim year 2015 scenarios, only those circulation improvements that are 100% funded have been assumed to be constructed. Unfunded or partially funded improvements in the IBC are not included in the traffic study. The assumed 2015 circulation system is consistent for both of the 2015 scenarios.

4.2 2015 Cumulative Baseline No Project

Under the 2015 Cumulative Baseline No Project scenario, the circulation system consists of the roadway network of interstate and state highways, major arterials, primary arterials, secondary arterials, and commuter roadways. The assumed 2015 circulation system is consistent for both the No Project and With Project scenarios. There are 275 different segments, 224 intersections, 30 freeway mainline segments, and 98 northbound and southbound freeway ramps that were analyzed as part of the IBC Vision Traffic Study. The 2015 Cumulative Baseline No Project scenario analyzes the effects on the circulation system of future forecast growth in the study area, without the proposed project.

4.3 2015 Cumulative Baseline No Project Land Use and Trip Generation

The 2015 No Project scenario assumes existing on-the-ground land uses within the IBC area and estimated 2015 land use growth outside the IBC area. **Table 4.1** displays the 2015 Cumulative Baseline No Project land use assumed in the model for the IBC. **Table 4.2** displays the Trip Generation table from ITAM for the 2015 Cumulative Baseline No Project scenario. **Appendix A** presents the trip generation and **Appendix J** presents land use quantities by type and IBC TAZs as well as a land use summary by individual project.

The No Project analysis will display expected circulation system deficiencies in 2015, without the project. Following the No Project analysis, project impacts can be determined through a comparison with the With Project scenario.



Table 4.1: 2015 Cumulative Baseline No Project Land Use Summary

Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office Mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2008 With Project	17,038	1,731	2,880	33,716	13,180	164	598
2015 No Project	5,011	1,341	2,322	26,381	14,701	348	174
Percent Growth (2015 No Project vs. 2008 No Project)	0%	0%	0%	0%	0%	0%	0%

Source: City of Irvine

Table 4.2: 2015 Cumulative Baseline No Project Trip Generation

Scenario	AM-Out	AM-In	PM-Out	PM-In	ADT
2008 No Project	11,191	28,990	27,316	17,367	508,690
2008 With Project	19,336	36,105	35,513	25,795	697,308
2015 No Project	11,191	28,990	27,316	17,367	508,690
Percent Growth (2015 No Project vs. 2008 No Project)	0%	0%	0%	0%	0%

Source: ITAM

4.4 2015 Cumulative Baseline No Project Daily Arterial Segment Analysis

Under the 2015 Cumulative Baseline No Project scenario, traffic within the City shows some growth related to development of the study area as a whole. **Table 4.3** presents the study area arterial roadway segment analysis displaying the V/C ratio and LOS. As noted in **Chapter 2**, deficient segments in the daily condition are identified for all cities. Deficient segments in the City of Irvine under daily conditions are analyzed for peak hour performance. A comparison between the 2015 Cumulative Baseline No Project and With Project scenarios is provided under 2015 Cumulative With Project conditions analysis. Generally only those segments where the project has a theoretical impact are required to be evaluated further by the peak hour link methodology. In this study the peak hour link methodology has been applied to all of the forecast deficient roadway segments within the City of Irvine for No Project and With Project scenarios. The peak hour analysis methodology is the same as was used in the Existing conditions.



Table 4.3: 2015 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project		
						Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	4D	8,200	0.22	A
2721	Baker Street	Bear Street to Bristol Street		CM	4D	25,400	0.67	B
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	6D	30,200	0.54	A
1294	Baker Street	SR 55 SB to SR 55 NB		CM	6D	28,000	0.50	A
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	6D	15,800	0.28	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	6D	5,700	0.10	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	6D	18,300	0.33	A
2733	Bristol Street	Segerstrom Avenue to West Alton Avenue		CM	6D	36,100	0.64	B
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	6D	40,400	0.72	C
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	6D	23,100	0.41	A
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	6D	43,200	0.77	C
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	8D	64,600	0.86	D
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	8D	64,500	0.86	D
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	6D	43,400	0.78	C
2732	Bristol Street	Paularino Avenue to Baker Street		CM	6D	35,500	0.63	B
2730	Bristol Street	Baker Street to SR 55		CM	6D	25,600	0.46	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	6D	22,000	0.39	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	4D	13,300	0.35	A
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	2U	7,300	0.58	A
2772	Flower Street	Segerstrom Avenue to MacArthur Boulevard		CM	4D	10,100	0.27	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	4D	8,500	0.22	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	4D	6,500	0.17	A
2756	Main Street	Sunflower Avenue to SR-55		CM	4D	21,400	0.56	A
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	2U	5,800	0.46	A
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	2U	6,000	0.48	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	2U	9,000	0.72	C
2742	Paularino Avenue	Bear Street to Bristol Street		CM	2U	8,100	0.65	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	4D	18,100	0.48	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	4D	18,200	0.48	A
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	4D	5,200	0.14	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	4D	13,300	0.35	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	4D	18,600	0.49	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	4D	19,600	0.52	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	4D	16,700	0.44	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	4D	9,400	0.25	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	2U	5,900	0.47	A
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4D	4,700	0.15	A
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	12,500	0.39	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	4D	15,700	0.49	A
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	6D	16,500	0.31	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	6D	17,100	0.32	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	16,600	0.31	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	6D	13,800	0.26	A
783	Alton Parkway	San Marino to Culver Drive		Irv	6D	23,300	0.43	A
735	Barranca Parkway (Dyer)	Pullman to Red Hill Avenue		Irv	6D	25,100	0.46	A
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	7D	27,100	0.43	A



Table 4.3: 2015 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project		
						Volume	V/C	LOS
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	7D	29,800	0.47	A
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	7D	22,000	0.35	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	6D	27,500	0.51	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	6D	24,200	0.45	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	22,800	0.42	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	6D	24,200	0.45	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	6D	24,600	0.46	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	4D	22,400	0.70	B
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	4D	20,800	0.65	B
539	Bryan Avenue	El Camino Real to Rubicon		Irv	4D	17,400	0.54	A
540	Bryan Avenue	Rubicon to Culver		Irv	4D	23,100	0.72	C
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	6D	17,400	0.32	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	4D	13,700	0.43	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	4D	12,600	0.39	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	4D	10,900	0.34	A
877	Campus Drive	Jamboree Road to Carlson Avenue	a	Irv	4D	21,400	0.67	B
879	Campus Drive	Carlson Avenue to University		Irv	2U	18,900	1.45	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	4D	5,300	0.17	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	Maj5D+ 1AUX	44,200	0.89	D
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	6D	54,800	1.01	F
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	6D	48,500	0.90	D
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	6D	44,300	0.82	D
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	Maj6D+ 1AUX	41,100	0.70	B
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	6D	43,100	0.80	C
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	6D	43,300	0.80	C
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	6D	47,000	0.87	D
220	Culver Drive	Alton Parkway to Main Street		Irv	6D	48,000	0.89	D
221	Culver Drive	Main Street to San Leandro		Irv	6D	51,500	0.95	E
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	6D	56,100	1.04	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	6D	57,100	1.06	F
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	6D	43,100	0.80	C
226	Culver Drive	Sandburg Way to University Drive		Irv	6D	35,600	0.66	B
1206	El Camino Real	Jamboree Road to Alliance		Irv	4D	22,800	0.71	C
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4D	4,500	0.14	A
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	2U	9,600	0.74	C
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	2U	11,700	0.90	D
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	3D	10,800	0.45	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	4D	12,900	0.40	A
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	4D	12,700	0.40	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	4D	15,000	0.47	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	4D	17,100	0.53	A
2829	Harvard Avenue	San Juan to San Leon		Irv	4D	16,200	0.51	A
178	Harvard Avenue	San Leon to Alton Parkway		Irv	4D	17,900	0.56	A
179	Harvard Avenue	Alton Parkway to San Marino		Irv	4D	20,500	0.64	B
180	Harvard Avenue	San Marino to Main Street		Irv	4D	21,100	0.66	B
181	Harvard Avenue	Main Street to Coronado		Irv	4D	14,700	0.46	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	4D	21,500	0.67	B
183	Harvard Avenue	Michelson Drive to University Drive		Irv	2U	9,300	0.72	C



Table 4.3: 2015 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project		
						Volume	V/C	LOS
675	Irvine Center Drive	Harvard Avenue to Hearthstone		Irv	6D	20,700	0.38	A
676	Irvine Center Drive	Hearthstone to Culver Drive		Irv	6D	19,200	0.36	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	8D	39,200	0.54	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	Maj7D+1AUX	61,500	0.91	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	8D	66,700	0.93	E
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	8D	61,300	0.85	D
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	5D	54,500	1.21	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)*		Irv	Exp8	71,900	0.40	A
136	Jamboree Road	Edinger Avenue to Warner Avenue*		Irv	Exp8	78,500	0.44	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	Exp8	73,900	0.41	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	8D	54,300	0.75	C
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	8D	51,900	0.72	C
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	8D	49,400	0.69	B
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	8D	47,700	0.66	B
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	8D	56,100	0.78	C
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	Maj8D+2AUX	54,100	0.67	B
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	Maj8D+2AUX	72,300	0.89	D
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	7D	53,000	0.84	D
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	7D	46,900	0.74	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	6D	41,800	0.77	C
152	Jamboree Road	Birch Street to Fairchild Road		Irv	7D	33,600	0.53	A
154	Jamboree Road	Fairchild Road to Koll Center		Irv	6D	34,200	0.63	B
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	6D	27,500	0.51	A
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	5D	37,500	0.83	D
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	7D	16,200	0.26	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	7D	26,200	0.42	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	Maj8D+2AUX	34,700	0.43	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	Maj8D+1AUX	50,300	0.66	B
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	8D	41,800	0.58	A
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	8D	34,600	0.48	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	6D	31,800	0.59	A
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	6D	35,600	0.66	B
817	Main Street	McDurmott to Red Hill Avenue	a	Irv	6D	18,900	0.35	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	6D	17,700	0.33	A
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	6D	27,200	0.50	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	Maj7D+1AUX	36,000	0.53	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	Maj6D+1AUX	18,700	0.32	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	6D	16,900	0.31	A
823	Main Street	Siglo to Jamboree Road	a	Irv	6D	22,700	0.42	A
824	Main Street	Jamboree Road to Union	a	Irv	Maj6D+1AUX	19,600	0.34	A
825	Main Street	Veneto to Harvard Avenue		Irv	6D	11,200	0.21	A
826	Main Street	Harvard Avenue to San Mateo		Irv	4D	12,100	0.38	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	4D	9,600	0.30	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	4D	3,600	0.11	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	5,700	0.18	A



Table 4.3: 2015 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project		
						Volume	V/C	LOS
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	4D	6,600	0.21	A
1449	McGaw Avenue	Jamboree Road to Murphy Avenue			4D	2,600	0.08	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	5D	15,100	0.34	A
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	4D	11,400	0.36	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	Prim4D+1AUX	11,100	0.30	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	Prim5	18,400	0.43	A
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	Prim4D+2AUX	16,500	0.38	A
847	Michelson Drive	Carlson Avenue to Prince		Irv	Prim4D+1AUX	17,200	0.46	A
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	4D	17,500	0.55	A
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	4D	12,500	0.39	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	4D	17,600	0.55	A
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	6D	26,700	0.49	A
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	6D	27,200	0.50	A
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	6D	30,000	0.56	A
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	6D	37,400	0.69	B
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	4D	11,400	0.36	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	4D	14,400	0.45	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	4D	24,800	0.78	C
188	University Drive	California Avenue to Mesa Road		Irv	4D	34,600	1.08	F
187	University Drive	Mesa Road to Campus Drive		Irv	4D	35,900	1.12	F
880	University Drive	Campus Drive to Harvard Avenue		Irv	6D	28,700	0.53	A
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	6D	24,200	0.45	A
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	6D	24,600	0.46	A
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	4D	24,200	0.76	C
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	4D	19,400	0.61	B
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	4D	19,700	0.62	B
103	Von Karman Avenue	Anchor to Main Street	a	Irv	4D	19,900	0.62	B
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	Prim4D+1AUX	20,500	0.55	A
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	Prim4D+1AUX	21,900	0.58	A
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	4D	17,800	0.56	A
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	4D	17,000	0.53	A
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	4D	14,800	0.46	A
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	Prim4D+1AUX	21,200	0.57	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	Maj6D+1AUX	21,900	0.37	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	Prim5D+1AUX	20,600	0.45	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	4D	18,500	0.58	A
597	Walnut Avenue	Mall Street to Culver Drive		Irv	4D	24,200	0.76	C
728	Warner Avenue	Construction North to Harvard Avenue		Irv	4D	11,800	0.37	A
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	4D	8,100	0.25	A
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	4D	8,700	0.27	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	4D	11,200	0.28	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	4D	16,000	0.40	A
874	Birch Street	East of MacArthur Boulevard		NB	4D	20,800	0.52	A
69	Birch Street	West of MacArthur Boulevard		NB	4D	12,000	0.30	A
875	Birch Street	East of Von Karman Avenue		NB	4D	20,800	0.52	A



Table 4.3: 2015 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project		
						Volume	V/C	LOS
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	6D	9,800	0.17	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	4D	13,900	0.35	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive*		NB	3D	8,100	0.34	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue*		NB	3D	13,300	0.55	A
1303	Bristol Street SB	Campus Drive to Birch Street*		NB	3D	18,700	0.78	C
1305	Bristol Street NB	Birch Street to Campus Drive*		NB	3D	16,200	0.68	B
1312	Bristol Street SB	West of Jamboree Road*		NB	4D	23,300	0.58	A
1580	Bristol Street NB	West of Jamboree Road*		NB	3D	20,900	0.87	D
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	6D	28,800	0.50	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	4D	10,000	0.25	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	6D	23,700	0.41	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	4D	25,200	0.63	B
2768	Irvine Avenue	South of University Drive		NB	4D	23,200	0.58	A
156	Jamboree Road	South of MacArthur Boulevard		NB	6D	29,500	0.51	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	6D	47,600	0.82	D
157	Jamboree Road	South of Bristol Street		NB	6D	50,500	0.87	D
159	Jamboree Road	University Drive to Bison Avenue		NB	6D	44,300	0.76	C
1777	Jamboree Road	Bison Avenue to Ford Road		NB	6D	34,800	0.60	A
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	8D	22,100	0.33	A
75	MacArthur Boulevard	South of Birch Street		NB	6D	24,700	0.43	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	6D	25,000	0.43	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	6D	45,600	0.79	C
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	8D	78,700	1.16	F
2767	University Drive	East of Irvine Avenue		NB	2U	800	0.08	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	5D	15,400	0.32	A
112	Von Karman Avenue	South of Campus Drive		NB	4D	10,800	0.27	A
113	Von Karman Avenue	South of Birch Street		NB	4D	11,700	0.29	A
2795	Dyer Road	Main Street to Halladay Street		SA	6D	27,400	0.49	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	6D	31,800	0.56	A
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	6D	43,600	0.77	C
734	Dyer Road	SR-55 NB to Pullman Street		SA	6D	30,000	0.53	A
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	6D	22,900	0.41	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	6D	21,500	0.38	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	2U	5,500	0.46	A
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	2U	2,100	0.18	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	6D	32,100	0.57	A
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	6D	49,900	0.89	D
2796	Main Street	Segerstrom Avenue to Alton Avenue		SA	6D	21,600	0.38	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	6D	24,600	0.44	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	6D	29,100	0.52	A
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	6D	30,600	0.54	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	4D	3,100	0.08	A
2736	Segerstrom Avenue	Bristol Street to Flower Street		SA	4D	12,200	0.33	A
2771	Segerstrom Avenue	Flower Street to Main Street		SA	4D	19,600	0.52	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	6D	28,900	0.51	A
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	6D	40,500	0.72	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	6D	18,300	0.33	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	6D	20,600	0.37	A



Table 4.3: 2015 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project		
						Volume	V/C	LOS
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4U	5,000	0.20	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	4U	16,200	0.65	B
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	4U	17,400	0.70	B
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	4D	18,400	0.49	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	4D	18,400	0.49	A
44	Edinger Avenue	West of Newport Avenue		Tus	6D	40,800	0.72	C
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	6D	22,200	0.39	A
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	6D	25,800	0.46	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	4U	13,700	0.55	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	2U	10,800	0.86	D
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	4U	9,500	0.38	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	4D	15,000	0.40	A
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	6D	23,300	0.41	A
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	6D	15,400	0.27	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	7,400	0.59	A
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	2U	4,400	0.35	A
6	Newport Avenue	El Camino Real to I-5		Tus	6D	34,200	0.61	B
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	6D	37,200	0.66	B
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	6D	35,600	0.63	B
49	Newport Avenue	North of Sycamore Avenue		Tus	6D	19,500	0.35	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	4U	27,600	1.10	F
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	2U	5,600	0.45	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	2U	4,100	0.33	A
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	6D	44,300	0.79	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	6D	41,000	0.73	C
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	6D	38,200	0.68	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	6D	26,700	0.47	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	6D	25,800	0.46	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	6D	23,900	0.42	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	6D	24,600	0.44	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	6D	25,500	0.45	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	6D	26,700	0.47	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	7D	24,900	0.38	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	4U	9,100	0.36	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	8,800	0.70	B
85	Tustin Ranch Road	North of I-5		Tus	6D	42,600	0.76	C
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	6D	36,000	0.64	B
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	10,100	0.40	A
587	Walnut Avenue	East of Newport Avenue		Tus	4U	16,700	0.67	B
589	Walnut Avenue	East of Red Hill Avenue		Tus	4D	16,100	0.43	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	4D	21,900	0.58	A
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	4D	18,500	0.49	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	6D	27,600	0.49	A

Table 4.3 indicates that twelve segments are deficient under the 2015 Cumulative Baseline No Project daily conditions, with 10 of the segments in the City of Irvine. As noted above, LOS E indicates a deficient segment for all arterial segments outside Planning Area (PA) 36 within the City of Irvine. It should be noted that daily V/C ratio analysis arterial segments in Costa Mesa, Newport Beach, and Tustin are not evaluated further and any deficiencies



are addressed at the intersections. PA 36 segments are considered deficient at LOS F. Deficient segments under daily Year 2015 Cumulative Baseline No Project conditions include:

- o 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- o 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- o 221—Culver Drive from Main Street to San Leandro (Irvine)
- o 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- o 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- o 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)
- o 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- o 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- o 188—University Drive from California Avenue to Mesa Road (Irvine)
- o 187—University Drive from Mesa Road to Campus Drive (Irvine)
- o 1301—MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)*
- o 1585—Newport Avenue from Valencia Avenue to Edinger Avenue (Tustin)*

*Deficient locations under daily conditions—no further analysis required.

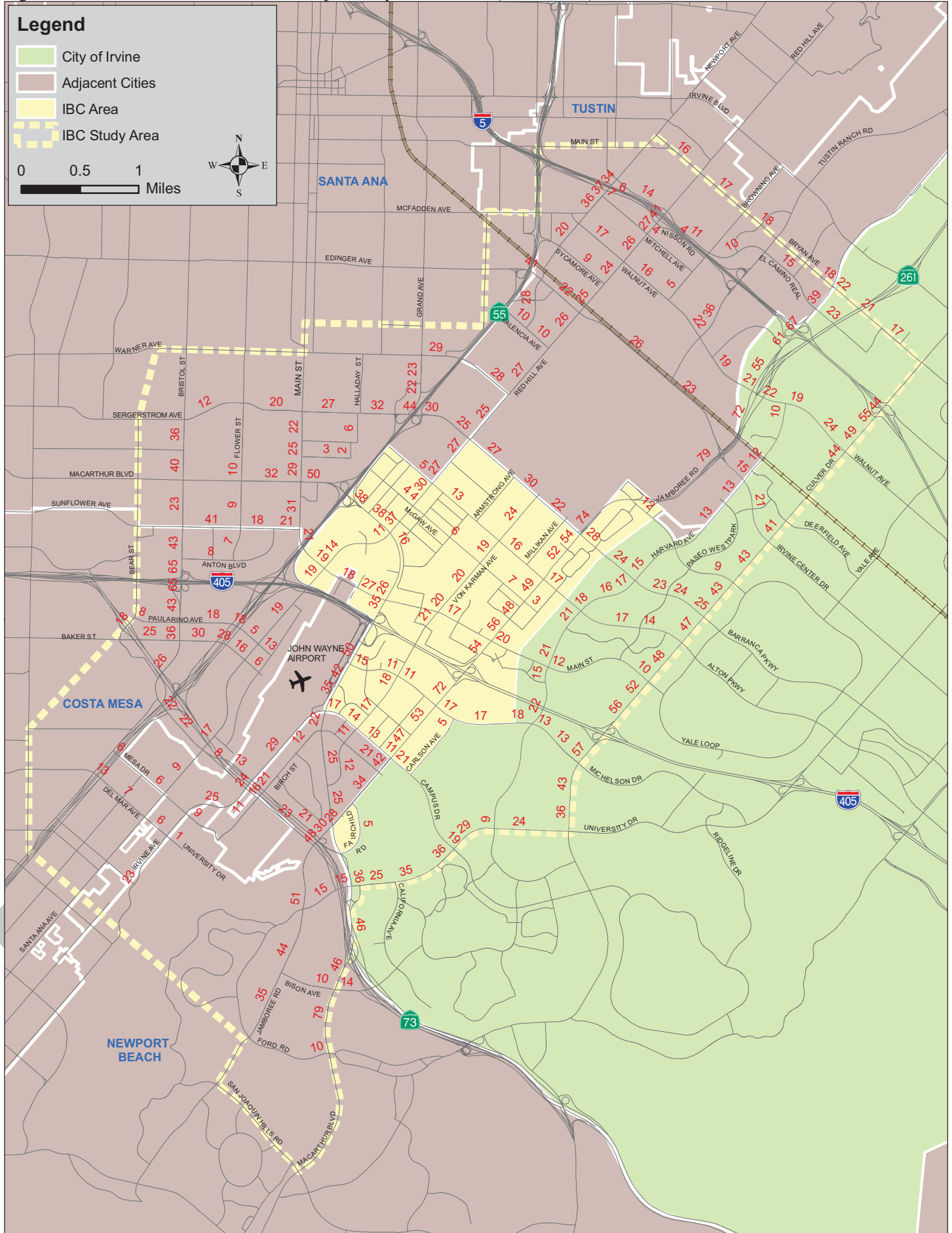
Figure 4.1 and **Figure 4.2** graphically depict the ADT traffic volumes and deficient segment LOS, respectively, for the 2015 Cumulative Baseline No Project scenario. Deficient segments in the City of Irvine are evaluated under Peak Hour conditions in the following section. Project related impacts to arterial segments are discussed later in this Chapter.

4.5 2015 Cumulative Baseline No Project Peak Hour Link Analysis

Peak hour directional traffic volumes were directly obtained from peak hour forecast intersection turning movement volumes for intersections upstream and downstream for each deficient arterial segment. **Table 4.4** presents the results of peak hour link analysis, indicating that all City of Irvine arterial segments that are deficient under daily conditions operate at an acceptable LOS in both peak hours, performing at LOS D or better, and hence no mitigation measures are recommended at this time for these facilities.

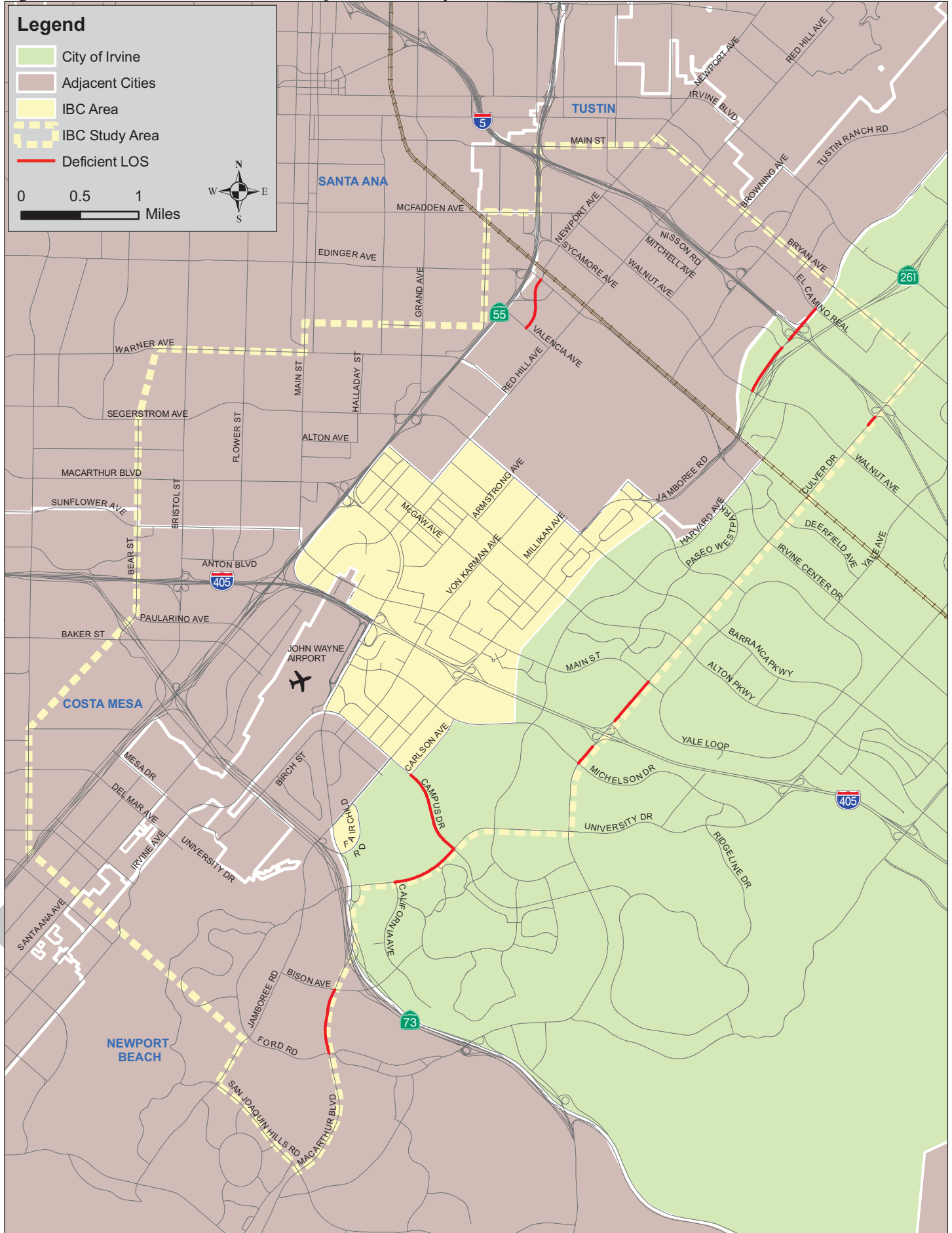
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Figure 4.1: 2015 Cumulative Baseline No Project Daily Arterial ADT (in thousands)



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Figure 4.2: 2015 Cumulative Baseline No Project Arterial Daily Deficiencies



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Table 4.4: 2015 Cumulative Baseline No Project Peak Hour Link Analysis

ID	Arterial	Segment Limits	Facility Type	Peak Hour Volume				AM				PM			
				AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
				NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
879	Campus Drive	Carlson Avenue to University	2U	610	950	1,220	720	0.38	A	0.59	A	0.76	C	0.45	A
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,370	2,470	2,130	2,280	0.29	A	0.51	A	0.44	A	0.48	A
221	Culver Drive	Main Street to San Leandro	6D	1,340	2,690	2,470	1,760	0.28	A	0.56	A	0.51	A	0.37	A
222	Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,250	1,940	2,600	1,740	0.26	A	0.40	A	0.54	A	0.36	A
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,390	2,020	2,270	1,720	0.29	A	0.42	A	0.47	A	0.36	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D+ 1AUX	1,660	2,280	3,550	1,960	0.26	A	0.41	A	0.55	A	0.35	A
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	8D	1,880	2,600	3,220	1,880	0.29	A	0.41	A	0.50	A	0.29	A
133	Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,540	2,160	3,000	2,159	0.32	A	0.68	B	0.63	B	0.67	B
188	University Drive	California Avenue to Mesa Road	4D	970	1,860	2,140	1,150	0.30	A	0.58	A	0.67	B	0.36	A
187	University Drive	Mesa Road to Campus Drive	4D	1,000	1,700	1,980	1,170	0.31	A	0.53	A	0.62	B	0.37	A

4.6 2015 Cumulative Baseline No Project Peak Hour Intersection Analysis

Using the turning movement volumes from each intersection within the study area assumed to be built by 2015, ICU analysis was developed for every intersection within the study area. These intersections are evaluated under all future scenarios. The intersection analysis includes both a reporting of intersection ICU and the corresponding LOS. **Table 4.5** displays the ICU analysis for the 2015 Cumulative Baseline No Project conditions sorted by jurisdiction. For shared jurisdictions, the more conservative methodology was utilized. **Figure 4.3** and **Figure 4.4** graphically represent the AM and PM peak hour intersection ICU for deficient intersections. Detailed ICU worksheets for each 2015 alternative are available in **Appendix B**.



Table 4.5: 2015 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino			CM	0.81	D	0.63	B
11	SR-55 Frontage Road NB Ramps at Paularino			CM	0.58	A	0.79	C
12	SR-55 SB Frontage Road at Baker Street			CM	0.76	C	0.69	B
13	SR-55 NB Frontage Road at Baker Street			CM	0.74	C	0.81	D
50	Red Hill Avenue at Paularino Avenue			CM	0.63	B	0.79	C
51	Red Hill Avenue at Baker Street			CM	0.52	A	0.77	C
52	Red Hill Avenue at Bristol Street			CM	0.41	A	0.48	A
541	Bear Street at Baker Street			CM	0.59	A	0.83	D
542	Bear Street at Paularino Avenue			CM	0.39	A	0.56	A
545	Bristol Street at Sunflower Avenue			CM	0.59	A	0.72	C
546	Bristol Street at Anton Boulevard			CM	0.32	A	0.61	B
547	Bristol Street and Paularino Avenue			CM	0.59	A	0.80	C
548	Bristol Street at Baker Street			CM	0.57	A	0.67	B
549	Newport Boulevard SB at Bristol Street			CM	0.25	A	0.51	A
550	Newport Boulevard NB at Bristol Street			CM	0.28	A	0.39	A
715	Bristol Street at I-405 NB Off Ramps			CM	0.46	A	0.68	B
716	Bristol Street at I-405 SB Off Ramps			CM	0.41	A	0.57	A
717	Bear Street at SR-73 SB Ramps			CM	0.53	A	0.80	C
718	Bear Street at SR-73 NB Ramps			CM	0.37	A	0.66	B
721	Flower Street at Sunflower Avenue			CM	0.28	A	0.44	A
722	Anton Boulevard at Sunflower Avenue			CM	0.39	A	0.39	A
726	Main Street at Sunflower Avenue			CM	0.43	A	0.72	C
735	Newport Boulevard NB at Del Mar Avenue			CM	0.75	C	0.48	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue			CM	0.32	A	0.41	A
737	Newport Boulevard NB at Mesa Road			CM	0.30	A	0.38	A
738	Newport Boulevard SB at Mesa Road			CM	0.21	A	0.56	A
45	Red Hill Avenue at McGaw Avenue	a		Irv	0.57	A	0.68	B
47	Red Hill Avenue at MacArthur Avenue	a		Irv	0.69	B	0.81	D
48	Red Hill Avenue at Sky Park North	a		Irv	0.43	A	0.65	B
49	Red Hill Avenue at Main Street	a		Irv	0.70	B	0.89	D
70	Gillette Avenue at Main Street	a		Irv	0.39	A	0.71	C
77	MacArthur Boulevard at Sky Park East	a		Irv	0.28	A	0.40	A
78	MacArthur Boulevard at Main Street	a		Irv	0.53	A	0.70	B
79	MacArthur Boulevard at I-405 NB Ramps	a		Irv	0.68	B	0.66	B
80	MacArthur Boulevard at I-405 SB Ramps	a		Irv	0.59	A	0.71	C
82	MacArthur Boulevard at Michelson Drive	a		Irv	0.60	A	0.83	D
83	MacArthur Boulevard at Douglas Avenue	a		Irv	0.37	A	0.39	A
87	Dupont Drive at Michelson Drive	a		Irv	0.33	A	0.41	A
98	Von Karman Avenue at Alton Parkway	a		Irv	0.70	B	0.81	D
99	Von Karman Avenue at McGaw Avenue	a		Irv	0.60	A	0.77	C
100	Von Karman Avenue at Main Street	a		Irv	0.69	B	0.76	C
101	Von Karman Avenue at Morse Avenue	a		Irv	0.47	A	0.59	A
102	Von Karman Avenue at Michelson Drive	a		Irv	0.58	A	0.80	C
103	Von Karman Avenue at Dupont Drive	a		Irv	0.42	A	0.51	A
104	Von Karman Avenue at Martin	a		Irv	0.33	A	0.55	A



Table 4.5: 2015 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
115	Millikan Avenue at Alton Parkway	a		Irv	0.40	A	0.42	A
116	Cartwright Road at Main Street	a		Irv	0.38	A	0.57	A
119	Teller Avenue at Michelson Drive	a		Irv	0.46	A	0.53	A
128	Jamboree Road at I-5 NB Ramps	b		Irv	0.61	B	0.71	C
129	Jamboree Road at I-5 SB Ramps	b		Irv	0.64	B	0.63	B
130	Jamboree Road at Michelle Drive			Irv	0.75	C	0.72	C
131	Jamboree Road SB at Walnut Avenue			Irv	0.48	A	0.49	A
132	Jamboree Road NB at Walnut Avenue			Irv	0.40	A	0.62	B
137	Jamboree Road at Beckman Avenue	a		Irv	0.63	B	0.71	C
138	Jamboree Road at Alton Parkway	a		Irv	0.76	C	0.85	D
139	Jamboree Road at McGaw Avenue	a		Irv	0.59	A	0.67	B
140	Jamboree Road at Kelvin Avenue	a		Irv	0.62	B	0.62	B
141	Jamboree Road at Main Street	a		Irv	0.81	D	0.91	E
143	Jamboree Road at I-405 NB Ramps	a,b		Irv	0.65	B	0.83	D
144	Jamboree Road at I-405 SB Ramps	a,b		Irv	0.80	C	0.88	D
145	Jamboree Road at Michelson Drive	a		Irv	0.69	B	1.03	F
146	Jamboree Road at Dupont Road	a		Irv	0.67	B	0.71	C
164	Construction Circle South at Barranca Parkway	a		Irv	0.40	A	0.58	A
168	Murphy Avenue at Alton Parkway	a		Irv	0.42	A	0.69	B
170	Union at Main Street	a		Irv	0.39	A	0.59	A
171	Veneto at Main Street			Irv	0.38	A	0.53	A
174	Carlson Avenue at Michelson Drive	a		Irv	0.50	A	0.58	A
175	Carlson Avenue at Campus Drive	a		Irv	0.73	C	0.77	C
180	Harvard Avenue at Walnut Avenue			Irv	0.54	A	0.51	A
183	Harvard Avenue at Warner Avenue			Irv	0.60	A	0.58	A
184	Harvard Avenue at Barranca Parkway			Irv	0.60	A	0.62	B
185	Harvard Avenue at Alton Parkway			Irv	0.71	C	0.74	C
186	Harvard Avenue at Main Street			Irv	0.54	A	0.75	C
187	Harvard Avenue at Coronado			Irv	0.50	A	0.54	A
188	Harvard Avenue at Michelson Drive			Irv	0.66	B	0.86	D
189	Harvard Avenue at University Drive			Irv	0.71	C	0.71	C
190	University Drive at Campus Drive		√	Irv	0.78	C	0.73	C
191	Mesa Road at University Drive			Irv	0.56	A	0.77	C
192	California Avenue at University Drive			Irv	0.56	A	0.84	D
193	MacArthur Boulevard NB at University Drive			Irv	0.42	A	0.45	A
196	Hearthstone Boulevard at Irvine Center Drive			Irv	0.48	A	0.57	A
198	Paseo Westpark at Warner Avenue			Irv	0.56	A	0.42	A
199	Paseo Westpark at Barranca Parkway			Irv	0.51	A	0.53	A
200	Paseo Westpark at Alton Parkway			Irv	0.52	A	0.56	A
201	Paseo Westpark at Main Street			Irv	0.61	B	0.51	A
221	Culver Drive at Bryan Avenue			Irv	0.82	D	0.66	B
222	Culver Drive at Trabuco Road			Irv	0.71	C	0.74	C
223	Culver Drive at I-5 SB Ramps			Irv	0.60	A	0.64	B
224	Culver Drive at Walnut Avenue			Irv	0.77	C	0.80	C
225	Culver Drive at Deerfield Drive			Irv	0.75	C	0.72	C
226	Culver Drive at Irvine Center Drive		√	Irv	0.64	B	0.59	A
227	Culver Drive at Warner Avenue			Irv	0.74	C	0.59	A



Table 4.5: 2015 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
228	Culver Drive at Barranca Parkway			Irv	0.83	D	0.73	C
229	Culver Drive at Alton Parkway		√	Irv	0.72	C	0.75	C
230	Culver Drive at Main Street			Irv	0.69	B	0.65	B
231	Culver Drive at San Leandro			Irv	0.70	B	0.56	A
232	Culver Drive at I-405 NB Ramps			Irv	0.49	A	0.87	D
233	Culver Drive at I-405 SB Ramps			Irv	0.51	A	0.61	B
234	Culver Drive at Michelson Drive			Irv	0.54	A	0.81	D
235	Culver Drive at University Drive		√	Irv	0.53	A	0.66	B
337	Von Karman Avenue at Quartz	a		Irv	0.55	A	0.69	B
439	Bixby at Michelson Drive			Irv	0.24	A	0.40	A
440	Siglo at Main Street			Irv	0.39	A	0.51	A
472	Obsidian at Michelson Drive	a		Irv	0.44	A	0.33	A
84	MacArthur Boulevard at Campus Drive	a		Irv/NB	0.54	A	0.83	D
105	Von Karman Avenue at Campus Drive	a		Irv/NB	0.56	A	0.82	D
121	Teller Avenue at Campus Drive	a		Irv/NB	0.33	A	0.42	A
147	Jamboree Road at Campus Drive	a		Irv/NB	0.66	B	0.74	C
149	Jamboree Road at Fairchild Road	a		Irv/NB	0.65	B	0.65	B
150	Jamboree Road at MacArthur Boulevard	a,b		Irv/NB	0.74	C	0.77	C
176	Fairchild Avenue at MacArthur Boulevard	a		Irv/NB	0.83	D	0.62	B
43	Red Hill Avenue at Deere Avenue	a		Irv/SA	0.46	A	0.71	C
44	Red Hill Avenue at Alton Parkway	a		Irv/SA	0.53	A	0.86	D
9	SR-55 NB Ramps at MacArthur Boulevard	a		Irv/SA	0.74	C	0.58	A
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a		Irv/SA/Tus	0.59	A	0.65	B
71	Armstrong Avenue at Barranca Avenue	a		Irv/Tus	0.52	A	0.54	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca	a		Irv/Tus	0.60	A	0.73	C
112	Myford Road at Michelle Drive			Irv/Tus	0.17	A	0.34	A
113	Myford Road at Walnut Avenue			Irv/Tus	0.41	A	0.48	A
114	Millikan Avenue/District Way at Barranca Parkway	a		Irv/Tus	0.34	A	0.68	B
126	Jamboree Road at Bryan Avenue			Irv/Tus	0.66	B	0.60	A
127	Jamboree Road at El Camino Real			Irv/Tus	0.68	B	0.66	B
134	Loop Road/Park Avenue at Warner Avenue			Irv/Tus	0.81	D	0.99	E
136	Jamboree Road at Barranca Avenue	a		Irv/Tus	0.80	C	0.96	E
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive			Irv/Tus	0.53	A	0.52	A
182	Harvard Avenue at Paseo Westpark/Moffett Drive			Irv/Tus	0.45	A	0.40	A
441	Loop Road at Jamboree Road SB Ramps			Irv/Tus	0.24	A	0.16	A
61	Campus Drive at Airport Way			NB	0.36	A	0.66	B
62	Campus Drive at Bristol Street NB			NB	0.60	A	0.90	D
63	Campus Drive at Bristol Street SB			NB	0.73	C	0.53	A
64	Birch Street at Bristol Street NB			NB	0.63	B	0.58	A
65	Birch Street at Bristol Street SB			NB	0.38	A	0.44	A
85	MacArthur Boulevard at Birch Street			NB	0.63	B	0.78	C
106	Von Karman Avenue at Birch Street			NB	0.39	A	0.49	A
107	Von Karman Avenue at MacArthur Boulevard			NB	0.38	A	0.49	A
148	Jamboree Road at Birch Street			NB	0.49	A	0.56	A
151	Jamboree Road at Bristol Street NB			NB	0.48	A	0.65	B
153	Jamboree Road at Bristol Street SB			NB	0.63	B	0.65	B
154	Jamboree Road at Eastbluff Drive			NB	0.63	B	0.65	B



Table 4.5: 2015 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
155	Jamboree Road at Bison Avenue			NB	0.52	A	0.57	A
156	Jamboree Road at Ford Road			NB	0.73	C	0.82	D
178	MacArthur Boulevard at Bison Avenue			NB	0.62	B	0.69	B
179	MacArthur Boulevard at Ford Road			NB	0.76	C	0.82	D
194	MacArthur Boulevard SB at University Drive			NB	0.42	A	0.39	A
195	SR-73 SB Ramps at University Drive			NB	0.49	A	0.47	A
733	Irvine Avenue at Mesa Drive			NB/OC	0.56	A	0.86	D
734	Irvine Avenue at University Drive/Del Mar Avenue			NB/OC	0.52	A	0.69	B
741	Jamboree Road at San Joaquin Hills Road			NB	0.61	B	0.61	B
742	MacArthur Boulevard at San Joaquin Hills Road			NB	0.68	B	0.85	D
4	SR-55 SB Ramps at Edinger Avenue	b		SA	0.57	A	0.63	B
5	Hotel Terrace Drive at Dyer Road			SA	0.53	A	0.64	B
6	Grand Avenue at Dyer Road			SA	0.67	B	0.84	D
7	SR-55 NB Ramps at Dyer Road			SA	0.72	C	0.81	D
8	SR-55 SB Ramps at MacArthur Boulevard	c		SA	0.69	B	0.62	B
29	Pullman Street at Barranca Parkway			SA	0.46	A	0.77	C
543	Bristol Street at Segerstrom Avenue			SA	0.65	B	0.80	C
544	Bristol Street at MacArthur Boulevard			SA	0.62	B	0.79	C
719	Flower Street at Segerstrom Avenue			SA	0.66	B	0.67	B
720	Flower Street at MacArthur Boulevard			SA	0.50	A	0.79	C
723	Main Street at Segerstrom Avenue			SA	0.66	B	0.72	C
724	Main Street at Alton Avenue			SA	0.31	A	0.41	A
725	Main Street and MacArthur Boulevard (w/o SR-55)	c		SA	0.62	B	0.61	B
727	Halladay Street at Dyer Road			SA	0.59	A	0.63	B
728	Halladay Street East at Alton Parkway			SA	0.28	A	0.35	A
729	Halladay Street West at Alton Parkway			SA	0.27	A	0.30	A
730	Grand Avenue at Warner Avenue			SA	0.73	C	0.83	D
731	Grand Avenue at SR-55 SB Ramps			SA	0.51	A	0.45	A
3	Newport Avenue at Edinger Avenue			Tus	0.83	D	0.76	C
14	Walnut Avenue to McFadden Avenue			Tus	0.37	A	0.50	A
18	Newport Avenue at Bryan Avenue			Tus	0.50	A	0.58	A
19	Newport Avenue at Main Street			Tus	0.42	A	0.61	B
20	Newport Avenue at El Camino Real			Tus	0.70	B	0.70	B
21	Newport Avenue at I-5 NB Ramps			Tus	0.64	B	0.57	A
22	Newport Avenue at I-5 SB Ramps			Tus	0.59	A	0.69	B
23	Newport Avenue at McFadden Avenue			Tus	0.63	B	0.51	A
24	Newport Avenue at Walnut Avenue			Tus	0.76	C	0.76	C
25	Newport Avenue at Sycamore Avenue			Tus	0.67	B	0.72	C
27	Del Amo Avenue at Edinger Avenue			Tus	0.39	A	0.38	A
35	Red Hill Avenue at Bryan Avenue			Tus	0.61	B	0.62	B
36	Red Hill Avenue at El Camino Real			Tus	0.61	B	0.91	E
37	Red Hill Avenue at Nissan Road			Tus	0.65	B	0.65	B
38	Red Hill Avenue at Walnut Avenue			Tus	0.65	B	0.81	D
39	Red Hill Avenue at Sycamore Avenue			Tus	0.55	A	0.57	A
40	Red Hill Avenue at Edinger Avenue			Tus	0.65	B	0.61	B
55	Browning Avenue at Bryan Avenue			Tus	0.45	A	0.58	A
56	Browning Avenue at El Camino Real			Tus	0.39	A	0.53	A



Table 4.5: 2015 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
58	Browning Avenue at Walnut Avenue			Tus	0.42	A	0.58	A
92	Tustin Ranch Road at Bryan Avenue			Tus	0.80	C	0.79	C
93	Tustin Ranch Road at El Camino Real			Tus	1.07	F	0.87	D
94	Tustin Ranch Road at I-5 NB Ramps			Tus	0.73	C	0.54	A
95	Tustin Ranch Road at I-5 SB Ramps			Tus	0.88	D	0.63	B
96	Tustin Ranch Road at Walnut Avenue			Tus	0.73	C	0.70	B
109	Myford Road at Bryan Avenue			Tus	0.43	A	0.43	A
110	Myford Road at El Camino Real			Tus	0.26	A	0.42	A
111	Franklin Avenue at Walnut Avenue			Tus	0.52	A	0.99	E
133	Jamboree Road at Edinger Avenue	b		Tus	0.41	A	0.61	B
445	Tustin Ranch Road at Warner Avenue North			Tus	0.43	A	0.46	A
446	Tustin Ranch Road at Warner Avenue South			Tus	0.50	A	0.46	A
447	Armstrong Avenue/Severyns Road at Valencia Avenue			Tus	0.32	A	0.24	A
448	Armstrong Avenue at Warner Avenue			Tus	0.39	A	0.37	A
453	Red Hill Avenue at Valencia Avenue			Tus	0.61	B	0.67	B
454	Tustin Ranch Road at Valencia Avenue			Tus	0.48	A	0.42	A
455	East Connector-Jamboree Plaza at Edinger Avenue			Tus	0.19	A	0.19	A
456	North Loop Road at Valencia Avenue			Tus	0.18	A	0.17	A
457	North Loop Road at Moffett Drive			Tus	0.11	A	0.13	A
478	Red Hill Avenue at I-5 NB Ramps			Tus	0.76	C	0.62	B
479	Red Hill Avenue at I-5 SB Ramps			Tus	0.87	D	0.81	D
480	Tustin Ranch Road Connector at Edinger Avenue			Tus	0.19	A	0.20	A
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue			Tus	0.51	A	0.91	E
739	Newport Avenue at Mitchell Avenue			Tus	0.62	B	0.70	B
740	Red Hill Avenue at Mitchell Avenue			Tus	0.60	A	0.55	A
743	Newport Avenue at Valencia Avenue			Tus	0.48	A	0.57	A
745	Tustin Ranch Road at Park Avenue			Tus	0.45	A	0.39	A
746	Kensington Park Drive at Edinger Avenue			Tus	0.54	A	0.55	A
747	Kensington Park Drive at Valencia Avenue			Tus	0.21	A	0.18	A
748	Armstrong Avenue at A Street			Tus	0.42	A	0.43	A
749	Park Avenue at A Street			Tus	0.25	A	0.32	A
750	Legacy Road at Warner Avenue			Tus	0.34	A	0.28	A
751	Tustin Ranch Road at Legacy Road			Tus	0.44	A	0.36	A
752	Legacy Road at North Loop Road			Tus	0.13	A	0.12	A
753	Tustin Ranch Road at Edinger Avenue Connector			Tus	0.46	A	0.47	A
28	Pullman Street at Warner Avenue			Tus/SA	0.44	A	0.54	A
41	Red Hill Avenue at Warner Avenue			Tus/SA	0.82	D	0.71	C
754	Red Hill Avenue at Carnegie Avenue/A Street			Tus/SA	0.61	B	0.74	C

Denotes intersection operating at a deficient LOS

- a Intersection within Irvine Planning Area 36--LOS E acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E acceptable
- √ ATMS credit-Reduction of 0.05 applied to ICU

For the intersections that are deficient, further discussion of specific project related impacts or cumulative deficiencies and mitigation are addressed in **Chapter 6**. The following intersections are deficient in the 2015 Cumulative Baseline No Project scenario:



AM Peak Hour:

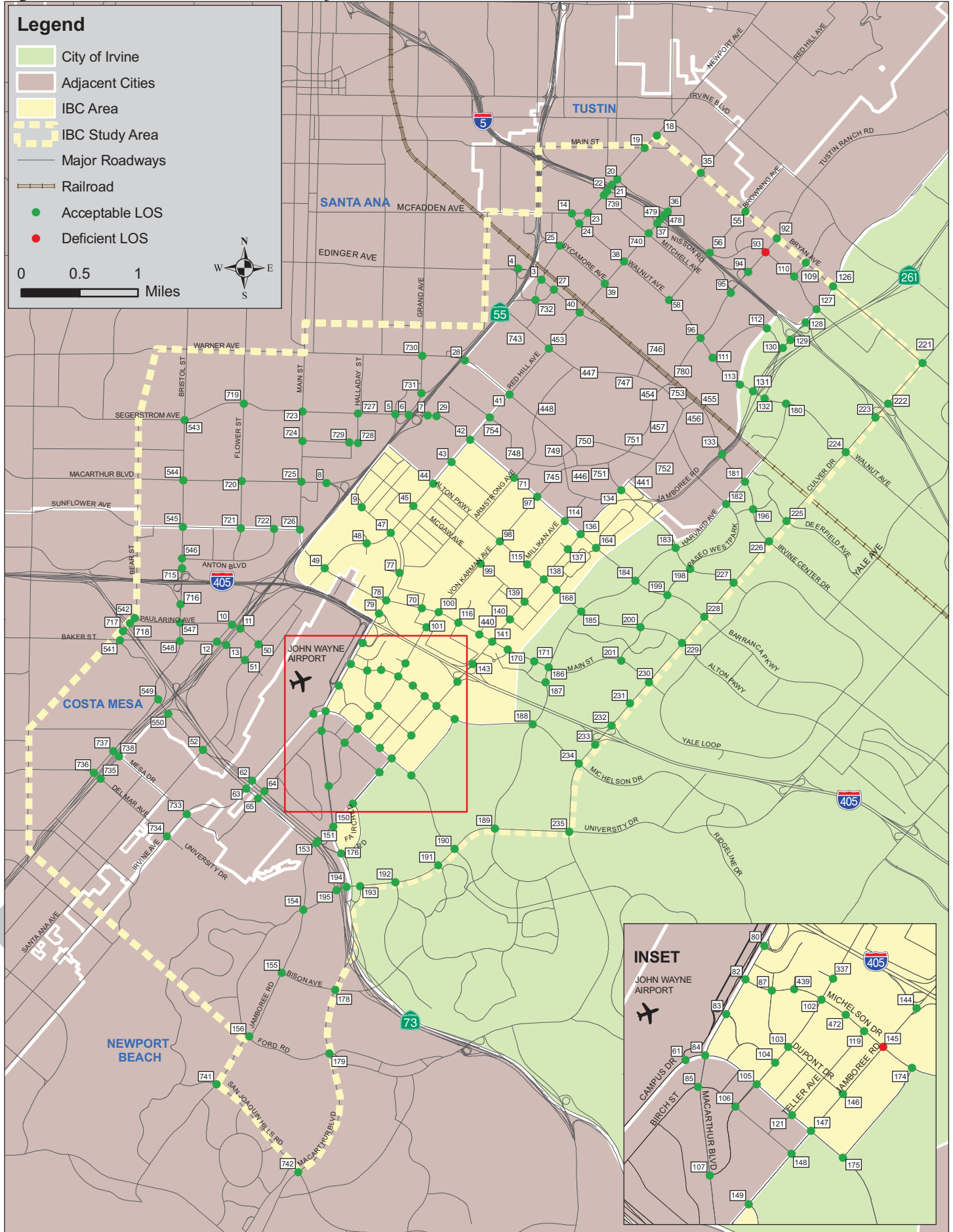
- #93: Tustin Ranch Road at El Camino Real (Tustin)

PM Peak Hour:

- #145: Jamboree Road at Michelson Drive (Irvine)
- #134: Loop Road/Park Avenue at Warner Avenue (Irvine/Tustin)
- #36: Red Hill Avenue at El Camino Real (Tustin)
- #111: Franklin Avenue at Walnut Avenue (Tustin)
- #732: SR-55 Northbound Ramps/Del Amo Avenue at Newport Avenue (Tustin)

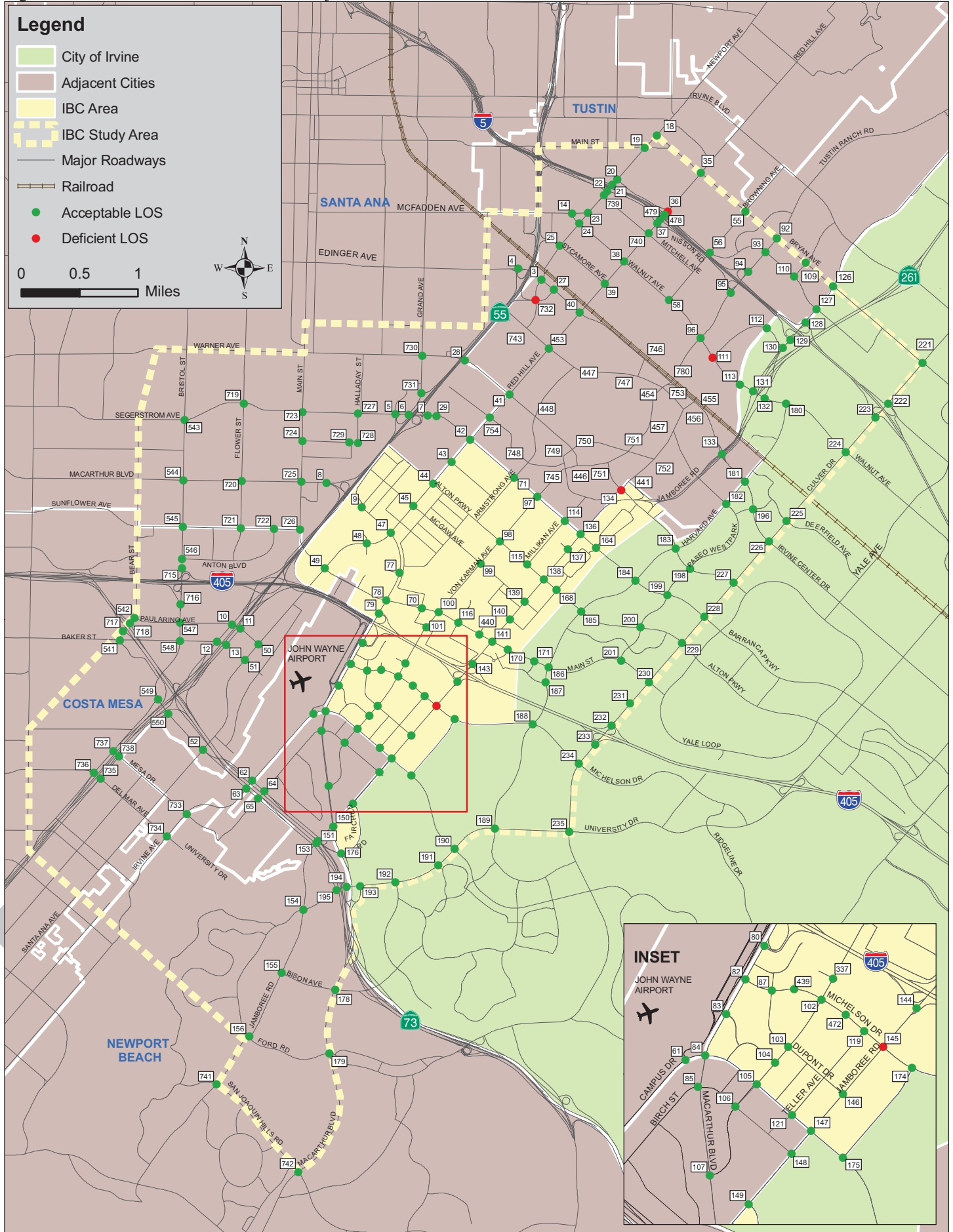
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Figure 4.3: 2015 Cumulative Baseline No Project AM Peak Hour Intersection Deficiencies



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Figure 4.4: 2015 Cumulative Baseline No Project PM Peak Hour Intersection Deficiencies



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4.7 2015 Cumulative Baseline No Project Peak Hour Freeway Mainline Analysis

Future freeway mainline volumes are forecasted using the ITAM model. **Table 4.6** provides the freeway mainline segment limits, direction, number of lanes, and peak hour capacity, as well as the volumes, densities, and levels of service. There are no freeway mainline capacity increases anticipated between the existing conditions and Year 2015.

Using the methodology prescribed by the Orange County *Congestion Management Plan (CMP)*, **Table 4.6** shows deficient freeway mainline segments under the 2015 Cumulative Baseline No Project scenario. The following segments are forecast to operate at LOS E or F. The deficient segments include:

AM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Northbound between North of SR-55
- o I-5 Southbound between North of SR-55
- o I-405 Northbound between Culver Drive and Jamboree Road
- o I-405 Northbound between Jamboree Road and MacArthur Boulevard
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between MacArthur Boulevard and Dyer Road
- o SR-55 Southbound between Dyer Road and Edinger Avenue
- o SR-55 Southbound between Edinger Avenue and McFadden Street/Sycamore Avenue
- o SR-55 Southbound between McFadden Street/Sycamore Avenue and I-5
- o SR-55 Southbound between North of I-5
- o SR-73 Northbound between MacArthur Boulevard and University Drive
- o SR-73 Northbound between University Drive and Jamboree Road
- o SR-73 Northbound between Jamboree Road and Birch Street
- o SR-73 Northbound between Birch Street and Campus Drive
- o SR-73 Northbound between Campus Drive and SR-55
- o SR-73 Southbound between Campus Drive and SR-55
- o SR-73 Northbound between SR-55 and Bear Street
- o SR-73 Northbound between Bear Street and I-405
- o SR-261 Southbound South and El Camino Real

PM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Northbound North of SR-55
- o I-5 Southbound North of SR-55
- o I-405 Southbound between Culver Drive and Jamboree Road
- o I-405 Northbound between Jamboree Road and MacArthur Boulevard
- o I-405 Southbound between Jamboree Road and MacArthur Boulevard
- o I-405 Southbound between MacArthur Boulevard and SR-55
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Northbound between MacArthur Boulevard and Dyer Road



- SR-55 Northbound between Dyer Road and Edinger Avenue
- SR-55 Northbound between Edinger Avenue and McFadden Street/Sycamore Avenue
- SR-55 Northbound between McFadden Street/Sycamore Avenue and I-5
- SR-73 Southbound between MacArthur Boulevard and University Drive
- SR-73 Northbound between Jamboree Road and Birch Street
- SR-73 Southbound between Jamboree Road and Birch Street
- SR-73 Southbound between Birch Street and Campus Drive
- SR-73 Northbound between Campus Drive and SR-55
- SR-73 Southbound between Campus Drive and SR-55
- SR-73 Northbound between SR-55 and Bear Street

Table 4.6: 2015 Cumulative Baseline No Project Freeway Peak Hour Mainline LOS

Location		Freeway Lanes			Year 2015 Cumulative Baseline No Project									
		Direction	Lanes	Peak Hour Capacity	AM Peak Hour					PM Peak Hour				
					Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS
I-5	Culver Drive to Jamboree Road	NB	5	10,000	11,727	1.17	F			9,147	0.91	E		
		SB	5	10,000	5,776	0.58	C			6,977	0.70	C		
	Jamboree Road to Tustin Ranch Road	NB	5	10,000	11,367	1.14	F			9,007	0.90	E		
		SB	5	10,000	6,246	0.62	C			6,907	0.69	C		
	Tustin Ranch Road to Red Hill Avenue	NB	5	10,000	11,287	1.13	F			9,567	0.96	E		
		SB	5	10,000	7,166	0.72	D			7,527	0.75	D		
	Red Hill Avenue to Newport Avenue	NB	5	10,000	11,727	1.17	F			9,567	0.96	E		
		SB	5	10,000	6,856	0.69	C			7,457	0.75	D		
	Newport Avenue to SR-55	NB	5	10,000	12,387	1.24	F			10,327	1.03	F		
		SB	5	10,000	7,626	0.76	D			8,457	0.85	D		
North of SR-55	NB	5	10,000	11,907	1.19	F			10,293	1.03	F			
	SB	5	10,000	9,822	0.98	E			10,061	1.01	F			
I-405	Culver Drive to Jamboree Road	NB	5	10,000	11,916	1.19	F			8,238	0.82	D		
		SB	4	8,000	7,046	0.88	D			9,429	1.18	F		
	Jamboree Road to MacArthur Boulevard	NB	5	10,000	11,676	1.17	F			9,418	0.94	E		
		SB	5	10,000	8,576	0.86	D			9,959	1.00	E		
	MacArthur Boulevard to SR-55	NB	6	12,000	10,606	0.88	D			10,088	0.84	D		
		SB	6	12,000	10,186	0.85	D			10,859	0.90	E		
	SR-55 to Bristol Street	NB	5	10,000	6,944	0.69	C			6,207	0.62	C		
		SB	5	10,000	7,490	0.75	D			7,660	0.77	D		
	Bristol Street to SR-73	NB	5	10,000	6,444	0.64	C			5,401	0.54	C		
		SB	5	10,000	7,730	0.77	D			7,120	0.71	C		



Location		Freeway Lanes			Year 2015 Cumulative Baseline No Project									
		Direction	Lanes	Peak Hour Capacity	AM Peak Hour					PM Peak Hour				
					Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS
SR-55	South of Victoria Street	NB	4	8,000	1,457	0.18	A			1,325	0.17	A		
		SB	3	6,000	1,727	0.29	A			1,275	0.21	A		
	Victoria Street to Fair Drive	NB	4	8,000	4,190	0.52	C			3,492	0.44	B		
		SB	4	8,000	3,177	0.40	B			3,294	0.41	B		
	Fair Drive to SR-73	NB	4	8,000	5,621	0.70	C			4,753	0.59	C		
		SB	4	8,000	4,590	0.57	C			5,214	0.65	C		
	SR-73 to Baker Street	NB	4	8,000	5,018	0.63	C			4,023	0.50	B		
		SB	4	8,000	5,246	0.66	C			5,677	0.71	C		
	Baker Street to I-405	NB	4	8,000	4,048	0.51	C			2,953	0.37	B		
		SB	4	8,000	5,686	0.71	C			5,657	0.71	C		
	I-405 to MacArthur Boulevard	NB	4	8,000	7,690	0.96	E			7,706	0.96	E		
		SB	4	8,000	7,638	0.95	E			7,407	0.93	E		
	MacArthur Boulevard to Dyer Road	NB	4	8,000	6,870	0.86	D			8,676	1.08	F		
		SB	4	8,000	8,578	1.07	F			6,787	0.85	D		
Dyer Road to Edinger Avenue	NB	5	10,000	6,240	0.62	C			10,636	1.06	F			
	SB	4	8,000	8,887	1.11	F			6,372	0.80	D			
Edinger Avenue to McFadden Street/Sycamore Avenue	NB	6	12,000	6,453	0.54	C			10,968	0.91	E			
	SB	5	10,000	9,087	0.91	E			6,302	0.63	C			
McFadden Street/Sycamore Avenue to I-5	NB	6	12,000	7,149	0.60	C			11,391	0.95	E			
	SB	5	10,000	9,362	0.94	E			6,841	0.68	C			
North of I-5	NB	5	10,000	7,189	0.72	D			8,139	0.81	D			
	SB	5	10,000	9,031	0.90	E			7,051	0.71	C			
SR-73	MacArthur Boulevard to University Drive	NB	3	6,000	7,403	1.23	F			4,300	0.72	D		
		SB	3	6,000	3,589	0.60	C			6,043	1.01	F		
	University Drive to Jamboree Road	NB	3	6,000	7,403	1.23	F			4,300	0.72	D		
		SB	3	6,000	3,304	0.55	C			4,443	0.74	D		
	Jamboree Road to Birch Street	NB	3	6,000	8,511	1.42	F			5,604	0.93	E		
		SB	3	6,000	5,353	0.89	D			6,728	1.12	F		
	Birch Street to Campus Drive	NB	3	6,000	6,844	1.14	F			4,777	0.80	D		
		SB	3	6,000	5,353	0.89	D			6,728	1.12	F		
	Campus Drive to SR-55	NB	3	6,000	7,391	1.23	F			6,479	1.08	F		
		SB	3	6,000	6,902	1.15	F			7,728	1.29	F		
	SR-55 to Bear Street	NB	3	6,000	6,119	1.02	F			5,027	0.84	D		
		SB	3	6,000	4,936	0.82	D			5,504	0.92	E		
	Bear Street to I-405	NB	3	6,000	5,729	0.95	E			4,347	0.72	D		
		SB	3	6,000	4,286	0.71	C			4,724	0.79	D		
SR-261	SR-261 south of El Camino Real	NB	2	4,000	702	0.18	A			3,007	0.75	D		
		SB	2	4,000	3,629	0.91	E			1,191	0.30	A		



4.8 2015 Cumulative Baseline No Project Peak Hour Freeway Ramp Analysis

The freeway ramp volumes were forecast using the ITAM model. Most ramps in the network are associated with intersection legs in the model. The post-processed volume from that leg of the intersection provides the forecast volume for the freeway ramp. **Table 4.7** displays the freeway ramp interchange, ramp type, number of lanes, and peak hour capacity, as well as the volumes, densities, and levels of service, as with the freeway mainlines.

Table 4.7: 2015 Cumulative Baseline No Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
I-5	Culver Drive	SB On Direct	1	1,000	240	0.27	A			300	0.33	B		
		SB On Loop	1	1,000	380	0.42	B			260	0.29	A		
		SB Off	2	500	1,210	0.40	B			2,040	0.68	C		
		NB On Loop	1	1,000	1,050	0.70	C			690	0.46	B		
		NB On Direct	1	1,000	1,264	0.84	D			810	0.54	C		
		NB Off	1	500	340	0.23	A			510	0.34	B		
	Jamboree Road	SB On Direct	1	1,000	420	0.28	A			1,110	0.74	D		
		SB On Loop	1	1,000	550	0.51	C			430	0.40	B		
		SB Off	2	500	1,440	0.48	B			1,470	0.49	B		
		NB On Loop	1	1,000	670	0.62	C			690	0.64	C		
		NB On Direct	1	1,000	470	0.44	B			480	0.44	B		
	Tustin Ranch Road	NB Off	1	500	1,500	1.00	E			1,310	0.87	D		
		SB On	1	1,000	710	0.47	B			460	0.31	B		
		NB On	2	1,000	370	0.21	A			1,120	0.62	C		
		NB Off	1	500	450	0.30	A			560	0.37	B		
	Red Hill Avenue	SB Off	2	500	1,630	0.72	D			1,080	0.48	B		
		SB On	1	1,000	1,080	0.72	D			830	0.55	C		
		NB On	1	1,000	1,030	0.69	C			810	0.54	C		
		NB Off	1	500	590	0.39	B			810	0.54	C		
	Newport Boulevard	SB Off	1	500	770	0.51	C			760	0.51	C		
NB On		1	1,000	770	0.51	C			1,000	0.67	C			
		NB On	1	1,000	660	0.44	B			760	0.51	C		



Table 4.7: 2015 Cumulative Baseline No Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
I-405	Culver Drive	SB On Direct	1	1,000	240	0.16	A			650	0.43	B		
		SB On Loop	1	1,000	250	0.28	A			300	0.33	B		
		SB Off	2	500	830	0.28	A			1,430	0.48	B		
		NB On Loop	1	1,000	580	0.39	B			420	0.28	A		
		NB On Direct	1	1,000	930	0.62	C			660	0.44	B		
		NB Off	1	500	1,220	0.81	D			1,240	0.83	D		
	Jamboree Road	SB On Direct	2	1,000	540	0.30	A			990	0.55	C		
		SB On Loop	1	1,000	270	0.18	A			640	0.43	B		
		SB Off	2	500	2,340	1.04	F			2,160	0.96	E		
		NB On Loop	1	1,000	500	0.33	B			910	0.61	C		
		NB On Direct	2	1,000	1,620	0.74	D			1,140	0.52	C		
		NB Off	1	500	2,360	1.05	F			870	0.39	B		
	MacArthur Boulevard	SB Direct On	2	1,000	790	0.26	A			670	0.22	A		
		SB Off	2	500	2,400	0.80	D			1,570	0.52	C		
		NB On	1	1,000	510	0.34	B			1,530	1.02	F		
		NB Off	1	500	1,580	1.05	F			860	0.57	C		
	Bristol Street	SB Loop On	1	1,000	1,000	0.67	C			1,380	0.92	E		
		SB Off	2	500	1,240	0.55	C			840	0.37	B		
		NB On Loop	1	1,000	235	0.26	A			376	0.42	B		
		NB On Direct	1	1,000	45	0.03	A			228	0.15	A		
NB Off		1	500	780	0.52	C			1,410	0.94	E			



Table 4.7: 2015 Cumulative Baseline No Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
SR-55	Victoria Street	SB Direct On	1	1,000	102	0.07	A			80	0.05	A		
		SB Off	2	500	1,553	0.69	C			2,100	0.93	E		
		NB Direct On	2	1,000	2,807	1.56	F			2,275	1.26	F		
		NB Off	1	500	74	0.05	A			108	0.07	A		
	Fair Drive	SB Direct On	1	1,000	140	0.16	A			180	0.20	A		
		SB Off	2	500	1,553	0.69	C			2,100	0.93	E		
		NB Direct On	1	1,000	1,596	1.06	F			1,434	0.96	E		
		NB Off	1	500	165	0.11	A			173	0.12	A		
	Baker Street	SB On	1	1,000	410	0.46	B			970	1.08	F		
		SB Off	1	500	850	0.57	C			950	0.63	C		
		NB Off	1	500	970	0.65	C			1,070	0.71	C		
	Paularino Avenue	SB Off	1	500	1,480	0.99	E			1,000	0.67	C		
		NB On	1	1,000	592	0.66	C			919	1.02	F		
	MacArthur Boulevard	SB On Direct	1	1,000	740	0.82	D			980	1.09	F		
		SB On Loop	1	1,000	150	0.17	A			700	0.78	D		
		SB Off	1	500	1,830	1.22	F			1,060	0.71	C		
		NB On Loop	1	1,000	620	0.69	C			760	0.84	D		
		NB On Direct	1	1,000	280	0.19	A			1,160	0.77	D		
	Dyer Road	NB Off	2	500	1,720	0.76	D			950	0.42	B		
		SB On	1	1,000	791	0.53	C			1,116	0.74	D		
SB Off Loop		1	500	584	0.39	B			407	0.27	A			
SB Off to Grand		1	500	516	0.34	B			295	0.20	A			
NB On Direct		1	1,000	350	0.23	A			1,250	0.83	D			
NB On Loop		1	1,000	550	0.61	C			1,020	1.13	F			
Edinger Avenue	NB Off	1	500	1,530	1.02	F			310	0.21	A			
	SB On	1	1,000	700	0.47	B			680	0.45	B			
	SB Off	1	500	900	0.60	C			610	0.41	B			
	NB On	1	1,000	938	0.63	C			1,064	0.71	C			
McFadden Avenue	NB Off	1	500	726	0.48	B			733	0.49	B			
	SB On	1	1,000	357	0.24	A			270	0.18	A			
	SB Off	2	500	632	0.28	A			809	0.36	B			
	NB On	1	1,000	1,266	0.84	D			955	0.64	C			
	NB Off	1	500	570	0.38	B			532	0.35	B			



Table 4.7: 2015 Cumulative Baseline No Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
SR-73	MacArthur Boulevard	SB On	1	1,000	102	0.07	A			909	0.61	C		
		SB Off	2	500	1,174	0.39	B			1,026	0.34	B		
		NB On	1	1,000	824	0.92	E			854	0.95	E		
	University Drive	SB Off	1	500	680	0.45	B			720	0.48	B		
		NB On	1	1,000	107	0.07	A			243	0.16	A		
	Bison Avenue	SB On	1	1,000	140	0.09	A			370	0.25	A		
		SB Off	1	500	840	0.56	C			380	0.25	A		
		NB On	1	1,000	220	0.15	A			750	0.50	B		
	Jamboree Road	SB On	1	1,000	366	0.24	A			716	0.48	B		
		SB Off	2	500	2,416	1.07	F			3,001	1.33	F		
		NB On	1	1,000	1,108	0.74	D			1,304	0.87	D		
	Birch Street	NB Off	1	500	1,667	1.11	F			827	0.55	C		
	Campus Drive	SB Off	2	500	1,549	0.69	C			1,001	0.44	B		
		NB On	1	1,000	547	0.36	B			1,702	1.13	F		
SR-73 at Bear	SB On	1	1,000	990	0.66	C			1,200	0.80	D			
	SB Off	1	500	340	0.23	A			420	0.28	A			
	NB Off	1	500	610	0.41	B			1,300	0.87	D			
	NB On	1	1,000	220	0.15	A			620	0.41	B			
SR-261	Jamboree Road	SB On	1	1,000	1,112	0.74	D			835	0.56	C		
		NB Off	1	250	693	0.46	B			1,467	0.98	E		
	Walnut Avenue	NB On	1	1,000	318	0.21	A			825	0.55	C		
		SB Off	1	500	884	0.59	C			333	0.22	A		

Of the ramps analyzed in the 2015 Cumulative Baseline No Project scenario, the following are forecast to be deficient during the AM or PM peak hour:

AM Peak Hour:

- o Northbound I-5 Direct Off-Ramp from Jamboree Road
- o Southbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 Off-Ramp to MacArthur Boulevard
- o Northbound SR-55 Direct On-Ramp from Victoria Street
- o Northbound SR-55 Direct On-Ramp from Fair Drive
- o Southbound SR-55 Off-Ramp to Paularino Avenue
- o Southbound SR-55 Off-Ramp to MacArthur Boulevard
- o Northbound SR-55 Off-Ramp to Dyer Road
- o Northbound SR-73 On-Ramp from MacArthur Boulevard
- o Southbound SR-73 Off-Ramp to Jamboree Road
- o Northbound SR-73 Off-Ramp to Birch Street

PM Peak Hour:

- o Southbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 On-Ramp from MacArthur Boulevard
- o Southbound I-405 Loop On-Ramp from Bristol Street
- o Northbound I-405 Off-Ramp to Bristol Street
- o Southbound SR-55 Off-Ramp to Victoria Street
- o Northbound SR-55 Direct On-Ramp from Victoria Street



- Southbound SR-55 Off-Ramp to Fair Drive
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Southbound SR-55 On-Ramp from Baker Street
- Northbound SR-55 On-Ramp from Paularino Avenue
- Southbound SR-55 Direct On-Ramp from MacArthur Boulevard
- Northbound SR-55 Loop On-Ramp from Dyer Road
- Northbound SR-73 On-Ramp from MacArthur Boulevard
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 On-Ramp from Campus Drive
- Northbound SR-261 Northbound Off-Ramp to Jamboree Road

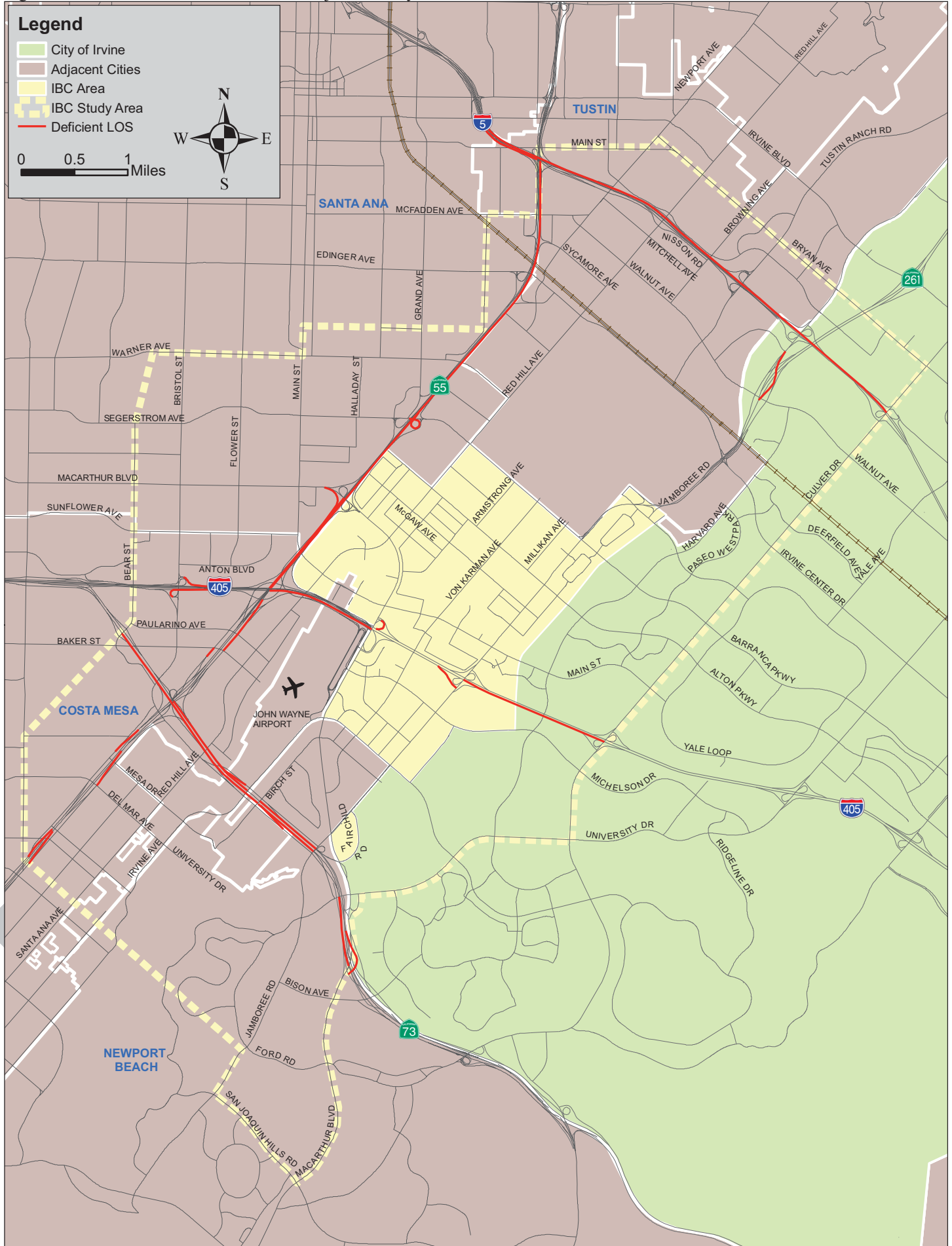
Figure 4.5 and **Figure 4.6** graphically depict the 2015 Cumulative Baseline No Project freeway and ramp deficiencies.

Figure 4.5: 2015 Cumulative Baseline No Project Freeway AM Peak Hour Deficiencies



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Figure 4.6: 2015 Cumulative Baseline No Project Freeway PM Peak Hour Deficiencies



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4.9 2015 Cumulative With Project

As with the Cumulative Baseline No Project scenario, the 2015 Cumulative With Project circulation system consists of the roadway network of interstate and state highways, major arterials, primary arterials, secondary arterials, and commuter roadways. The 2015 Cumulative With Project scenario analyzes the effects on the circulation system caused by the change in traffic patterns resulting from the expansion of the IBC as a mixed-use/residential community in Year 2015.

4.10 2015 Cumulative With Project Land Use and Trip Generation

The current setting for land use is focused on the IBC as a major employment center and office park complex. Changes in the configuration of the IBC have been slowly transforming the complex into a mixed-use community.

Table 4.8 describes the land use quantities for the 2015 Cumulative Baseline No Project and With Project scenarios. The transportation networks are consistent between these two future scenarios, and all arterial, intersection, and freeway ramp improvements from existing conditions have been incorporated into the model runs. **Table 4.9** reflects the ITAM trip generation for the 2015 Cumulative With Project scenario and compares the total number of trips between the 2015 Cumulative With Project and No Project scenarios. **Figure 4.7** through **Figure 4.9** graphically display the differences in land use quantities between 2015 With Project and No Project conditions by traffic analysis zone (TAZ). It should be noted that the reason the 2008 With Project land use is greater than the 2015 With Project is that the 2008 With Project assumes full buildout of the Proposed Project while 2015 assumes a certain proportion of the ultimate buildout to be in place by 2015. **Appendix A** presents trip generation and **Appendix J** presents land use quantities by type and IBC TAZs as well as a land use summary by individual project.

Table 4.8: 2015 Cumulative With Project Land Use Summary

Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2008 With Project	17,038	1,731	2,880	33,716	13,180	164	598
2015 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2015 With Project	10,929	1,482	2,572	27,810	14,196	348	598
Percent Growth (2015 With Project vs. 2015 No Project)	118%	11%	11%	5%	-3%	0%	244%
Percent Growth (2015 With Project vs. 2008 With Project)	-36%	-14%	-11%	-18%	8%	113%	0%

Source: City of Irvine

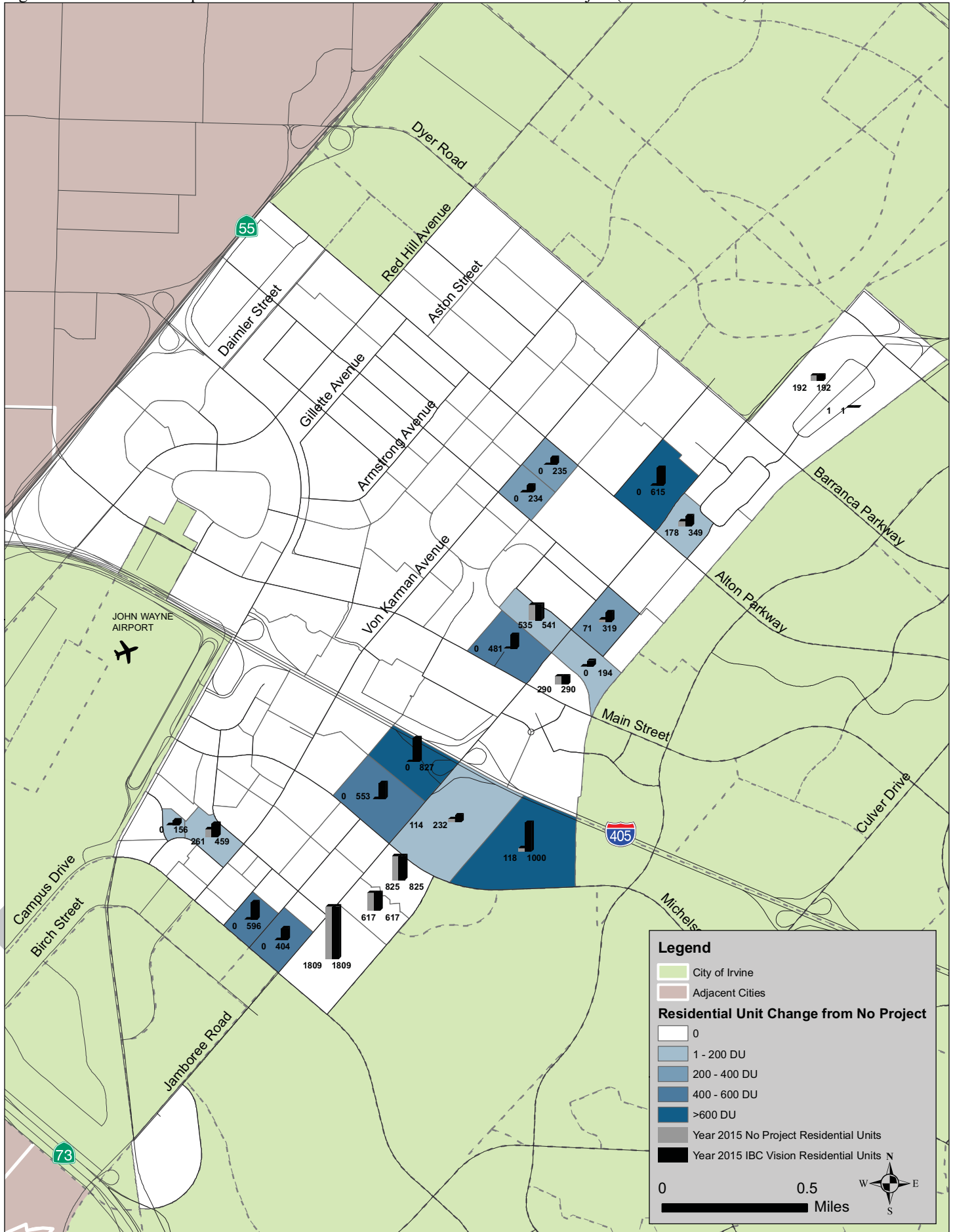
Table 4.9: 2015 Cumulative With Project Trip Generation

Scenario	AM-Out	AM-In	PM-Out	PM-In	ADT
2008 No Project	11,191	28,990	27,316	17,367	508,690
2008 With Project	19,336	36,105	35,513	25,795	697,308
2015 No Project	11,191	28,990	27,316	17,367	508,690
2015 With Project	14,858	30,962	29,982	20,793	578,825
Percent Growth (2015 With Project vs. 2015 No Project)	33%	7%	10%	20%	14%
Percent Growth (2015 With Project vs. 2008 With Project)	-23%	-14%	-16%	-19%	-17%

Source: ITAM

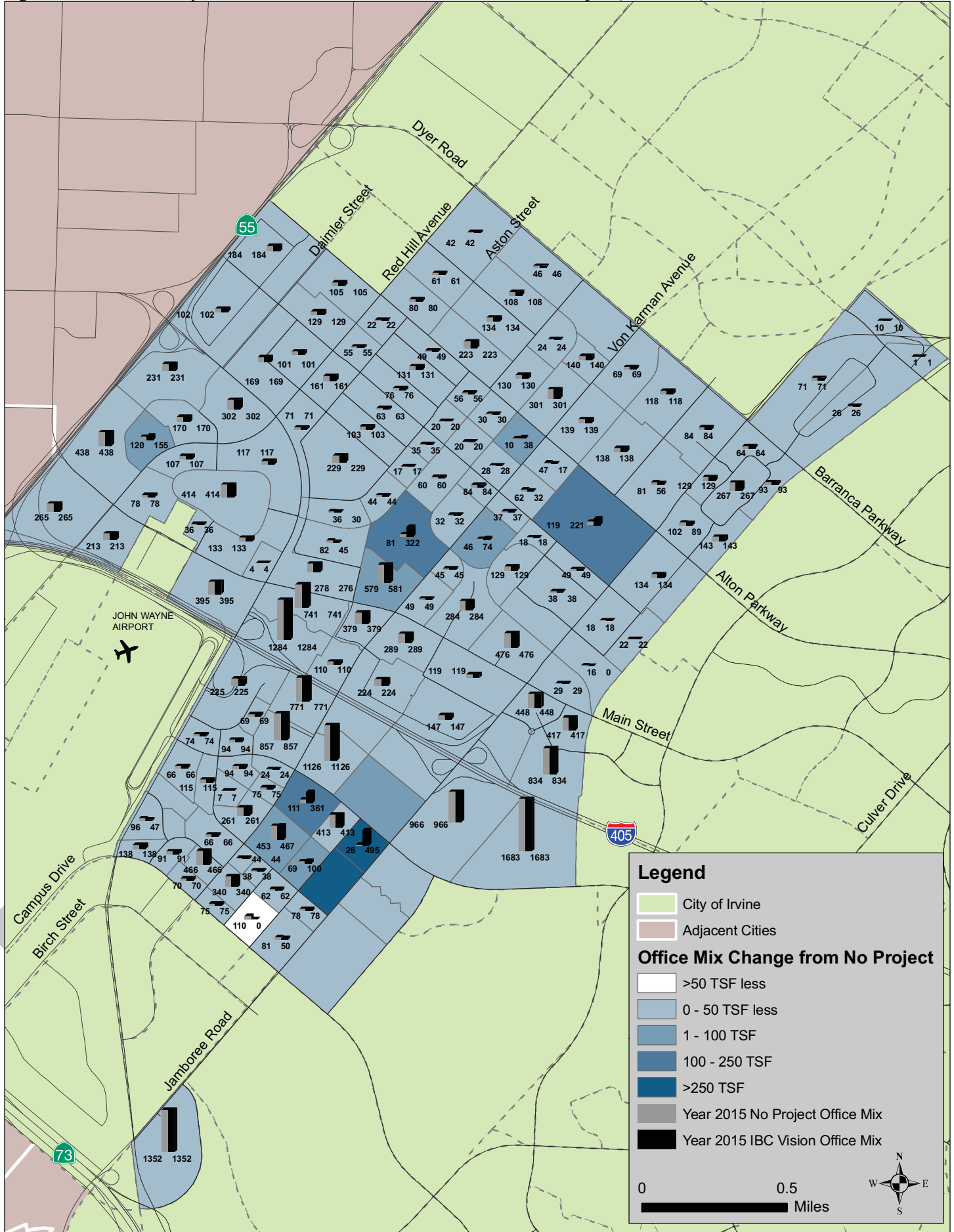
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Figure 4.7: Land Use Comparison between 2015 IBC Vision Plan and 2015 No Project (Residential Units)



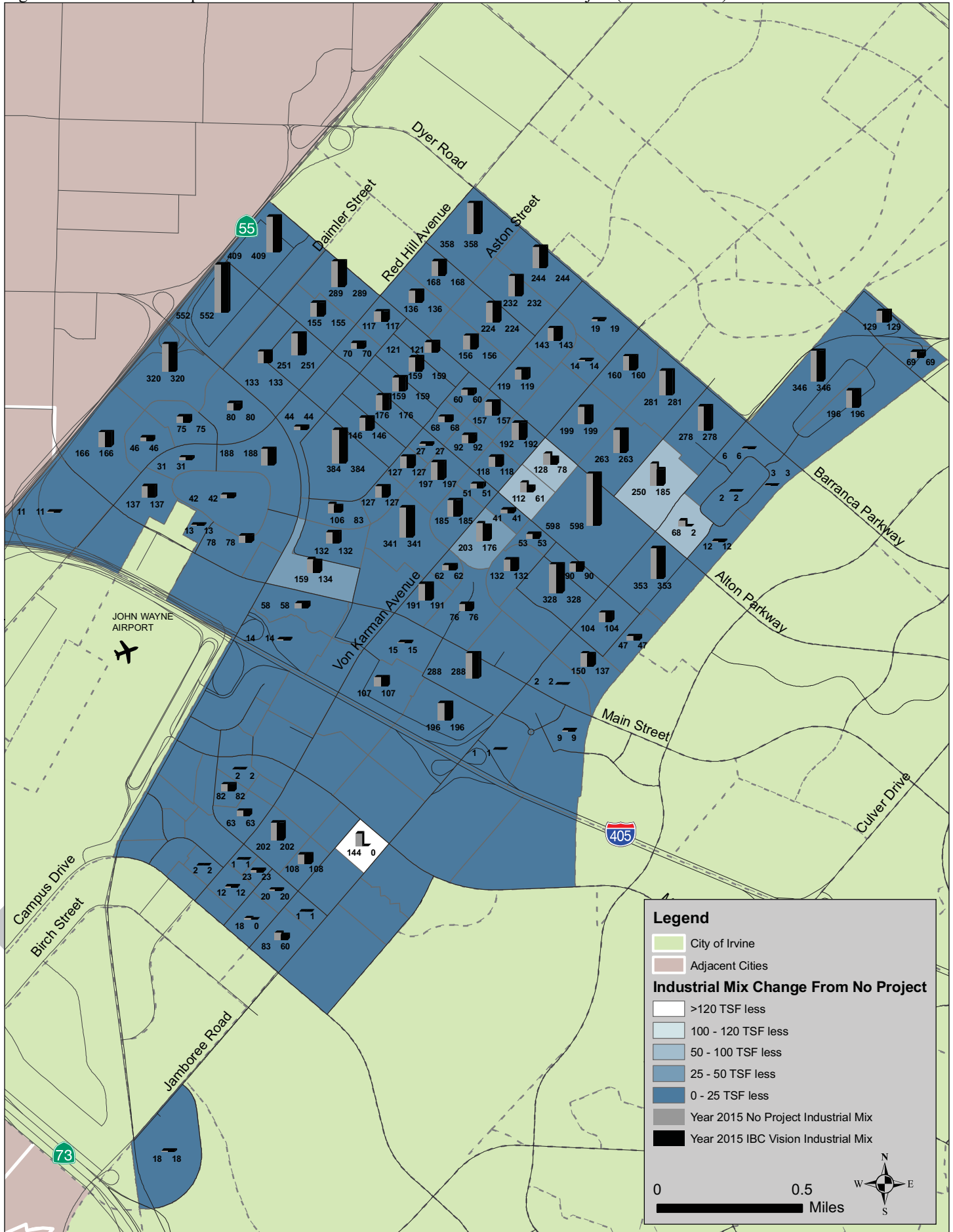
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Figure 4.8: Land Use Comparison between 2015 IBC Vision Plan and 2015 No Project (Office Mix)



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Figure 4.9: Land Use Comparison between 2015 IBC Vision Plan and 2015 No Project (Industrial Mix)



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4.11 2015 Cumulative With Project Daily Arterial Segment Analysis

The 2015 Cumulative With Project traffic patterns generally remain consistent with existing conditions and the 2015 Cumulative Baseline No Project scenario traffic patterns. For some segments, there is a net increase in ADT and for some a decrease as a result of the project. **Table 4.10** indicates the segments that are forecast to be deficient under the 2015 Cumulative With Project daily conditions. As noted above, LOS E indicates a deficient segment for all arterial segments outside Planning Area (PA) 36 within the City of Irvine. PA 36 segments are considered deficient at LOS F. When compared to the 2015 Cumulative Baseline No Project, there are no additional deficient segments. Deficient segments under daily Year 2015 Cumulative With Project conditions include the following:

- 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- 221—Culver Drive from Main Street to San Leandro (Irvine)
- 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)
- 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- 188—University Drive from California Avenue to Mesa Road (Irvine)
- 187—University Drive from Mesa Road to Campus Drive (Irvine)
- 1301—MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)
- 1585—Newport Avenue from Valencia Avenue to Edinger Avenue (Tustin)

Figure 4.7 and **Figure 4.8** display the arterial ADT and LOS for the 2015 Cumulative With Project scenario. Deficient segments in the City of Irvine are evaluated under peak hour conditions in the following section. For Costa Mesa, Newport Beach, and Tustin, arterial segments, deficiencies are addressed through intersection improvements. For Santa Ana, deficient segments under daily conditions will need to be improved to operate at an acceptable LOS. Project related impacts to arterial segments are discussed in **Chapter 6**.

4.12 2015 Cumulative With Project Peak Hour Link Analysis

Peak hour directional traffic volumes were directly obtained from peak hour forecast turning movement volumes for intersections upstream and downstream for each deficient arterial segment. **Table 4.11** presents the results of peak hour link analysis, indicating that all arterial segments within the City of Irvine that are deficient under daily conditions operate at an acceptable LOS in both peak hours, performing at LOS D or better, and hence no mitigation measures are recommended at this time for these facilities.



Table 4.10: 2015 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project			2015 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	4D	8,200	0.22	A	8,200	0.22	A
2721	Baker Street	Bear Street to Bristol Street		CM	4D	25,400	0.67	B	25,900	0.68	B
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	6D	30,200	0.54	A	30,700	0.55	A
1294	Baker Street	SR 55 SB to SR 55 NB		CM	6D	28,000	0.50	A	28,500	0.51	A
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	6D	15,800	0.28	A	16,300	0.29	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	6D	5,700	0.10	A	5,700	0.10	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	6D	18,300	0.33	A	18,400	0.33	A
2733	Bristol Street	Segerstrom Avenue to West Alton Avenue		CM	6D	36,100	0.64	B	36,300	0.65	B
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	6D	40,400	0.72	C	40,600	0.73	C
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	6D	23,100	0.41	A	23,100	0.41	A
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	6D	43,200	0.77	C	43,200	0.77	C
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	8D	64,600	0.86	D	64,600	0.86	D
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	8D	64,500	0.86	D	64,700	0.86	D
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	6D	43,400	0.78	C	43,400	0.78	C
2732	Bristol Street	Paularino Avenue to Baker Street		CM	6D	35,500	0.63	B	35,600	0.64	B
2730	Bristol Street	Baker Street to SR 55		CM	6D	25,600	0.46	A	25,700	0.46	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	6D	22,000	0.39	A	22,400	0.40	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	4D	13,300	0.35	A	13,400	0.35	A
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	2U	7,300	0.58	A	7,300	0.58	A
2772	Flower Street	Segerstrom Avenue to MacArthur Boulevard		CM	4D	10,100	0.27	A	10,200	0.27	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	4D	8,500	0.22	A	8,500	0.22	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	4D	6,500	0.17	A	6,400	0.17	A
2756	Main Street	Sunflower Avenue to SR-55		CM	4D	21,400	0.56	A	22,100	0.58	A
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	2U	5,800	0.46	A	5,800	0.46	A
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	2U	6,000	0.48	A	6,100	0.49	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	2U	9,000	0.72	C	9,200	0.74	C
2742	Paularino Avenue	Bear Street to Bristol Street		CM	2U	8,100	0.65	B	8,200	0.66	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	4D	18,100	0.48	A	18,100	0.48	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	4D	18,200	0.48	A	18,400	0.48	A
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	4D	5,200	0.14	A	5,200	0.14	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	4D	13,300	0.35	A	13,300	0.35	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	4D	18,600	0.49	A	19,200	0.51	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	4D	19,600	0.52	A	20,200	0.53	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	4D	16,700	0.44	A	16,700	0.44	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	4D	9,400	0.25	A	9,300	0.24	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	2U	5,900	0.47	A	6,000	0.48	A
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4D	4,700	0.15	A	4,700	0.15	A
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	12,500	0.39	A	13,000	0.41	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	4D	15,700	0.49	A	16,100	0.50	A



Table 4.10: 2015 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project			2015 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	6D	16,500	0.31	A	16,900	0.31	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	6D	17,100	0.32	A	17,600	0.33	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	16,600	0.31	A	16,800	0.31	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	6D	13,800	0.26	A	14,000	0.26	A
783	Alton Parkway	San Marino to Culver Drive		Irv	6D	23,300	0.43	A	23,300	0.43	A
735	Barranca Parkway (Dyer)	Pullman to Red Hill Avenue		Irv	6D	25,100	0.46	A	25,800	0.48	A
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	7D	27,100	0.43	A	30,300	0.48	A
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	7D	29,800	0.47	A	29,800	0.47	A
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	7D	22,000	0.35	A	22,300	0.35	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	6D	27,500	0.51	A	27,600	0.51	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	6D	24,200	0.45	A	24,300	0.45	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	22,800	0.42	A	22,800	0.42	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	6D	24,200	0.45	A	24,300	0.45	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	6D	24,600	0.46	A	24,700	0.46	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	4D	22,400	0.70	B	22,400	0.70	B
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	4D	20,800	0.65	B	20,800	0.65	B
539	Bryan Avenue	El Camino Real to Rubicon		Irv	4D	17,400	0.54	A	17,300	0.54	A
540	Bryan Avenue	Rubicon to Culver		Irv	4D	23,100	0.72	C	23,000	0.72	C
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	6D	17,400	0.32	A	19,100	0.35	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	4D	13,700	0.43	A	15,100	0.47	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	4D	12,600	0.39	A	14,000	0.44	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	4D	10,900	0.34	A	11,600	0.36	A
877	Campus Drive	Jamboree Road to Carlson Avenue	a	Irv	4D	21,400	0.67	B	22,300	0.70	B
879	Campus Drive	Carlson Avenue to University		Irv	2U	18,900	1.45	F	19,300	1.48	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	4D	5,300	0.17	A	5,700	0.18	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	Maj5D+ 1AUX	44,200	0.89	D	44,000	0.89	D
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	6D	54,800	1.01	F	54,800	1.01	F
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	6D	48,500	0.90	D	48,600	0.90	D
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	6D	44,300	0.82	D	44,500	0.82	D
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	Maj6D+ 1AUX	41,100	0.70	B	41,100	0.70	B
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	6D	43,100	0.80	C	43,100	0.80	C
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	6D	43,300	0.80	C	43,600	0.81	D
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	6D	47,000	0.87	D	47,500	0.88	D
220	Culver Drive	Alton Parkway to Main Street		Irv	6D	48,000	0.89	D	48,600	0.90	D
221	Culver Drive	Main Street to San Leandro		Irv	6D	51,500	0.95	E	52,000	0.96	E
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	6D	56,100	1.04	F	56,600	1.05	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	6D	57,100	1.06	F	57,900	1.07	F
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	6D	43,100	0.80	C	43,400	0.80	C
226	Culver Drive	Sandburg Way to University Drive		Irv	6D	35,600	0.66	B	35,800	0.66	B
1206	El Camino Real	Jamboree Road to Alliance		Irv	4D	22,800	0.71	C	22,800	0.71	C
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4D	4,500	0.14	A	4,500	0.14	A
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	2U	9,600	0.74	C	9,700	0.75	C
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	2U	11,700	0.90	D	11,700	0.90	D
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	3D	10,800	0.45	A	10,800	0.45	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	4D	12,900	0.40	A	13,100	0.41	A



Table 4.10: 2015 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project			2015 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	4D	12,700	0.40	A	12,800	0.40	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	4D	15,000	0.47	A	15,100	0.47	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	4D	17,100	0.53	A	17,300	0.54	A
2829	Harvard Avenue	San Juan to San Leon		Irv	4D	16,200	0.51	A	16,600	0.52	A
178	Harvard Avenue	San Leon to Alton Parkway		Irv	4D	17,900	0.56	A	18,200	0.57	A
179	Harvard Avenue	Alton Parkway to San Marino		Irv	4D	20,500	0.64	B	21,100	0.66	B
180	Harvard Avenue	San Marino to Main Street		Irv	4D	21,100	0.66	B	21,800	0.68	B
181	Harvard Avenue	Main Street to Coronado		Irv	4D	14,700	0.46	A	15,400	0.48	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	4D	21,500	0.67	B	22,700	0.71	C
183	Harvard Avenue	Michelson Drive to University Drive		Irv	2U	9,300	0.72	C	9,800	0.75	C
675	Irvine Center Drive	Harvard Avenue to Hearstone		Irv	6D	20,700	0.38	A	20,900	0.39	A
676	Irvine Center Drive	Hearstone to Culver Drive		Irv	6D	19,200	0.36	A	19,400	0.36	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	8D	39,200	0.54	A	39,200	0.54	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	Maj7D+1AUX	61,500	0.91	E	61,500	0.91	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	8D	66,700	0.93	E	66,500	0.92	E
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	8D	61,300	0.85	D	61,100	0.85	D
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	5D	54,500	1.21	F	54,500	1.21	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)*		Irv	Exp8	71,900	0.40	A	71,900	0.40	A
136	Jamboree Road	Edinger Avenue to Warner Avenue*		Irv	Exp8	78,500	0.44	A	78,500	0.44	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	Exp8	73,900	0.41	A	74,500	0.41	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	8D	54,300	0.75	C	55,200	0.77	C
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	8D	51,900	0.72	C	52,800	0.73	C
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	8D	49,400	0.69	B	51,600	0.72	C
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	8D	47,700	0.66	B	50,200	0.70	B
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	8D	56,100	0.78	C	59,900	0.83	D
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	Maj8D+2AUX	54,100	0.67	B	58,300	0.72	C
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	Maj8D+2AUX	72,300	0.89	D	79,900	0.99	E
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	7D	53,000	0.84	D	60,100	0.95	E
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	7D	46,900	0.74	C	49,800	0.79	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	6D	41,800	0.77	C	44,600	0.83	D
152	Jamboree Road	Birch Street to Fairchild Road		Irv	7D	33,600	0.53	A	35,700	0.57	A
154	Jamboree Road	Fairchild Road to Koll Center		Irv	6D	34,200	0.63	B	36,400	0.67	B
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	6D	27,500	0.51	A	29,200	0.54	A
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	5D	37,500	0.83	D	39,100	0.87	D
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	7D	16,200	0.26	A	17,200	0.27	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	7D	26,200	0.42	A	27,600	0.44	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	Maj8D+2AUX	34,700	0.43	A	36,600	0.45	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	Maj8D+1AUX	50,300	0.66	B	53,000	0.69	B
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	8D	41,800	0.58	A	42,300	0.59	A
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	8D	34,600	0.48	A	34,800	0.48	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	6D	31,800	0.59	A	32,400	0.60	A
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	6D	35,600	0.66	B	36,200	0.67	B



Table 4.10: 2015 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project			2015 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
817	Main Street	McDermott to Red Hill Avenue	a	Irv	6D	18,900	0.35	A	19,500	0.36	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	6D	17,700	0.33	A	18,500	0.34	A
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	6D	27,200	0.50	A	28,400	0.53	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	Maj7D+1AUX	36,000	0.53	A	37,100	0.55	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	Maj6D+1AUX	18,700	0.32	A	19,800	0.34	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	6D	16,900	0.31	A	17,900	0.33	A
823	Main Street	Siglo to Jamboree Road	a	Irv	6D	22,700	0.42	A	24,700	0.46	A
824	Main Street	Jamboree Road to Union	a	Irv	Maj6D+1AUX	19,600	0.34	A	20,200	0.35	A
825	Main Street	Veneto to Harvard Avenue		Irv	6D	11,200	0.21	A	11,600	0.21	A
826	Main Street	Harvard Avenue to San Mateo		Irv	4D	12,100	0.38	A	12,300	0.38	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	4D	9,600	0.30	A	9,600	0.30	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	4D	3,600	0.11	A	3,600	0.11	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	5,700	0.18	A	6,100	0.19	A
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	4D	6,600	0.21	A	7,000	0.22	A
1449	McGaw Avenue	Jamboree Road to Murphy Avenue		Irv	4D	2,600	0.08	A	3,500	0.11	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	5D	15,100	0.34	A	17,200	0.38	A
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	4D	11,400	0.36	A	13,000	0.41	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	Prim4D+1AUX	11,100	0.30	A	12,800	0.34	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	Prim5	18,400	0.43	A	20,400	0.47	A
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	Prim4D+2AUX	16,500	0.38	A	19,100	0.44	A
847	Michelson Drive	Carlson Avenue to Prince		Irv	Prim4D+1AUX	17,200	0.46	A	20,200	0.54	A
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	4D	17,500	0.55	A	18,900	0.59	A
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	4D	12,500	0.39	A	13,100	0.41	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	4D	17,600	0.55	A	18,400	0.58	A
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	6D	26,700	0.49	A	27,300	0.51	A
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	6D	27,200	0.50	A	27,800	0.51	A
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	6D	30,000	0.56	A	30,900	0.57	A
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	6D	37,400	0.69	B	38,400	0.71	C
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	4D	11,400	0.36	A	11,800	0.37	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	4D	14,400	0.45	A	14,800	0.46	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	4D	24,800	0.78	C	25,100	0.78	C
188	University Drive	California Avenue to Mesa Road		Irv	4D	34,600	1.08	F	35,100	1.10	F
187	University Drive	Mesa Road to Campus Drive		Irv	4D	35,900	1.12	F	36,300	1.13	F
880	University Drive	Campus Drive to Harvard Avenue		Irv	6D	28,700	0.53	A	29,000	0.54	A
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	6D	24,200	0.45	A	24,300	0.45	A
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	6D	24,600	0.46	A	24,700	0.46	A
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	4D	24,200	0.76	C	25,100	0.78	C
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	4D	19,400	0.61	B	20,400	0.64	B
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	4D	19,700	0.62	B	20,700	0.65	B
103	Von Karman Avenue	Anchor to Main Street	a	Irv	4D	19,900	0.62	B	21,200	0.66	B
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	Prim4D+1AUX	20,500	0.55	A	22,000	0.59	A



Table 4.10: 2015 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project			2015 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	Prim4D+1AUX	21,900	0.58	A	23,700	0.63	B
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	4D	17,800	0.56	A	19,000	0.59	A
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	4D	17,000	0.53	A	18,200	0.57	A
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	4D	14,800	0.46	A	15,800	0.49	A
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	Prim4D+1AUX	21,200	0.57	A	21,300	0.57	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	Maj6D+1AUX	21,900	0.37	A	21,900	0.37	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	Prim5D+1AUX	20,600	0.45	A	20,700	0.45	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	4D	18,500	0.58	A	18,500	0.58	A
597	Walnut Avenue	Mall Street to Culver Drive		Irv	4D	24,200	0.76	C	24,400	0.76	C
728	Warner Avenue	Construction North to Harvard Avenue		Irv	4D	11,800	0.37	A	11,900	0.37	A
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	4D	8,100	0.25	A	8,000	0.25	A
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	4D	8,700	0.27	A	8,600	0.27	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	4D	11,200	0.28	A	11,400	0.29	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	4D	16,000	0.40	A	16,200	0.41	A
874	Birch Street	East of MacArthur Boulevard		NB	4D	20,800	0.52	A	22,300	0.56	A
69	Birch Street	West of MacArthur Boulevard		NB	4D	12,000	0.30	A	12,900	0.32	A
875	Birch Street	East of Von Karman Avenue		NB	4D	20,800	0.52	A	22,400	0.56	A
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	6D	9,800	0.17	A	9,900	0.17	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	4D	13,900	0.35	A	13,800	0.35	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive*		NB	3D	8,100	0.34	A	8,300	0.35	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue*		NB	3D	13,300	0.55	A	13,800	0.58	A
1303	Bristol Street SB	Campus Drive to Birch Street*		NB	3D	18,700	0.78	C	18,800	0.78	C
1305	Bristol Street NB	Birch Street to Campus Drive*		NB	3D	16,200	0.68	B	16,400	0.68	B
1312	Bristol Street SB	West of Jamboree Road*		NB	4D	23,300	0.58	A	23,400	0.59	A
1580	Bristol Street NB	West of Jamboree Road*		NB	3D	20,900	0.87	D	21,100	0.88	D
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	6D	28,800	0.50	A	30,300	0.52	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	4D	10,000	0.25	A	9,900	0.25	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	6D	23,700	0.41	A	24,600	0.42	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	4D	25,200	0.63	B	25,500	0.64	B
2768	Irvine Avenue	South of University Drive		NB	4D	23,200	0.58	A	23,500	0.59	A
156	Jamboree Road	South of MacArthur Boulevard		NB	6D	29,500	0.51	A	30,700	0.53	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	6D	47,600	0.82	D	48,500	0.84	D
157	Jamboree Road	South of Bristol Street		NB	6D	50,500	0.87	D	51,200	0.88	D
159	Jamboree Road	University Drive to Bison Avenue		NB	6D	44,300	0.76	C	44,900	0.77	C
1777	Jamboree Road	Bison Avenue to Ford Road		NB	6D	34,800	0.60	A	35,100	0.61	B
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	8D	22,100	0.33	A	21,900	0.32	A
75	MacArthur Boulevard	South of Birch Street		NB	6D	24,700	0.43	A	24,600	0.42	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	6D	25,000	0.43	A	25,000	0.43	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	6D	45,600	0.79	C	45,700	0.79	C
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	8D	78,700	1.16	F	78,700	1.16	F
2767	University Drive	East of Irvine Avenue		NB	2U	800	0.08	A	800	0.08	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	5D	15,400	0.32	A	15,600	0.32	A
112	Von Karman Avenue	South of Campus Drive		NB	4D	10,800	0.27	A	11,100	0.28	A
113	Von Karman Avenue	South of Birch Street		NB	4D	11,700	0.29	A	12,100	0.30	A



Table 4.10: 2015 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project			2015 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
2795	Dyer Road	Main Street to Halladay Street		SA	6D	27,400	0.49	A	27,800	0.49	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	6D	31,800	0.56	A	32,400	0.58	A
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	6D	43,600	0.77	C	44,400	0.79	C
734	Dyer Road	SR-55 NB to Pullman Street		SA	6D	30,000	0.53	A	30,600	0.54	A
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	6D	22,900	0.41	A	22,900	0.41	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	6D	21,500	0.38	A	21,500	0.38	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	2U	5,500	0.46	A	5,600	0.47	A
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	2U	2,100	0.18	A	2,100	0.18	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	6D	32,100	0.57	A	32,400	0.58	A
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	6D	49,900	0.89	D	50,800	0.90	D
2796	Main Street	Segerstrom Avenue to Alton Avenue		SA	6D	21,600	0.38	A	21,900	0.39	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	6D	24,600	0.44	A	24,900	0.44	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	6D	29,100	0.52	A	29,400	0.52	A
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	6D	30,600	0.54	A	30,800	0.55	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	4D	3,100	0.08	A	3,100	0.08	A
2736	Segerstrom Avenue	Bristol Street to Flower Street		SA	4D	12,200	0.33	A	12,400	0.33	A
2771	Segerstrom Avenue	Flower Street to Main Street		SA	4D	19,600	0.52	A	19,800	0.53	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	6D	28,900	0.51	A	29,200	0.52	A
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	6D	40,500	0.72	C	41,100	0.73	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	6D	18,300	0.33	A	18,900	0.34	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	6D	20,600	0.37	A	21,400	0.38	A
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4U	5,000	0.20	A	5,000	0.20	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	4U	16,200	0.65	B	16,200	0.65	B
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	4U	17,400	0.70	B	17,400	0.70	B
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	4D	18,400	0.49	A	18,500	0.49	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	4D	18,400	0.49	A	18,400	0.49	A
44	Edinger Avenue	West of Newport Avenue		Tus	6D	40,800	0.72	C	40,900	0.73	C
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	6D	22,200	0.39	A	22,300	0.40	A
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	6D	25,800	0.46	A	26,000	0.46	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	4U	13,700	0.55	A	13,700	0.55	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	2U	10,800	0.86	D	10,800	0.86	D
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	4U	9,500	0.38	A	9,500	0.38	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	4D	15,000	0.40	A	15,100	0.40	A
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	6D	23,300	0.41	A	23,600	0.42	A
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	6D	15,400	0.27	A	15,700	0.28	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	7,400	0.59	A	7,400	0.59	A
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	2U	4,400	0.35	A	4,400	0.35	A
6	Newport Avenue	El Camino Real to I-5		Tus	6D	34,200	0.61	B	34,400	0.61	B
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	6D	37,200	0.66	B	37,300	0.66	B
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	6D	35,600	0.63	B	35,600	0.63	B
49	Newport Avenue	North of Sycamore Avenue		Tus	6D	19,500	0.35	A	19,400	0.34	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	4U	27,600	1.10	F	27,300	1.09	F
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	2U	5,600	0.45	A	5,600	0.45	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	2U	4,100	0.33	A	4,100	0.33	A

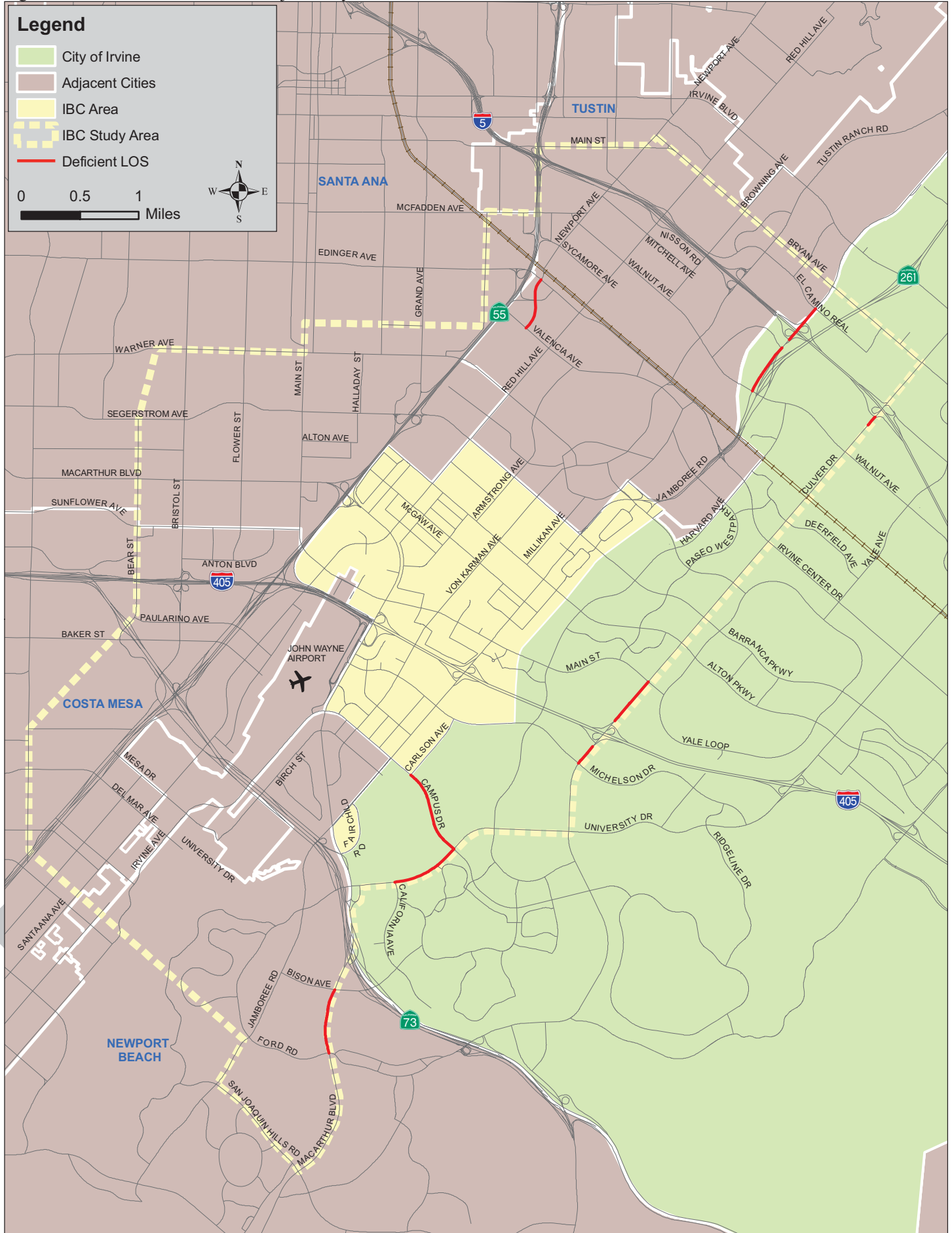


Table 4.10: 2015 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Year 2015 Arterial Segment Classifications	2015 Cumulative Baseline No Project			2015 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	6D	44,300	0.79	C	44,100	0.78	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	6D	41,000	0.73	C	40,800	0.72	C
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	6D	38,200	0.68	B	38,200	0.68	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	6D	26,700	0.47	A	26,700	0.47	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	6D	25,800	0.46	A	25,800	0.46	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	6D	23,900	0.42	A	23,900	0.42	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	6D	24,600	0.44	A	24,600	0.44	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	6D	25,500	0.45	A	25,500	0.45	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	6D	26,700	0.47	A	26,900	0.48	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	7D	24,900	0.38	A	25,300	0.39	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	4U	9,100	0.36	A	9,400	0.38	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	8,800	0.70	B	8,900	0.71	C
85	Tustin Ranch Road	North of I-5		Tus	6D	42,600	0.76	C	42,500	0.75	C
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	6D	36,000	0.64	B	35,800	0.64	B
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	10,100	0.40	A	10,300	0.41	A
587	Walnut Avenue	East of Newport Avenue		Tus	4U	16,700	0.67	B	16,800	0.67	B
589	Walnut Avenue	East of Red Hill Avenue		Tus	4D	16,100	0.43	A	16,100	0.43	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	4D	21,900	0.58	A	21,900	0.58	A
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	4D	18,500	0.49	A	18,600	0.50	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	6D	27,600	0.49	A	28,100	0.50	A

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Figure 4.11: 2015 Cumulative With Project Daily Arterial Deficiencies



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Table 4.11: 2015 Cumulative With Project Peak Hour Link Analysis

ID	Arterial	Segment Limits	2015 Forecast Volume With Project				AM				PM				
			Facility Type	AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
				NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
879	Campus Drive	Carlson Avenue to University	2U	640	920	1,250	760	0.40	A	0.58	A	0.78	C	0.48	A
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,390	2,470	2,120	2,280	0.29	A	0.51	A	0.44	A	0.48	A
221	Culver Drive	Main Street to San Leandro	6D	1,360	2,710	2,500	1,790	0.28	A	0.56	A	0.52	A	0.37	A
222	Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,270	1,960	2,640	1,770	0.26	A	0.41	A	0.55	A	0.37	A
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,480	2,040	2,300	1,750	0.31	A	0.43	A	0.48	A	0.36	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D+ 1AUX	1,660	2,280	3,550	1,960	0.26	A	0.41	A	0.55	A	0.35	A
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	8D	1,880	2,540	3,220	1,870	0.29	A	0.40	A	0.50	A	0.29	A
133	Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,570	2,250	3,000	1,160	0.33	A	0.70	B	0.63	B	0.36	A
188	University Drive	California Avenue to Mesa Road	4D	990	1,890	2,150	1,160	0.31	A	0.59	A	0.67	B	0.36	A
187	University Drive	Mesa Road to Campus Drive	4D	1,040	1,740	2,000	1,190	0.33	A	0.54	A	0.63	B	0.37	A



4.13 2015 Cumulative With Project Peak Hour Intersection Analysis

Using the turning movement volumes from each intersection assumed to be built by 2015, ICU analysis was developed for every intersection within the study area. The intersection analysis includes both a reporting of intersection ICU and the corresponding LOS. **Table 4.12** displays the ICU analysis for the 2015 Cumulative With Project conditions sorted by jurisdiction, while **Appendix B** presents detailed ICU worksheets. For shared jurisdictions, the more conservative methodology was utilized. The differences in the ICU values between the 2015 Cumulative Baseline No Project and With Project scenarios vary by intersection. Many of the intersections experience an increase in the ICU under the With Project conditions and many experience a decrease. This is likely due to the redistribution of trips within the IBC study area under the With Project conditions, with a greater amount of residential dwelling units, and a reduction in commercial, office, and industrial square footage. For deficient intersections or intersections that become deficient with the Proposed Project within the City of Irvine where the ICU value increases by 0.02 over the No Project conditions that intersection experiences a significant project impact. For intersections outside the City of Irvine in Costa Mesa, Tustin, and Santa Ana, an increase of 0.01 over the No Project ICU constitutes a significant project impact. For deficient intersections within the City of Newport Beach, an increase of 0.01 of a critical movement constitutes a significant project impact. The project impacts and mitigation strategies are discussed in detail in **Chapter 6**.

Figure 4.12 and **Figure 4.13** graphically present the AM and PM peak hour intersection ICU for deficient intersections. Further discussion of specific impacts, mitigation, and fair-share cost analysis is addressed in **Chapter 6**. Seven intersections are deficient in the 2015 Cumulative With Project scenario, including one location in Irvine, one in Newport Beach, four in Tustin, and one shared location between Tustin and Irvine. Of the seven intersections, only two are significantly impacted by the Project: #93 – Tustin Ranch Road at El Camino Real (ICU increase of 0.01) in Tustin and #62 – Campus Drive at Bristol Street (ICU increase of 0.02 and ICU reduction from LOS D to LOS E) in Newport Beach). The deficient intersections include the following:

AM Peak Hour:

- #93: Tustin Ranch Road at El Camino Real (Tustin)

PM Peak Hour:

- #145: Jamboree Road at Michelson Drive (Irvine)
- #134: Loop Road/Park Avenue at Warner Avenue (Irvine/Tustin)
- #62: Campus Drive at Bristol Street (Newport Beach)
- #36: Red Hill Avenue at El Camino Real (Tustin)
- #111: Franklin Avenue at Walnut Avenue (Tustin)
- #732: SR-55 Northbound Ramps/Del Amo Avenue at Newport Avenue (Tustin)

When compared to the No Project scenario, there is one additional deficiency, intersection #62: Campus Drive at Bristol Street in the City of Newport Beach. All locations operating at a deficient LOS with an increase in the ICU value exceeding the significance threshold are identified as project impacts and discussed in **Chapter 6**.

4.14 2015 Cumulative With Project Peak Hour Freeway Mainline Analysis

Future freeway mainline volumes are based on forecast traffic using the ITAM model. **Table 4.13** presents the freeway mainline segment analysis for 2015 Cumulative With Project conditions and compares mainline segment performance to 2015 Cumulative Baseline No Project conditions. The With Project scenario does not include any freeway mainline capacity improvements, consequently, the capacities are consistent with the No Project scenario. **Appendix C** presents detailed HCS worksheets for mainline analysis.



Table 4.12: 2015 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project				2015 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino			CM	0.81	D	0.63	B	0.83	D	0.63	B
11	SR-55 Frontage Road NB Ramps at Paularino			CM	0.58	A	0.79	C	0.58	A	0.80	C
12	SR-55 SB Frontage Road at Baker Street			CM	0.76	C	0.69	B	0.75	C	0.70	B
13	SR-55 NB Frontage Road at Baker Street			CM	0.74	C	0.81	D	0.74	C	0.83	D
50	Red Hill Avenue at Paularino Avenue			CM	0.63	B	0.79	C	0.65	B	0.80	C
51	Red Hill Avenue at Baker Street			CM	0.52	A	0.77	C	0.52	A	0.79	C
52	Red Hill Avenue at Bristol Street			CM	0.41	A	0.48	A	0.44	A	0.48	A
541	Bear Street at Baker Street			CM	0.59	A	0.83	D	0.60	A	0.84	D
542	Bear Street at Paularino Avenue			CM	0.39	A	0.56	A	0.40	A	0.57	A
545	Bristol Street at Sunflower Avenue			CM	0.59	A	0.72	C	0.59	A	0.72	C
546	Bristol Street at Anton Boulevard			CM	0.32	A	0.61	B	0.32	A	0.62	B
547	Bristol Street and Paularino Avenue			CM	0.59	A	0.80	C	0.59	A	0.79	C
548	Bristol Street at Baker Street			CM	0.57	A	0.67	B	0.57	A	0.67	B
549	Newport Boulevard SB at Bristol Street			CM	0.25	A	0.51	A	0.27	A	0.51	A
550	Newport Boulevard NB at Bristol Street			CM	0.28	A	0.39	A	0.29	A	0.40	A
715	Bristol Street at I-405 NB Off Ramps			CM	0.46	A	0.68	B	0.46	A	0.68	B
716	Bristol Street at I-405 SB Off Ramps			CM	0.41	A	0.57	A	0.41	A	0.58	A
717	Bear Street at SR-73 SB Ramps			CM	0.53	A	0.80	C	0.53	A	0.81	D
718	Bear Street at SR-73 NB Ramps			CM	0.37	A	0.66	B	0.37	A	0.66	B
721	Flower Street at Sunflower Avenue			CM	0.28	A	0.44	A	0.29	A	0.45	A
722	Anton Boulevard at Sunflower Avenue			CM	0.39	A	0.39	A	0.41	A	0.39	A
726	Main Street at Sunflower Avenue			CM	0.43	A	0.72	C	0.45	A	0.73	C
735	Newport Boulevard NB at Del Mar Avenue			CM	0.75	C	0.48	A	0.75	C	0.49	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue			CM	0.32	A	0.41	A	0.33	A	0.41	A
737	Newport Boulevard NB at Mesa Road			CM	0.30	A	0.38	A	0.30	A	0.38	A
738	Newport Boulevard SB at Mesa Road			CM	0.21	A	0.56	A	0.22	A	0.56	A
45	Red Hill Avenue at McGaw Avenue	a		Irv	0.57	A	0.68	B	0.60	A	0.67	B
47	Red Hill Avenue at MacArthur Avenue	a		Irv	0.69	B	0.81	D	0.72	C	0.84	D
48	Red Hill Avenue at Sky Park North	a		Irv	0.43	A	0.65	B	0.43	A	0.68	B
49	Red Hill Avenue at Main Street	a		Irv	0.70	B	0.89	D	0.73	C	0.89	D
70	Gillette Avenue at Main Street	a		Irv	0.39	A	0.71	C	0.42	A	0.75	C
77	MacArthur Boulevard at Sky Park East	a		Irv	0.28	A	0.40	A	0.28	A	0.42	A
78	MacArthur Boulevard at Main Street	a		Irv	0.53	A	0.70	B	0.58	A	0.74	C
79	MacArthur Boulevard at I-405 NB Ramps	a		Irv	0.68	B	0.66	B	0.74	C	0.68	B
80	MacArthur Boulevard at I-405 SB Ramps	a		Irv	0.59	A	0.71	C	0.62	B	0.75	C
82	MacArthur Boulevard at Michelson Drive	a		Irv	0.60	A	0.83	D	0.60	A	0.88	D
83	MacArthur Boulevard at Douglas Avenue	a		Irv	0.37	A	0.39	A	0.37	A	0.39	A
87	Dupont Drive at Michelson Drive	a		Irv	0.33	A	0.41	A	0.41	A	0.49	A
98	Von Karman Avenue at Alton Parkway	a		Irv	0.70	B	0.81	D	0.72	C	0.83	D
99	Von Karman Avenue at McGaw Avenue	a		Irv	0.60	A	0.77	C	0.64	B	0.81	D
100	Von Karman Avenue at Main Street	a		Irv	0.69	B	0.76	C	0.76	C	0.80	C
101	Von Karman Avenue at Morse Avenue	a		Irv	0.47	A	0.59	A	0.50	A	0.61	B
102	Von Karman Avenue at Michelson Drive	a		Irv	0.58	A	0.80	C	0.67	B	0.86	D
103	Von Karman Avenue at Dupont Drive	a		Irv	0.42	A	0.51	A	0.49	A	0.59	A
104	Von Karman Avenue at Martin	a		Irv	0.33	A	0.55	A	0.37	A	0.57	A
115	Millikan Avenue at Alton Parkway	a		Irv	0.40	A	0.42	A	0.41	A	0.42	A
116	Cartwright Road at Main Street	a		Irv	0.38	A	0.57	A	0.42	A	0.60	A
119	Teller Avenue at Michelson Drive	a		Irv	0.46	A	0.53	A	0.61	B	0.67	B
128	Jamboree Road at I-5 NB Ramps	b		Irv	0.61	B	0.71	C	0.60	A	0.72	C



Table 4.12: 2015 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project				2015 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
129	Jamboree Road at I-5 SB Ramps	b		Irv	0.64	B	0.63	B	0.65	B	0.63	B
130	Jamboree Road at Michelle Drive			Irv	0.75	C	0.72	C	0.76	C	0.72	C
131	Jamboree Road SB at Walnut Avenue			Irv	0.48	A	0.49	A	0.47	A	0.49	A
132	Jamboree Road NB at Walnut Avenue			Irv	0.40	A	0.62	B	0.42	A	0.61	B
137	Jamboree Road at Beckman Avenue	a		Irv	0.63	B	0.71	C	0.64	B	0.71	C
138	Jamboree Road at Alton Parkway	a		Irv	0.76	C	0.85	D	0.78	C	0.86	D
139	Jamboree Road at McGaw Avenue	a		Irv	0.59	A	0.67	B	0.62	B	0.67	B
140	Jamboree Road at Kelvin Avenue	a		Irv	0.62	B	0.62	B	0.68	B	0.65	B
141	Jamboree Road at Main Street	a		Irv	0.81	D	0.91	E	0.87	D	0.94	E
143	Jamboree Road at I-405 NB Ramps	a,b		Irv	0.65	B	0.83	D	0.68	B	0.87	D
144	Jamboree Road at I-405 SB Ramps	a,b		Irv	0.80	C	0.88	D	0.84	D	0.92	E
145	Jamboree Road at Michelson Drive	a		Irv	0.69	B	1.03	F	0.75	C	1.12	F
146	Jamboree Road at Dupont Road	a		Irv	0.67	B	0.71	C	0.68	B	0.72	C
164	Construction Circle South at Barranca Parkway	a		Irv	0.40	A	0.58	A	0.40	A	0.59	A
168	Murphy Avenue at Alton Parkway	a		Irv	0.42	A	0.69	B	0.42	A	0.72	C
170	Union at Main Street	a		Irv	0.39	A	0.59	A	0.40	A	0.59	A
171	Veneto at Main Street			Irv	0.38	A	0.53	A	0.39	A	0.54	A
174	Carlson Avenue at Michelson Drive	a		Irv	0.50	A	0.58	A	0.60	A	0.66	B
175	Carlson Avenue at Campus Drive	a		Irv	0.73	C	0.77	C	0.75	C	0.79	C
180	Harvard Avenue at Walnut Avenue			Irv	0.54	A	0.51	A	0.54	A	0.51	A
183	Harvard Avenue at Warner Avenue			Irv	0.60	A	0.58	A	0.59	A	0.58	A
184	Harvard Avenue at Barranca Parkway			Irv	0.60	A	0.62	B	0.59	A	0.62	B
185	Harvard Avenue at Alton Parkway			Irv	0.71	C	0.74	C	0.72	C	0.73	C
186	Harvard Avenue at Main Street			Irv	0.54	A	0.75	C	0.56	A	0.75	C
187	Harvard Avenue at Coronado			Irv	0.50	A	0.54	A	0.52	A	0.55	A
188	Harvard Avenue at Michelson Drive			Irv	0.66	B	0.86	D	0.67	B	0.89	D
189	Harvard Avenue at University Drive			Irv	0.71	C	0.71	C	0.71	C	0.73	C
190	University Drive at Campus Drive		√	Irv	0.78	C	0.73	C	0.78	C	0.75	C
191	Mesa Road at University Drive			Irv	0.56	A	0.77	C	0.57	A	0.78	C
192	California Avenue at University Drive			Irv	0.56	A	0.84	D	0.57	A	0.87	D
193	MacArthur Boulevard NB at University Drive			Irv	0.42	A	0.45	A	0.47	A	0.57	A
196	Hearthstone Boulevard at Irvine Center Drive			Irv	0.48	A	0.57	A	0.49	A	0.58	A
198	Paseo Westpark at Warner Avenue			Irv	0.56	A	0.42	A	0.56	A	0.42	A
199	Paseo Westpark at Barranca Parkway			Irv	0.51	A	0.53	A	0.52	A	0.54	A
200	Paseo Westpark at Alton Parkway			Irv	0.52	A	0.56	A	0.54	A	0.56	A
201	Paseo Westpark at Main Street			Irv	0.61	B	0.51	A	0.62	B	0.51	A
221	Culver Drive at Bryan Avenue			Irv	0.82	D	0.66	B	0.82	D	0.66	B
222	Culver Drive at Trabuco Road			Irv	0.71	C	0.74	C	0.71	C	0.74	C
223	Culver Drive at I-5 SB Ramps			Irv	0.60	A	0.64	B	0.59	A	0.64	B
224	Culver Drive at Walnut Avenue			Irv	0.77	C	0.80	C	0.77	C	0.80	C
225	Culver Drive at Deerfield Drive			Irv	0.75	C	0.72	C	0.76	C	0.72	C
226	Culver Drive at Irvine Center Drive		√	Irv	0.64	B	0.59	A	0.64	B	0.58	A
227	Culver Drive at Warner Avenue			Irv	0.74	C	0.59	A	0.75	C	0.59	A
228	Culver Drive at Barranca Parkway			Irv	0.83	D	0.73	C	0.82	D	0.72	C
229	Culver Drive at Alton Parkway		√	Irv	0.72	C	0.75	C	0.72	C	0.76	C
230	Culver Drive at Main Street			Irv	0.69	B	0.65	B	0.69	B	0.66	B
231	Culver Drive at San Leandro			Irv	0.70	B	0.56	A	0.71	C	0.55	A
232	Culver Drive at I-405 NB Ramps			Irv	0.49	A	0.87	D	0.48	A	0.87	D
233	Culver Drive at I-405 SB Ramps			Irv	0.51	A	0.61	B	0.51	A	0.61	B
234	Culver Drive at Michelson Drive			Irv	0.54	A	0.81	D	0.56	A	0.82	D
235	Culver Drive at University Drive		√	Irv	0.53	A	0.66	B	0.53	A	0.67	B



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					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
337	Von Karman Avenue at Quartz	a		Irv	0.55	A	0.69	B	0.57	A	0.72	C
439	Bixby at Michelson Drive			Irv	0.24	A	0.40	A	0.33	A	0.46	A
440	Siglo at Main Street			Irv	0.39	A	0.51	A	0.48	A	0.55	A
472	Obsidian at Michelson Drive	a		Irv	0.44	A	0.33	A	0.52	A	0.40	A
84	MacArthur Boulevard at Campus Drive	a		Irv/NB	0.54	A	0.83	D	0.57	A	0.85	D
105	Von Karman Avenue at Campus Drive	a		Irv/NB	0.56	A	0.82	D	0.61	B	0.84	D
121	Teller Avenue at Campus Drive	a		Irv/NB	0.33	A	0.42	A	0.47	A	0.48	A
147	Jamboree Road at Campus Drive	a		Irv/NB	0.66	B	0.74	C	0.71	C	0.77	C
149	Jamboree Road at Fairchild Road	a		Irv/NB	0.65	B	0.65	B	0.65	B	0.69	B
150	Jamboree Road at MacArthur Boulevard	a,b		Irv/NB	0.74	C	0.77	C	0.76	C	0.78	C
176	Fairchild Avenue at MacArthur Boulevard	a		Irv/NB	0.83	D	0.62	B	0.82	D	0.62	B
43	Red Hill Avenue at Deere Avenue	a		Irv/SA	0.46	A	0.71	C	0.46	A	0.71	C
44	Red Hill Avenue at Alton Parkway	a		Irv/SA	0.53	A	0.86	D	0.54	A	0.86	D
9	SR-55 NB Ramps at MacArthur Boulevard	a		Irv/SA	0.74	C	0.58	A	0.75	C	0.59	A
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a		Irv/SA/	0.59	A	0.65	B	0.60	A	0.67	B
71	Armstrong Avenue at Barranca Avenue	a		Irv/Tus	0.52	A	0.54	A	0.51	A	0.54	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca	a		Irv/Tus	0.60	A	0.73	C	0.60	A	0.77	C
112	Myford Road at Michelle Drive			Irv/Tus	0.17	A	0.34	A	0.17	A	0.34	A
113	Myford Road at Walnut Avenue			Irv/Tus	0.41	A	0.48	A	0.41	A	0.49	A
114	Millikan Avenue/District Way at Barranca Parkway	a		Irv/Tus	0.34	A	0.68	B	0.39	A	0.71	C
126	Jamboree Road at Bryan Avenue			Irv/Tus	0.66	B	0.60	A	0.66	B	0.60	A
127	Jamboree Road at El Camino Real			Irv/Tus	0.68	B	0.66	B	0.69	B	0.66	B
134	Loop Road/Park Avenue at Warner Avenue			Irv/Tus	0.81	D	0.99	E	0.83	D	1.00	E
136	Jamboree Road at Barranca Avenue	a		Irv/Tus	0.80	C	0.96	E	0.81	D	0.96	E
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive			Irv/Tus	0.53	A	0.52	A	0.55	A	0.50	A
182	Harvard Avenue at Paseo Westpark/Moffett Drive			Irv/Tus	0.45	A	0.40	A	0.45	A	0.41	A
441	Loop Road at Jamboree Road SB Ramps			Irv/Tus	0.24	A	0.16	A	0.24	A	0.18	A
61	Campus Drive at Airport Way			NB	0.36	A	0.66	B	0.39	A	0.67	B
62	Campus Drive at Bristol Street NB	*		NB	0.60	A	0.90	D	0.62	B	0.92	E
63	Campus Drive at Bristol Street SB			NB	0.73	C	0.53	A	0.76	C	0.55	A
64	Birch Street at Bristol Street NB			NB	0.63	B	0.58	A	0.62	B	0.58	A
65	Birch Street at Bristol Street SB			NB	0.38	A	0.44	A	0.38	A	0.44	A
85	MacArthur Boulevard at Birch Street			NB	0.63	B	0.78	C	0.65	B	0.80	C
106	Von Karman Avenue at Birch Street			NB	0.39	A	0.49	A	0.41	A	0.53	A
107	Von Karman Avenue at MacArthur Boulevard			NB	0.38	A	0.49	A	0.35	A	0.51	A
148	Jamboree Road at Birch Street			NB	0.49	A	0.56	A	0.51	A	0.60	A
151	Jamboree Road at Bristol Street NB			NB	0.48	A	0.65	B	0.49	A	0.67	B
153	Jamboree Road at Bristol Street SB			NB	0.63	B	0.65	B	0.62	B	0.67	B
154	Jamboree Road at Eastbluff Drive			NB	0.63	B	0.65	B	0.63	B	0.65	B
155	Jamboree Road at Bison Avenue			NB	0.52	A	0.57	A	0.51	A	0.57	A
156	Jamboree Road at Ford Road			NB	0.73	C	0.82	D	0.72	C	0.82	D
178	MacArthur Boulevard at Bison Avenue			NB	0.62	B	0.69	B	0.62	B	0.70	B
179	MacArthur Boulevard at Ford Road			NB	0.76	C	0.82	D	0.75	C	0.81	D
194	MacArthur Boulevard SB at University Drive			NB	0.42	A	0.39	A	0.44	A	0.39	A
195	SR-73 SB Ramps at University Drive			NB	0.49	A	0.47	A	0.50	A	0.48	A
733	Irvine Avenue at Mesa Drive			NB/OC	0.56	A	0.86	D	0.56	A	0.87	D
734	Irvine Avenue at University Drive/Del Mar Avenue			NB/OC	0.52	A	0.69	B	0.53	A	0.70	B
741	Jamboree Road at San Joaquin Hills Road			NB	0.61	B	0.61	B	0.61	B	0.61	B
742	MacArthur Boulevard at San Joaquin Hills Road			NB	0.68	B	0.85	D	0.68	B	0.85	D
4	SR-55 SB Ramps at Edinger Avenue	b		SA	0.57	A	0.63	B	0.57	A	0.63	B
5	Hotel Terrace Drive at Dyer Road			SA	0.53	A	0.64	B	0.54	A	0.65	B



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					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
6	Grand Avenue at Dyer Road			SA	0.67	B	0.84	D	0.70	B	0.86	D
7	SR-55 NB Ramps at Dyer Road			SA	0.72	C	0.81	D	0.72	C	0.81	D
8	SR-55 SB Ramps at MacArthur Boulevard	c		SA	0.69	B	0.62	B	0.70	B	0.63	B
29	Pullman Street at Barranca Parkway			SA	0.46	A	0.77	C	0.49	A	0.77	C
543	Bristol Street at Segerstrom Avenue			SA	0.65	B	0.80	C	0.66	B	0.81	D
544	Bristol Street at MacArthur Boulevard			SA	0.62	B	0.79	C	0.62	B	0.80	C
719	Flower Street at Segerstrom Avenue			SA	0.66	B	0.67	B	0.67	B	0.68	B
720	Flower Street at MacArthur Boulevard			SA	0.50	A	0.79	C	0.51	A	0.80	C
723	Main Street at Segerstrom Avenue			SA	0.66	B	0.72	C	0.67	B	0.73	C
724	Main Street at Alton Avenue			SA	0.31	A	0.41	A	0.31	A	0.41	A
725	Main Street and MacArthur Boulevard (w/o SR-55)	c		SA	0.62	B	0.61	B	0.63	B	0.62	B
727	Halladay Street at Dyer Road			SA	0.59	A	0.63	B	0.60	A	0.65	B
728	Halladay Street East at Alton Parkway			SA	0.28	A	0.35	A	0.28	A	0.36	A
729	Halladay Street West at Alton Parkway			SA	0.27	A	0.30	A	0.27	A	0.32	A
730	Grand Avenue at Warner Avenue			SA	0.73	C	0.83	D	0.75	C	0.83	D
731	Grand Avenue at SR-55 SB Ramps			SA	0.51	A	0.45	A	0.52	A	0.45	A
3	Newport Avenue at Edinger Avenue			Tus	0.83	D	0.76	C	0.83	D	0.76	C
14	Walnut Avenue to McFadden Avenue			Tus	0.37	A	0.50	A	0.39	A	0.50	A
18	Newport Avenue at Bryan Avenue			Tus	0.50	A	0.58	A	0.49	A	0.57	A
19	Newport Avenue at Main Street			Tus	0.42	A	0.61	B	0.40	A	0.60	A
20	Newport Avenue at El Camino Real			Tus	0.70	B	0.70	B	0.70	B	0.69	B
21	Newport Avenue at I-5 NB Ramps			Tus	0.64	B	0.57	A	0.64	B	0.56	A
22	Newport Avenue at I-5 SB Ramps			Tus	0.59	A	0.69	B	0.59	A	0.70	B
23	Newport Avenue at McFadden Avenue			Tus	0.63	B	0.51	A	0.63	B	0.51	A
24	Newport Avenue at Walnut Avenue			Tus	0.76	C	0.76	C	0.76	C	0.77	C
25	Newport Avenue at Sycamore Avenue			Tus	0.67	B	0.72	C	0.66	B	0.73	C
27	Del Amo Avenue at Edinger Avenue			Tus	0.39	A	0.38	A	0.41	A	0.38	A
35	Red Hill Avenue at Bryan Avenue			Tus	0.61	B	0.62	B	0.61	B	0.62	B
36	Red Hill Avenue at El Camino Real			Tus	0.61	B	0.91	E	0.62	B	0.91	E
37	Red Hill Avenue at Nisson Road			Tus	0.65	B	0.65	B	0.65	B	0.65	B
38	Red Hill Avenue at Walnut Avenue			Tus	0.65	B	0.81	D	0.65	B	0.82	D
39	Red Hill Avenue at Sycamore Avenue			Tus	0.55	A	0.57	A	0.55	A	0.56	A
40	Red Hill Avenue at Edinger Avenue			Tus	0.65	B	0.61	B	0.65	B	0.62	B
55	Browning Avenue at Bryan Avenue			Tus	0.45	A	0.58	A	0.45	A	0.59	A
56	Browning Avenue at El Camino Real			Tus	0.39	A	0.53	A	0.40	A	0.52	A
58	Browning Avenue at Walnut Avenue			Tus	0.42	A	0.58	A	0.42	A	0.58	A
92	Tustin Ranch Road at Bryan Avenue			Tus	0.80	C	0.79	C	0.80	C	0.79	C
93	Tustin Ranch Road at El Camino Real	*		Tus	1.07	F	0.87	D	1.08	F	0.87	D
94	Tustin Ranch Road at I-5 NB Ramps			Tus	0.73	C	0.54	A	0.73	C	0.54	A
95	Tustin Ranch Road at I-5 SB Ramps			Tus	0.88	D	0.63	B	0.88	D	0.62	B
96	Tustin Ranch Road at Walnut Avenue			Tus	0.73	C	0.70	B	0.73	C	0.70	B
109	Myford Road at Bryan Avenue			Tus	0.43	A	0.43	A	0.43	A	0.42	A
110	Myford Road at El Camino Real			Tus	0.26	A	0.42	A	0.26	A	0.42	A
111	Franklin Avenue at Walnut Avenue			Tus	0.52	A	0.99	E	0.52	A	0.99	E
133	Jamboree Road at Edinger Avenue	b		Tus	0.41	A	0.61	B	0.41	A	0.61	B
445	Tustin Ranch Road at Warner Avenue North			Tus	0.43	A	0.46	A	0.43	A	0.46	A
446	Tustin Ranch Road at Warner Avenue South			Tus	0.50	A	0.46	A	0.51	A	0.46	A
447	Armstrong Avenue/Severyns Road at Valencia Avenue			Tus	0.32	A	0.24	A	0.33	A	0.24	A
448	Armstrong Avenue at Warner Avenue			Tus	0.39	A	0.37	A	0.41	A	0.38	A
453	Red Hill Avenue at Valencia Avenue			Tus	0.61	B	0.67	B	0.62	B	0.67	B
454	Tustin Ranch Road at Valencia Avenue			Tus	0.48	A	0.42	A	0.48	A	0.42	A



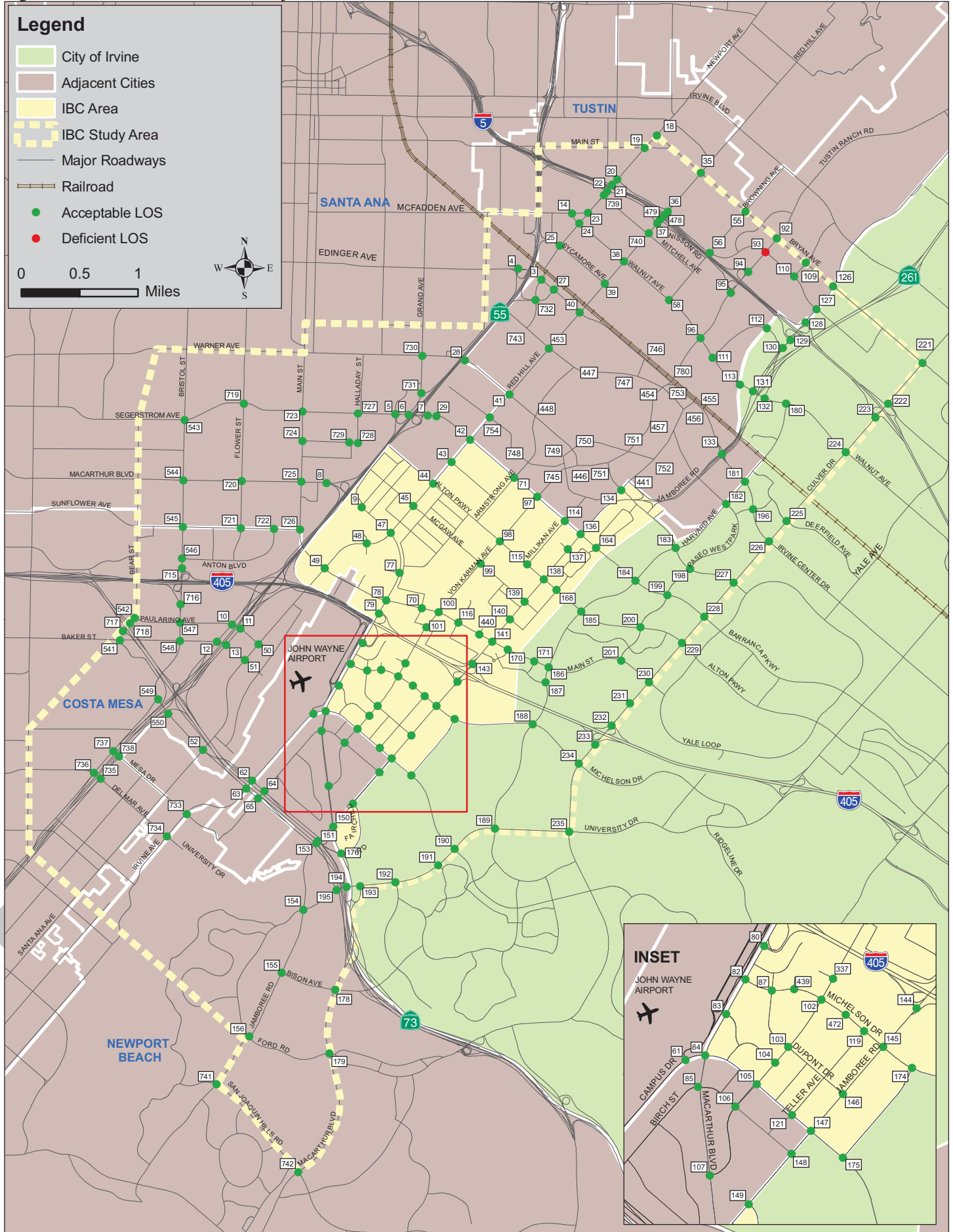
Table 4.12: 2015 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (2015)	Jurisdiction	2015 Cumulative Baseline No Project				2015 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
455	East Connector-Jamboree Plaza at Edinger Avenue			Tus	0.19	A	0.19	A	0.20	A	0.18	A
456	North Loop Road at Valencia Avenue			Tus	0.18	A	0.17	A	0.19	A	0.17	A
457	North Loop Road at Moffett Drive			Tus	0.11	A	0.13	A	0.10	A	0.13	A
478	Red Hill Avenue at I-5 NB Ramps			Tus	0.76	C	0.62	B	0.76	C	0.61	B
479	Red Hill Avenue at I-5 SB Ramps			Tus	0.87	D	0.81	D	0.88	D	0.79	C
480	Tustin Ranch Road Connector at Edinger Avenue			Tus	0.19	A	0.20	A	0.20	A	0.21	A
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue			Tus	0.51	A	0.91	E	0.51	A	0.91	E
739	Newport Avenue at Mitchell Avenue			Tus	0.62	B	0.70	B	0.61	B	0.69	B
740	Red Hill Avenue at Mitchell Avenue			Tus	0.60	A	0.55	A	0.60	A	0.55	A
743	Newport Avenue at Valencia Avenue			Tus	0.48	A	0.57	A	0.48	A	0.57	A
745	Tustin Ranch Road at Park Avenue			Tus	0.45	A	0.39	A	0.45	A	0.40	A
746	Kensington Park Drive at Edinger Avenue			Tus	0.54	A	0.55	A	0.54	A	0.56	A
747	Kensington Park Drive at Valencia Avenue			Tus	0.21	A	0.18	A	0.21	A	0.18	A
748	Armstrong Avenue at A Street			Tus	0.42	A	0.43	A	0.42	A	0.43	A
749	Park Avenue at A Street			Tus	0.25	A	0.32	A	0.25	A	0.32	A
750	Legacy Road at Warner Avenue			Tus	0.34	A	0.28	A	0.35	A	0.29	A
751	Tustin Ranch Road at Legacy Road			Tus	0.44	A	0.36	A	0.42	A	0.36	A
752	Legacy Road at North Loop Road			Tus	0.13	A	0.12	A	0.13	A	0.12	A
753	Tustin Ranch Road at Edinger Avenue Connector			Tus	0.46	A	0.47	A	0.46	A	0.47	A
28	Pullman Street at Warner Avenue			Tus/SA	0.44	A	0.54	A	0.44	A	0.54	A
41	Red Hill Avenue at Warner Avenue			Tus/SA	0.82	D	0.71	C	0.89	D	0.76	C
754	Red Hill Avenue at Carnegie Avenue/A Street			Tus/SA	0.61	B	0.74	C	0.61	B	0.74	C

- Denotes intersection operating at a deficient LOS
- a Intersection within Irvine Planning Area 36--LOS E acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E acceptable
- √ ATMS credit-Reduction of 0.05 applied to ICU
- * Significant Project Impact

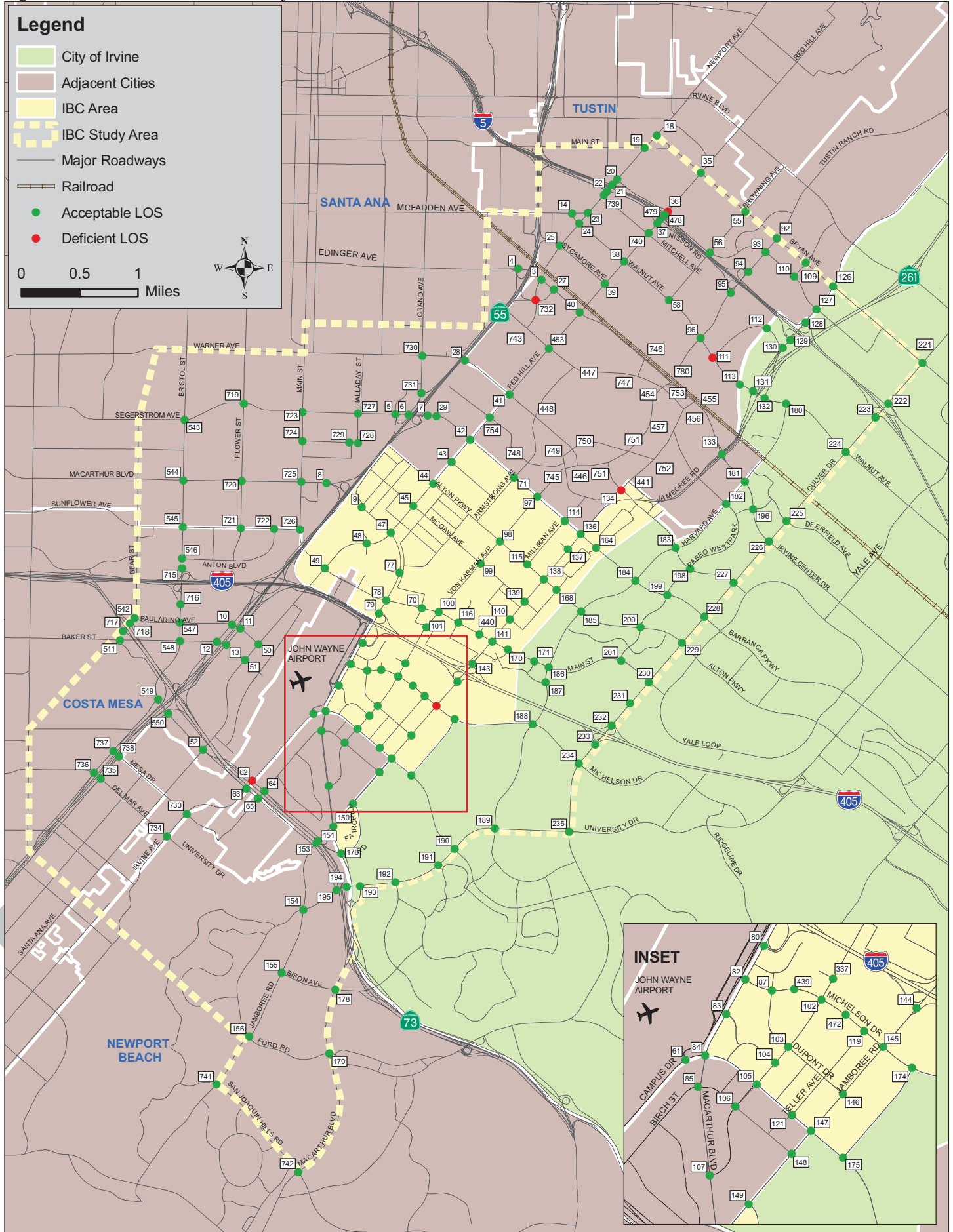
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Figure 4.12: 2015 Cumulative With Project AM Peak Hour Intersection Deficiencies



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Figure 4.13: 2015 Cumulative With Project PM Peak Hour Intersection Deficiencies



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Table 4.13: 2015 Cumulative With Project Freeway Peak Hour Mainline LOS

Location	Freeway Lanes			Year 2015 Cumulative Baseline No Project						Year 2015 Cumulative With Project						
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
				Volume	V/C	LOS	LOS	HCM Density	LOS	V/C	LOS	Volume	V/C	LOS	Volume	V/C
1-5	Culver Drive to Jamboree Road	NB	5	10,000	11,727	1.17	F	9,147	0.91	E	11,780	1.18	F	9,235	0.92	E
		SB	5	10,000	5,776	0.58	C	6,977	0.70	C	5,940	0.59	C	6,967	0.70	C
	Jamboree Road to Tustin Ranch Road	NB	5	10,000	11,367	1.14	F	9,007	0.90	E	11,430	1.14	F	9,085	0.91	E
		SB	5	10,000	6,246	0.62	C	6,907	0.69	C	6,400	0.64	C	6,897	0.69	C
	Tustin Ranch Road to Red Hill Avenue	NB	5	10,000	11,287	1.13	F	9,567	0.96	E	11,350	1.14	F	9,635	0.96	E
		SB	5	10,000	7,166	0.72	D	7,527	0.75	D	7,320	0.73	D	7,517	0.75	D
	Red Hill Avenue to Newport Avenue	NB	5	10,000	11,727	1.17	F	9,567	0.96	E	11,790	1.18	F	9,615	0.96	E
		SB	5	10,000	6,856	0.69	C	7,457	0.75	D	7,020	0.70	C	7,457	0.75	D
	Newport Avenue to SR-55	NB	5	10,000	12,387	1.24	F	10,327	1.03	F	12,460	1.25	F	10,355	1.04	F
		SB	5	10,000	7,626	0.76	D	8,457	0.85	D	7,790	0.78	D	8,457	0.85	D
	North of SR-55	NB	5	10,000	11,907	1.19	F	10,293	1.03	F	11,916	1.19	F	10,217	1.02	F
		SB	5	10,000	9,822	0.98	E	10,061	1.01	F	9,861	0.99	E	10,028	1.00	E
	Culver Drive to Jamboree Road	NB	5	10,000	11,916	1.19	F	8,238	0.82	D	11,960	1.20	F	8,214	0.82	D
		SB	4	8,000	7,046	0.88	D	9,429	1.18	F	7,227	0.90	E	9,354	1.17	F
	Jamboree Road to MacArthur Boulevard	NB*	5	10,000	11,676	1.17	F	9,418	0.94	E	11,910	1.19	F	9,374	0.94	E
SB*		5	10,000	8,576	0.86	D	9,959	1.00	E	8,697	0.87	D	10,264	1.03	F	
MacArthur Boulevard to SR-55	NB*	6	12,000	10,606	0.88	D	10,088	0.84	D	10,900	0.91	E	10,064	0.84	D	
	SB*	6	12,000	10,186	0.85	D	10,859	0.90	E	10,317	0.86	D	11,174	0.93	E	
SR-55 to Bristol Street	NB	5	10,000	6,944	0.69	C	6,207	0.62	C	7,125	0.71	C	6,282	0.63	C	
	SB	5	10,000	7,490	0.75	D	7,660	0.77	D	7,531	0.75	D	7,846	0.78	D	
Bristol Street to SR-73	NB	5	10,000	6,444	0.64	C	5,401	0.54	C	6,613	0.66	C	5,471	0.55	C	
	SB	5	10,000	7,730	0.77	D	7,120	0.71	C	7,741	0.77	D	7,256	0.73	D	

1-405



Table 4.13: 2015 Cumulative With Project Freeway Peak Hour Mainline LOS

Location	Freeway Lanes			Year 2015 Cumulative Baseline No Project								Year 2015 Cumulative With Project							
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour				PM Peak Hour				AM Peak Hour				PM Peak Hour			
				Volume	V/C	LOS	HCM Density	LOS	V/C	LOS	HCM Density	Volume	V/C	LOS	HCM Density	Volume	V/C	LOS	HCM Density
South of Victoria Street	NB	4	8,000	1,457	0.18	A		1,325	0.17	A		1,434	0.18	A		1,354	0.17	A	
	SB	3	6,000	1,727	0.29	A		1,275	0.21	A		1,772	0.30	A		1,266	0.21	A	
Victoria Street to Fair Drive	NB	4	8,000	4,190	0.52	C		3,492	0.44	B		4,214	0.53	C		3,509	0.44	B	
	SB	4	8,000	3,177	0.40	B		3,294	0.41	B		3,228	0.40	B		3,292	0.41	B	
Fair Drive to SR-73	NB	4	8,000	5,621	0.70	C		4,753	0.59	C		5,610	0.70	C		4,795	0.60	C	
	SB	4	8,000	4,590	0.57	C		5,214	0.65	C		4,645	0.58	C		5,217	0.65	C	
SR-73 to Baker Street	NB	4	8,000	5,018	0.63	C		4,023	0.50	B		5,033	0.63	C		4,063	0.51	C	
	SB	4	8,000	5,246	0.66	C		5,677	0.71	C		5,260	0.66	C		5,609	0.70	C	
Baker Street to I-405	NB	4	8,000	4,048	0.51	C		2,953	0.37	B		4,043	0.51	C		2,993	0.37	B	
	SB	4	8,000	5,686	0.71	C		5,657	0.71	C		5,720	0.71	C		5,619	0.70	C	
I-405 to MacArthur Boulevard	NB	4	8,000	7,690	0.96	E		7,706	0.96	E		7,736	0.97	E		7,734	0.97	E	
	SB	4	8,000	7,638	0.95	E		7,407	0.93	E		7,564	0.95	E		7,472	0.93	E	
MacArthur Boulevard to Dyer Road	NB	4	8,000	6,870	0.86	D		8,676	1.08	F		6,996	0.87	D		8,704	1.09	F	
	SB	4	8,000	8,578	1.07	F		6,787	0.85	D		8,504	1.06	F		6,852	0.86	D	
Dyer Road to Edinger Avenue	NB	5	10,000	6,240	0.62	C		10,636	1.06	F		6,376	0.64	C		10,654	1.07	F	
	SB	4	8,000	8,887	1.11	F		6,372	0.80	D		8,796	1.10	F		6,412	0.80	D	
Edinger Avenue to McFadden Street/Sycamore Avenue	NB	6	12,000	6,453	0.54	C		10,968	0.91	E		6,600	0.55	C		10,984	0.92	E	
	SB	5	10,000	9,087	0.91	E		6,302	0.63	C		8,986	0.90	E		6,342	0.63	C	
McFadden Street/Sycamore Avenue to I-5	NB	6	12,000	7,149	0.60	C		11,391	0.95	E		7,309	0.61	C		11,407	0.95	E	
	SB	5	10,000	9,362	0.94	E		6,841	0.68	C		9,249	0.92	E		6,897	0.69	C	
North of I-5	NB	5	10,000	7,189	0.72	D		8,139	0.81	D		7,259	0.73	D		8,106	0.81	D	
	SB	5	10,000	9,031	0.90	E		7,051	0.71	C		8,998	0.90	E		7,117	0.71	C	

SR-55



Table 4.13: 2015 Cumulative With Project Freeway Peak Hour Mainline LOS

Location	Freeway Lanes			Year 2015 Cumulative Baseline No Project								Year 2015 Cumulative With Project							
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour				PM Peak Hour				AM Peak Hour				PM Peak Hour			
				Volume	V/C	LOS	HCM Density	LOS	V/C	LOS	HCM Density	Volume	V/C	LOS	HCM Density	Volume	V/C	LOS	HCM Density
SR-73	NB	3	6,000	7,403	1.23	F		4,300	0.72	D		7,401	1.23	F		4,309	0.72	D	
	SB	3	6,000	3,589	0.60	C		6,043	1.01	F		3,579	0.60	C		6,050	1.01	F	
	NB	3	6,000	7,403	1.23	F		4,300	0.72	D		7,401	1.23	F		4,309	0.72	D	
	SB	3	6,000	3,304	0.55	C		4,443	0.74	D		3,272	0.55	C		4,430	0.74	D	
	NB	3	6,000	8,511	1.42	F		5,604	0.93	E		8,527	1.42	F		5,627	0.94	E	
	SB	3	6,000	5,353	0.89	D		6,728	1.12	F		5,329	0.89	D		6,732	1.12	F	
	NB	3	6,000	6,844	1.14	F		4,777	0.80	D		6,935	1.16	F		4,820	0.80	D	
	SB	3	6,000	5,353	0.89	D		6,728	1.12	F		5,329	0.89	D		6,732	1.12	F	
	NB	3	6,000	7,391	1.23	F		6,479	1.08	F		7,504	1.25	F		6,550	1.09	F	
	SB	3	6,000	6,902	1.15	F		7,728	1.29	F		6,872	1.15	F		7,766	1.29	F	
	NB	3	6,000	6,119	1.02	F		5,027	0.84	D		6,170	1.03	F		5,020	0.84	D	
	SB	3	6,000	4,936	0.82	D		5,504	0.92	E		4,900	0.82	D		5,537	0.92	E	
SR-261	NB	3	6,000	5,729	0.95	E		4,347	0.72	D		5,780	0.96	E		4,330	0.72	D	
	SB	3	6,000	4,286	0.71	C		4,724	0.79	D		4,240	0.71	C		4,737	0.79	D	
SR-261	NB	2	4,000	702	0.18	A		3,007	0.75	D		733	0.18	A		2,981	0.75	D	
	SB	2	4,000	3,629	0.91	E		1,191	0.30	A		3,594	0.90	E		1,199	0.30	A	

*Denotes Project Related Significant Impact in 2015



The following segments are forecast to be deficient in 2015. When compared to the No Project conditions, there are two additional segments that are deficient under the 2015 With Project conditions, I-405 Southbound between Culver Drive and Jamboree Road and I-405 Northbound between MacArthur Boulevard and SR-55 both in the AM peak hour. The deficient segments include the following:

AM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Northbound North of SR-55
- o I-5 Southbound North of SR-55
- o I-405 Northbound between Culver Drive and Jamboree Road
- o I-405 Southbound between Culver Drive and Jamboree Road
- o I-405 Northbound between Jamboree Road and MacArthur Boulevard
- o I-405 Northbound between MacArthur Boulevard and SR-55
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between MacArthur Boulevard and Dyer Road
- o SR-55 Southbound between Dyer Road and Edinger Avenue
- o SR-55 Southbound between Edinger Avenue and McFadden Street/Sycamore Avenue
- o SR-55 Southbound between McFadden Street/Sycamore Avenue and I-5
- o SR-55 Southbound North of I-5
- o SR-73 Northbound between MacArthur Boulevard and University Drive
- o SR-73 Northbound between University Drive and Jamboree Road
- o SR-73 Northbound between Jamboree Road and Birch Street
- o SR-73 Northbound between Birch Street and Campus Drive
- o SR-73 Northbound between Campus Drive and SR-55
- o SR-73 Southbound between Campus Drive and SR-55
- o SR-73 Northbound between SR-55 and Bear Street
- o SR-73 Northbound between Bear Street and I-405
- o SR-261 Southbound South of El Camino Real

PM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Northbound North of SR-55
- o I-5 Southbound North of SR-55
- o I-405 Southbound between Culver Drive and Jamboree Road
- o I-405 Northbound between Jamboree Road and MacArthur Boulevard
- o I-405 Southbound between Jamboree Road and MacArthur Boulevard
- o I-405 Southbound between MacArthur Boulevard and SR-55
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Northbound between MacArthur Boulevard and Dyer Road
- o SR-55 Northbound between Dyer Road and Edinger Avenue
- o SR-55 Northbound between Edinger Avenue and McFadden Street/Sycamore Avenue
- o SR-55 Northbound between McFadden Street/Sycamore Avenue and I-5
- o SR-73 Southbound between MacArthur Boulevard and University Drive
- o SR-73 Northbound between Jamboree Road and Birch Street
- o SR-73 Southbound between Jamboree Road and Birch Street
- o SR-73 Southbound between Birch Street and Campus Drive
- o SR-73 Northbound between Campus Drive and SR-55



- SR-73 Southbound between Campus Drive and SR-55
- SR-73 Northbound between SR-55 and Bear Street

4.15 2015 Cumulative With Project Peak Hour Freeway Ramp Analysis

The ramp analysis methodology for 2015 Cumulative With Project is consistent with that applied for 2015 Cumulative Baseline No Project. **Table 4.14** displays the freeway ramp interchange, ramp type, number of lanes, peak hour capacity, volumes, densities, and LOS. **Appendix D** presents detailed HCS worksheets for ramp analysis.

When compared to the 2015 No Project scenario, there are no additional deficient locations; however, there are some ramps that deteriorate further as project trips are added. Project related impacts on freeway ramps are addressed in **Chapter 6** in accordance with the significant impact criteria agreed to by the City and Caltrans. The deficient ramps include:

AM Peak Hour:

- Northbound I-5 Direct Off-Ramp to Jamboree Road
- Southbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to MacArthur Boulevard
- Northbound SR-55 Direct On-Ramp from Victoria Street
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Southbound SR-55 Off-Ramp to Paularino Avenue
- Southbound SR-55 Off-Ramp to MacArthur Boulevard
- Northbound SR-55 Off-Ramp to Dyer Road
- Northbound SR-73 On-Ramp from MacArthur Boulevard
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 Off-Ramp to Birch Street

PM Peak Hour:

- Southbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 On-Ramp from MacArthur Boulevard
- Southbound I-405 Loop On-Ramp from Bristol Street
- Northbound I-405 Off-Ramp to Bristol Street
- Southbound SR-55 Off-Ramp to Victoria Street
- Northbound SR-55 Direct On-Ramp from Victoria Street
- Southbound SR-55 Off-Ramp to Fair Drive
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Southbound SR-55 On-Ramp from Baker Street
- Northbound SR-55 On-Ramp from Paularino Avenue
- Southbound SR-55 Direct On-Ramp from MacArthur Boulevard
- Northbound SR-55 Loop On-Ramp from Dyer Road
- Northbound SR-73 On-Ramp from MacArthur Boulevard
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 On-Ramp from Campus Drive
- Northbound SR-261 Northbound Off-Ramp to Jamboree Road

Figure 4.14 and **Figure 4.15** graphically depict the 2015 Cumulative With Project freeway and ramp deficiencies.



Table 4.14: 2015 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity	2015 Cumulative Baseline No Project						2015 Cumulative With Project					
			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Culver Drive	SB On Direct	1,000	240	0.27	A	300	0.33	B	240	0.27	A	300	0.33	B
	SB On Loop	1,000	380	0.42	B	260	0.29	A	390	0.43	B	260	0.29	A
	SB Off	500	1,210	0.40	B	2,040	0.68	C	1,210	0.40	B	2,050	0.68	C
	NB On Loop	1,000	1,050	0.70	C	690	0.46	B	1,080	0.72	D	680	0.45	B
	NB On Direct	1,000	1,264	0.84	D	810	0.54	C	1,251	0.83	D	817	0.54	C
	NB Off	500	340	0.23	A	510	0.34	B	340	0.23	A	510	0.34	B
Jamboree Road	SB On Direct	1,000	420	0.28	A	1,110	0.74	D	450	0.30	A	1,120	0.75	D
	SB On Loop	1,000	550	0.51	C	430	0.40	B	540	0.50	B	430	0.40	B
	SB Off	500	1,440	0.48	B	1,470	0.49	B	1,450	0.48	B	1,480	0.49	B
	NB On Loop	1,000	670	0.62	C	690	0.64	C	670	0.62	C	690	0.64	C
	NB On Direct	1,000	470	0.44	B	480	0.44	B	470	0.44	B	480	0.44	B
	NB Off	500	1,500	1.00	E	1,310	0.87	D	1,490	0.99	E	1,320	0.88	D
Tustin Ranch Road	SB On	1,000	710	0.47	B	460	0.31	B	710	0.47	B	460	0.31	B
	NB On	1,000	370	0.21	A	1,120	0.62	C	370	0.21	A	1,120	0.62	C
	NB Off	500	450	0.30	A	560	0.37	B	450	0.30	A	570	0.38	B
	SB Off	500	1,630	0.72	D	1,080	0.48	B	1,630	0.72	D	1,080	0.48	B
Red Hill Avenue	SB On	1,000	1,080	0.72	D	830	0.55	C	1,070	0.71	C	820	0.55	C
	NB On	1,000	1,030	0.69	C	810	0.54	C	1,030	0.69	C	790	0.53	C
	NB Off	500	590	0.39	B	810	0.54	C	590	0.39	B	810	0.54	C
	SB Off	500	770	0.51	C	760	0.51	C	770	0.51	C	760	0.51	C
Newport Boulevard	SB Off	500	770	0.51	C	1,000	0.67	C	770	0.51	C	1,000	0.67	C
	NB On	1,000	660	0.44	B	760	0.51	C	670	0.45	B	740	0.49	B



Table 4.14: 2015 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project						2015 Cumulative With Project												
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour									
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	HCM Density	LOS	HCM Density	LOS			
Culver Drive	SB On Direct	1	1,000	240	0.16	A	650	0.43	B	270	0.18	A	650	0.43	B	650	0.43	B				
	SB On Loop	1	1,000	250	0.28	A	300	0.33	B	250	0.28	A	310	0.34	B	250	0.28	A				
	SB Off	2	500	830	0.28	A	1,430	0.48	B	830	0.28	A	1,430	0.48	B	830	0.28	A				
	NB On Loop	1	1,000	580	0.39	B	420	0.28	A	620	0.41	B	430	0.29	A	620	0.41	B				
	NB On Direct	1	1,000	930	0.62	C	660	0.44	B	930	0.62	C	660	0.44	B	930	0.62	C				
Jamboree Road	NB Off	1	500	1,220	0.81	D	1,240	0.83	D	1,190	0.79	D	1,250	0.83	D	1,190	0.79	D				
	SB On Direct	2	1,000	540	0.30	A	990	0.55	C	620	0.34	B	1,060	0.59	C	620	0.34	B				
	SB On Loop	1	1,000	270	0.18	A	640	0.43	B	270	0.18	A	640	0.43	B	270	0.18	A				
	SB Off*	2	500	2,340	1.04	F	2,160	0.96	E	2,360	1.05	F	2,160	0.96	E	2,360	1.05	F				
	NB On Loop	1	1,000	500	0.33	B	910	0.61	C	600	0.40	B	970	0.65	C	600	0.40	B				
MacArthur Boulevard	NB On Direct	2	1,000	1,620	0.74	D	1,140	0.52	C	1,750	0.80	D	1,140	0.52	C	1,750	0.80	D				
	NB Off*	1	500	2,360	1.05	F	870	0.39	B	2,400	1.07	F	870	0.39	B	2,400	1.07	F				
	SB Direct On	2	1,000	790	0.26	A	670	0.22	A	780	0.26	A	670	0.22	A	780	0.26	A				
	SB Off	2	500	2,400	0.80	D	1,570	0.52	C	2,400	0.80	D	1,580	0.53	C	2,400	0.80	D				
	NB On	1	1,000	510	0.34	B	1,530	1.02	F	580	0.39	B	1,560	1.04	F	580	0.39	B				
Bristol Street	NB Off	1	500	1,580	1.05	F	860	0.57	C	1,590	1.06	F	870	0.58	C	1,590	1.06	F				
	SB Loop On*	1	1,000	1,000	0.67	C	1,380	0.92	E	1,020	0.68	C	1,430	0.95	E	1,020	0.68	C				
	SB Off	2	500	1,240	0.55	C	840	0.37	B	1,230	0.55	C	840	0.37	B	1,230	0.55	C				
	NB On Loop	1	1,000	235	0.26	A	376	0.42	B	228	0.25	A	371	0.41	B	228	0.25	A				
	NB On Direct	1	1,000	45	0.03	A	228	0.15	A	40	0.03	A	228	0.15	A	40	0.03	A				
	NB Off	1	500	780	0.52	C	1,410	0.94	E	780	0.52	C	1,410	0.94	E	780	0.52	C				



Table 4.14: 2015 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project						2015 Cumulative With Project					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Victoria Street	SB Direct On	1	1,000	102	0.07	A	80	0.05	A	102	0.07	A	80	0.05	A
	SB Off	2	500	1,553	0.69	C	2,100	0.93	E	1,557	0.69	C	2,106	0.94	E
	NB Direct On *	2	1,000	2,807	1.56	F	2,275	1.26	F	2,854	1.59	F	2,262	1.26	F
	NB Off	1	500	74	0.05	A	108	0.07	A	74	0.05	A	108	0.07	A
Fair Drive	SB Direct On	1	1,000	140	0.16	A	180	0.20	A	140	0.16	A	182	0.20	A
	SB Off	2	500	1,553	0.69	C	2,100	0.93	E	1,557	0.69	C	2,106	0.94	E
	NB Direct On	1	1,000	1,596	1.06	F	1,434	0.96	E	1,568	1.05	F	1,460	0.97	E
	NB Off	1	500	165	0.11	A	173	0.12	A	172	0.11	A	173	0.12	A
Baker Street	SB On	1	1,000	410	0.46	B	970	1.08	F	410	0.46	B	980	1.09	F
	SB Off	1	500	850	0.57	C	950	0.63	C	870	0.58	C	990	0.66	C
	NB Off	1	500	970	0.65	C	1,070	0.71	C	990	0.66	C	1,070	0.71	C
	SB Off	1	500	1,480	0.99	E	1,000	0.67	C	1,490	0.99	E	1,020	0.68	C
Paularino Avenue	NB On	1	1,000	592	0.66	C	919	1.02	F	576	0.64	C	916	1.02	F
	SB On Direct	1	1,000	740	0.82	D	980	1.09	F	740	0.82	D	980	1.09	F
MacArthur Boulevard	SB On Loop	1	1,000	150	0.17	A	700	0.78	D	150	0.17	A	710	0.79	D
	SB Off	1	500	1,830	1.22	F	1,060	0.71	C	1,830	1.22	F	1,070	0.71	C
	NB On Loop	1	1,000	620	0.69	C	760	0.84	D	620	0.69	C	760	0.84	D
	NB On Direct	1	1,000	280	0.19	A	1,160	0.77	D	350	0.23	A	1,170	0.78	D
	NB Off	2	500	1,720	0.76	D	950	0.42	B	1,710	0.76	D	960	0.43	B

SR-55



Table 4.14: 2015 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project						2015 Cumulative With Project									
		Number of Lanes	Ramp Length	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
Dyer Road	SB On	1	1,000	791	0.53	C		1,116	0.74	D		792	0.53	C		1,124	0.75	D	
	SB Off Loop	1	500	584	0.39	B		407	0.27	A		580	0.39	B		393	0.26	A	
	SB Off to Grand	1	500	516	0.34	B		295	0.20	A		505	0.34	B		291	0.19	A	
	NB On Direct	1	1,000	350	0.23	A		1,250	0.83	D		360	0.24	A		1,250	0.83	D	
	NB On Loop	1	1,000	550	0.61	C		1,020	1.13	F		550	0.61	C		1,020	1.13	F	
	NB Off	1	500	1,530	1.02	F		310	0.21	A		1,530	1.02	F		320	0.21	A	
Edinger Avenue	SB On	1	1,000	700	0.47	B		680	0.45	B		710	0.47	B		690	0.46	B	
	SB Off	1	500	900	0.60	C		610	0.41	B		900	0.60	C		620	0.41	B	
	NB On	1	1,000	938	0.63	C		1,064	0.71	C		946	0.63	C		1,071	0.71	C	
	NB Off	1	500	726	0.48	B		733	0.49	B		721	0.48	B		741	0.49	B	
McFadden Avenue	SB On	1	1,000	357	0.24	A		270	0.18	A		367	0.24	A		262	0.17	A	
	SB Off	2	500	632	0.28	A		809	0.36	B		630	0.28	A		818	0.36	B	
	NB On	1	1,000	1,266	0.84	D		955	0.64	C		1,273	0.85	D		961	0.64	C	
	NB Off	1	500	570	0.38	B		532	0.35	B		564	0.38	B		538	0.36	B	

SR-55 Continued

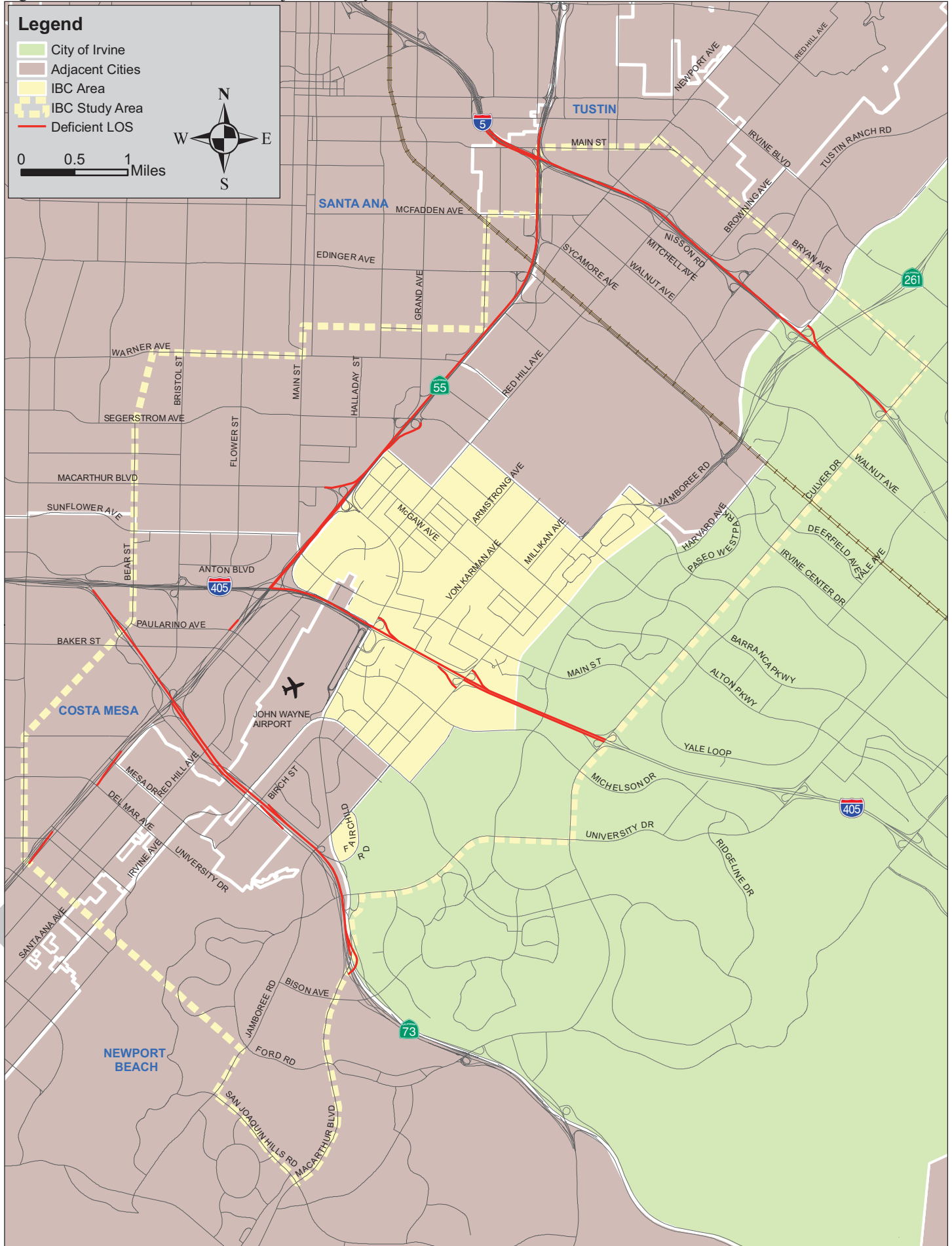


Table 4.14: 2015 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		2015 Cumulative Baseline No Project						2015 Cumulative With Project								
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS			
MacArthur Boulevard	SB On	1	1,000	102	0.07	A	909	0.61	C	102	0.07	A	102	0.07	A	920	0.61	C
	SB Off	2	500	1,174	0.39	B	1,026	0.34	B	1,162	0.39	B	1,162	0.39	B	1,036	0.35	B
	NB On*	1	1,000	824	0.92	E	854	0.95	E	865	0.96	E	865	0.96	E	867	0.96	E
	SB Off	1	500	680	0.45	B	720	0.48	B	680	0.45	B	680	0.45	B	730	0.49	B
	NB On	1	1,000	107	0.07	A	243	0.16	A	103	0.07	A	103	0.07	A	235	0.16	A
	SB On	1	1,000	140	0.09	A	370	0.25	A	140	0.09	A	140	0.09	A	360	0.24	A
Bison Avenue	SB Off	1	500	840	0.56	C	380	0.25	A	840	0.56	C	840	0.56	C	380	0.25	A
	NB On	1	1,000	220	0.15	A	750	0.50	B	230	0.15	A	230	0.15	A	750	0.50	B
	SB On	1	1,000	366	0.24	A	716	0.48	B	366	0.24	A	366	0.24	A	719	0.48	B
	SB Off	2	500	2,416	1.07	F	3,001	1.33	F	2,424	1.08	F	2,424	1.08	F	3,021	1.34	F
Jamboree Road	NB On	1	1,000	1,108	0.74	D	1,304	0.87	D	1,127	0.75	D	1,127	0.75	D	1,318	0.88	D
	NB Off	1	500	1,667	1.11	F	827	0.55	C	827	0.55	C	1,593	1.06	F	807	0.54	C
	SB Off	2	500	1,549	0.69	C	1,001	0.44	B	1,542	0.69	C	1,542	0.69	C	1,034	0.46	B
Campus Drive	NB On	1	1,000	547	0.36	B	1,702	1.13	F	569	0.38	B	569	0.38	B	1,730	1.15	F
	SB On	1	1,000	990	0.66	C	1,200	0.80	D	1,000	0.67	C	1,000	0.67	C	1,220	0.81	D
	SB Off	1	500	340	0.23	A	420	0.28	A	340	0.23	A	340	0.23	A	420	0.28	A
SR-73 at Bear	NB Off	1	500	610	0.41	B	1,300	0.87	D	610	0.41	B	610	0.41	B	1,310	0.87	D
	NB On	1	1,000	220	0.15	A	620	0.41	B	220	0.15	A	220	0.15	A	620	0.41	B
	SB On	1	1,000	1,112	0.74	D	835	0.56	C	1,165	0.78	D	889	0.59	C	889	0.59	C
Jamboree Road	NB Off	1	250	693	0.46	B	1,467	0.98	E	696	0.46	B	696	0.46	B	1,466	0.98	E
	NB On	1	1,000	318	0.21	A	825	0.55	C	323	0.22	A	323	0.22	A	814	0.54	C
Walnut Avenue	SB Off	1	500	884	0.59	C	333	0.22	A	868	0.58	C	868	0.58	C	338	0.23	A

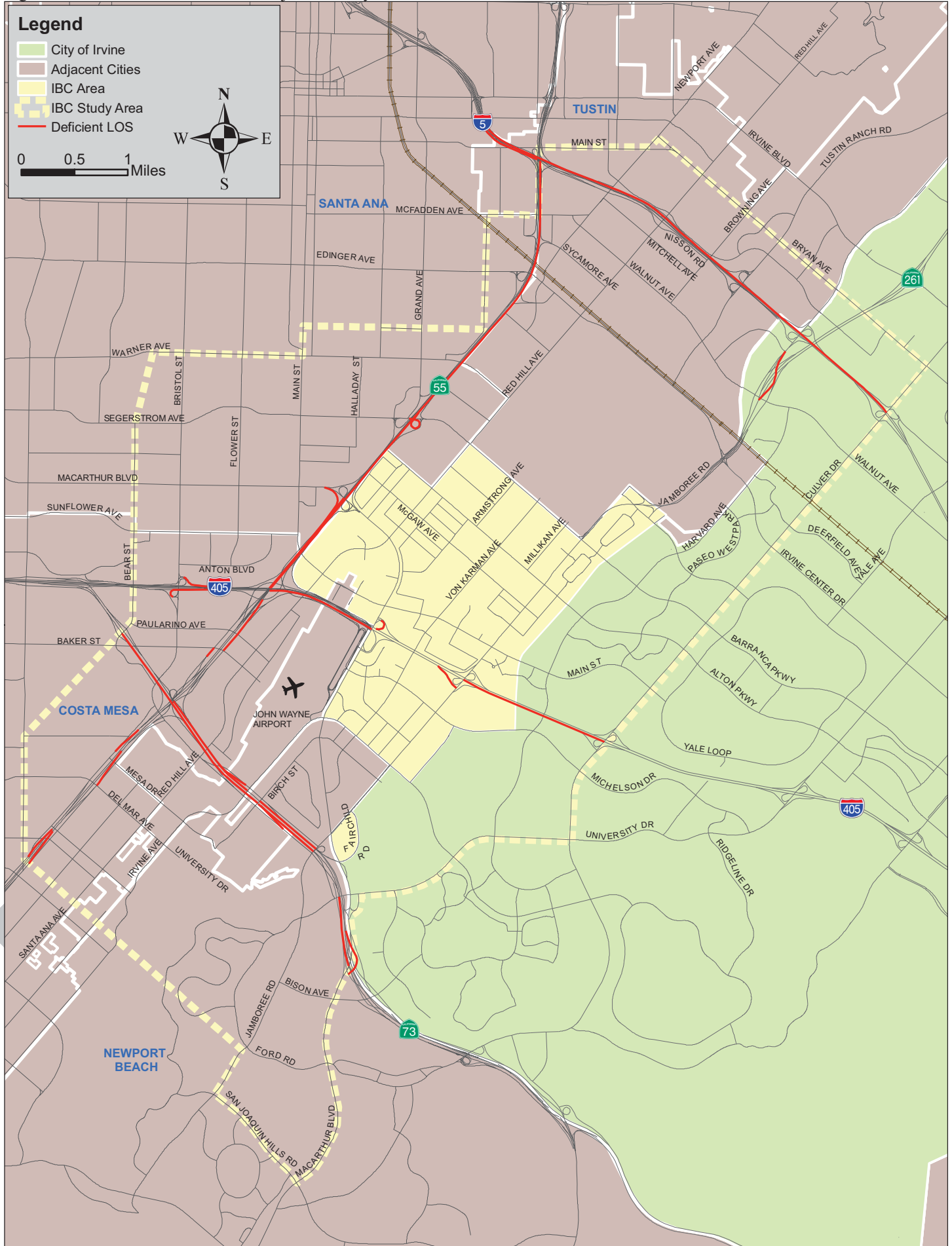
* Denotes Project Related Significant Impact in 2015

Figure 4.14: 2015 Cumulative With Project Freeway AM Peak Hour Deficiencies



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Figure 4.15: 2015 Cumulative With Project Freeway PM Peak Hour Deficiencies



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5.0 Post-2030 Future Conditions

5.1 Introduction

Similar to the 2015 scenarios, the City of Irvine’s traffic model, the Irvine Traffic Analysis Model (ITAM) 8.4, was used to forecast the traffic activity for the study area in the Post-2030 buildout scenario. The following describes the change in trips generated within the study area as a result of the Vision Plan land use assumptions. An assessment of deficiencies within the study area circulation system was performed to determine the appropriate mitigation requirements for implementation of the IBC Vision Plan.

As part of the IBC Vision plan, the 2,035 residential units currently in process would be expected to be completed by 2015, with the exception of 776 approved units at Park Place anticipated to be built after 2015; the remaining 3,950 units, plus the 776 approved units at Park Place, and associated density bonus units included as part of the Vision Plan are expected to be completed by project buildout or the Post-2030 timeframe.

POST-2030 TRAFFIC SCENARIOS

- 1. Cumulative Baseline No Project**
- 2. Cumulative With Project**

5.2 Post-2030 Cumulative Baseline No Project

The Post-2030 Cumulative Baseline No Project impact analysis uses the existing land use conditions within the IBC area as a baseline for comparison to the buildout of the IBC Vision Plan land uses. The specific improvements identified in the 1992 IBC Rezone EIR that are not fully funded are not included in the baseline assumptions. Buildout circulation improvements consistent with the City of Irvine’s General Plan (except those specific unfunded improvements identified in the 1992 IBC Rezone EIR) are assumed in the Post-2030 Cumulative Baseline No Project scenario. Additionally, buildout circulation improvements consistent with the adjacent Cities’ General Plans as well as OCTA’s buildout of arterial and freeway networks are also assumed in the Post-2030 Cumulative Baseline No Project scenario.

5.3 Post-2030 Cumulative Baseline No Project Land Use and Trip Generation

Table 5.1 identifies the Post-2030 Cumulative Baseline No Project land uses assumed in the IBC area. For each of the scenarios, the model uses socioeconomic trip generation of the future land uses to forecast the vehicle trips for the buildout Post-2030 horizon. **Table 5.2** displays the Trip Generation from ITAM for the Post-2030 Cumulative Baseline No Project scenario. Similar to previous scenarios, **Appendix A** presents trip generation and **Appendix J** presents land use quantities by type and IBC TAZs as well as a land use summary by individual project.

Table 5.1: Post-2030 Cumulative Baseline No Project Land Use Summary

Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2008 With Project	17,038	1,731	2,880	33,716	13,180	164	598
2015 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2015 With Project	10,929	1,482	2,572	27,810	14,196	348	598
Post-2030 No Project	5,011	1,341	2,322	26,381	14,701	348	174
Percent Growth (Post-2030 No Project vs. 2015 No Project)	0%	0%	0%	0%	0%	0%	0%
Percent Growth (Post-2030 No Project vs. 2008 No Project)	0%	0%	0%	0%	0%	0%	0%

Source: City of Irvine



Table 5.2: Post-2030 Cumulative Baseline No Project Trip Generation

Scenario	AM-Out	AM-In	PM-Out	PM-In	ADT
2008 No Project	11,191	28,990	27,316	17,367	508,690
2008 With Project	19,336	36,105	35,513	25,795	697,308
2015 No Project	11,191	28,990	27,316	17,367	508,690
2015 With Project	14,858	30,962	29,982	20,793	578,825
Post-2030 No Project	11,191	28,990	27,316	17,367	508,690
Percent Growth (Post-2030 No Project vs. 2015 No Project)	0%	0%	0%	0%	0%
Percent Growth (Post-2030 No Project vs. 2008 No Project)	0%	0%	0%	0%	0%

Source: ITAM

5.4 Post-2030 Cumulative Baseline No Project Daily Arterial Segment Analysis

The Post-2030 arterial traffic conditions are analyzed based on the forecast volumes and future lane configurations consistent with the City of Irvine’s and adjacent Cities’ General Plan buildout assumptions, except for these specific unfunded 1992 IBC Rezone EIR arterial improvements that are not included. **Table 5.3** presents study area roadway segment analysis, including information on jurisdiction, daily forecast volume, classification type, V/C ratio and LOS for each segment. Deficient segments within the City of Irvine under daily conditions are analyzed for peak hour performance. A comparison between the 2015 Cumulative Baseline No Project and With Project scenarios is provided under 2015 Cumulative With Project conditions analysis. Generally only those segments where the project has a theoretical impact are required to be evaluated further by the peak hour link methodology. In this study the peak hour link methodology has been applied to all of the forecast deficient roadway segments within the City of Irvine for No Project and With Project scenarios. Alternative methodologies for adjacent cities within the study area were conducted as requested by those adjacent cities.

Figure 5.1 and **Figure 5.2** display the arterial ADT and LOS for the Post-2030 Cumulative Baseline No Project scenario. Deficient segments in the City of Irvine are evaluated under Peak Hour conditions in the following section. For arterial segments in Costa Mesa, Newport Beach, and Tustin, arterial daily LOS impacts are addressed at the intersections. Santa Ana identifies significant project impacts based on the arterial daily LOS analysis.

Table 5.3: Post-2030 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 Cumulative Baseline No Project		
						Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	6D	10,100	0.18	A
2721	Baker Street	Bear Street to Bristol Street		CM	6D	29,600	0.53	A
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	6D	36,300	0.65	B
1294	Baker Street	SR 55 SB to SR 55 NB		CM	6D	37,800	0.68	B
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	6D	21,500	0.38	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	6D	6,200	0.11	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	6D	19,900	0.36	A
2733	Bristol Street	Segerstrom Avenue to West Alton Avenue		CM	6D	40,400	0.72	C
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	6D	44,200	0.79	C
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	6D	25,300	0.45	A
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	6D	44,400	0.79	C
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	8D	69,500	0.93	E
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	8D	69,900	0.93	E
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	8D	50,600	0.67	B
2732	Bristol Street	Paularino Avenue to Baker Street		CM	6D	40,400	0.72	C
2730	Bristol Street	Baker Street to SR 55		CM	6D	25,100	0.45	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	6D	23,000	0.41	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	4D	18,300	0.48	A



Table 5.3: Post-2030 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 Cumulative Baseline No Project		
						Volume	V/C	LOS
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	4D	12,900	0.34	A
2772	Flower Street	Segerstrom Avenue to MacArthur Boulevard		CM	4D	11,500	0.30	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	4D	13,100	0.34	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	4D	9,300	0.24	A
2756	Main Street	Sunflower Avenue to SR-55		CM	6D	24,400	0.44	A
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	2U	4,900	0.39	A
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	2U	4,800	0.38	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	4D	13,400	0.35	A
2742	Paularino Avenue	Bear Street to Bristol Street		CM	2U	8,400	0.67	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	4D	21,600	0.57	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	4D	23,500	0.62	B
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	4D	7,400	0.19	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	4D	17,300	0.46	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	6D	19,300	0.34	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	6D	21,000	0.38	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	6D	23,500	0.42	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	4D	9,000	0.24	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	2U	10,300	0.82	D
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4D	4,600	0.14	A
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	13,200	0.41	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	4D	16,800	0.53	A
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	6D	17,600	0.33	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	6D	18,100	0.34	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	17,300	0.32	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	6D	14,400	0.27	A
783	Alton Parkway	San Marino to Culver Drive		Irv	6D	24,000	0.44	A
735	Barranca Parkway (Dyer)	Pullman to Red Hill Avenue		Irv	6D	28,000	0.52	A
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	7D	30,300	0.48	A
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	7D	29,800	0.47	A
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	7D	22,000	0.35	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	6D	28,500	0.53	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	6D	25,000	0.46	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	23,900	0.44	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	6D	26,400	0.49	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	6D	26,000	0.48	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	4D	25,300	0.79	C
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	4D	23,200	0.73	C
539	Bryan Avenue	El Camino Real to Rubicon		Irv	4D	20,100	0.63	B
540	Bryan Avenue	Rubicon to Culver		Irv	4D	26,300	0.82	D
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	6D	18,900	0.35	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	4D	15,900	0.50	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	4D	15,000	0.47	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	4D	13,200	0.41	A
877	Campus Drive	Jamboree Road to Carlson Avenue	a	Irv	4D	28,800	0.90	D
879	Campus Drive	Carlson Avenue to University		Irv	4U	31,100	1.11	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	4D	5,700	0.18	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	Maj5D+ 1AUX	45,200	0.91	E
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	6D	57,200	1.06	F
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	6D	51,300	0.95	E



Table 5.3: Post-2030 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 Cumulative Baseline No Project		
						Volume	V/C	LOS
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	6D	48,200	0.89	D
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	Maj6D+ 1AUX	42,600	0.73	C
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	6D	46,600	0.86	D
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	6D	47,100	0.87	D
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	6D	51,300	0.95	E
220	Culver Drive	Alton Parkway to Main Street		Irv	6D	51,700	0.96	E
221	Culver Drive	Main Street to San Leandro		Irv	6D	52,700	0.98	E
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	6D	58,800	1.09	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	6D	59,400	1.10	F
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	6D	46,600	0.86	D
226	Culver Drive	Sandburg Way to University Drive		Irv	6D	38,700	0.72	C
1206	El Camino Real	Jamboree Road to Alliance		Irv	4D	24,700	0.77	C
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4D	5,500	0.17	A
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	4U	11,500	0.41	A
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	4U	13,900	0.50	A
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	4U	12,900	0.46	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	4D	14,800	0.46	A
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	4D	15,400	0.48	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	4D	17,100	0.53	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	4D	18,200	0.57	A
2829	Harvard Avenue	San Juan to San Leon		Irv	4D	17,000	0.53	A
178	Harvard Avenue	San Leon to Alton Parkway		Irv	4D	18,700	0.58	A
179	Harvard Avenue	Alton Parkway to San Marino		Irv	4D	21,700	0.68	B
180	Harvard Avenue	San Marino to Main Street		Irv	4D	22,500	0.70	B
181	Harvard Avenue	Main Street to Coronado		Irv	4D	15,300	0.48	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	4D	22,900	0.72	C
183	Harvard Avenue	Michelson Drive to University Drive		Irv	2U	10,800	0.83	D
675	Irvine Center Drive	Harvard Avenue to Hearthstone		Irv	6D	26,900	0.50	A
676	Irvine Center Drive	Hearthstone to Culver Drive		Irv	6D	25,500	0.47	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	8D	41,200	0.57	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	Maj7D+ 1AUX	63,900	0.95	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	8D	70,200	0.98	E
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	8D	64,300	0.89	D
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	5D	59,400	1.32	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)*		Irv	Exp8	95,600	0.53	A
136	Jamboree Road	Edinger Avenue to Warner Avenue*		Irv	Exp8	83,500	0.46	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	Exp8	77,800	0.43	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	8D	56,700	0.79	C
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	8D	54,500	0.76	C
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	8D	50,900	0.71	C
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	8D	49,300	0.68	B
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	8D	57,900	0.80	C
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	Maj8D+ 2AUX	55,300	0.68	B
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	Maj8D+ 2AUX	74,800	0.92	E
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	7D	56,500	0.90	D



Table 5.3: Post-2030 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 Cumulative Baseline No Project		
						Volume	V/C	LOS
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	8D	51,800	0.72	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	6D	46,200	0.86	D
152	Jamboree Road	Birch Street to Fairchild Road		Irv	7D	37,800	0.60	A
154	Jamboree Road	Fairchild Road to Koll Center		Irv	6D	37,900	0.70	B
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	6D	29,600	0.55	A
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	5D	38,200	0.85	D
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	7D	16,800	0.27	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	7D	27,100	0.43	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	Maj8D+2AUX	37,300	0.46	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	Maj8D+1AUX	53,100	0.69	B
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	8D	45,900	0.64	B
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	8D	38,500	0.53	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	6D	37,100	0.69	B
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	6D	44,000	0.81	D
817	Main Street	McDermott to Red Hill Avenue	a	Irv	6D	21,600	0.40	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	6D	18,800	0.35	A
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	6D	28,700	0.53	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	Maj7D+1AUX	37,000	0.55	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	Maj6D+1AUX	18,900	0.32	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	6D	17,300	0.32	A
823	Main Street	Siglo to Jamboree Road	a	Irv	6D	22,900	0.42	A
824	Main Street	Jamboree Road to Union	a	Irv	Maj6D+1AUX	19,200	0.33	A
825	Main Street	Veneto to Harvard Avenue		Irv	6D	10,600	0.20	A
826	Main Street	Harvard Avenue to San Mateo		Irv	4D	11,500	0.36	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	4D	9,000	0.28	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	4D	3,700	0.12	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	5,900	0.18	A
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	4D	6,900	0.22	A
1449	McGaw Avenue	Jamboree Road to Murphy Avenue		Irv	4D	2,600	0.08	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	5D	15,700	0.35	A
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	4D	11,900	0.37	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	Prim4D+1AUX	11,500	0.31	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	Prim5	19,200	0.45	A
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	Prim4D+2AUX	17,000	0.40	A
847	Michelson Drive	Carlson Avenue to Prince		Irv	Prim4D+1AUX	18,100	0.48	A
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	4D	17,300	0.54	A
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	4D	12,600	0.39	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	4D	17,900	0.56	A
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	6D	30,700	0.57	A
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	6D	30,900	0.57	A



Table 5.3: Post-2030 Cumulative Baseline No Project Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 Cumulative Baseline No Project		
						Volume	V/C	LOS
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	6D	32,900	0.61	B
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	6D	40,500	0.75	C
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	6D	13,000	0.24	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	6D	17,000	0.31	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	6D	37,100	0.69	B
188	University Drive	California Avenue to Mesa Road		Irv	6D	43,700	0.81	D
187	University Drive	Mesa Road to Campus Drive		Irv	6D	43,700	0.81	D
880	University Drive	Campus Drive to Harvard Avenue		Irv	6D	35,400	0.66	B
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	6D	33,100	0.61	B
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	6D	33,100	0.61	B
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	4D	28,300	0.88	D
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	4D	21,500	0.67	B
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	4D	21,200	0.66	B
103	Von Karman Avenue	Anchor to Main Street	a	Irv	4D	21,600	0.68	B
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	Prim4D+1AUX	21,500	0.57	A
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	Prim4D+1AUX	23,600	0.63	B
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	4D	19,500	0.61	B
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	4D	19,200	0.60	A
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	4D	17,300	0.54	A
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	Prim4D+1AUX	22,000	0.59	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	Maj6D+1AUX	23,100	0.39	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	Prim5D+1AUX	21,700	0.48	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	4D	19,400	0.61	B
597	Walnut Avenue	Mall Street to Culver Drive		Irv	4D	25,900	0.81	D
728	Warner Avenue	Construction North to Harvard Avenue		Irv	4D	14,500	0.45	A
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	4D	9,300	0.29	A
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	4D	10,300	0.32	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	4D	20,400	0.51	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	4D	24,200	0.61	B
874	Birch Street	East of MacArthur Boulevard		NB	4D	25,800	0.65	B
69	Birch Street	West of MacArthur Boulevard		NB	4D	16,500	0.41	A
875	Birch Street	East of Von Karman Avenue		NB	4D	25,200	0.63	B
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	6D	9,900	0.17	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	4D	16,600	0.42	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive*		NB	3D	9,300	0.39	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue*		NB	3D	15,000	0.63	B
1303	Bristol Street SB	Campus Drive to Birch Street*		NB	3D	21,100	0.88	D
1305	Bristol Street NB	Birch Street to Campus Drive*		NB	3D	18,500	0.77	C
1312	Bristol Street SB	West of Jamboree Road*		NB	4D	22,500	0.56	A
1580	Bristol Street NB	West of Jamboree Road*		NB	3D	20,000	0.83	D
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	6D	31,200	0.54	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	4D	9,100	0.23	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	6D	22,900	0.39	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	6D	21,400	0.37	A



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ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 Cumulative Baseline No Project		
						Volume	V/C	LOS
2768	Irvine Avenue	South of University Drive		NB	4D	22,300	0.56	A
156	Jamboree Road	South of MacArthur Boulevard		NB	8D	28,800	0.42	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	8D	40,300	0.59	A
157	Jamboree Road	South of Bristol Street		NB	6D	36,000	0.62	B
159	Jamboree Road	University Drive to Bison Avenue		NB	6D	35,100	0.61	B
1777	Jamboree Road	Bison Avenue to Ford Road		NB	6D	28,500	0.49	A
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	8D	24,100	0.35	A
75	MacArthur Boulevard	South of Birch Street		NB	6D	25,500	0.44	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	6D	25,900	0.45	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	6D	46,400	0.80	C
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	8D	78,100	1.15	F
2767	University Drive	East of Irvine Avenue		NB	2U	1,400	0.14	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	5D	19,200	0.40	A
112	Von Karman Avenue	South of Campus Drive		NB	4D	11,900	0.30	A
113	Von Karman Avenue	South of Birch Street		NB	4D	12,800	0.32	A
2795	Dyer Road	Main Street to Halladay Street		SA	6D	30,900	0.55	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	6D	33,500	0.60	A
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	6D	46,000	0.82	D
734	Dyer Road	SR-55 NB to Pullman Street		SA	6D	32,100	0.57	A
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	6D	23,000	0.41	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	6D	21,500	0.38	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	2U	4,900	0.41	A
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	2U	1,600	0.13	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	6D	35,800	0.64	B
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	6D	51,000	0.91	E
2796	Main Street	Segerstrom Avenue to Alton Avenue		SA	6D	25,300	0.45	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	6D	28,500	0.51	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	6D	29,800	0.53	A
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	6D	31,700	0.56	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	4D	3,900	0.10	A
2736	Segerstrom Avenue	Bristol Street to Flower Street		SA	6D	15,600	0.28	A
2771	Segerstrom Avenue	Flower Street to Main Street		SA	6D	23,600	0.42	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	6D	34,500	0.61	B
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	6D	42,000	0.75	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	6D	19,600	0.35	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	6D	21,900	0.39	A
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4U	6,200	0.25	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	4U	18,800	0.75	C
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	4U	18,600	0.74	C
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	4D	21,100	0.56	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	4D	21,800	0.58	A
44	Edinger Avenue	West of Newport Avenue		Tus	6D	52,300	0.93	E
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	6D	25,900	0.46	A
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	6D	31,300	0.56	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	4U	14,400	0.58	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	4U	9,000	0.36	A
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	4U	9,800	0.39	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	4D	15,900	0.42	A
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	6D	27,600	0.49	A



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ID	Arterial	Segment Limits	PA 36 City of Irvine	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 Cumulative Baseline No Project		
						Volume	V/C	LOS
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	6D	18,500	0.33	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	8,200	0.66	B
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	2U	5,800	0.46	A
6	Newport Avenue	El Camino Real to I-5		Tus	6D	37,000	0.66	B
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	6D	40,100	0.71	C
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	6D	39,100	0.69	B
49	Newport Avenue	North of Sycamore Avenue		Tus	6D	22,800	0.40	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	4U	34,600	1.38	F
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	2U	6,000	0.48	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	2U	5,200	0.42	A
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	6D	43,200	0.77	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	6D	39,000	0.69	B
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	6D	38,200	0.68	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	6D	26,700	0.47	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	6D	26,000	0.46	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	6D	27,500	0.49	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	6D	30,000	0.53	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	6D	28,300	0.50	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	6D	31,600	0.56	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	7D	31,800	0.48	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	4U	7,400	0.30	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	8,400	0.34	A
85	Tustin Ranch Road	North of I-5		Tus	6D	38,500	0.68	B
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	6D	36,600	0.65	B
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	15,900	0.64	B
587	Walnut Avenue	East of Newport Avenue		Tus	4U	20,800	0.83	D
589	Walnut Avenue	East of Red Hill Avenue		Tus	4D	17,400	0.46	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	4D	22,500	0.60	A
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	4D	21,000	0.56	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	6D	34,300	0.61	B

Table 5.3 indicates that the following segments are deficient under the Post-2030 No Project daily conditions, including two segments in Costa Mesa, 12 in Irvine, one in Newport Beach, one in Santa Ana, and two in Tustin. As noted above, LOS E indicates a deficient segment for all arterial segments outside Planning Area (PA) 36 within the City of Irvine. PA 36 segments are considered deficient at LOS F. Deficient segments under daily Post-2030 Cumulative Baseline No Project conditions include the following:

- 2728—Bristol Street from Anton Boulevard to I-405 Northbound Ramps (Costa Mesa)
- 2751—Bristol Street from I-405 Northbound Ramps to I-405 Southbound Ramps (Costa Mesa)
- 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- 726—Culver Drive from I-5 NB Ramps to I-5 SB Ramps (Irvine)
- 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- 214—Culver Drive from Scottsdale Drive to Walnut Avenue (Irvine)
- 219—Culver Drive from Barranca Parkway to Alton Parkway (Irvine)
- 220—Culver Drive from Alton Parkway to Main Street (Irvine)
- 221—Culver Drive from Main Street to San Leandro (Irvine)
- 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)



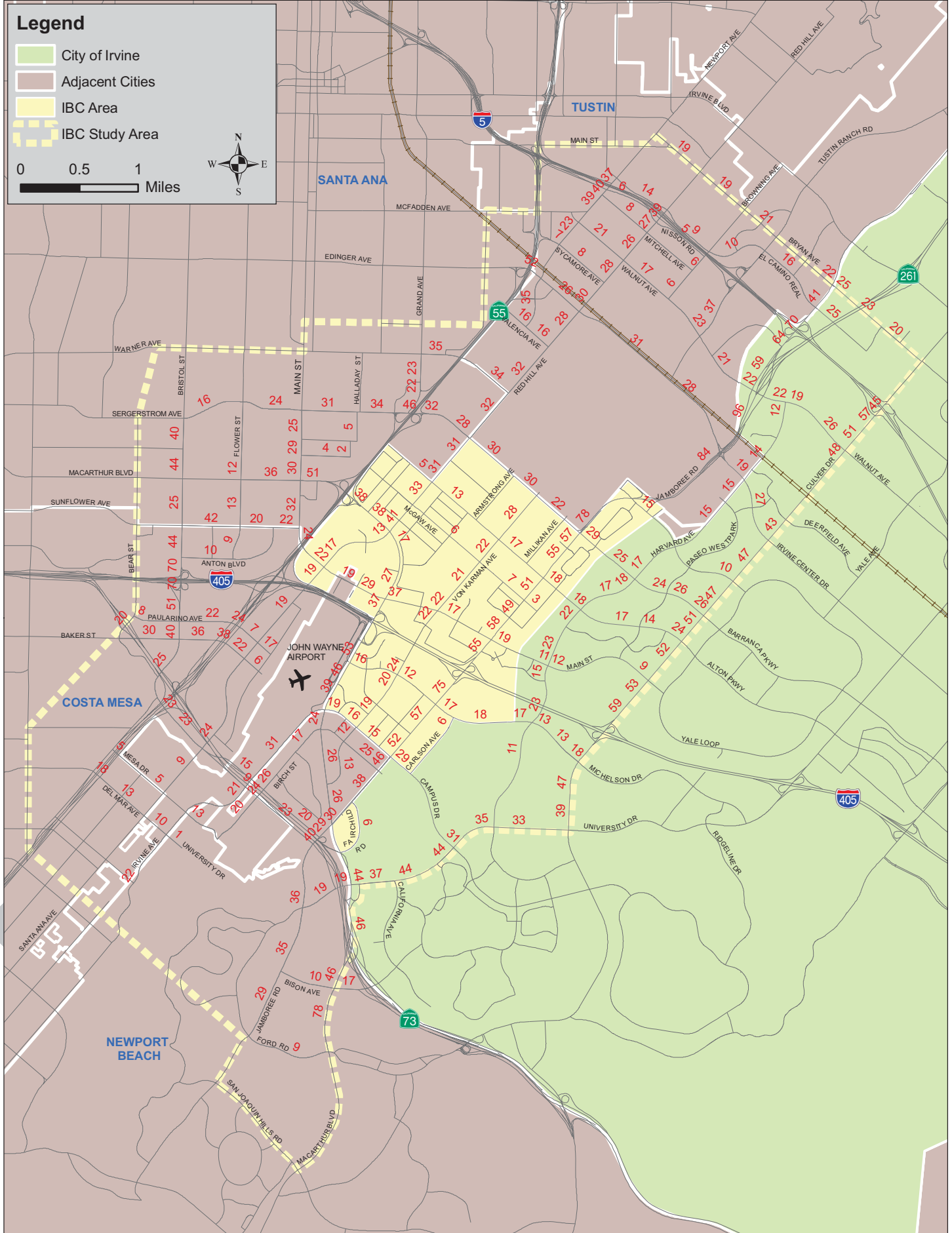
- 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- 1301—MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)
- 1884—MacArthur Boulevard from Main Street to SR-55 Southbound (Santa Ana)
- 44—Edinger Avenue West of Newport Avenue (Tustin)
- 1585—Newport Avenue from Valencia Avenue to Edinger Avenue (Tustin)

5.5 Post-2030 Cumulative Baseline No Project Peak Hour Link Analysis

Peak hour directional traffic volumes were obtained from forecast peak hour intersection turning movement volumes for intersections upstream and downstream for each deficient arterial segment. **Table 5.4** presents the results of peak hour link analysis, indicating that all arterial segments that are deficient within the City of Irvine under daily conditions operate at an acceptable LOS in both peak hours, performing at LOS D or better, and hence no mitigation measures are recommended at this time for these facilities.

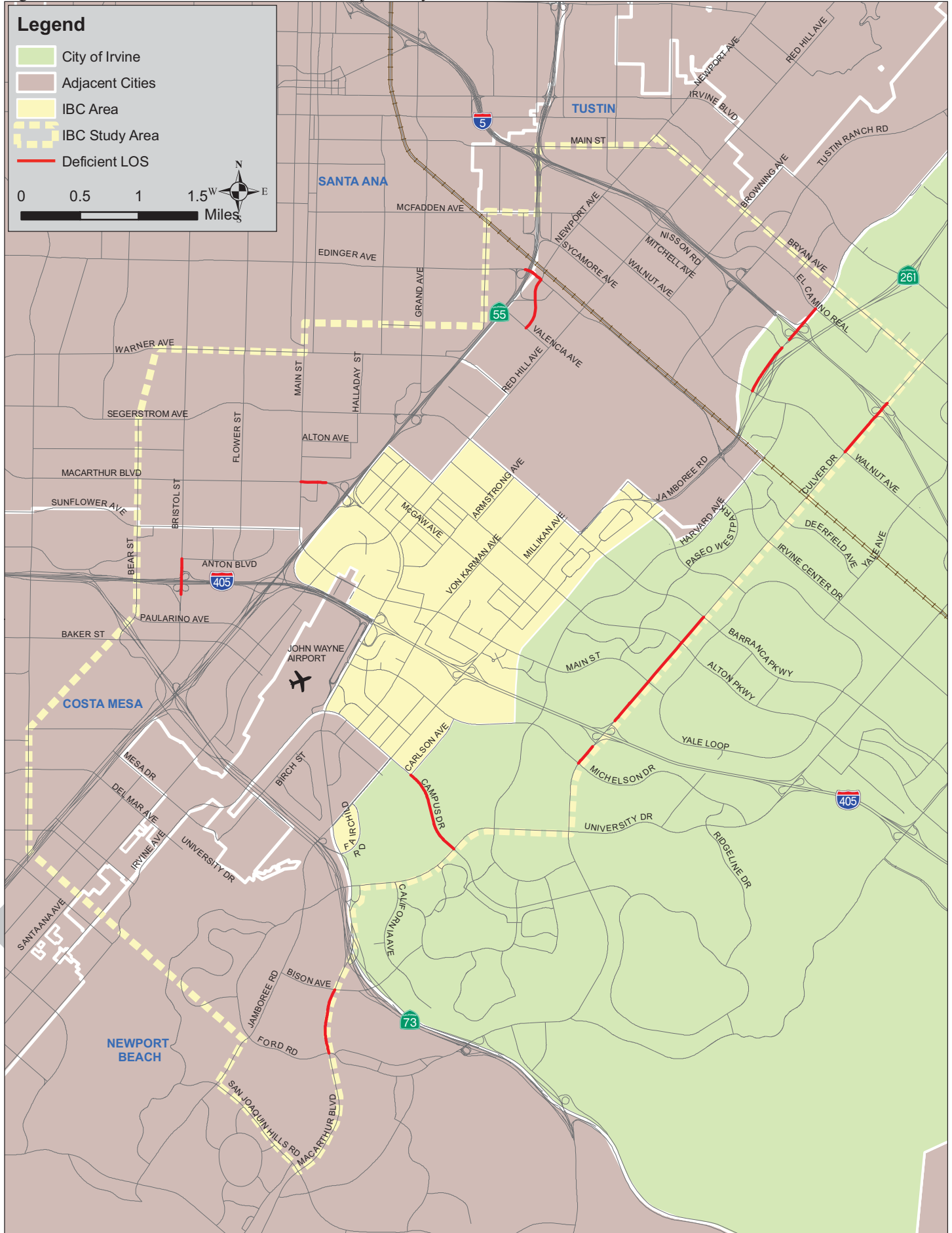
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Figure 5.1: Post-2030 Cumulative Baseline No Project Daily Arterial ADT (in thousands)



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Figure 5.2: Post-2030 Cumulative Baseline No Project Daily Arterial Deficiencies



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Table 5.4: Post-2030 Cumulative Baseline No Project Peak Hour Link Analysis

ID	Arterial	Segment Limits	Facility Type	Peak Hour Volume				AM				PM			
				AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
				NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
879	Campus Drive	Carlson Avenue to University	4U	1,290	1,550	1,800	1,440	0.40	A	0.39	A	0.56	A	0.36	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps	Maj5D+1 AUX	1,730	2,540	3,020	1,750	0.36	A	0.64	B	0.63	B	0.44	A
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,430	2,570	2,270	2,390	0.30	A	0.54	A	0.47	A	0.50	A
214	Culver Drive	Scottsdale Drive to Walnut Avenue	6D	1,420	2,660	2,440	2,120	0.30	A	0.55	A	0.51	A	0.44	A
219	Culver Drive	Barranca Parkway to Alton Parkway	6D	1,330	2,590	2,600	1,590	0.28	A	0.54	A	0.54	A	0.33	A
220	Culver Drive	Alton Parkway to Main Street	6D	1,390	2,760	2,740	1,900	0.29	A	0.58	A	0.57	A	0.40	A
221	Culver Drive	Main Street to San Leandro	6D	1,380	2,820	2,650	1,860	0.29	A	0.50	A	0.55	A	0.33	A
222	Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,350	2,150	2,860	1,840	0.28	A	0.38	A	0.60	A	0.33	A
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,320	2,270	2,420	1,700	0.28	A	0.41	A	0.50	A	0.30	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D+1 AUX	1,830	2,290	3,620	2,160	0.29	A	0.41	A	0.57	A	0.39	A
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	8D	1,940	2,900	3,270	2,180	0.30	A	0.45	A	0.51	A	0.34	A
133	Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,720	2,040	3,290	2,409	0.36	A	0.64	B	0.69	B	0.75	C

5.6 Post-2030 Cumulative Baseline No Project Peak Hour Intersection Analysis

ICU analysis was developed for every intersection within the study area for the Post-2030 Cumulative Baseline No Project scenario. The intersection analysis includes both a reporting of intersection ICU and the corresponding LOS and is displayed in **Table 5.5**. For shared jurisdictions, the more conservative methodology was utilized. Intersection improvements in each jurisdiction are consistent with that Cities’ General Plan buildout assumptions. Within the City of Irvine, those specific unfunded intersection improvements identified in the 1992 IBC Rezone EIR were not assumed in the network. There are a considerably larger number of deficient intersections under Post-2030 conditions than the 2015 conditions largely due to increased development throughout the region.

Figure 5.3 and **Figure 5.4** graphically present the AM and PM peak hour intersection ICU for deficient intersections for the Post-2030 Cumulative Baseline No Project scenario. **Appendix B** presents detailed ICU worksheets for study intersections.



Table 5.5: Post-2030 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino			CM	1.02	F	0.66	B
11	SR-55 Frontage Road NB Ramps at Paularino			CM	0.78	C	0.83	D
12	SR-55 SB Frontage Road at Baker Street			CM	1.18	F	0.76	C
13	SR-55 NB Frontage Road at Baker Street			CM	1.01	F	0.82	D
50	Red Hill Avenue at Paularino Avenue			CM	0.70	B	0.84	D
51	Red Hill Avenue at Baker Street			CM	0.67	B	0.86	D
52	Red Hill Avenue at Bristol Street			CM	0.73	C	0.53	A
541	Bear Street at Baker Street			CM	0.76	C	0.68	B
542	Bear Street at Paularino Avenue			CM	0.45	A	0.65	B
545	Bristol Street at Sunflower Avenue			CM	0.67	B	0.79	C
546	Bristol Street at Anton Boulevard			CM	0.43	A	0.71	C
547	Bristol Street and Paularino Avenue			CM	0.64	B	0.85	D
548	Bristol Street at Baker Street			CM	0.60	A	0.73	C
549	Newport Boulevard SB at Bristol Street			CM	0.25	A	0.50	A
550	Newport Boulevard NB at Bristol Street			CM	0.32	A	0.40	A
715	Bristol Street at I-405 NB Off Ramps			CM	0.49	A	0.68	B
716	Bristol Street at I-405 SB Off Ramps			CM	0.71	C	0.69	B
717	Bear Street at SR-73 SB Ramps			CM	0.56	A	0.88	D
718	Bear Street at SR-73 NB Ramps			CM	0.40	A	0.66	B
721	Flower Street at Sunflower Avenue			CM	0.42	A	0.54	A
722	Anton Boulevard at Sunflower Avenue			CM	0.39	A	0.35	A
726	Main Street at Sunflower Avenue			CM	0.59	A	0.75	C
735	Newport Boulevard NB at Del Mar Avenue			CM	0.66	B	0.50	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue			CM	0.41	A	0.52	A
737	Newport Boulevard NB at Mesa Road			CM	0.29	A	0.32	A
738	Newport Boulevard SB at Mesa Road			CM	0.22	A	0.60	A
45	Red Hill Avenue at McGaw Avenue	a		Irv	0.57	A	0.69	B
47	Red Hill Avenue at MacArthur Avenue	a		Irv	0.74	C	0.82	D
48	Red Hill Avenue at Sky Park North	a		Irv	0.41	A	0.58	A
49	Red Hill Avenue at Main Street	a		Irv	0.73	C	0.82	D
70	Gillette Avenue at Main Street	a		Irv	0.38	A	0.73	C
77	MacArthur Boulevard at Sky Park East	a		Irv	0.30	A	0.41	A
78	MacArthur Boulevard at Main Street	a		Irv	0.60	A	0.80	C
79	MacArthur Boulevard at I-405 NB Ramps	a		Irv	0.70	B	0.70	B
80	MacArthur Boulevard at I-405 SB Ramps	a		Irv	0.60	A	0.74	C
82	MacArthur Boulevard at Michelson Drive	a		Irv	0.65	B	0.85	D
83	MacArthur Boulevard at Douglas Avenue	a		Irv	0.39	A	0.43	A
87	Dupont Drive at Michelson Drive	a		Irv	0.39	A	0.43	A
98	Von Karman Avenue at Alton Parkway	a		Irv	0.69	B	0.89	D
99	Von Karman Avenue at McGaw Avenue	a		Irv	0.62	B	0.81	D
100	Von Karman Avenue at Main Street	a		Irv	0.71	C	0.80	C
101	Von Karman Avenue at Morse Avenue	a		Irv	0.48	A	0.60	A
102	Von Karman Avenue at Michelson Drive	a		Irv	0.61	B	0.83	D
103	Von Karman Avenue at Dupont Drive	a		Irv	0.46	A	0.57	A
104	Von Karman Avenue at Martin	a		Irv	0.38	A	0.60	A
115	Millikan Avenue at Alton Parkway	a		Irv	0.42	A	0.44	A
116	Cartwright Road at Main Street	a		Irv	0.36	A	0.57	A



Table 5.5: Post-2030 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
119	Teller Avenue at Michelson Drive	a		Irv	0.49	A	0.57	A
128	Jamboree Road at I-5 NB Ramps	b		Irv	0.67	B	0.73	C
129	Jamboree Road at I-5 SB Ramps	b		Irv	0.68	B	0.63	B
130	Jamboree Road at Michelle Drive			Irv	0.76	C	0.71	C
131	Jamboree Road SB at Walnut Avenue			Irv	0.47	A	0.55	A
132	Jamboree Road NB at Walnut Avenue			Irv	0.57	A	0.72	C
137	Jamboree Road at Beckman Avenue	a		Irv	0.69	B	0.75	C
138	Jamboree Road at Alton Parkway	a		Irv	0.78	C	0.80	C
139	Jamboree Road at McGaw Avenue	a		Irv	0.62	B	0.70	B
140	Jamboree Road at Kelvin Avenue	a		Irv	0.64	B	0.64	B
141	Jamboree Road at Main Street	a		Irv	0.82	D	0.92	E
143	Jamboree Road at I-405 NB Ramps	a,b		Irv	0.65	B	0.84	D
144	Jamboree Road at I-405 SB Ramps	a,b		Irv	0.80	C	0.88	D
145	Jamboree Road at Michelson Drive	a		Irv	0.74	C	1.05	F
146	Jamboree Road at Dupont Road	a		Irv	0.69	B	0.73	C
164	Construction Circle South at Barranca Parkway	a		Irv	0.44	A	0.61	B
168	Murphy Avenue at Alton Parkway	a		Irv	0.43	A	0.71	C
170	Union at Main Street	a		Irv	0.37	A	0.56	A
171	Veneto at Main Street			Irv	0.37	A	0.52	A
174	Carlson Avenue at Michelson Drive	a		Irv	0.49	A	0.61	B
175	Carlson Avenue at Campus Drive	a		Irv	0.69	B	0.74	C
180	Harvard Avenue at Walnut Avenue			Irv	0.54	A	0.53	A
183	Harvard Avenue at Warner Avenue			Irv	0.68	B	0.71	C
184	Harvard Avenue at Barranca Parkway			Irv	0.61	B	0.68	B
185	Harvard Avenue at Alton Parkway			Irv	0.63	B	0.74	C
186	Harvard Avenue at Main Street			Irv	0.55	A	0.74	C
187	Harvard Avenue at Coronado			Irv	0.53	A	0.57	A
188	Harvard Avenue at Michelson Drive			Irv	0.64	B	0.91	E
189	Harvard Avenue at University Drive			Irv	0.82	D	0.80	C
190	University Drive at Campus Drive		√	Irv	0.77	C	0.79	C
191	Mesa Road at University Drive			Irv	0.48	A	0.79	C
192	California Avenue at University Drive			Irv	0.83	D	0.85	D
193	MacArthur Boulevard NB at University Drive			Irv	0.66	B	0.70	B
196	Hearthstone Boulevard at Irvine Center Drive			Irv	0.67	B	0.66	B
198	Paseo Westpark at Warner Avenue			Irv	0.58	A	0.48	A
199	Paseo Westpark at Barranca Parkway			Irv	0.54	A	0.60	A
200	Paseo Westpark at Alton Parkway			Irv	0.55	A	0.59	A
201	Paseo Westpark at Main Street			Irv	0.61	B	0.52	A
221	Culver Drive at Bryan Avenue			Irv	0.89	D	0.74	C
222	Culver Drive at Trabuco Road			Irv	0.78	C	0.77	C
223	Culver Drive at I-5 SB Ramps			Irv	0.60	A	0.65	B
224	Culver Drive at Walnut Avenue		√	Irv	0.76	C	0.83	D
225	Culver Drive at Deerfield Drive			Irv	0.80	C	0.84	D
226	Culver Drive at Irvine Center Drive		√	Irv	0.72	C	0.66	B
227	Culver Drive at Warner Avenue			Irv	0.80	C	0.63	B
228	Culver Drive at Barranca Parkway		√	Irv	0.83	D	0.73	C
229	Culver Drive at Alton Parkway		√	Irv	0.76	C	0.80	C
230	Culver Drive at Main Street			Irv	0.72	C	0.71	C
231	Culver Drive at San Leandro			Irv	0.79	C	0.59	A
232	Culver Drive at I-405 NB Ramps			Irv	0.56	A	0.92	E



Table 5.5: Post-2030 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
233	Culver Drive at I-405 SB Ramps			Irv	0.55	A	0.62	B
234	Culver Drive at Michelson Drive			Irv	0.60	A	0.77	C
235	Culver Drive at University Drive		√	Irv	0.55	A	0.70	B
337	Von Karman Avenue at Quartz	a		Irv	0.57	A	0.73	C
439	Bixby at Michelson Drive			Irv	0.28	A	0.45	A
440	Siglo at Main Street			Irv	0.37	A	0.51	A
472	Obsidian at Michelson Drive	a		Irv	0.45	A	0.34	A
84	MacArthur Boulevard at Campus Drive	a		Irv/NB	0.62	B	0.68	B
105	Von Karman Avenue at Campus Drive	a		Irv/NB	0.56	A	0.87	D
121	Teller Avenue at Campus Drive	a		Irv/NB	0.39	A	0.50	A
147	Jamboree Road at Campus Drive	a		Irv/NB	0.77	C	0.73	C
149	Jamboree Road at Fairchild Road	a		Irv/NB	0.71	C	0.74	C
150	Jamboree Road at MacArthur Boulevard	a,b		Irv/NB	0.82	D	0.76	C
176	Fairchild Avenue at MacArthur Boulevard	a		Irv/NB	0.85	D	0.74	C
43	Red Hill Avenue at Deere Avenue	a		Irv/SA	0.48	A	0.72	C
44	Red Hill Avenue at Alton Parkway	a		Irv/SA	0.54	A	0.89	D
9	SR-55 NB Ramps at MacArthur Boulevard	a		Irv/SA	0.83	D	0.60	A
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a		Irv/SA/Tus	0.65	B	0.75	C
71	Armstrong Avenue at Barranca Avenue	a		Irv/Tus	0.44	A	0.49	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca	a		Irv/Tus	0.55	A	0.73	C
112	Myford Road at Michelle Drive			Irv/Tus	0.31	A	0.44	A
113	Myford Road at Walnut Avenue			Irv/Tus	0.48	A	0.53	A
114	Millikan Avenue/District Way at Barranca Parkway	a		Irv/Tus	0.37	A	0.72	C
126	Jamboree Road at Bryan Avenue			Irv/Tus	0.72	C	0.64	B
127	Jamboree Road at El Camino Real			Irv/Tus	0.70	B	0.72	C
134	Loop Road/Park Avenue at Warner Avenue			Irv/Tus	0.43	A	1.05	F
136	Jamboree Road at Barranca Avenue	a		Irv/Tus	0.86	D	1.03	F
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive			Irv/Tus	0.63	B	0.64	B
182	Harvard Avenue at Paseo Westpark/Moffett Drive			Irv/Tus	0.51	A	0.48	A
441	Loop Road at Jamboree Road SB Ramps			Irv/Tus	0.28	A	0.19	A
61	Campus Drive at Airport Way			NB	0.41	A	0.70	B
62	Campus Drive at Bristol Street NB			NB	0.72	C	0.92	E
63	Campus Drive at Bristol Street SB			NB	0.83	D	0.57	A
64	Birch Street at Bristol Street NB			NB	0.72	C	0.70	B
65	Birch Street at Bristol Street SB			NB	0.50	A	0.59	A
85	MacArthur Boulevard at Birch Street			NB	0.73	C	0.92	E
106	Von Karman Avenue at Birch Street			NB	0.48	A	0.62	B
107	Von Karman Avenue at MacArthur Boulevard			NB	0.35	A	0.53	A
148	Jamboree Road at Birch Street			NB	0.47	A	0.56	A
151	Jamboree Road at Bristol Street NB			NB	0.41	A	0.53	A
153	Jamboree Road at Bristol Street SB			NB	0.45	A	0.51	A
154	Jamboree Road at Eastbluff Drive			NB	0.61	B	0.60	A
155	Jamboree Road at Bison Avenue			NB	0.45	A	0.52	A
156	Jamboree Road at Ford Road			NB	0.63	B	0.74	C
178	MacArthur Boulevard at Bison Avenue			NB	0.62	B	0.71	C
179	MacArthur Boulevard at Ford Road			NB	0.69	B	0.71	C
194	MacArthur Boulevard SB at University Drive			NB	0.72	C	0.65	B
195	SR-73 SB Ramps at University Drive			NB	0.76	C	0.58	A
733	Irvine Avenue at Mesa Drive			NB/OC	0.51	A	0.71	C
734	Irvine Avenue at University Drive/Del Mar Avenue			NB/OC	0.47	A	0.58	A



Table 5.5: Post-2030 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
741	Jamboree Road at San Joaquin Hills Road			NB	0.56	A	0.56	A
742	MacArthur Boulevard at San Joaquin Hills Road			NB	0.63	B	0.63	B
4	SR-55 SB Ramps at Edinger Avenue	b		SA	0.74	C	0.73	C
5	Hotel Terrace Drive at Dyer Road			SA	0.59	A	0.66	B
6	Grand Avenue at Dyer Road			SA	0.56	A	0.64	B
7	SR-55 NB Ramps at Dyer Road			SA	0.85	D	0.86	D
8	SR-55 SB Ramps at MacArthur Boulevard	c		SA	0.76	C	0.61	B
29	Pullman Street at Barranca Parkway			SA	0.53	A	0.82	D
543	Bristol Street at Segerstrom Avenue			SA	0.85	D	0.95	E
544	Bristol Street at MacArthur Boulevard			SA	0.67	B	0.83	D
719	Flower Street at Segerstrom Avenue			SA	0.87	D	0.86	D
720	Flower Street at MacArthur Boulevard			SA	0.63	B	0.82	D
723	Main Street at Segerstrom Avenue			SA	0.81	D	0.89	D
724	Main Street at Alton Avenue			SA	0.36	A	0.49	A
725	Main Street and MacArthur Boulevard (w/o SR-55)	c		SA	0.61	B	0.60	A
727	Halladay Street at Dyer Road			SA	0.58	A	0.68	B
728	Halladay Street East at Alton Parkway			SA	0.21	A	0.31	A
729	Halladay Street West at Alton Parkway			SA	0.20	A	0.25	A
730	Grand Avenue at Warner Avenue			SA	0.79	C	0.92	E
731	Grand Avenue at SR-55 SB Ramps			SA	0.57	A	0.45	A
3	Newport Avenue at Edinger Avenue			Tus	0.92	E	0.78	C
14	Walnut Avenue to McFadden Avenue			Tus	0.51	A	0.56	A
18	Newport Avenue at Bryan Avenue			Tus	0.58	A	0.65	B
19	Newport Avenue at Main Street			Tus	0.59	A	0.75	C
20	Newport Avenue at El Camino Real			Tus	0.78	C	0.74	C
21	Newport Avenue at I-5 NB Ramps			Tus	0.66	B	0.58	A
22	Newport Avenue at I-5 SB Ramps			Tus	0.53	A	0.74	C
23	Newport Avenue at McFadden Avenue			Tus	0.68	B	0.54	A
24	Newport Avenue at Walnut Avenue			Tus	0.91	E	0.93	E
25	Newport Avenue at Sycamore Avenue			Tus	0.63	B	0.64	B
27	Del Amo Avenue at Edinger Avenue			Tus	0.49	A	0.42	A
35	Red Hill Avenue at Bryan Avenue			Tus	0.60	A	0.61	B
36	Red Hill Avenue at El Camino Real			Tus	0.62	B	0.83	D
37	Red Hill Avenue at Nisson Road			Tus	0.64	B	0.69	B
38	Red Hill Avenue at Walnut Avenue			Tus	0.76	C	0.84	D
39	Red Hill Avenue at Sycamore Avenue			Tus	0.63	B	0.60	A
40	Red Hill Avenue at Edinger Avenue			Tus	0.73	C	0.78	C
55	Browning Avenue at Bryan Avenue			Tus	0.56	A	0.67	B
56	Browning Avenue at El Camino Real			Tus	0.33	A	0.43	A
58	Browning Avenue at Walnut Avenue			Tus	0.45	A	0.62	B
92	Tustin Ranch Road at Bryan Avenue			Tus	0.81	D	0.86	D
93	Tustin Ranch Road at El Camino Real			Tus	1.02	F	0.84	D
94	Tustin Ranch Road at I-5 NB Ramps			Tus	0.73	C	0.52	A
95	Tustin Ranch Road at I-5 SB Ramps			Tus	0.85	D	0.57	A
96	Tustin Ranch Road at Walnut Avenue			Tus	0.79	C	0.68	B
109	Myford Road at Bryan Avenue			Tus	0.55	A	0.55	A
110	Myford Road at El Camino Real			Tus	0.38	A	0.61	B
111	Franklin Avenue at Walnut Avenue			Tus	0.56	A	0.97	E
133	Jamboree Road at Edinger Avenue	b		Tus	0.51	A	0.68	B
445	Tustin Ranch Road at Warner Avenue North			Tus	0.49	A	0.56	A



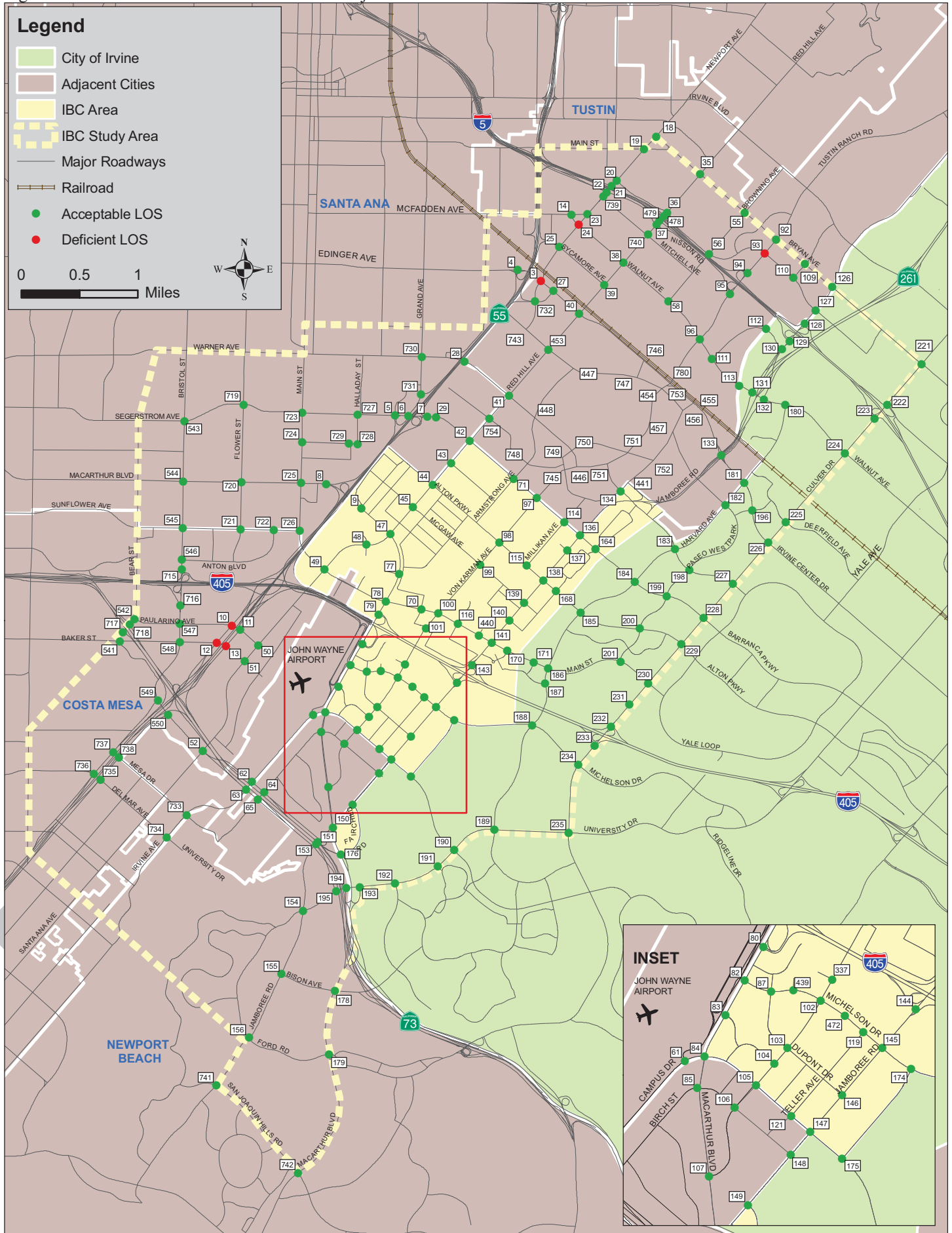
Table 5.5: Post-2030 Cumulative Baseline No Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project			
					AM		PM	
					ICU	LOS	ICU	LOS
446	Tustin Ranch Road at Warner Avenue South			Tus	0.65	B	0.55	A
447	Armstrong Avenue/Severyns Road at Valencia Avenue			Tus	0.54	A	0.43	A
448	Armstrong Avenue at Warner Avenue			Tus	0.40	A	0.49	A
453	Red Hill Avenue at Valencia Avenue			Tus	0.66	B	0.77	C
454	Tustin Ranch Road at Valencia Avenue			Tus	0.54	A	0.54	A
455	East Connector-Jamboree Plaza at Edinger Avenue			Tus	0.34	A	0.33	A
456	North Loop Road at Valencia Avenue			Tus	0.25	A	0.24	A
457	North Loop Road at Moffett Drive			Tus	0.13	A	0.16	A
478	Red Hill Avenue at I-5 NB Ramps			Tus	0.83	D	0.63	B
479	Red Hill Avenue at I-5 SB Ramps			Tus	0.82	D	0.82	D
480	Tustin Ranch Road Connector at Edinger Avenue			Tus	0.19	A	0.23	A
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue			Tus	0.61	B	0.89	D
739	Newport Avenue at Mitchell Avenue			Tus	0.67	B	0.70	B
740	Red Hill Avenue at Mitchell Avenue			Tus	0.62	B	0.64	B
743	Newport Avenue at Valencia Avenue			Tus	0.59	A	0.73	C
745	Tustin Ranch Road at Park Avenue			Tus	0.57	A	0.51	A
746	Kensington Park Drive at Edinger Avenue			Tus	0.58	A	0.62	B
747	Kensington Park Drive at Valencia Avenue			Tus	0.32	A	0.33	A
748	Armstrong Avenue at A Street			Tus	0.50	A	0.58	A
749	Park Avenue at A Street			Tus	0.67	B	0.52	A
750	Legacy Road at Warner Avenue			Tus	0.44	A	0.50	A
751	Tustin Ranch Road at Legacy Road			Tus	0.46	A	0.44	A
752	Legacy Road at North Loop Road			Tus	0.21	A	0.17	A
753	Tustin Ranch Road at Edinger Avenue Connector			Tus	0.51	A	0.49	A
28	Pullman Street at Warner Avenue			Tus/SA	0.57	A	0.64	B
41	Red Hill Avenue at Warner Avenue			Tus/SA	0.85	D	0.82	D
754	Red Hill Avenue at Carnegie Avenue/A Street			Tus/SA	0.61	B	0.93	E

Denotes intersection operating at a deficient LOS

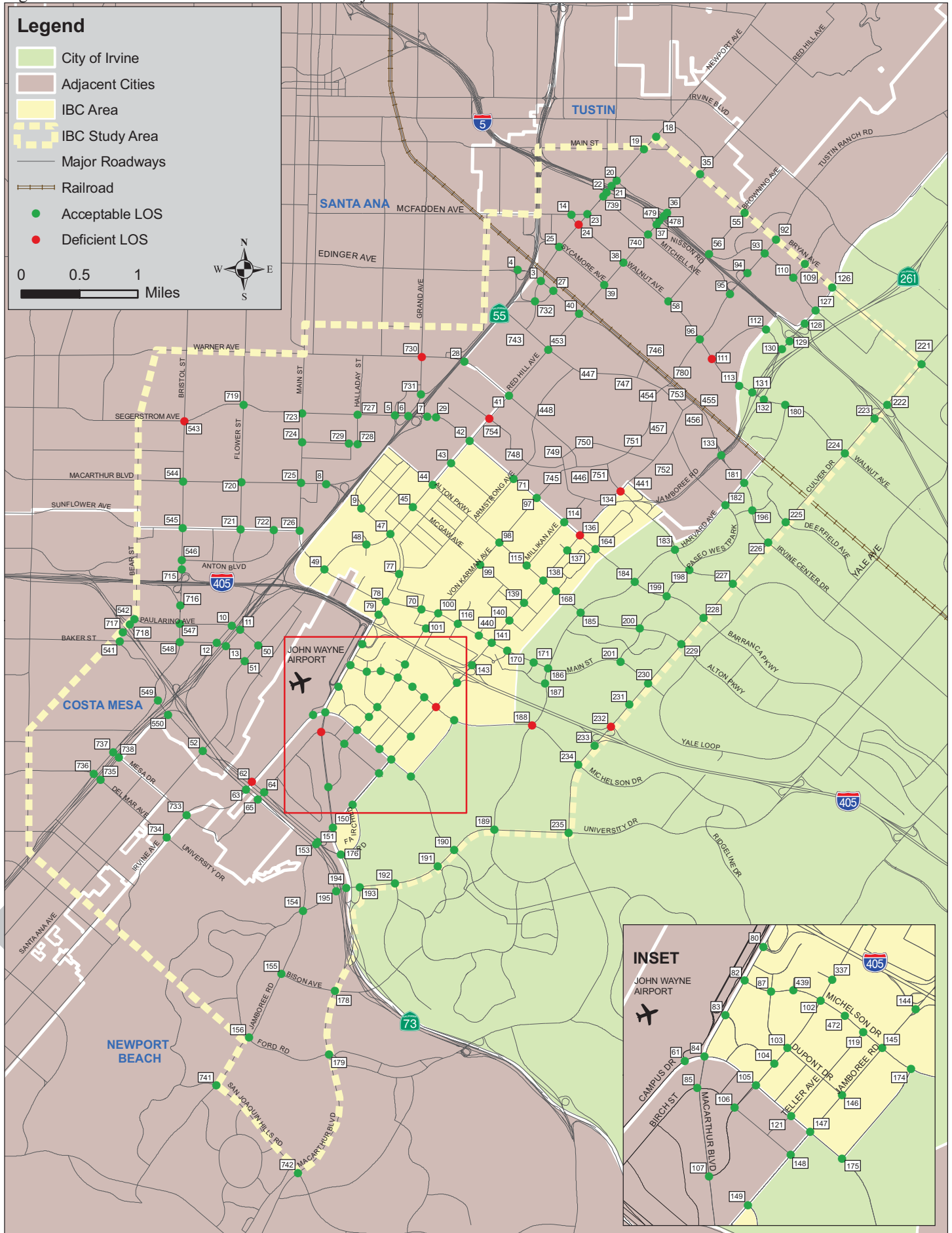
- a Intersection within Irvine Planning Area 36--LOS E acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E acceptable
- √ ATMS credit-Reduction of 0.05 applied to ICU

Figure 5.3: Post-2030 Cumulative Baseline No Project AM Peak Hour Intersection Deficiencies



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Figure 5.4: Post-2030 Cumulative Baseline No Project PM Peak Hour Intersection Deficiencies



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Based on the Post-2030 Cumulative Baseline No Project intersection ICU analysis, the following intersections within the study area are forecast to operate at a deficient LOS:

AM Peak Hour:

- #10: SR-55 Frontage Road Southbound Ramps at Paularino Avenue (Costa Mesa)
- #12: SR-55 Southbound Frontage Road at Baker Street (Costa Mesa)
- #13: SR-55 Northbound Frontage Road at Baker Street (Costa Mesa)
- #3: Newport Avenue at Edinger Avenue (Tustin)
- #24: Newport Avenue at Walnut Avenue (Tustin)
- #93: Tustin Ranch Road at El Camino Real (Tustin)

PM Peak Hour:

- #145: Jamboree Road at Michelson Drive (Irvine)
- #188: Harvard Avenue at Michelson Drive (Irvine)
- #232: Culver Drive at I-405 Northbound Ramps (Irvine)
- #134: Loop Road/Park Avenue at Warner Avenue (Irvine/Tustin)
- #136: Jamboree Road at Barranca Avenue (Irvine/Tustin)
- #62: Campus Drive at Bristol Street (Newport Beach)
- #85: MacArthur Boulevard at Birch Street (Newport Beach)
- #543: Bristol Street at Segerstrom Avenue (Santa Ana)
- #730: Grand Avenue at Warner Avenue (Santa Ana)
- #24: Newport Avenue at Walnut Avenue (Tustin)
- #111: Franklin Avenue at Walnut Avenue (Tustin)
- #754: Red Hill Avenue at Carnegie Avenue/A Street (Tustin/Santa Ana)

5.7 Post-2030 Cumulative Baseline No Project Peak Hour Mainline Analysis

Freeway improvements are assumed in the Post-2030 baseline that were not assumed in 2015, consistent with information pertaining to buildout assumptions received by the Orange County Transportation Authority (OCTA) and the Department of Transportation (Caltrans). The peak hour volumes for Post-2030 Cumulative Baseline No Project are presented in **Table 5.6**.

When compared to the 2015 scenarios, there are some improvements in mainline performance, mostly due to increased lane capacity assumed in the Post-2030 buildout conditions on SR-73 and SR-55. The deficient segments include the following:

AM Peak Hour:

- I-5 Northbound between Culver Drive and Jamboree Road
- I-5 Northbound between Jamboree Road and Tustin Ranch Road
- I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Northbound between Red Hill Avenue and Newport Avenue
- I-5 Southbound between Red Hill Avenue and Newport Avenue
- I-5 Northbound between Newport Avenue and SR-55
- I-5 Southbound between Newport Avenue and SR-55
- I-5 Northbound North of SR-55
- I-5 Southbound North of SR-55
- I-405 Northbound between Culver Drive and Jamboree Road
- I-405 Northbound between Jamboree Road and MacArthur Boulevard
- SR-55 Northbound between Fair Drive and SR-73
- SR-55 Northbound between I-405 and MacArthur Boulevard
- SR-55 Southbound between I-405 and MacArthur Boulevard
- SR-55 Southbound between MacArthur Boulevard and Dyer Road
- SR-55 Southbound North of I-5
- SR-73 Northbound between MacArthur Boulevard and University Drive
- SR-73 Northbound between University Drive and Jamboree Road



- SR-73 Northbound between Jamboree Road and Birch Street
- SR-73 Northbound between Birch Street and Campus Drive
- SR-73 Northbound between Campus Drive and SR-55
- SR-73 Southbound between Campus Drive and SR-55

PM Peak Hour:

- I-5 Northbound between Culver Drive and Jamboree Road
- I-5 Southbound between Culver Drive and Jamboree Road
- I-5 Northbound between Jamboree Road and Tustin Ranch Road
- I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Northbound between Red Hill Avenue and Newport Avenue
- I-5 Southbound between Red Hill Avenue and Newport Avenue
- I-5 Northbound between Newport Avenue and SR-55
- I-5 Southbound between Newport Avenue and SR-55
- I-5 Northbound North of SR-55
- I-5 Southbound North of SR-55
- I-405 Southbound between Culver Drive and Jamboree Road
- SR-55 Northbound between I-405 and MacArthur Boulevard
- SR-55 Southbound between I-405 and MacArthur Boulevard
- SR-55 Northbound between MacArthur Boulevard and Dyer Road
- SR-55 Northbound between Dyer Road and Edinger Avenue
- SR-73 Southbound between MacArthur Boulevard and University Drive
- SR-73 Southbound between Jamboree Road and Birch Street
- SR-73 Southbound between Birch Street and Campus Drive
- SR-73 Southbound between Campus Drive and SR-55



Table 5.6: Post-2030 Cumulative Baseline No Project Freeway Peak Hour Mainline LOS

Location		Freeway Lanes			Post-2030 Cumulative Baseline No Project										
		Direction	Lanes	Peak Hour Capacity	AM Peak Hour					PM Peak Hour					
					Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
I-5	Culver Drive to Jamboree Road	NB	5	10,000	12,149	1.21	F			9,953	1.00	E			
		SB	5	10,000	8,445	0.84	D			9,089	0.91	E			
	Jamboree Road to Tustin Ranch Road	NB	5	10,000	11,649	1.16	F			9,753	0.98	E			
		SB	5	10,000	8,865	0.89	D			8,879	0.89	D			
	Tustin Ranch Road to Red Hill Avenue	NB	5	10,000	11,459	1.15	F			10,273	1.03	F			
		SB	5	10,000	9,675	0.97	E			9,409	0.94	E			
	Red Hill Avenue to Newport Avenue	NB	5	10,000	11,629	1.16	F			10,113	1.01	F			
		SB	5	10,000	9,315	0.93	E			9,229	0.92	E			
	Newport Avenue to SR-55	NB	5	10,000	12,389	1.24	F			10,883	1.09	F			
		SB	5	10,000	10,085	1.01	F			10,229	1.02	F			
	North of SR-55	NB	5	10,000	10,602	1.06	F			9,862	0.99	E			
		SB	5	10,000	10,300	1.03	F			9,774	0.98	E			
I-405	Culver Drive to Jamboree Road	NB	5	10,000	11,566	1.16	F			8,510	0.85	D			
		SB	4	8,000	6,806	0.85	D			8,557	1.07	F			
	Jamboree Road to MacArthur Boulevard	NB	5	10,000	11,306	1.13	F			9,650	0.96	E			
		SB	5	10,000	8,366	0.84	D			9,017	0.90	E			
	MacArthur Boulevard to SR-55	NB	6	12,000	10,106	0.84	D			10,290	0.86	D			
		SB	6	12,000	9,896	0.82	D			9,817	0.82	D			
	SR-55 to Bristol Street	NB	5	10,000	5,961	0.60	C			6,134	0.61	C			
		SB	5	10,000	7,742	0.77	D			6,630	0.66	C			
	Bristol Street to SR-73	NB	5	10,000	5,545	0.55	C			5,519	0.55	C			
		SB	5	10,000	7,972	0.80	D			5,980	0.60	C			
	SR-55	South of Victoria Street	NB	4	8,000	4,794	0.60	C			3,991	0.50	B		
			SB	3	6,000	3,834	0.64	C			4,285	0.71	C		
Victoria Street to Fair Drive		NB	4	8,000	5,924	0.74	D			4,704	0.59	C			
		SB	4	8,000	4,502	0.56	C			5,189	0.65	C			
Fair Drive to SR-73		NB	4	8,000	7,282	0.91	E			5,949	0.74	D			
		SB	4	8,000	5,518	0.69	C			6,181	0.77	D			
SR-73 to Baker Street		NB	4	8,000	5,588	0.70	C			4,279	0.53	C			
		SB	4	8,000	5,464	0.68	C			6,510	0.81	D			
Baker Street to I-405		NB	4	8,000	4,168	0.52	C			2,979	0.37	B			
		SB	4	8,000	6,144	0.77	D			6,400	0.80	D			
I-405 to MacArthur Boulevard		NB	4	8,000	8,401	1.05	F			8,327	1.04	F			
		SB	4	8,000	8,697	1.09	F			8,528	1.07	F			
MacArthur Boulevard to Dyer Road		NB	5	10,000	7,551	0.76	D			9,377	0.94	E			
		SB	5	10,000	9,867	0.99	E			7,748	0.77	D			
Dyer Road to Edinger Avenue		NB	6	12,000	6,771	0.56	C			11,387	0.95	E			
		SB	6	12,000	10,304	0.86	D			7,281	0.61	C			
Edinger Avenue to McFadden Street/Sycamore Avenue		NB	7	14,000	6,739	0.48	B			11,720	0.84	D			
		SB	7	14,000	10,544	0.75	D			6,981	0.50	B			
McFadden Street/Sycamore Avenue to I-5		NB	7	14,000	7,359	0.53	C			12,155	0.87	D			
		SB	7	14,000	10,621	0.76	D			7,368	0.53	C			
North of I-5		NB	5	10,000	7,222	0.72	D			8,496	0.85	D			
		SB	5	10,000	9,573	0.96	E			7,185	0.72	D			



Table 5.6: Post-2030 Cumulative Baseline No Project Freeway Peak Hour Mainline LOS

Location		Freeway Lanes			Post-2030 Cumulative Baseline No Project									
					AM Peak Hour					PM Peak Hour				
		Direction	Lanes	Peak Hour Capacity	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS
SR-73	MacArthur Boulevard to University Drive	NB	4	8,000	8,796	1.10	F		5,014	0.63	C			
		SB	4	8,000	4,619	0.58	C		7,291	0.91	E			
	University Drive to Jamboree Road	NB	4	8,000	8,796	1.10	F		5,014	0.63	C			
		SB	4	8,000	4,222	0.53	C		5,972	0.75	D			
	Jamboree Road to Birch Street	NB	4	8,000	9,910	1.24	F		6,211	0.78	D			
		SB	4	8,000	6,393	0.80	D		8,048	1.01	F			
	Birch Street to Campus Drive	NB	4	8,000	7,716	0.96	E		5,056	0.63	C			
		SB	4	8,000	6,393	0.80	D		8,048	1.01	F			
	Campus Drive to SR-55	NB	4	8,000	8,346	1.04	F		7,039	0.88	D			
		SB	4	8,000	8,148	1.02	F		9,000	1.12	F			
	SR-55 to Bear Street	NB	4	8,000	6,563	0.82	D		5,352	0.67	C			
		SB	4	8,000	5,371	0.67	C		5,718	0.71	C			
	Bear Street to I-405	NB	4	8,000	5,863	0.73	D		4,452	0.56	C			
		SB	4	8,000	4,741	0.59	C		4,768	0.60	C			
SR-261	SR-261 south of El Camino Real	NB	3	6,000	884	0.15	A		3,074	0.51	C			
		SB	3	6,000	3,615	0.60	C		1,273	0.21	A			

5.8 Post-2030 Cumulative Baseline No Project Peak Hour Freeway Ramp Analysis

The ramp LOS is based on the V/C ratio which takes into account the ramp capacity and metering. The table below displays the V/C ratios and levels of service for the freeway ramps within the study area. The ramps were also evaluated using the HCM density methodology to further analyze the operational characteristics of the ramps. **Table 5.7** displays the V/C ratios, densities, and levels of service. For interchanges where there are multiple ramps, the ramps are differentiated by either a loop or direct on/off ramp.



Table 5.7: Post-2030 Cumulative Baseline No Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project											
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour						
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS		
I-5	Culver Drive	SB On Direct	1	1,000	135	0.15	A				177	0.20	A		
		SB On Loop	1	1,000	374	0.42	B				222	0.25	A		
		SB Off	2	500	810	0.27	A				1,495	0.50	B		
		NB On Loop	1	1,000	1,070	0.71	C				710	0.47	B		
		NB On Direct	1	1,000	1,216	0.81	D				799	0.53	C		
		NB Off	1	500	330	0.22	A				480	0.32	B		
	Jamboree Road	SB On Direct	1	1,000	420	0.28	A				1,140	0.76	D		
		SB On Loop	1	1,000	590	0.55	C				500	0.46	B		
		SB Off	2	500	1,430	0.48	B				1,430	0.48	B		
		NB On Loop	1	1,000	670	0.62	C				710	0.66	C		
		NB On Direct	1	1,000	470	0.44	B				480	0.44	B		
		NB Off	1	500	1,640	1.09	F				1,390	0.93	E		
	Tustin Ranch Road	SB On	1	1,000	750	0.50	B				550	0.37	B		
		NB On	2	1,000	370	0.21	A				1,120	0.62	C		
		NB Off	1	500	560	0.37	B				600	0.40	B		
		SB Off	2	500	1,560	0.69	C				1,080	0.48	B		
	Red Hill Avenue	SB On	1	1,000	1,040	0.69	C				890	0.59	C		
		NB On	1	1,000	1,030	0.69	C				770	0.51	C		
		NB Off	1	500	860	0.57	C				930	0.62	C		
		SB Off	1	500	680	0.45	B				710	0.47	B		
Newport Boulevard	SB Off	1	500	770	0.51	C				1,000	0.67	C			
	NB On	1	1,000	760	0.51	C				770	0.51	C			
I-405	Culver Drive	SB On Direct	1	1,000	230	0.15	A				670	0.45	B		
		SB On Loop	1	1,000	250	0.28	A				330	0.37	B		
		SB Off	2	500	830	0.28	A				1,400	0.47	B		
		NB On Loop	1	1,000	560	0.37	B				400	0.27	A		
		NB On Direct	1	1,000	930	0.62	C				660	0.44	B		
		NB Off	1	500	1,270	0.85	D				1,250	0.83	D		
	Jamboree Road	SB On Direct	2	1,000	510	0.28	A				990	0.55	C		
		SB On Loop	1	1,000	270	0.18	A				660	0.44	B		
		SB Off	2	500	2,340	1.04	F				2,110	0.94	E		
		NB On Loop	1	1,000	490	0.33	B				900	0.60	C		
		NB On Direct	2	1,000	1,630	0.74	D				1,140	0.52	C		
		NB Off	1	500	2,380	1.06	F				900	0.40	B		
	MacArthur Boulevard	SB Direct On	2	1,000	870	0.29	A				770	0.26	A		
		SB Off	2	500	2,400	0.80	D				1,570	0.52	C		
		NB On	1	1,000	440	0.29	A				1,530	1.02	F		
		NB Off	1	500	1,640	1.09	F				890	0.59	C		
	Bristol Street	SB Loop On	1	1,000	1,090	0.73	D				1,490	0.99	E		
		SB Off	2	500	1,320	0.59	C				840	0.37	B		
		NB On Loop	1	1,000	234	0.26	A				385	0.43	B		
		NB On Direct	1	1,000	90	0.06	A				370	0.25	A		
NB Off		1	500	740	0.49	B				1,370	0.91	E			



Table 5.7: Post-2030 Cumulative Baseline No Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
SR-55	Victoria Street	SB Direct On	1	1,000	389	0.26	A			398	0.27	A		
		SB Off	2	500	1,057	0.47	B			1,302	0.58	C		
		NB Direct On	2	1,000	1,520	0.84	D			1,151	0.64	C		
		NB Off	1	500	390	0.26	A			438	0.29	A		
	Fair Drive	SB Direct On	1	1,000	197	0.22	A			286	0.32	B		
		SB Off	2	500	1,213	0.54	C			1,278	0.57	C		
		NB Direct On	1	1,000	1,559	1.04	F			1,413	0.94	E		
		NB Off	1	500	201	0.13	A			169	0.11	A		
	Baker Street	SB On	1	1,000	510	0.57	C			1,250	1.39	F		
		SB Off	1	500	1,190	0.79	D			1,140	0.76	D		
		NB Off	1	500	1,420	0.95	E			1,300	0.87	D		
	Paularino Avenue	SB Off	1	500	1,940	1.29	F			1,190	0.79	D		
		NB On	1	1,000	609	0.68	C			1,065	1.18	F		
	MacArthur Boulevard	SB On Direct	1	1,000	760	0.84	D			1,040	1.16	F		
		SB On Loop	1	1,000	170	0.19	A			800	0.89	D		
		SB Off	1	500	2,100	1.40	F			1,060	0.71	C		
		NB On Loop	1	1,000	630	0.70	C			790	0.88	D		
		NB On Direct	1	1,000	250	0.17	A			1,210	0.81	D		
	Dyer Road	NB Off	2	500	1,730	0.77	D			950	0.42	B		
		SB On	1	1,000	851	0.57	C			1,191	0.79	D		
SB Off Loop		1	500	661	0.44	B			435	0.29	A			
SB Off to Grand		1	500	628	0.42	B			290	0.19	A			
NB On Direct		1	1,000	330	0.22	A			1,350	0.90	E			
NB On Loop		1	1,000	550	0.61	C			1,020	1.13	F			
Edinger Avenue	NB Off	1	500	1,660	1.11	F			360	0.24	A			
	SB On	1	1,000	740	0.49	B			870	0.58	C			
	SB Off	1	500	980	0.65	C			570	0.38	B			
	NB On	1	1,000	883	0.59	C			1,223	0.82	D			
McFadden Avenue	NB Off	1	500	915	0.61	C			890	0.59	C			
	SB On	1	1,000	513	0.34	B			368	0.25	A			
	SB Off	2	500	590	0.26	A			754	0.34	B			
	NB On	1	1,000	1,204	0.80	D			1,010	0.67	C			
	NB Off	1	500	584	0.39	B			575	0.38	B			



Table 5.7: Post-2030 Cumulative Baseline No Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project										
		Number of Lanes	Ramp Length	AM Peak Hour					PM Peak Hour					
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
SR-73	MacArthur Boulevard	SB On	1	1,000	126	0.08	A			980	0.65	C		
		SB Off	2	500	1,187	0.40	B			972	0.32	B		
		NB On	1	1,000	765	0.85	D			841	0.93	E		
	University Drive	SB Off	1	500	1,040	0.69	C			920	0.61	C		
		NB On	1	1,000	168	0.11	A			235	0.16	A		
	Bison Avenue	SB On	1	1,000	160	0.11	A			420	0.28	A		
		SB Off	1	500	1,140	0.76	D			530	0.35	B		
		NB On	1	1,000	460	0.31	B			910	0.61	C		
	Jamboree Road	SB On	1	1,000	448	0.30	A			791	0.53	C		
		SB Off	2	500	2,619	1.16	F			2,867	1.27	F		
		NB On	1	1,000	1,115	0.74	D			1,197	0.80	D		
	Birch Street	NB Off	1	500	2,194	1.46	F			1,154	0.77	D		
	Campus Drive	SB Off	2	500	1,755	0.78	D			951	0.42	B		
		NB On	1	1,000	629	0.42	B			1,983	1.32	F		
SR-73 at Bear	SB On	1	1,000	1,160	0.77	D			1,410	0.94	E			
	SB Off	1	500	530	0.35	B			460	0.31	B			
	NB Off	1	500	930	0.62	C			1,520	1.01	F			
	NB On	1	1,000	230	0.15	A			620	0.41	B			
SR-261	Jamboree Road	SB On	1	1,000	1,367	0.91	E			970	0.65	C		
		NB Off	1	250	726	0.48	B			1,480	0.99	E		
	Walnut Avenue	NB On	1	1,000	377	0.25	A			890	0.59	C		
		SB Off	1	500	1,072	0.71	C			406	0.27	A		

When compared to the 2015 scenarios, there are several ramps that improve under Post-2030 conditions including the SR-55 Southbound Off-Ramp to Victoria Drive, the SR-55 Northbound Direct On-Ramp from Victoria Drive, and the SR-55 Southbound Off-Ramp to Fair Drive. There are five additional deficiencies, including the SR-55 Northbound Off-Ramp to Baker Street, the SR-55 Northbound Direct On-Ramp from Dyer Road, two ramps on the SR-73, the Southbound On-Ramp and Northbound Off-Ramp at Bear Street, and the SR-261 Southbound On-Ramp from Jamboree Road. The deficient ramps include:

AM Peak Hour:

- o Northbound I-5 Off-Ramp to Jamboree Road
- o Southbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 Off-Ramp to MacArthur Boulevard
- o Northbound SR-55 Direct On-Ramp from Fair Drive
- o Northbound SR-55 Off-Ramp to Baker Street
- o Southbound SR-55 Off-Ramp to Paularino Avenue
- o Southbound SR-55 Off-Ramp to MacArthur Boulevard
- o Northbound SR-55 Off-Ramp to Dyer Road
- o Southbound SR-73 Off-Ramp to Jamboree Road
- o Northbound SR-73 Off-Ramp to Birch Street
- o Southbound SR-261 On-Ramp from Jamboree Road

PM Peak Hour:

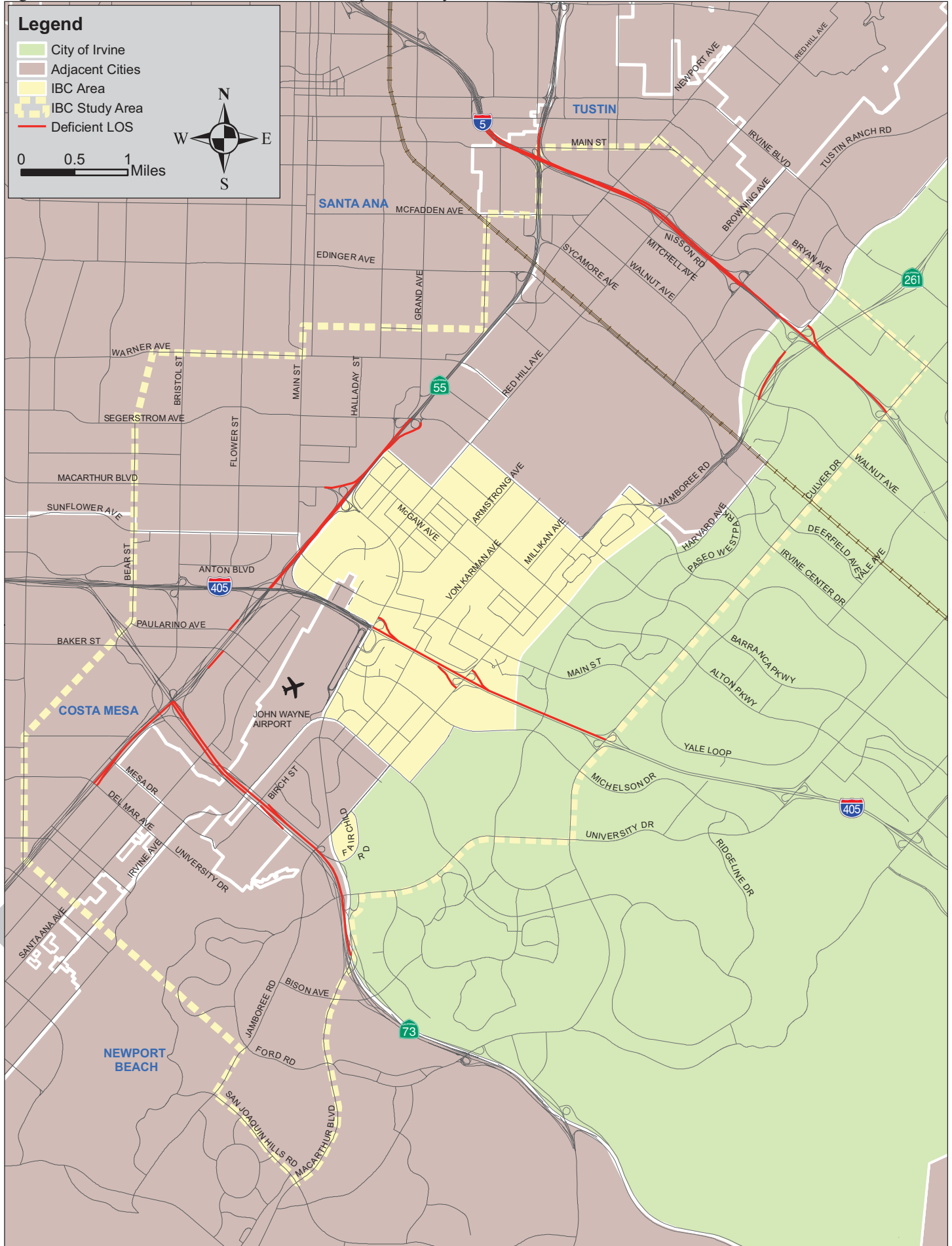
- o Northbound I-5 Off-Ramp to Jamboree Road
- o Southbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 On-Ramp from MacArthur Boulevard
- o Southbound I-405 Loop On-Ramp from Bristol Street



- Northbound I-405 Off-Ramp to Bristol Street
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Southbound SR-55 On-Ramp from Baker Street
- Northbound SR-55 On-Ramp from Paularino Avenue
- Southbound SR-55 Direct On-Ramp from MacArthur Boulevard
- Northbound SR-55 Direct On-Ramp from Dyer Road
- Northbound SR-55 Loop On-Ramp from Dyer Road
- Northbound SR-73 On-Ramp from MacArthur Boulevard
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 On-Ramp from Campus Drive
- Southbound SR-73 On-Ramp from Bear Street
- Northbound SR-73 Off-Ramp to Bear Street
- Northbound SR-261 Northbound Off-Ramp to Jamboree Road

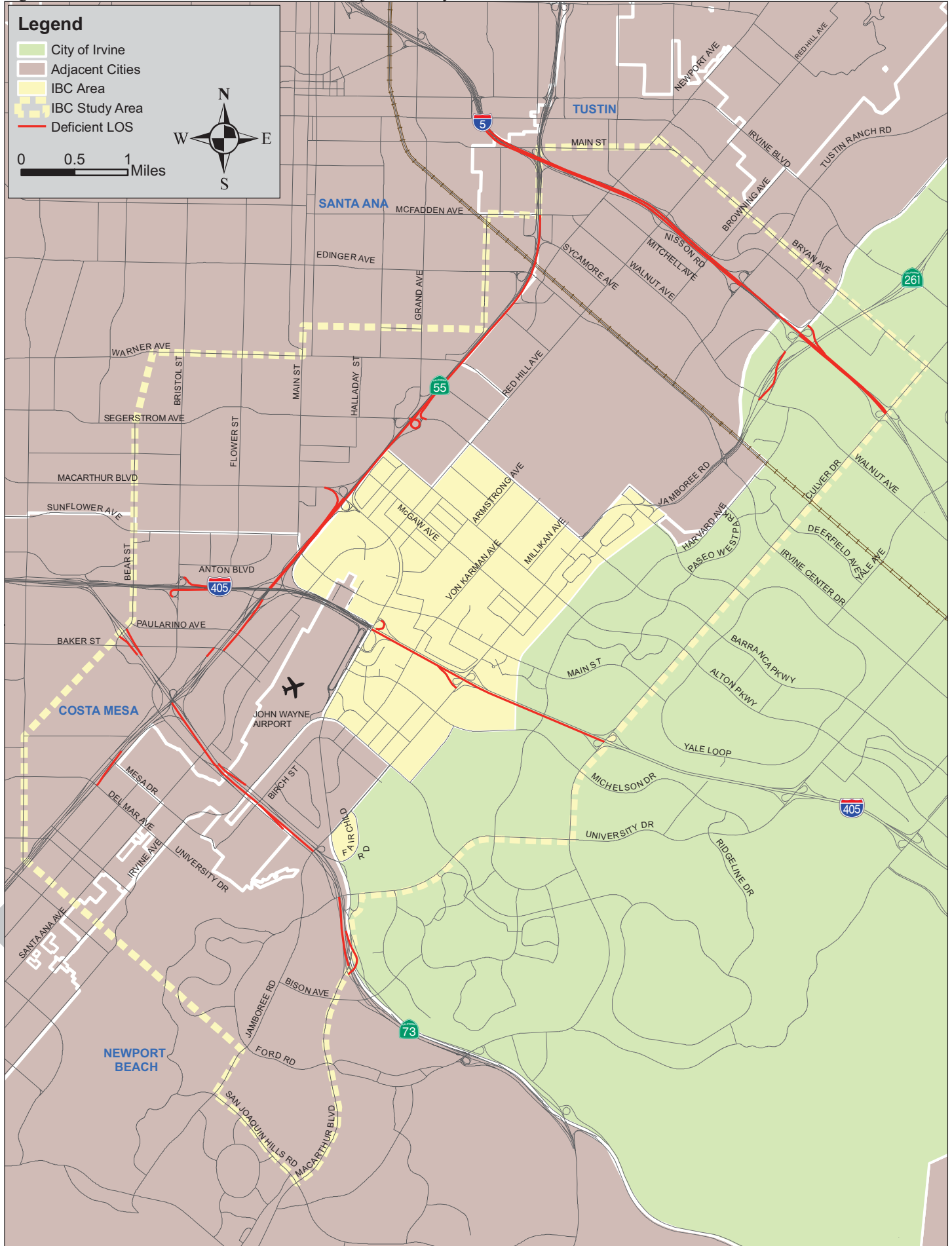
Figure 5.5 and **Figure 5.6** graphically depict the Post-2030 Cumulative Baseline No Project freeway and ramp deficiencies.

Figure 5.5: Post-2030 Cumulative Baseline No Project Freeway AM Peak Hour Deficiencies



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Figure 5.6: Post-2030 Cumulative Baseline No Project Freeway PM Peak Hour Deficiencies



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5.9 Post-2030 Cumulative With Project

The Post-2030 Cumulative With Project impact analysis evaluates the buildout of the proposed IBC Vision Plan project within the study area. The circulation network for the Post-2030 Cumulative With Project analysis is identical to that of the Post-2030 Cumulative Baseline No Project condition. The analysis assesses circulation system impacts associated with the full implementation of the proposed IBC Vision Plan land uses.

5.10 Post-2030 Cumulative With Project Land Use and Trip Generation

The land use setting for Post-2030 Cumulative With Project incorporates the land use changes for Post-2030 that will result from the full implementation of the IBC Vision Plan. **Table 5.8** provides a comparison of land use assumptions between the Post-2030 Cumulative Baseline No Project and With Project conditions as well as a comparison to 2015 and Existing conditions within the IBC area. **Table 5.9** provides the ITAM trip generation for the Post-2030 Cumulative With Project scenario along with a comparison to 2015 and existing conditions. Detailed trip generation quantities and land use quantities by TAZs within the IBC area are included in **Appendix A** and **Appendix J**, respectively. Also included in **Appendix J** is a land use summary by individual project. **Figure 5.7** through **Figure 5.9** present land use comparisons for Post-2030 Cumulative Baseline No Project and With Project scenarios.

Table 5.8: Post-2030 Cumulative With Project Land Use Summary

Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2008 With Project	17,038	1,731	2,880	33,716	13,180	164	598
2015 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2015 With Project	10,929	1,482	2,572	27,810	14,196	348	598
Post-2030 No Project	5,011	1,341	2,322	26,381	14,701	348	174
Post-2030 With Project	17,038	1,731	2,880	33,716	13,180	164	598
Percent Growth (Post-2030 With Project vs. Post-2030 No Project)	240%	29%	24%	28%	-10%	-53%	244%
Percent Growth (Post-2030 With Project vs. 2015 With Project)	56%	17%	12%	21%	-7%	-53%	0%
Percent Growth ((Post-2030 With Project vs. 2008 With Project)	0%	0%	0%	0%	0%	0%	0%

Source: City of Irvine

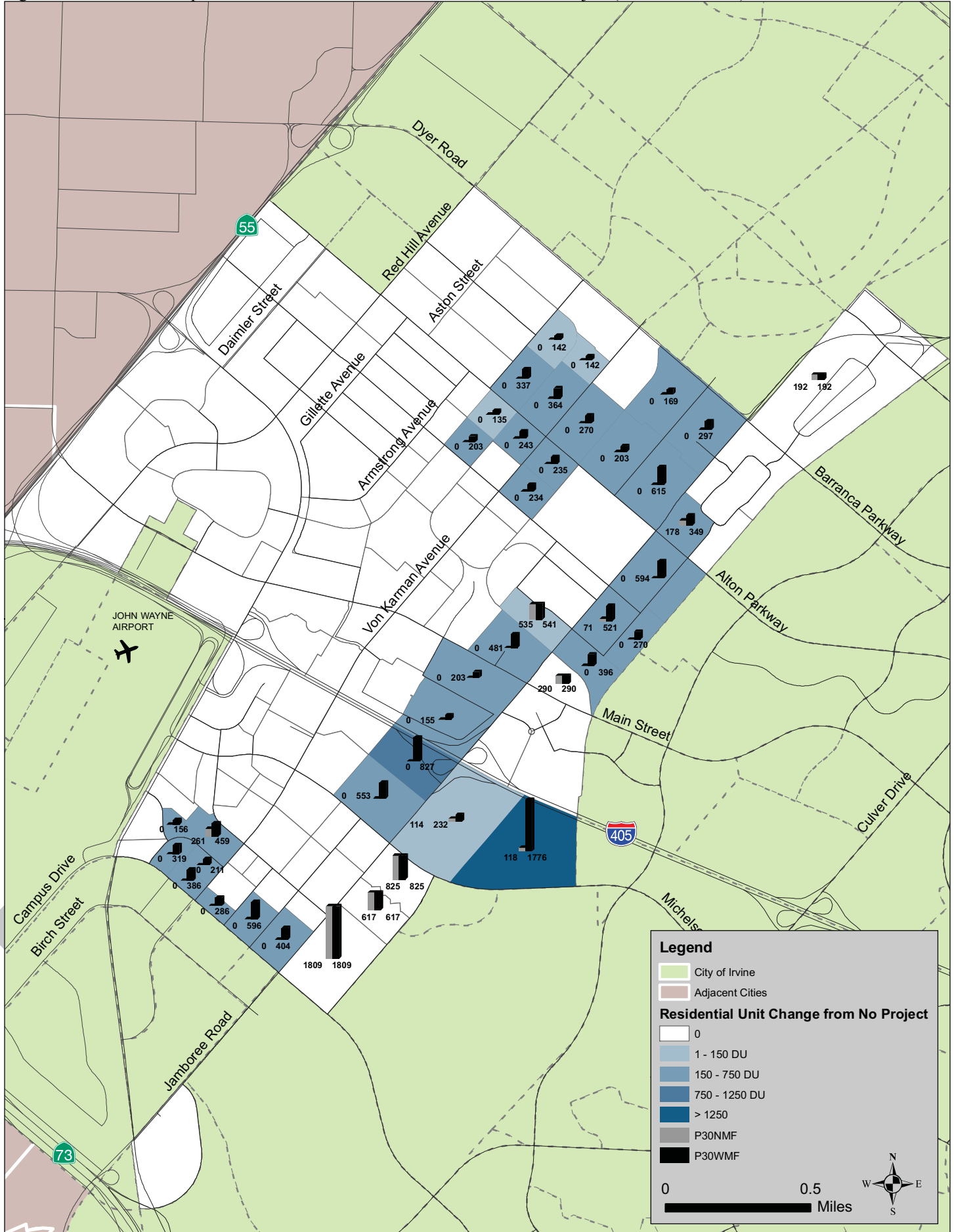
Table 5.9: Post-2030 Cumulative With Project Trip Generation

Scenario	AM-Out	AM-In	PM-Out	PM-In	ADT
2008 No Project	11,191	28,990	27,316	17,367	508,690
2008 With Project	19,336	36,105	35,513	25,795	697,308
2015 No Project	11,191	28,990	27,316	17,367	508,690
2015 With Project	14,858	30,962	29,982	20,793	578,825
Post-2030 No Project	11,191	28,990	27,316	17,367	508,690
Post-2030 With Project	19,336	36,105	35,513	25,795	697,308
Percent Growth (Post-2030 With Project vs. Post-2030 No Project)	73%	25%	30%	49%	37%
Percent Growth (Post-2030 With Project vs. 2015 With Project)	30%	17%	18%	24%	20%
Percent Growth ((Post-2030 With Project vs. 2008 With Project)	0%	0%	0%	0%	0%

Source: ITAM

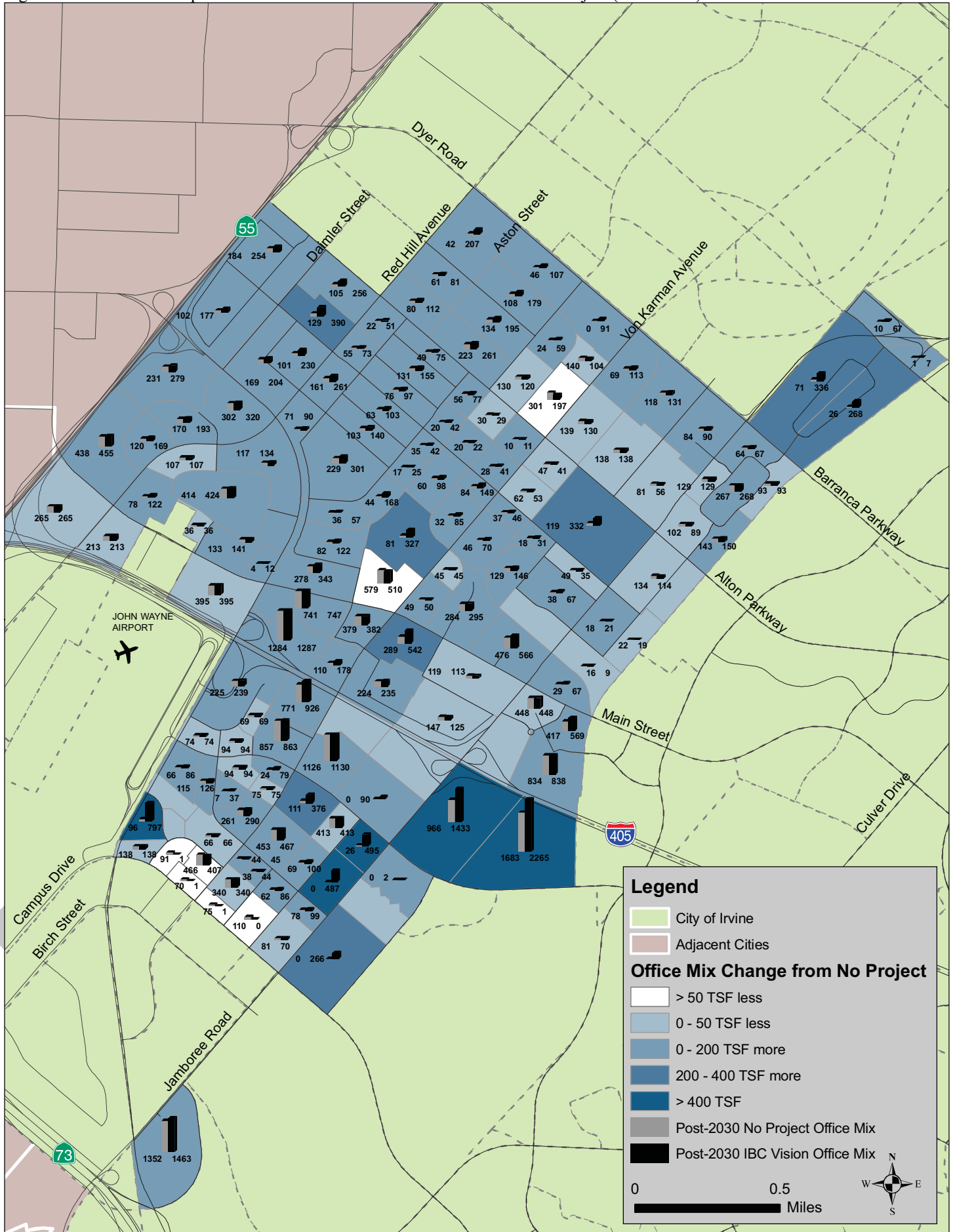
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Figure 5.7: Land Use Comparison between Post-2030 IBC Vision Plan and No Project (Residential Units)



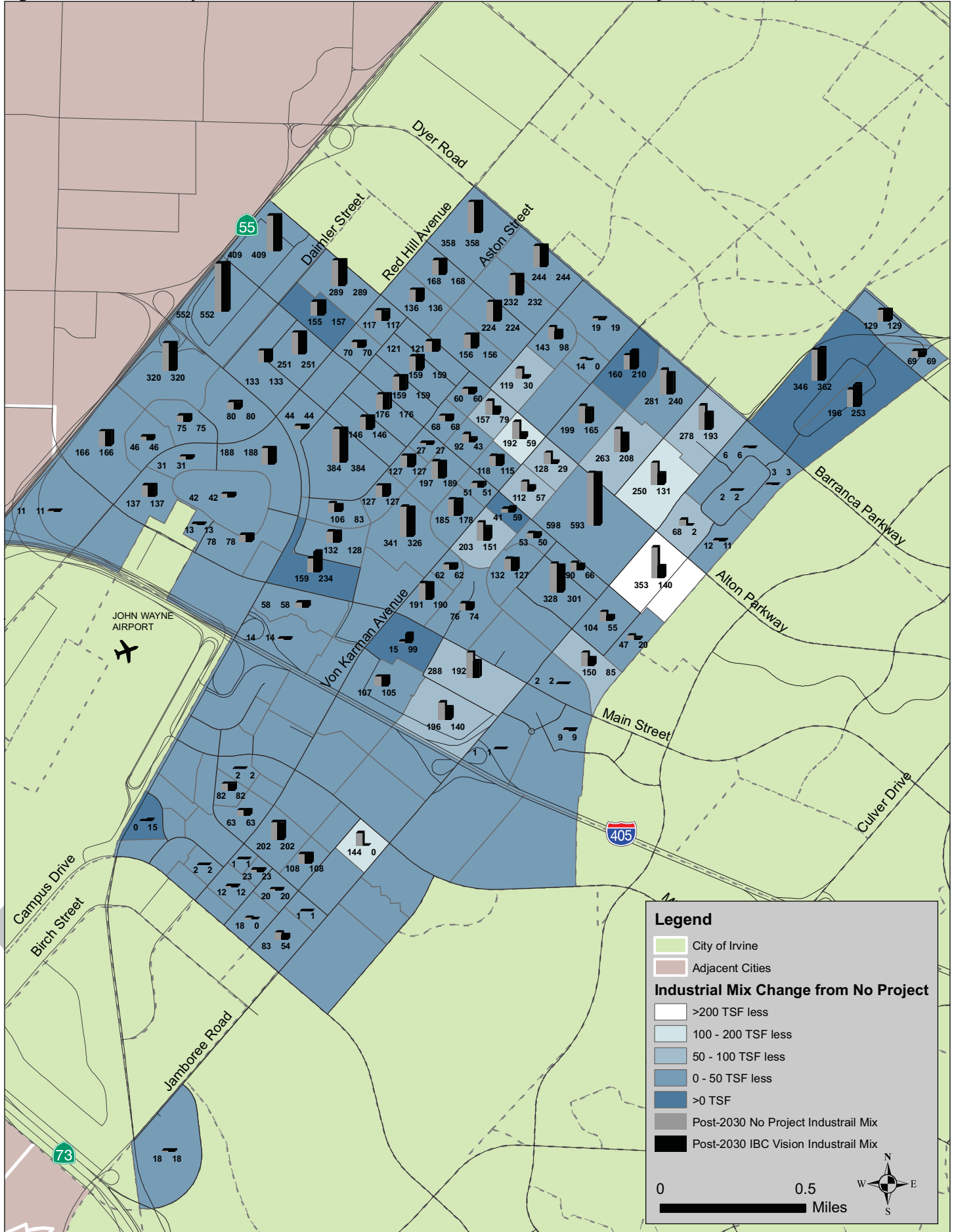
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Figure 5.8: Land Use Comparison between Post-2030 IBC Vision Plan and No Project (Office Mix)



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Figure 5.9: Land Use Comparison between Post-2030 IBC Vision Plan and Post-2030 No Project (Industrial Mix)



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5.11 Post-2030 Cumulative With Project Daily Arterial Segment Analysis

Under the Post-2030 Cumulative With Project scenario, traffic within the City shows some growth related to future development of the study area as a whole. Post-2030 arterial traffic conditions were analyzed based on the forecast volumes and future lane configurations. **Table 5.10** presents the study area roadway segments with the jurisdiction, daily future forecast volume, classification type, V/C ratio and LOS for each segment identified. Deficient segments were further analyzed for peak hour performance within the City of Irvine. Alternative methodologies were used on roadways located in adjacent cities. The Post-2030 Cumulative With Project scenario is compared to the Post-2030 Cumulative Baseline No Project scenarios to identify project related significant impacts.

Table 5.10 indicates that several segments are deficient under the Post-2030 Cumulative With Project daily conditions including two segments located within Costa Mesa, 15 of the segments in Irvine, one segment each in Newport Beach and Santa Ana, and two segments in Tustin. Compared to the No Project scenario, there are three additional segments that are deficient under daily conditions within the City of Irvine. As noted above, LOS E indicates a deficient segment for arterial segments outside Planning Area (PA) 36 within the City of Irvine. PA 36 (IBC area) segments are considered deficient at LOS F. Deficient segments under Post-2030 Cumulative With Project conditions include the following:

- 2728—Bristol Street from Anton Boulevard to I-405 Northbound Ramps (Costa Mesa)
- 2751—Bristol Street from I-405 Northbound Ramps to I-405 Southbound Ramps (Costa Mesa)
- 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- 726—Culver Drive from I-5 NB Ramps to I-5 SB Ramps (Irvine)
- 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- 214—Culver Drive from Scottsdale Drive to Walnut Avenue (Irvine)
- 219—Culver Drive from Barranca Parkway to Alton Parkway (Irvine)
- 220—Culver Drive from Alton Parkway to Main Street (Irvine)
- 221—Culver Drive from Main Street to San Leandro (Irvine)
- 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)
- 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- 148—Jamboree Road from I-405 On-Ramp to Michelson Drive (Irvine)
- 149—Jamboree Road from Michelson Drive to Dupont Drive (Irvine)
- 151—Jamboree Road from Campus Drive to Birch Street (Irvine)
- 1301—MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)
- 1884—MacArthur Boulevard from Main Street to SR-55 Southbound (Santa Ana)
- 44—Edinger Avenue West of Newport Avenue (Tustin)
- 1585—Newport Avenue from Valencia Avenue to Edinger Avenue (Tustin)

Figure 5.10 and **Figure 5.11** present the arterial ADT and LOS for the Post-2030 Cumulative With Project scenario. Deficient segments in the City of Irvine are evaluated under peak hour conditions to determine significant impacts in the following section. For arterial segments in Costa Mesa, Newport Beach, and Tustin, arterial daily LOS impacts are addressed at the adjacent intersections. Santa Ana identifies significant project impacts based on the arterial daily LOS. Arterial segment #1884 (MacArthur Boulevard from Main Street to SR-55 is deficient in the Post-2030 Cumulative With Project scenario and because there is a greater than 0.01 increase in the daily LOS between No Project and With Project conditions, a project related impact exists at this location. The Project impacts and mitigations are discussed at length in **Chapter 6**.



Table 5.10: Post-2030 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 Cumulative Baseline No Project			Post-2030 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	6D	10,100	0.18	A	10,200	0.18	A
2721	Baker Street	Bear Street to Bristol Street		CM	6D	29,600	0.53	A	30,100	0.54	A
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	6D	36,300	0.65	B	37,000	0.66	B
1294	Baker Street	SR 55 SB to SR 55 NB		CM	6D	37,800	0.68	B	38,200	0.68	B
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	6D	21,500	0.38	A	22,000	0.39	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	6D	6,200	0.11	A	6,200	0.11	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	6D	19,900	0.36	A	20,100	0.36	A
2733	Bristol Street	Segerstrom Avenue to West Alton Avenue		CM	6D	40,400	0.72	C	41,200	0.74	C
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	6D	44,200	0.79	C	45,000	0.80	C
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	6D	25,300	0.45	A	25,600	0.46	A
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	6D	44,400	0.79	C	45,300	0.81	D
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	8D	69,500	0.93	E	70,500	0.94	E
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	8D	69,900	0.93	E	71,000	0.95	E
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	8D	50,600	0.67	B	51,100	0.68	B
2732	Bristol Street	Paularino Avenue to Baker Street		CM	6D	40,400	0.72	C	41,000	0.73	C
2730	Bristol Street	Baker Street to SR 55		CM	6D	25,100	0.45	A	25,600	0.46	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	6D	23,000	0.41	A	23,700	0.42	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	4D	18,300	0.48	A	18,800	0.49	A
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	4D	12,900	0.34	A	13,200	0.35	A
2772	Flower Street	Segerstrom Avenue to MacArthur Boulevard		CM	4D	11,500	0.30	A	11,800	0.31	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	4D	13,100	0.34	A	13,300	0.35	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	4D	9,300	0.24	A	9,300	0.24	A
2756	Main Street	Sunflower Avenue to SR-55		CM	6D	24,400	0.44	A	27,200	0.49	A
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	2U	4,900	0.39	A	4,900	0.39	A
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	2U	4,800	0.38	A	4,700	0.38	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	4D	13,400	0.35	A	13,900	0.37	A
2742	Paularino Avenue	Bear Street to Bristol Street		CM	2U	8,400	0.67	B	8,500	0.68	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	4D	21,600	0.57	A	21,600	0.57	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	4D	23,500	0.62	B	23,800	0.63	B
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	4D	7,400	0.19	A	7,500	0.20	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	4D	17,300	0.46	A	17,300	0.46	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	6D	19,300	0.34	A	20,800	0.37	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	6D	21,000	0.38	A	21,900	0.39	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	6D	23,500	0.42	A	23,900	0.43	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	4D	9,000	0.24	A	9,000	0.24	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	2U	10,300	0.82	D	11,000	0.88	D
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4D	4,600	0.14	A	6,500	0.20	A
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	13,200	0.41	A	14,700	0.46	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	4D	16,800	0.53	A	18,100	0.57	A
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	6D	17,600	0.33	A	19,100	0.35	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	6D	18,100	0.34	A	19,800	0.37	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	17,300	0.32	A	18,600	0.34	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	6D	14,400	0.27	A	15,400	0.29	A



Table 5.10: Post-2030 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 Cumulative Baseline No Project			Post-2030 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
783	Alton Parkway	San Marino to Culver Drive		Irv	6D	24,000	0.44	A	25,100	0.46	A
735	Barranca Parkway (Dyer)	Pullman to Red Hill Avenue		Irv	6D	28,000	0.52	A	30,500	0.56	A
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	7D	30,300	0.48	A	32,000	0.51	A
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	7D	29,800	0.47	A	31,300	0.50	A
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	7D	22,000	0.35	A	23,300	0.37	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	6D	28,500	0.53	A	30,200	0.56	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	6D	25,000	0.46	A	26,300	0.49	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	23,900	0.44	A	24,800	0.46	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	6D	26,400	0.49	A	27,400	0.51	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	6D	26,000	0.48	A	26,900	0.50	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	4D	25,300	0.79	C	25,400	0.79	C
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	4D	23,200	0.73	C	23,100	0.72	C
539	Bryan Avenue	El Camino Real to Rubicon		Irv	4D	20,100	0.63	B	20,000	0.63	B
540	Bryan Avenue	Rubicon to Culver		Irv	4D	26,300	0.82	D	26,400	0.83	D
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	6D	18,900	0.35	A	22,500	0.42	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	4D	15,900	0.50	A	18,000	0.56	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	4D	15,000	0.47	A	16,600	0.52	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	4D	13,200	0.41	A	14,100	0.44	A
877	Campus Drive	Jamboree Road to Carlson Avenue	a	Irv	4D	28,800	0.90	D	30,300	0.95	E
879	Campus Drive	Carlson Avenue to University		Irv	4U	31,100	1.11	F	32,100	1.15	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	4D	5,700	0.18	A	6,800	0.21	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	Maj5D+1AUX	45,200	0.91	E	45,300	0.92	E
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	6D	57,200	1.06	F	57,600	1.07	F
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	6D	51,300	0.95	E	51,900	0.96	E
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	6D	48,200	0.89	D	48,500	0.90	D
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	Maj6D+1AUX	42,600	0.73	C	43,100	0.74	C
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	6D	46,600	0.86	D	47,400	0.88	D
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	6D	47,100	0.87	D	48,300	0.89	D
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	6D	51,300	0.95	E	52,900	0.98	E
220	Culver Drive	Alton Parkway to Main Street		Irv	6D	51,700	0.96	E	53,600	0.99	E
221	Culver Drive	Main Street to San Leandro		Irv	6D	52,700	0.98	E	54,300	1.01	F
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	6D	58,800	1.09	F	60,500	1.12	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	6D	59,400	1.10	F	61,700	1.14	F
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	6D	46,600	0.86	D	46,800	0.87	D
226	Culver Drive	Sandburg Way to University Drive		Irv	6D	38,700	0.72	C	39,000	0.72	C
1206	El Camino Real	Jamboree Road to Alliance		Irv	4D	24,700	0.77	C	24,600	0.77	C
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4D	5,500	0.17	A	5,800	0.18	A
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	4U	11,500	0.41	A	11,800	0.42	A
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	4U	13,900	0.50	A	14,300	0.51	A
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	4U	12,900	0.46	A	13,200	0.47	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	4D	14,800	0.46	A	15,700	0.49	A
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	4D	15,400	0.48	A	16,100	0.50	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	4D	17,100	0.53	A	17,700	0.55	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	4D	18,200	0.57	A	19,200	0.60	A
2829	Harvard Avenue	San Juan to San Leon		Irv	4D	17,000	0.53	A	18,300	0.57	A
178	Harvard Avenue	San Leon to Alton Parkway		Irv	4D	18,700	0.58	A	20,100	0.63	B
179	Harvard Avenue	Alton Parkway to San Marino		Irv	4D	21,700	0.68	B	23,300	0.73	C



Table 5.10: Post-2030 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 Cumulative Baseline No Project			Post-2030 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
180	Harvard Avenue	San Marino to Main Street		Irv	4D	22,500	0.70	B	24,300	0.76	C
181	Harvard Avenue	Main Street to Coronado		Irv	4D	15,300	0.48	A	16,800	0.53	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	4D	22,900	0.72	C	25,100	0.78	C
183	Harvard Avenue	Michelson Drive to University Drive		Irv	2U	10,800	0.83	D	11,700	0.90	D
675	Irvine Center Drive	Harvard Avenue to Hearthstone		Irv	6D	26,900	0.50	A	27,000	0.50	A
676	Irvine Center Drive	Hearthstone to Culver Drive		Irv	6D	25,500	0.47	A	25,700	0.48	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	8D	41,200	0.57	A	41,300	0.57	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	Maj7D+1AUX	63,900	0.95	E	64,200	0.95	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	8D	70,200	0.98	E	69,700	0.97	E
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	8D	64,300	0.89	D	63,300	0.88	D
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	5D	59,400	1.32	F	61,000	1.36	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)		Irv	Exp8	95,600	0.53	A	99,300	0.55	A
136	Jamboree Road	Edinger Avenue to Warner Avenue		Irv	Exp8	83,500	0.46	A	87,300	0.49	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	Exp8	77,800	0.43	A	81,500	0.45	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	8D	56,700	0.79	C	61,400	0.85	D
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	8D	54,500	0.76	C	59,700	0.83	D
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	8D	50,900	0.71	C	56,500	0.78	C
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	8D	49,300	0.68	B	55,500	0.77	C
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	8D	57,900	0.80	C	67,300	0.93	E
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	Maj8D+2AUX	55,300	0.68	B	63,900	0.79	C
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	Maj8D+2AUX	74,800	0.92	E	90,600	1.12	F
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	7D	56,500	0.90	D	65,400	1.04	F
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	8D	51,800	0.72	C	55,700	0.77	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	6D	46,200	0.86	D	51,500	0.95	E
152	Jamboree Road	Birch Street to Fairchild Road		Irv	7D	37,800	0.60	A	41,700	0.66	B
154	Jamboree Road	Fairchild Road to Koll Center		Irv	6D	37,900	0.70	B	42,700	0.79	C
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	6D	29,600	0.55	A	33,200	0.61	B
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	5D	38,200	0.85	D	43,300	0.96	E
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	7D	16,800	0.27	A	18,800	0.30	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	7D	27,100	0.43	A	30,200	0.48	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	Maj8D+2AUX	37,300	0.46	A	42,000	0.52	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	Maj8D+1AUX	53,100	0.69	B	60,800	0.79	C
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	8D	45,900	0.64	B	50,200	0.70	B
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	8D	38,500	0.53	A	39,300	0.55	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	6D	37,100	0.69	B	38,300	0.71	C
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	6D	44,000	0.81	D	45,400	0.84	D
817	Main Street	McDermott to Red Hill Avenue	a	Irv	6D	21,600	0.40	A	24,200	0.45	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	6D	18,800	0.35	A	20,900	0.39	A
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	6D	28,700	0.53	A	31,700	0.59	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	Maj7D+1AUX	37,000	0.55	A	40,100	0.59	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	Maj6D+1AUX	18,900	0.32	A	21,900	0.37	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	6D	17,300	0.32	A	19,900	0.37	A
823	Main Street	Siglo to Jamboree Road	a	Irv	6D	22,900	0.42	A	27,200	0.50	A
824	Main Street	Jamboree Road to Union	a	Irv	Maj6D+1AUX	19,200	0.33	A	21,100	0.36	A



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ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 Cumulative Baseline No Project			Post-2030 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
825	Main Street	Veneto to Harvard Avenue		Irv	6D	10,600	0.20	A	11,600	0.21	A
826	Main Street	Harvard Avenue to San Mateo		Irv	4D	11,500	0.36	A	12,500	0.39	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	4D	9,000	0.28	A	9,600	0.30	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	4D	3,700	0.12	A	5,600	0.18	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	5,900	0.18	A	7,900	0.25	A
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	4D	6,900	0.22	A	9,000	0.28	A
1449	McGaw Avenue	Jamboree Road to Murphy Avenue		Irv	4D	2,600	0.08	A	5,500	0.17	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	5D	15,700	0.35	A	19,200	0.43	A
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	4D	11,900	0.37	A	14,500	0.45	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	Prim4D+1AUX	11,500	0.31	A	14,600	0.39	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	Prim5	19,200	0.45	A	22,300	0.52	A
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	Prim4D+2AUX	17,000	0.40	A	23,400	0.54	A
847	Michelson Drive	Carlson Avenue to Prince		Irv	Prim4D+1AUX	18,100	0.48	A	25,900	0.69	B
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	4D	17,300	0.54	A	22,400	0.70	B
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	4D	12,600	0.39	A	14,400	0.45	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	4D	17,900	0.56	A	20,400	0.64	B
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	6D	30,700	0.57	A	34,600	0.64	B
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	6D	30,900	0.57	A	35,000	0.65	B
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	6D	32,900	0.61	B	37,800	0.70	B
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	6D	40,500	0.75	C	47,100	0.87	D
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	6D	13,000	0.24	A	14,900	0.28	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	6D	17,000	0.31	A	19,500	0.36	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	6D	37,100	0.69	B	38,000	0.70	B
188	University Drive	California Avenue to Mesa Road		Irv	6D	43,700	0.81	D	45,000	0.83	D
187	University Drive	Mesa Road to Campus Drive		Irv	6D	43,700	0.81	D	44,700	0.83	D
880	University Drive	Campus Drive to Harvard Avenue		Irv	6D	35,400	0.66	B	36,700	0.68	B
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	6D	33,100	0.61	B	33,400	0.62	B
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	6D	33,100	0.61	B	33,400	0.62	B
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	4D	28,300	0.88	D	31,400	0.98	E
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	4D	21,500	0.67	B	24,400	0.76	C
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	4D	21,200	0.66	B	24,100	0.75	C
103	Von Karman Avenue	Anchor to Main Street	a	Irv	4D	21,600	0.68	B	24,600	0.77	C
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	Prim4D+1AUX	21,500	0.57	A	25,600	0.68	B
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	Prim4D+1AUX	23,600	0.63	B	27,900	0.74	C
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	4D	19,500	0.61	B	22,600	0.71	C
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	4D	19,200	0.60	A	22,400	0.70	B
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	4D	17,300	0.54	A	19,400	0.61	B
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	Prim4D+1AUX	22,000	0.59	A	22,200	0.59	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	Maj6D+1AUX	23,100	0.39	A	23,000	0.39	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	Prim5D+1AUX	21,700	0.48	A	21,900	0.48	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	4D	19,400	0.61	B	19,500	0.61	B
597	Walnut Avenue	Mall Street to Culver Drive		Irv	4D	25,900	0.81	D	25,900	0.81	D
728	Warner Avenue	Construction North to Harvard Avenue		Irv	4D	14,500	0.45	A	14,700	0.46	A
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	4D	9,300	0.29	A	9,300	0.29	A



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ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 Cumulative Baseline No Project			Post-2030 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	4D	10,300	0.32	A	10,300	0.32	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	4D	20,400	0.51	A	21,000	0.53	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	4D	24,200	0.61	B	24,800	0.62	B
874	Birch Street	East of MacArthur Boulevard		NB	4D	25,800	0.65	B	27,000	0.68	B
69	Birch Street	West of MacArthur Boulevard		NB	4D	16,500	0.41	A	17,400	0.44	A
875	Birch Street	East of Von Karman Avenue		NB	4D	25,200	0.63	B	26,800	0.67	B
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	6D	9,900	0.17	A	10,100	0.17	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	4D	16,600	0.42	A	16,700	0.42	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive		NB	3D	9,300	0.39	A	9,600	0.40	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue		NB	3D	15,000	0.63	B	16,000	0.67	B
1303	Bristol Street SB	Campus Drive to Birch Street		NB	3D	21,100	0.88	D	21,400	0.89	D
1305	Bristol Street NB	Birch Street to Campus Drive		NB	3D	18,500	0.77	C	19,200	0.80	C
1312	Bristol Street SB	West of Jamboree Road		NB	4D	22,500	0.56	A	23,000	0.58	A
1580	Bristol Street NB	West of Jamboree Road		NB	3D	20,000	0.83	D	20,200	0.84	D
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	6D	31,200	0.54	A	34,400	0.59	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	4D	9,100	0.23	A	9,100	0.23	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	6D	22,900	0.39	A	24,400	0.42	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	6D	21,400	0.37	A	24,200	0.42	A
2768	Irvine Avenue	South of University Drive		NB	4D	22,300	0.56	A	22,500	0.56	A
156	Jamboree Road	South of MacArthur Boulevard		NB	8D	28,800	0.42	A	31,000	0.46	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	8D	40,300	0.59	A	46,600	0.69	B
157	Jamboree Road	South of Bristol Street		NB	6D	36,000	0.62	B	37,400	0.64	B
159	Jamboree Road	University Drive to Bison Avenue		NB	6D	35,100	0.61	B	36,000	0.62	B
1777	Jamboree Road	Bison Avenue to Ford Road		NB	6D	28,500	0.49	A	29,400	0.51	A
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	8D	24,100	0.35	A	24,500	0.36	A
75	MacArthur Boulevard	South of Birch Street		NB	6D	25,500	0.44	A	26,400	0.46	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	6D	25,900	0.45	A	27,500	0.47	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	6D	46,400	0.80	C	47,100	0.81	D
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	8D	78,100	1.15	F	78,900	1.16	F
2767	University Drive	East of Irvine Avenue		NB	2U	1,400	0.14	A	1,400	0.14	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	5D	19,200	0.40	A	19,300	0.40	A
112	Von Karman Avenue	South of Campus Drive		NB	4D	11,900	0.30	A	13,000	0.33	A
113	Von Karman Avenue	South of Birch Street		NB	4D	12,800	0.32	A	14,000	0.35	A
2795	Dyer Road	Main Street to Halladay Street		SA	6D	30,900	0.55	A	32,000	0.57	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	6D	33,500	0.60	A	35,300	0.63	B
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	6D	46,000	0.82	D	49,100	0.87	D
734	Dyer Road	SR-55 NB to Pullman Street		SA	6D	32,100	0.57	A	34,500	0.61	B
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	6D	23,000	0.41	A	24,200	0.43	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	6D	21,500	0.38	A	22,500	0.40	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	2U	4,900	0.41	A	5,400	0.45	A
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	2U	1,600	0.13	A	1,700	0.14	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	6D	35,800	0.64	B	37,700	0.67	B
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	6D	51,000	0.91	E	52,800	0.94	E
2796	Main Street	Segerstrom Avenue to Alton Avenue		SA	6D	25,300	0.45	A	26,000	0.46	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	6D	28,500	0.51	A	29,500	0.52	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	6D	29,800	0.53	A	30,900	0.55	A



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ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 Cumulative Baseline No Project			Post-2030 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	6D	31,700	0.56	A	32,900	0.58	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	4D	3,900	0.10	A	3,900	0.10	A
2736	Segerstrom Avenue	Bristol Street to Flower Street		SA	6D	15,600	0.28	A	16,100	0.29	A
2771	Segerstrom Avenue	Flower Street to Main Street		SA	6D	23,600	0.42	A	24,300	0.43	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	6D	34,500	0.61	B	35,600	0.63	B
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	6D	42,000	0.75	C	43,700	0.78	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	6D	19,600	0.35	A	21,400	0.38	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	6D	21,900	0.39	A	24,400	0.43	A
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4U	6,200	0.25	A	6,400	0.26	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	4U	18,800	0.75	C	19,000	0.76	C
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	4U	18,600	0.74	C	18,700	0.75	C
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	4D	21,100	0.56	A	21,200	0.57	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	4D	21,800	0.58	A	21,900	0.58	A
44	Edinger Avenue	West of Newport Avenue		Tus	6D	52,300	0.93	E	52,800	0.94	E
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	6D	25,900	0.46	A	26,300	0.47	A
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	6D	31,300	0.56	A	31,900	0.57	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	4U	14,400	0.58	A	14,700	0.59	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	4U	9,000	0.36	A	9,000	0.36	A
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	4U	9,800	0.39	A	9,900	0.40	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	4D	15,900	0.42	A	16,000	0.43	A
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	6D	27,600	0.49	A	28,200	0.50	A
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	6D	18,500	0.33	A	18,800	0.33	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	8,200	0.66	B	8,000	0.64	B
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	2U	5,800	0.46	A	5,700	0.46	A
6	Newport Avenue	El Camino Real to I-5		Tus	6D	37,000	0.66	B	37,500	0.67	B
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	6D	40,100	0.71	C	40,600	0.72	C
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	6D	39,100	0.69	B	39,900	0.71	C
49	Newport Avenue	North of Sycamore Avenue		Tus	6D	22,800	0.40	A	23,400	0.42	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	4U	34,600	1.38	F	35,300	1.41	F
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	2U	6,000	0.48	A	6,000	0.48	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	2U	5,200	0.42	A	5,200	0.42	A
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	6D	43,200	0.77	C	43,200	0.77	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	6D	39,000	0.69	B	39,000	0.69	B
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	6D	38,200	0.68	B	38,200	0.68	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	6D	26,700	0.47	A	26,700	0.47	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	6D	26,000	0.46	A	26,500	0.47	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	6D	27,500	0.49	A	27,500	0.49	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	6D	30,000	0.53	A	30,000	0.53	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	6D	28,300	0.50	A	29,000	0.52	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	6D	31,600	0.56	A	33,400	0.59	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	7D	31,800	0.48	A	34,400	0.52	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	4U	7,400	0.30	A	7,500	0.30	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	8,400	0.34	A	8,500	0.34	A
85	Tustin Ranch Road	North of I-5		Tus	6D	38,500	0.68	B	38,300	0.68	B
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	6D	36,600	0.65	B	36,900	0.66	B
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	15,900	0.64	B	16,500	0.66	B
587	Walnut Avenue	East of Newport Avenue		Tus	4U	20,800	0.83	D	21,000	0.84	D



Table 5.10: Post-2030 Cumulative With Project Daily Arterial LOS

ID	Arterial	Segment Limits	P.A. 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 Cumulative Baseline No Project			Post-2030 Cumulative With Project		
						Volume	V/C	LOS	Volume	V/C	LOS
589	Walnut Avenue	East of Red Hill Avenue		Tus	4D	17,400	0.46	A	17,500	0.47	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	4D	22,500	0.60	A	22,700	0.61	B
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	4D	21,000	0.56	A	21,200	0.57	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	6D	34,300	0.61	B	35,900	0.64	B

5.12 Post-2030 Cumulative With Project Peak Hour Link Analysis

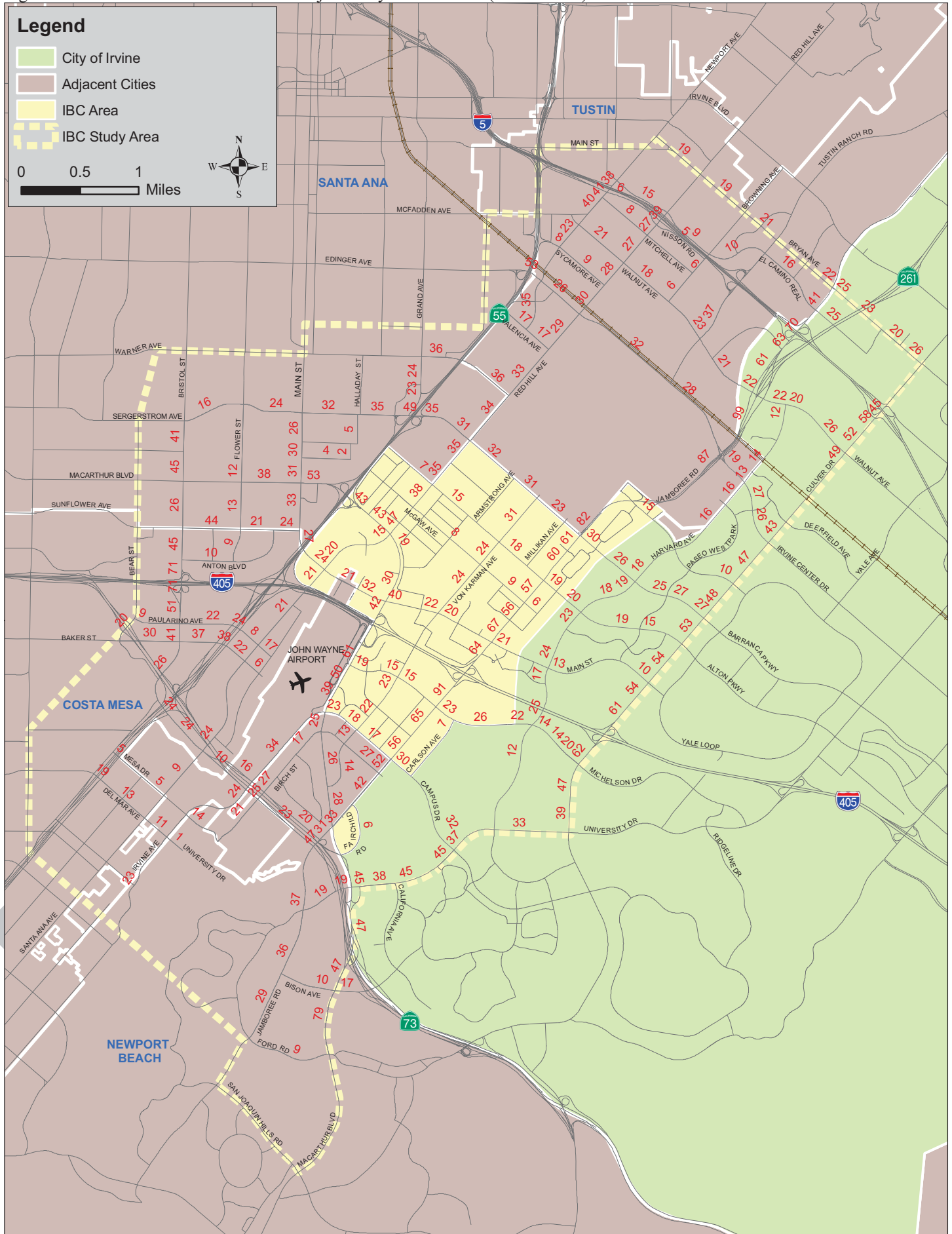
Table 5.11 presents the results of the peak hour link analysis for deficient arterial segments located within the City of Irvine. All arterial segments that are deficient under daily conditions operate at an acceptable LOS in both peak hours, performing at LOS D or better. Since all segments operate at an acceptable peak hour LOS there are no significant project impacts, hence no mitigation measures are recommended for these facilities.

5.13 Post-2030 Cumulative With Project Peak Hour Intersection Analysis

The intersection analysis includes both a reporting of intersection ICU and the corresponding LOS, as well as a comparison between the Post-2030 Cumulative Baseline No Project and With Project scenarios. The results of this analysis are presented in **Table 5.12**. Deficient intersections are discussed later in the chapter. The project impacts and mitigation strategies are discussed in detail in **Chapter 6**.

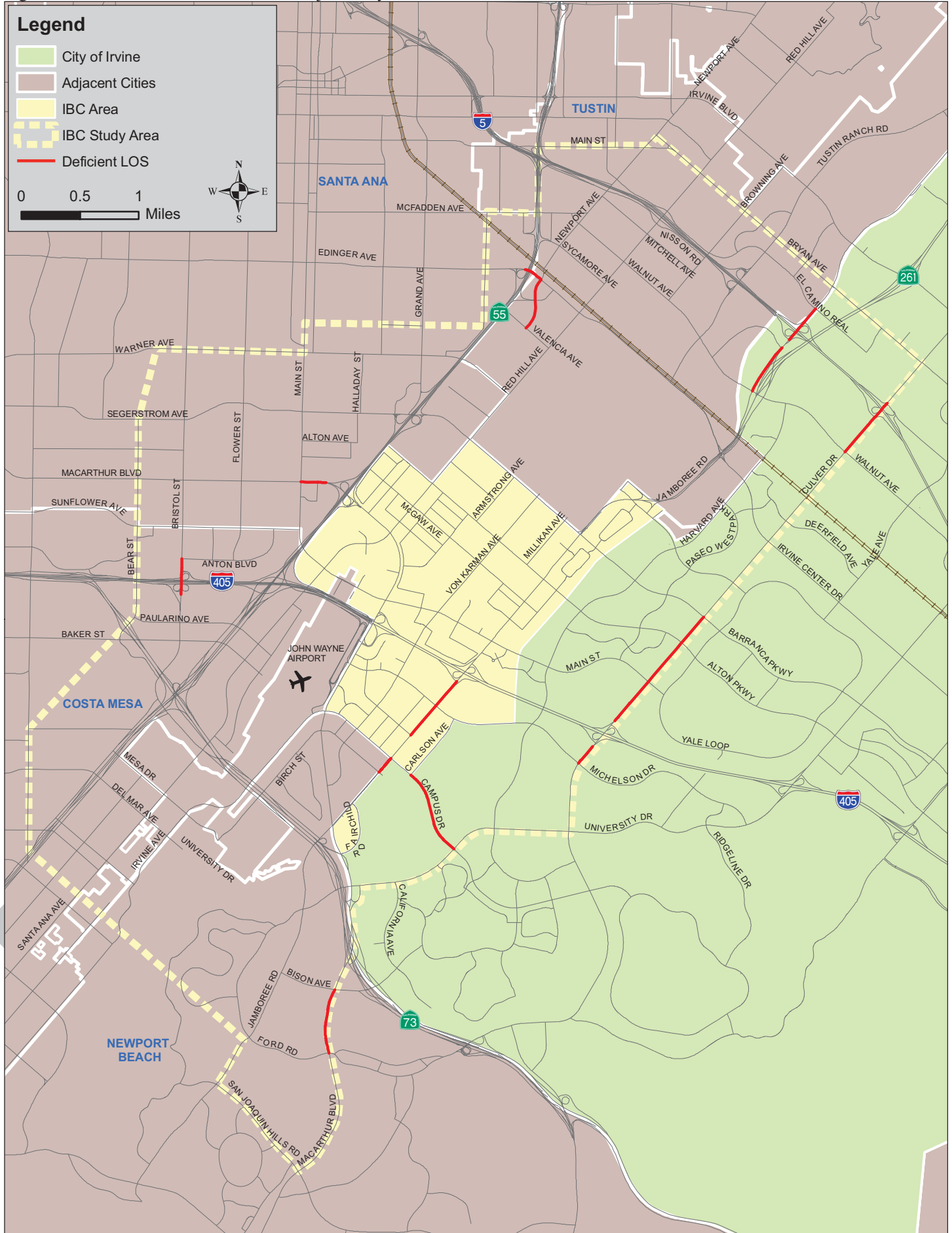
Figure 5.12 and **Figure 5.13** graphically present the AM and PM peak hour intersection ICU for deficient intersections for the Post-2030 Cumulative With Project scenario. **Appendix B** presents detailed intersection ICU analysis worksheets.

Figure 5.10: Post-2030 Cumulative With Project Daily Arterial ADT (in thousands)



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Figure 5.11: Post-2030 Cumulative With Project Daily Arterial Deficiencies



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Table 5.11: Post-2030 Cumulative With Project Peak Hour Link Analysis

ID	Arterial	Segment Limits	Facility Type	Peak Hour Volume				AM				PM			
				AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
				NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
879	Campus Drive	Carlson Avenue to University	4U	1,330	1,620	1,890	1,520	0.42	A	0.41	A	0.59	A	0.38	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps	Maj5D +1AUX	1,750	2,550	3,040	1,760	0.36	A	0.80	C	0.63	B	0.55	A
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,460	2,590	2,310	2,440	0.30	A	0.54	A	0.48	A	0.51	A
214	Culver Drive	Scottsdale Drive to Walnut Avenue	6D	1,470	2,680	2,490	2,170	0.31	A	0.56	A	0.52	A	0.45	A
219	Culver Drive	Barranca Parkway to Alton Parkway	6D	1,380	2,650	2,690	1,740	0.29	A	0.55	A	0.56	A	0.36	A
220	Culver Drive	Alton Parkway to Main Street	6D	1,440	2,840	2,860	2,030	0.30	A	0.59	A	0.60	A	0.42	A
221	Culver Drive	Main Street to San Leandro	6D	1,390	2,910	2,750	1,970	0.29	A	0.52	A	0.57	A	0.35	A
222	Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,370	2,250	2,980	1,960	0.29	A	0.40	A	0.62	B	0.35	A
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,440	2,400	2,520	1,780	0.30	A	0.43	A	0.53	A	0.32	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D +1AUX	1,820	2,290	3,590	2,140	0.28	A	0.48	A	0.56	A	0.45	A
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	8D	1,940	2,830	3,220	2,100	0.30	A	0.44	A	0.50	A	0.33	A
133	Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,830	2,050	3,280	1,290	0.38	A	0.64	B	0.68	B	0.40	A
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	Maj8D +2AUX	2,540	4,260	4,690	3,990	0.35	A	0.59	A	0.65	B	0.55	A
149	Jamboree Road	Michelson Drive to Dupont Drive	7D	1,940	3,330	3,250	2,780	0.30	A	0.69	B	0.51	A	0.58	A
151	Jamboree Road	Campus Drive to Birch Street	6D	1,870	2,710	2,730	2,720	0.39	A	0.56	A	0.57	A	0.57	A



Table 5.12: Post-2030 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project				Post-2030 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino			CM	1.02	F	0.66	B	1.02	F	0.67	B
11	SR-55 Frontage Road NB Ramps at Paularino			CM	0.78	C	0.83	D	0.79	C	0.85	D
12	SR-55 SB Frontage Road at Baker Street	*		CM	1.18	F	0.76	C	1.19	F	0.78	C
13	SR-55 NB Frontage Road at Baker Street	*		CM	1.01	F	0.82	D	1.02	F	0.86	D
50	Red Hill Avenue at Paularino Avenue			CM	0.70	B	0.84	D	0.71	C	0.88	D
51	Red Hill Avenue at Baker Street			CM	0.67	B	0.86	D	0.68	B	0.90	D
52	Red Hill Avenue at Bristol Street			CM	0.73	C	0.53	A	0.76	C	0.55	A
541	Bear Street at Baker Street			CM	0.76	C	0.68	B	0.78	C	0.70	B
542	Bear Street at Paularino Avenue			CM	0.45	A	0.65	B	0.45	A	0.67	B
545	Bristol Street at Sunflower Avenue			CM	0.67	B	0.79	C	0.68	B	0.79	C
546	Bristol Street at Anton Boulevard			CM	0.43	A	0.71	C	0.44	A	0.72	C
547	Bristol Street and Paularino Avenue			CM	0.64	B	0.85	D	0.65	B	0.86	D
548	Bristol Street at Baker Street			CM	0.60	A	0.73	C	0.61	B	0.75	C
549	Newport Boulevard at Bristol Street			CM	0.25	A	0.50	A	0.25	A	0.52	A
550	Newport Boulevard NB at Bristol Street			CM	0.32	A	0.40	A	0.32	A	0.42	A
715	Bristol Street at I-405 NB Off Ramps			CM	0.49	A	0.68	B	0.49	A	0.70	B
716	Bristol Street at I-405 SB Off Ramps			CM	0.71	C	0.69	B	0.70	B	0.70	B
717	Bear Street at SR-73 SB Ramps			CM	0.56	A	0.88	D	0.58	A	0.89	D
718	Bear Street at SR-73 NB Ramps			CM	0.40	A	0.66	B	0.42	A	0.68	B
721	Flower Street at Sunflower Avenue			CM	0.42	A	0.54	A	0.43	A	0.57	A
722	Anton Boulevard at Sunflower Avenue			CM	0.39	A	0.35	A	0.40	A	0.40	A
726	Main Street at Sunflower Avenue			CM	0.59	A	0.75	C	0.66	B	0.80	C
735	Newport Boulevard NB at Del Mar Avenue			CM	0.66	B	0.50	A	0.67	B	0.50	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue			CM	0.41	A	0.52	A	0.42	A	0.53	A
737	Newport Boulevard NB at Mesa Road			CM	0.29	A	0.32	A	0.28	A	0.33	A
738	Newport Boulevard SB at Mesa Road			CM	0.22	A	0.60	A	0.22	A	0.61	B
45	Red Hill Avenue at McGaw Avenue	a		Irv	0.57	A	0.69	B	0.65	B	0.76	C
47	Red Hill Avenue at MacArthur Avenue	a		Irv	0.74	C	0.82	D	0.83	D	0.91	E
48	Red Hill Avenue at Sky Park North	a		Irv	0.41	A	0.58	A	0.45	A	0.63	B
49	Red Hill Avenue at Main Street	a		Irv	0.73	C	0.82	D	0.79	C	0.86	D
70	Gillette Avenue at Main Street	a		Irv	0.38	A	0.73	C	0.47	A	0.77	C
77	MacArthur Boulevard at Sky Park East	a		Irv	0.30	A	0.41	A	0.32	A	0.43	A
78	MacArthur Boulevard at Main Street	a		Irv	0.60	A	0.80	C	0.69	B	0.91	E
79	MacArthur Boulevard at I-405 NB Ramps	a		Irv	0.70	B	0.70	B	0.80	C	0.75	C
80	MacArthur Boulevard at I-405 SB Ramps	a		Irv	0.60	A	0.74	C	0.66	B	0.83	D
82	MacArthur Boulevard at Michelson Drive	a		Irv	0.65	B	0.85	D	0.70	B	0.95	E
83	MacArthur Boulevard at Douglas Avenue	a		Irv	0.39	A	0.43	A	0.47	A	0.55	A
87	Dupont Drive at Michelson Drive	a		Irv	0.39	A	0.43	A	0.50	A	0.56	A
98	Von Karman Avenue at Alton Parkway	a		Irv	0.69	B	0.89	D	0.77	C	0.95	E
99	Von Karman Avenue at McGaw Avenue	a		Irv	0.62	B	0.81	D	0.72	C	0.91	E
100	Von Karman Avenue at Main Street	a		Irv	0.71	C	0.80	C	0.84	D	0.88	D
101	Von Karman Avenue at Morse Avenue	a		Irv	0.48	A	0.60	A	0.58	A	0.68	B
102	Von Karman Avenue at Michelson Drive	a		Irv	0.61	B	0.83	D	0.72	C	0.94	E
103	Von Karman Avenue at Dupont Drive	a		Irv	0.46	A	0.57	A	0.61	B	0.72	C
104	Von Karman Avenue at Martin	a		Irv	0.38	A	0.60	A	0.47	A	0.69	B
115	Millikan Avenue at Alton Parkway	a		Irv	0.42	A	0.44	A	0.46	A	0.48	A
116	Cartwright Road at Main Street	a		Irv	0.36	A	0.57	A	0.46	A	0.69	B
119	Teller Avenue at Michelson Drive	a		Irv	0.49	A	0.57	A	0.62	B	0.71	C
128	Jamboree Road at I-5 NB Ramps	b		Irv	0.67	B	0.73	C	0.65	B	0.72	C



Table 5.12: Post-2030 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project				Post-2030 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
129	Jamboree Road at I-5 SB Ramps	b		Irv	0.68	B	0.63	B	0.65	B	0.62	B
130	Jamboree Road at Michelle Drive			Irv	0.76	C	0.71	C	0.80	C	0.70	B
131	Jamboree Road SB at Walnut Avenue			Irv	0.47	A	0.55	A	0.48	A	0.57	A
132	Jamboree Road NB at Walnut Avenue			Irv	0.57	A	0.72	C	0.58	A	0.73	C
137	Jamboree Road at Beckman Avenue	a		Irv	0.69	B	0.75	C	0.73	C	0.78	C
138	Jamboree Road at Alton Parkway	a		Irv	0.78	C	0.80	C	0.82	D	0.83	D
139	Jamboree Road at McGaw Avenue	a		Irv	0.62	B	0.70	B	0.70	B	0.74	C
140	Jamboree Road at Kelvin Avenue	a		Irv	0.64	B	0.64	B	0.84	D	0.74	C
141	Jamboree Road at Main Street	a,*		Irv	0.82	D	0.92	E	0.92	E	1.02	F
143	Jamboree Road at I-405 NB Ramps	a,b		Irv	0.65	B	0.84	D	0.71	C	0.95	E
144	Jamboree Road at I-405 SB Ramps	a,b		Irv	0.80	C	0.88	D	0.91	E	0.97	E
145	Jamboree Road at Michelson Drive	a,*		Irv	0.74	C	1.05	F	0.81	D	1.26	F
146	Jamboree Road at Dupont Road	a		Irv	0.69	B	0.73	C	0.74	C	0.85	D
164	Construction Circle South at Barranca Parkway	a		Irv	0.44	A	0.61	B	0.45	A	0.68	B
168	Murphy Avenue at Alton Parkway	a		Irv	0.43	A	0.71	C	0.48	A	0.79	C
170	Union at Main Street	a		Irv	0.37	A	0.56	A	0.41	A	0.62	B
171	Veneto at Main Street			Irv	0.37	A	0.52	A	0.39	A	0.55	A
174	Carlson Avenue at Michelson Drive	a		Irv	0.49	A	0.61	B	0.69	B	0.79	C
175	Carlson Avenue at Campus Drive	a		Irv	0.69	B	0.74	C	0.74	C	0.85	D
180	Harvard Avenue at Walnut Avenue			Irv	0.54	A	0.53	A	0.54	A	0.54	A
183	Harvard Avenue at Warner Avenue			Irv	0.68	B	0.71	C	0.69	B	0.73	C
184	Harvard Avenue at Barranca Parkway			Irv	0.61	B	0.68	B	0.63	B	0.70	B
185	Harvard Avenue at Alton Parkway			Irv	0.63	B	0.74	C	0.65	B	0.75	C
186	Harvard Avenue at Main Street			Irv	0.55	A	0.74	C	0.60	A	0.79	C
187	Harvard Avenue at Coronado			Irv	0.53	A	0.57	A	0.58	A	0.58	A
188	Harvard Avenue at Michelson Drive			Irv	0.64	B	0.91	E	0.71	C	0.91	E
189	Harvard Avenue at University Drive			Irv	0.82	D	0.80	C	0.86	D	0.85	D
190	University Drive at Campus Drive		√	Irv	0.77	C	0.79	C	0.79	C	0.84	D
191	Mesa Road at University Drive			Irv	0.48	A	0.79	C	0.49	A	0.81	D
192	California Avenue at University Drive			Irv	0.83	D	0.85	D	0.83	D	0.90	D
193	MacArthur Boulevard NB at University Drive			Irv	0.66	B	0.70	B	0.67	B	0.73	C
196	Hearthstone Boulevard at Irvine Center Drive			Irv	0.67	B	0.66	B	0.67	B	0.67	B
198	Paseo Westpark at Warner Avenue			Irv	0.58	A	0.48	A	0.58	A	0.48	A
199	Paseo Westpark at Barranca Parkway			Irv	0.54	A	0.60	A	0.52	A	0.61	B
200	Paseo Westpark at Alton Parkway			Irv	0.55	A	0.59	A	0.57	A	0.63	B
201	Paseo Westpark at Main Street			Irv	0.61	B	0.52	A	0.62	B	0.53	A
221	Culver Drive at Bryan Avenue			Irv	0.89	D	0.74	C	0.89	D	0.76	C
222	Culver Drive at Trabuco Road			Irv	0.78	C	0.77	C	0.78	C	0.77	C
223	Culver Drive at I-5 SB Ramps			Irv	0.60	A	0.65	B	0.60	A	0.65	B
224	Culver Drive at Walnut Avenue		√	Irv	0.76	C	0.83	D	0.76	C	0.83	D
225	Culver Drive at Deerfield Drive			Irv	0.80	C	0.84	D	0.81	D	0.85	D
226	Culver Drive at Irvine Center Drive		√	Irv	0.72	C	0.66	B	0.73	C	0.66	B
227	Culver Drive at Warner Avenue			Irv	0.80	C	0.63	B	0.82	D	0.66	B
228	Culver Drive at Barranca Parkway		√	Irv	0.83	D	0.73	C	0.85	D	0.75	C
229	Culver Drive at Alton Parkway		√	Irv	0.76	C	0.80	C	0.77	C	0.83	D
230	Culver Drive at Main Street			Irv	0.72	C	0.71	C	0.72	C	0.73	C
231	Culver Drive at San Leandro			Irv	0.79	C	0.59	A	0.81	D	0.61	B
232	Culver Drive at I-405 NB Ramps	*		Irv	0.56	A	0.92	E	0.56	A	0.95	E
233	Culver Drive at I-405 SB Ramps			Irv	0.55	A	0.62	B	0.58	A	0.65	B
234	Culver Drive at Michelson Drive			Irv	0.60	A	0.77	C	0.64	B	0.80	C
235	Culver Drive at University Drive		√	Irv	0.55	A	0.70	B	0.55	A	0.72	C



Table 5.12: Post-2030 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project				Post-2030 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
337	Von Karman Avenue at Quartz	a		Irv	0.57	A	0.73	C	0.62	B	0.77	C
439	Bixby at Michelson Drive			Irv	0.28	A	0.45	A	0.43	A	0.56	A
440	Siglo at Main Street			Irv	0.37	A	0.51	A	0.50	A	0.60	A
472	Obsidian at Michelson Drive	a		Irv	0.45	A	0.34	A	0.54	A	0.46	A
84	MacArthur Boulevard at Campus Drive	a		Irv/NB	0.62	B	0.68	B	0.66	B	0.73	C
105	Von Karman Avenue at Campus Drive	a		Irv/NB	0.56	A	0.87	D	0.62	B	0.90	D
121	Teller Avenue at Campus Drive	a		Irv/NB	0.39	A	0.50	A	0.47	A	0.56	A
147	Jamboree Road at Campus Drive	a		Irv/NB	0.77	C	0.73	C	0.87	D	0.76	C
149	Jamboree Road at Fairchild Road	a		Irv/NB	0.71	C	0.74	C	0.81	D	0.82	D
150	Jamboree Road at MacArthur Boulevard	a,b		Irv/NB	0.82	D	0.76	C	0.88	D	0.83	D
176	Fairchild Avenue at MacArthur Boulevard	a		Irv/NB	0.85	D	0.74	C	0.88	D	0.79	C
43	Red Hill Avenue at Deere Avenue	a		Irv/SA	0.48	A	0.72	C	0.54	A	0.78	C
44	Red Hill Avenue at Alton Parkway	a		Irv/SA	0.54	A	0.89	D	0.60	A	0.92	E
9	SR-55 NB Ramps at MacArthur Boulevard	a		Irv/SA	0.83	D	0.60	A	0.86	D	0.63	B
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a		Irv/SA/	0.65	B	0.75	C	0.70	B	0.75	C
71	Armstrong Avenue at Barranca Avenue	a		Irv/Tus	0.44	A	0.49	A	0.50	A	0.53	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca	a		Irv/Tus	0.55	A	0.73	C	0.57	A	0.79	C
112	Myford Road at Michelle Drive			Irv/Tus	0.31	A	0.44	A	0.29	A	0.42	A
113	Myford Road at Walnut Avenue			Irv/Tus	0.48	A	0.53	A	0.48	A	0.53	A
114	Millikan Avenue/District Way at Barranca Parkway	a		Irv/Tus	0.37	A	0.72	C	0.46	A	0.76	C
126	Jamboree Road at Bryan Avenue			Irv/Tus	0.72	C	0.64	B	0.72	C	0.63	B
127	Jamboree Road at El Camino Real			Irv/Tus	0.70	B	0.72	C	0.70	B	0.70	B
134	Loop Road/Park Avenue at Warner Avenue	*		Irv/Tus	0.43	A	1.05	F	0.48	A	1.07	F
136	Jamboree Road at Barranca Avenue	a,*		Irv/Tus	0.86	D	1.03	F	0.87	D	1.04	F
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive			Irv/Tus	0.63	B	0.64	B	0.62	B	0.63	B
182	Harvard Avenue at Paseo Westpark/Moffett Drive			Irv/Tus	0.51	A	0.48	A	0.54	A	0.51	A
441	Loop Road at Jamboree Road SB Ramps			Irv/Tus	0.28	A	0.19	A	0.27	A	0.19	A
61	Campus Drive at Airport Way			NB	0.41	A	0.70	B	0.47	A	0.71	C
62	Campus Drive at Bristol Street NB	*		NB	0.72	C	0.92	E	0.76	C	0.95	E
63	Campus Drive at Bristol Street SB			NB	0.83	D	0.57	A	0.87	D	0.59	A
64	Birch Street at Bristol Street NB			NB	0.72	C	0.70	B	0.74	C	0.75	C
65	Birch Street at Bristol Street SB			NB	0.50	A	0.59	A	0.51	A	0.59	A
85	MacArthur Boulevard at Birch Street	*		NB	0.73	C	0.92	E	0.73	C	0.97	E
106	Von Karman Avenue at Birch Street			NB	0.48	A	0.62	B	0.48	A	0.68	B
107	Von Karman Avenue at MacArthur Boulevard			NB	0.35	A	0.53	A	0.37	A	0.56	A
148	Jamboree Road at Birch Street			NB	0.47	A	0.56	A	0.50	A	0.66	B
151	Jamboree Road at Bristol Street NB			NB	0.41	A	0.53	A	0.39	A	0.54	A
153	Jamboree Road at Bristol Street SB			NB	0.45	A	0.51	A	0.48	A	0.53	A
154	Jamboree Road at Eastbluff Drive			NB	0.61	B	0.60	A	0.62	B	0.61	B
155	Jamboree Road at Bison Avenue			NB	0.45	A	0.52	A	0.46	A	0.52	A
156	Jamboree Road at Ford Road			NB	0.63	B	0.74	C	0.63	B	0.75	C
178	MacArthur Boulevard at Bison Avenue			NB	0.62	B	0.71	C	0.62	B	0.72	C
179	MacArthur Boulevard at Ford Road			NB	0.69	B	0.71	C	0.67	B	0.70	B
194	MacArthur Boulevard SB at University Drive			NB	0.72	C	0.65	B	0.75	C	0.72	C
195	SR-73 SB Ramps at University Drive			NB	0.76	C	0.58	A	0.77	C	0.61	B
733	Irvine Avenue at Mesa Drive			NB/OC	0.51	A	0.71	C	0.51	A	0.73	C
734	Irvine Avenue at University Drive/Del Mar Avenue			NB/OC	0.47	A	0.58	A	0.49	A	0.60	A
741	Jamboree Road at San Joaquin Hills Road			NB	0.56	A	0.56	A	0.56	A	0.56	A
742	MacArthur Boulevard at San Joaquin Hills Road			NB	0.63	B	0.63	B	0.62	B	0.63	B
4	SR-55 SB Ramps at Edinger Avenue	b		SA	0.74	C	0.73	C	0.75	C	0.76	C
5	Hotel Terrace Drive at Dyer Road			SA	0.59	A	0.66	B	0.61	B	0.69	B



Table 5.12: Post-2030 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project				Post-2030 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
6	Grand Avenue at Dyer Road			SA	0.56	A	0.64	B	0.57	A	0.69	B
7	SR-55 NB Ramps at Dyer Road			SA	0.85	D	0.86	D	0.88	D	0.89	D
8	SR-55 SB Ramps at MacArthur Boulevard	c		SA	0.76	C	0.61	B	0.79	C	0.62	B
29	Pullman Street at Barranca Parkway			SA	0.53	A	0.82	D	0.57	A	0.85	D
543	Bristol Street at Segerstrom Avenue	*		SA	0.85	D	0.95	E	0.90	D	0.97	E
544	Bristol Street at MacArthur Boulevard			SA	0.67	B	0.83	D	0.67	B	0.84	D
719	Flower Street at Segerstrom Avenue			SA	0.87	D	0.86	D	0.89	D	0.88	D
720	Flower Street at MacArthur Boulevard			SA	0.63	B	0.82	D	0.68	B	0.85	D
723	Main Street at Segerstrom Avenue	*		SA	0.81	D	0.89	D	0.86	D	0.91	E
724	Main Street at Alton Avenue			SA	0.36	A	0.49	A	0.38	A	0.52	A
725	Main Street and MacArthur Boulevard (w/o SR-55)	c		SA	0.61	B	0.60	A	0.64	B	0.62	B
727	Halladay Street at Dyer Road			SA	0.58	A	0.68	B	0.65	B	0.74	C
728	Halladay Street East at Alton Parkway			SA	0.21	A	0.31	A	0.27	A	0.37	A
729	Halladay Street West at Alton Parkway			SA	0.20	A	0.25	A	0.26	A	0.28	A
730	Grand Avenue at Warner Avenue	*		SA	0.79	C	0.92	E	0.83	D	0.96	E
731	Grand Avenue at SR-55 SB Ramps			SA	0.57	A	0.45	A	0.61	B	0.48	A
3	Newport Avenue at Edinger Avenue			Tus	0.92	E	0.78	C	0.92	E	0.80	C
14	Walnut Avenue to McFadden Avenue			Tus	0.51	A	0.56	A	0.51	A	0.57	A
18	Newport Avenue at Bryan Avenue			Tus	0.58	A	0.65	B	0.59	A	0.66	B
19	Newport Avenue at Main Street			Tus	0.59	A	0.75	C	0.60	A	0.76	C
20	Newport Avenue at El Camino Real			Tus	0.78	C	0.74	C	0.79	C	0.74	C
21	Newport Avenue at I-5 NB Ramps			Tus	0.66	B	0.58	A	0.67	B	0.59	A
22	Newport Avenue at I-5 SB Ramps			Tus	0.53	A	0.74	C	0.55	A	0.75	C
23	Newport Avenue at McFadden Avenue			Tus	0.68	B	0.54	A	0.69	B	0.55	A
24	Newport Avenue at Walnut Avenue			Tus	0.91	E	0.93	E	0.91	E	0.95	E
25	Newport Avenue at Sycamore Avenue			Tus	0.63	B	0.64	B	0.63	B	0.66	B
27	Del Amo Avenue at Edinger Avenue			Tus	0.49	A	0.42	A	0.50	A	0.43	A
35	Red Hill Avenue at Bryan Avenue			Tus	0.60	A	0.61	B	0.60	A	0.62	B
36	Red Hill Avenue at El Camino Real			Tus	0.62	B	0.83	D	0.63	B	0.84	D
37	Red Hill Avenue at Nisson Road			Tus	0.64	B	0.69	B	0.64	B	0.69	B
38	Red Hill Avenue at Walnut Avenue			Tus	0.76	C	0.84	D	0.75	C	0.85	D
39	Red Hill Avenue at Sycamore Avenue			Tus	0.63	B	0.60	A	0.62	B	0.63	B
40	Red Hill Avenue at Edinger Avenue			Tus	0.73	C	0.78	C	0.74	C	0.77	C
55	Browning Avenue at Bryan Avenue			Tus	0.56	A	0.67	B	0.56	A	0.67	B
56	Browning Avenue at El Camino Real			Tus	0.33	A	0.43	A	0.34	A	0.44	A
58	Browning Avenue at Walnut Avenue			Tus	0.45	A	0.62	B	0.47	A	0.61	B
92	Tustin Ranch Road at Bryan Avenue			Tus	0.81	D	0.86	D	0.80	C	0.87	D
93	Tustin Ranch Road at El Camino Real	*		Tus	1.02	F	0.84	D	1.03	F	0.84	D
94	Tustin Ranch Road at I-5 NB Ramps			Tus	0.73	C	0.52	A	0.72	C	0.53	A
95	Tustin Ranch Road at I-5 SB Ramps			Tus	0.85	D	0.57	A	0.85	D	0.57	A
96	Tustin Ranch Road at Walnut Avenue			Tus	0.79	C	0.68	B	0.79	C	0.68	B
109	Myford Road at Bryan Avenue			Tus	0.55	A	0.55	A	0.54	A	0.57	A
110	Myford Road at El Camino Real			Tus	0.38	A	0.61	B	0.38	A	0.61	B
111	Franklin Avenue at Walnut Avenue			Tus	0.56	A	0.97	E	0.57	A	0.97	E
133	Jamboree Road at Edinger Avenue	b		Tus	0.51	A	0.68	B	0.52	A	0.69	B
445	Tustin Ranch Road at Warner Avenue North			Tus	0.49	A	0.56	A	0.52	A	0.60	A
446	Tustin Ranch Road at Warner Avenue South			Tus	0.65	B	0.55	A	0.65	B	0.58	A
447	Armstrong Avenue/Severyns Road at Valencia Avenue			Tus	0.54	A	0.43	A	0.54	A	0.43	A
448	Armstrong Avenue at Warner Avenue			Tus	0.40	A	0.49	A	0.43	A	0.51	A
453	Red Hill Avenue at Valencia Avenue			Tus	0.66	B	0.77	C	0.67	B	0.77	C
454	Tustin Ranch Road at Valencia Avenue			Tus	0.54	A	0.54	A	0.57	A	0.55	A

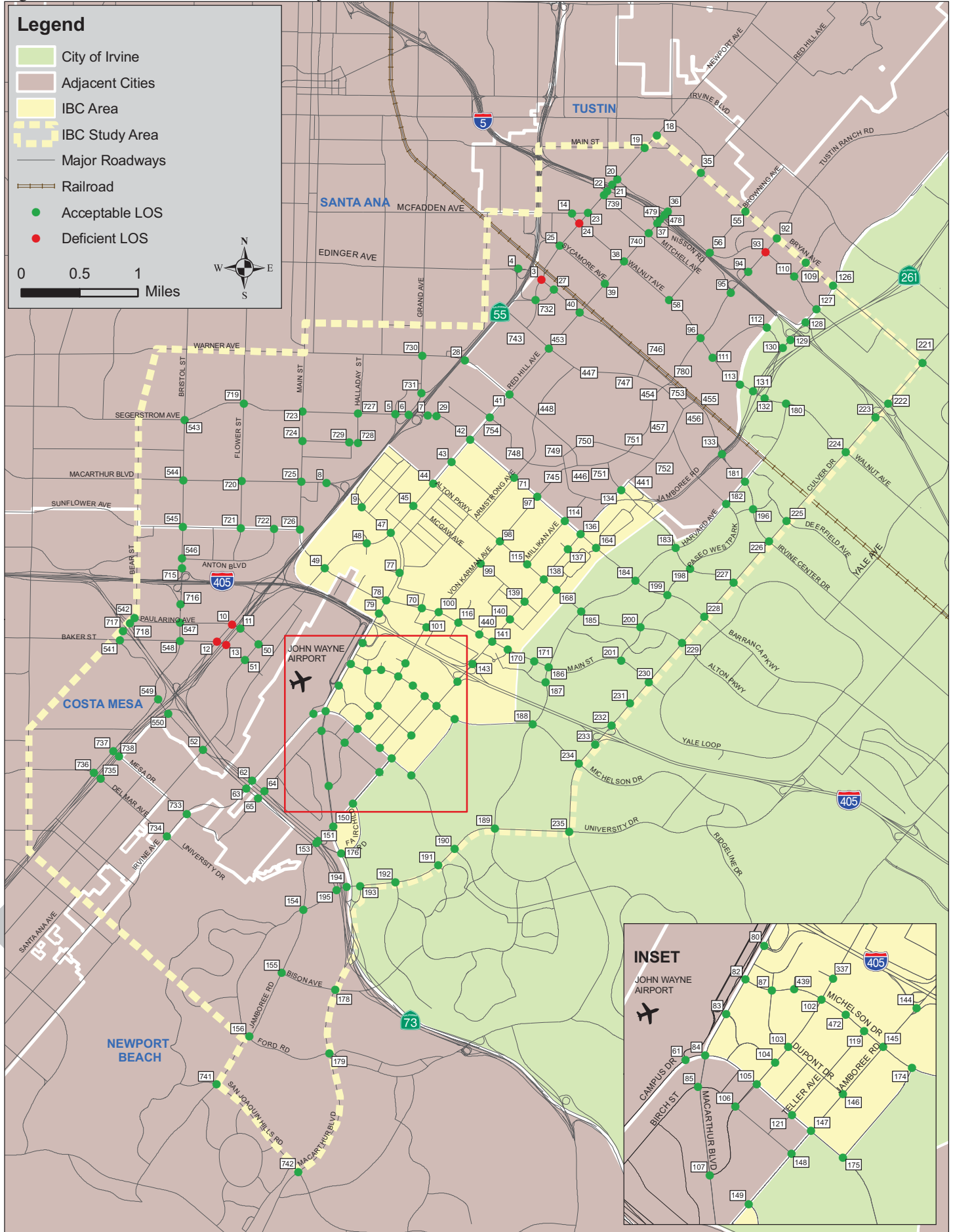


Table 5.12: Post-2030 Cumulative With Project Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	Pre-established ATMS Locations (Post-2030)	Jurisdiction	Post-2030 Cumulative Baseline No Project				Post-2030 Cumulative With Project			
					AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
455	East Connector-Jamboree Plaza at Edinger Avenue			Tus	0.34	A	0.33	A	0.33	A	0.34	A
456	North Loop Road at Valencia Avenue			Tus	0.25	A	0.24	A	0.25	A	0.25	A
457	North Loop Road at Moffett Drive			Tus	0.13	A	0.16	A	0.13	A	0.16	A
478	Red Hill Avenue at I-5 NB Ramps			Tus	0.83	D	0.63	B	0.82	D	0.64	B
479	Red Hill Avenue at I-5 SB Ramps			Tus	0.82	D	0.82	D	0.85	D	0.84	D
480	Tustin Ranch Road Connector at Edinger Avenue			Tus	0.19	A	0.23	A	0.20	A	0.24	A
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue			Tus	0.61	B	0.89	D	0.61	B	0.90	D
739	Newport Avenue at Mitchell Avenue			Tus	0.67	B	0.70	B	0.68	B	0.71	C
740	Red Hill Avenue at Mitchell Avenue			Tus	0.62	B	0.64	B	0.64	B	0.64	B
743	Newport Avenue at Valencia Avenue			Tus	0.59	A	0.73	C	0.59	A	0.75	C
745	Tustin Ranch Road at Park Avenue			Tus	0.57	A	0.51	A	0.58	A	0.53	A
746	Kensington Park Drive at Edinger Avenue			Tus	0.58	A	0.62	B	0.59	A	0.63	B
747	Kensington Park Drive at Valencia Avenue			Tus	0.32	A	0.33	A	0.32	A	0.33	A
748	Armstrong Avenue at A Street			Tus	0.50	A	0.58	A	0.53	A	0.60	A
749	Park Avenue at A Street			Tus	0.67	B	0.52	A	0.67	B	0.52	A
750	Legacy Road at Warner Avenue			Tus	0.44	A	0.50	A	0.43	A	0.49	A
751	Tustin Ranch Road at Legacy Road			Tus	0.46	A	0.44	A	0.48	A	0.45	A
752	Legacy Road at North Loop Road			Tus	0.21	A	0.17	A	0.20	A	0.17	A
753	Tustin Ranch Road at Edinger Avenue Connector			Tus	0.51	A	0.49	A	0.53	A	0.50	A
28	Pullman Street at Warner Avenue			Tus/SA	0.57	A	0.64	B	0.58	A	0.67	B
41	Red Hill Avenue at Warner Avenue			Tus/SA	0.85	D	0.82	D	0.90	D	0.86	D
754	Red Hill Avenue at Carnegie Avenue/A Street	*		Tus/SA	0.61	B	0.93	E	0.62	B	0.95	E

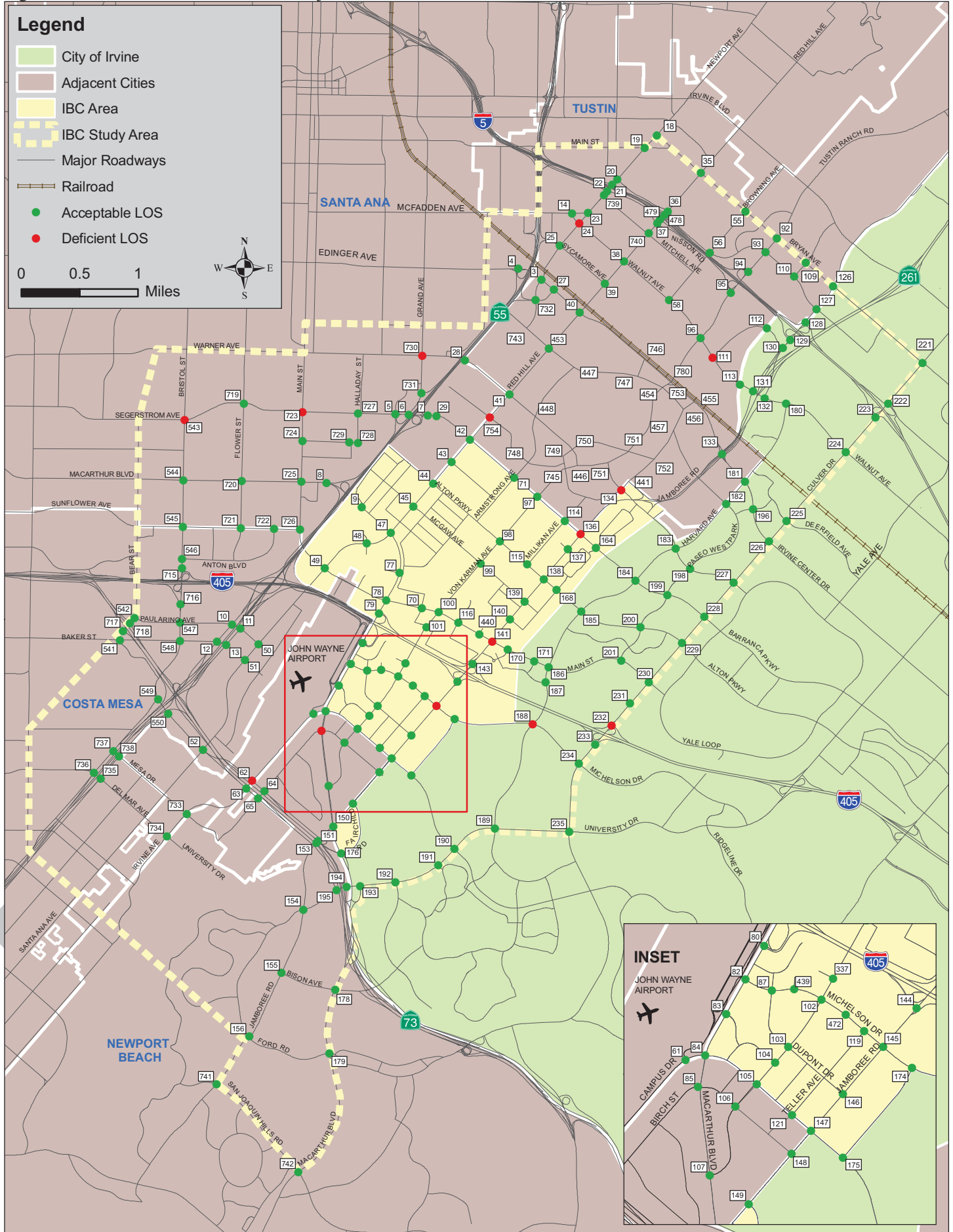
- Denotes intersection operating at a deficient LOS
- a Intersection within Irvine Planning Area 36--LOS E acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E acceptable
- √ ATMS credit-Reduction of 0.05 applied to ICU
- * Significant Project Impact

Figure 5.12: Post-2030 Cumulative With Project AM Peak Hour Intersection Deficiencies



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Figure 5.13: Post-2030 Cumulative With Project PM Peak Hour Intersection Deficiencies



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When comparing the No Project and With Project scenarios, there are two additional intersections that are deficient, #141: Jamboree Road at Main Street, and #723: Main Street at Dyer Road (Segerstrom Avenue), both in the PM peak hour. Further discussion of specific impacts, mitigation, and fair-share cost analysis is addressed in **Chapter 6**. Based on the Post-2030 Cumulative With Project intersection ICU analysis, the following intersections within the study area are forecast to operate at a deficient LOS:

AM Peak Hour:

- o #10: SR-55 Frontage Road Southbound Ramps at Paularino Avenue (Costa Mesa)
- o #12: SR-55 Southbound Frontage Road at Baker Street (Costa Mesa)*
- o #13: SR-55 Northbound Frontage Road at Baker Street (Costa Mesa)*
- o #3: Newport Avenue at Edinger Avenue (Tustin)
- o #24: Newport Avenue at Walnut Avenue (Tustin)*
- o #93: Tustin Ranch Road at El Camino Real (Tustin)*

PM Peak Hour:

- o #141: Jamboree Road at Main Street (Irvine)*
- o #145: Jamboree Road at Michelson Drive (Irvine)*
- o #188: Harvard Avenue at Michelson Drive (Irvine)
- o #232: Culver Drive at I-405 Northbound Ramps (Irvine)*
- o #134: Loop Road/Park Avenue at Warner Avenue (Irvine/Tustin)*
- o #136: Jamboree Road at Barranca Avenue (Irvine/Tustin)*
- o #62: Campus Drive at Bristol Street (Newport Beach)*
- o #85: MacArthur Boulevard at Birch Street (Newport Beach)*
- o #543: Bristol Street at Segerstrom Avenue (Santa Ana)*
- o #723: Main Street at Dyer Road (Segerstrom Avenue) (Santa Ana)*
- o #730: Grand Avenue at Warner Avenue (Santa Ana)*
- o #24: Newport Avenue at Walnut Avenue (Tustin)*
- o #111: Franklin Avenue at Walnut Avenue (Tustin)
- o #754: Red Hill Avenue at Carnegie Avenue/A Street (Tustin/Santa Ana)*

*Denotes project related significant impact in Post-2030

5.14 Post-2030 Cumulative With Project Peak Hour Freeway Mainline Analysis

The freeway mainline volumes (forecast using the ITAM 8.4 model), densities, and levels of service reflect the future potential deficiencies of each freeway segment. The Post-2030 Cumulative Baseline No Project and With Project peak hour forecast volumes are presented in **Table 5.13**. **Appendix C** presents detailed HCS worksheets for freeway mainline analysis.



Table 5.13: Post-2030 Cumulative With Project Freeway Peak Hour Mainline LOS

Location	Freeway Lanes			Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project										
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour							
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS		
1-5	Culver Drive to Jamboree Road	NB	5	10,000	12,149	1.21	F		9,953	1.00	E		12,287	1.23	F		9,820	0.98	E	
		SB	5	10,000	8,445	0.84	D		9,089	0.91	E		8,635	0.86	D		9,155	0.92	E	
	Jamboree Road to Tustin Ranch Road	NB*	5	10,000	11,649	1.16	F		9,753	0.98	E		11,857	1.19	F		9,660	0.97	E	
		SB*	5	10,000	8,865	0.89	D		8,879	0.89	D		9,075	0.91	E		9,085	0.91	E	
	Tustin Ranch Road to Red Hill Avenue	NB*	5	10,000	11,459	1.15	F		10,273	1.03	F		11,677	1.17	F		10,190	1.02	F	
		SB*	5	10,000	9,675	0.97	E		9,409	0.94	E		9,905	0.99	E		9,615	0.96	E	
	Red Hill Avenue to Newport Avenue	NB*	5	10,000	11,629	1.16	F		10,113	1.01	F		11,847	1.18	F		10,010	1.00	E	
		SB	5	10,000	9,315	0.93	E		9,229	0.92	E		9,485	0.95	E		9,405	0.94	E	
	Newport Avenue to SR-55	NB*	5	10,000	12,389	1.24	F		10,883	1.09	F		12,597	1.26	F		10,820	1.08	F	
		SB	5	10,000	10,085	1.01	F		10,229	1.02	F		10,255	1.03	F		10,405	1.04	F	
	North of SR-55	NB	5	10,000	10,602	1.06	F		9,862	0.99	E		10,766	1.08	F		9,845	0.98	E	
		SB*	5	10,000	10,300	1.03	F		9,774	0.98	E		10,559	1.06	F		9,919	0.99	E	
Culver Drive to Jamboree Road	NB	5	10,000	11,566	1.16	F		8,510	0.85	D		11,541	1.15	F		8,550	0.85	D		
	SB	4	8,000	6,806	0.85	D		8,557	1.07	F		6,770	0.85	D		8,398	1.05	F		
Jamboree Road to MacArthur Boulevard	NB*	5	10,000	11,306	1.13	F		9,650	0.96	E		11,561	1.16	F		9,790	0.98	E		
	SB*	5	10,000	8,366	0.84	D		9,017	0.90	E		8,560	0.86	D		9,288	0.93	E		
MacArthur Boulevard to SR-55	NB	6	12,000	10,106	0.84	D		10,290	0.86	D		10,281	0.86	D		10,460	0.87	D		
	SB	6	12,000	9,896	0.82	D		9,817	0.82	D		10,100	0.84	D		10,148	0.85	D		
SR-55 to Bristol Street	NB	5	10,000	5,961	0.60	C		6,134	0.61	C		6,234	0.62	C		6,316	0.63	C		
	SB	5	10,000	7,742	0.77	D		6,630	0.66	C		7,866	0.79	D		6,974	0.70	C		
Bristol Street to SR-73	NB	5	10,000	5,545	0.55	C		5,519	0.55	C		5,799	0.58	C		5,678	0.57	C		
	SB	5	10,000	7,972	0.80	D		5,980	0.60	C		8,066	0.81	D		6,204	0.62	C		



Table 5.13: Post-2030 Cumulative With Project Freeway Peak Hour Mainline LOS

Location	Freeway Lanes			Post-2030 Cumulative Baseline No P Project						Post-2030 Cumulative With Project									
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour						
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
South of Victoria Street	NB	4	8,000	4,794	0.60	C		3,991	0.50	B		4,904	0.61	C		4,083	0.51	C	
	SB	3	6,000	3,834	0.64	C		4,285	0.71	C		3,879	0.65	C		4,351	0.73	D	
Victoria Street to Fair Drive	NB	4	8,000	5,924	0.74	D		4,704	0.59	C		6,054	0.76	D		4,800	0.60	C	
	SB	4	8,000	4,502	0.56	C		5,189	0.65	C		4,555	0.57	C		5,315	0.66	C	
Fair Drive to SR-73	NB	4	8,000	7,282	0.91	E		5,949	0.74	D		7,421	0.93	E		6,048	0.76	D	
	SB	4	8,000	5,518	0.69	C		6,181	0.77	D		5,579	0.70	C		6,310	0.79	D	
SR-73 to Baker Street	NB	4	8,000	5,588	0.70	C		4,279	0.53	C		5,729	0.72	D		4,370	0.55	C	
	SB	4	8,000	5,464	0.68	C		6,510	0.81	D		5,498	0.69	C		6,651	0.83	D	
Baker Street to I-405	NB	4	8,000	4,168	0.52	C		2,979	0.37	B		4,279	0.53	C		3,020	0.38	B	
	SB	4	8,000	6,144	0.77	D		6,400	0.80	D		6,188	0.77	D		6,541	0.82	D	
I-405 to MacArthur Boulevard	NB*	4	8,000	8,401	1.05	F		8,327	1.04	F		8,688	1.09	F		8,586	1.07	F	
	SB*	4	8,000	8,697	1.09	F		8,528	1.07	F		9,134	1.14	F		8,732	1.09	F	
MacArthur Boulevard to Dyer Road	NB*	5	10,000	7,551	0.76	D		9,377	0.94	E		7,858	0.79	D		9,666	0.97	E	
	SB*	5	10,000	9,867	0.99	E		7,748	0.77	D		10,284	1.03	F		7,912	0.79	D	
Dyer Road to Edinger Avenue	NB*	6	12,000	6,771	0.56	C		11,387	0.95	E		7,128	0.59	C		11,696	0.97	E	
	SB	6	12,000	10,304	0.86	D		7,281	0.61	C		10,682	0.89	D		7,440	0.62	C	
Edinger Avenue to McFadden Street/Sycamore Avenue	NB	7	14,000	6,739	0.48	B		11,720	0.84	D		7,066	0.50	B		12,011	0.86	D	
	SB	7	14,000	10,544	0.75	D		6,981	0.50	B		10,872	0.78	D		7,130	0.51	C	
McFadden Street/Sycamore Avenue to I-5	NB	7	14,000	7,359	0.53	C		12,155	0.87	D		7,680	0.55	C		12,426	0.89	D	
	SB	7	14,000	10,621	0.76	D		7,368	0.53	C		10,924	0.78	D		7,498	0.54	C	
North of I-5	NB	5	10,000	7,222	0.72	D		8,496	0.85	D		7,481	0.75	D		8,517	0.85	D	
	SB	5	10,000	9,573	0.96	E		7,185	0.72	D		9,748	0.97	E		7,275	0.73	D	

SR-55



Table 5.13: Post-2030 Cumulative With Project Freeway Peak Hour Mainline LOS

Location	Freeway Lanes			Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project														
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour											
				Volume	V/C	LOS	LOS	HCM Density	LOS	Volume	V/C	LOS	Volume	V/C	LOS	HCM Density	LOS							
SR-73	MacArthur Boulevard to University Drive	NB	4	8,000	8,796	1.10	F			5,014	0.63	C			8,737	1.09	F			4,979	0.62	C		
		SB	4	8,000	4,619	0.58	C			7,291	0.91	E			4,647	0.58	C			7,243	0.91	E		
	University Drive to Jamboree Road	NB	4	8,000	8,796	1.10	F			5,014	0.63	C			8,737	1.09	F			4,979	0.62	C		
		SB	4	8,000	4,222	0.53	C			5,972	0.75	D			4,183	0.52	C			5,924	0.74	D		
	Jamboree Road to Birch Street	NB	4	8,000	9,910	1.24	F			6,211	0.78	D			9,871	1.23	F			6,276	0.78	D		
		SB	4	8,000	6,393	0.80	D			8,048	1.01	F			6,485	0.81	D			8,082	1.01	F		
	Birch Street to Campus Drive	NB	4	8,000	7,716	0.96	E			5,056	0.63	C			7,721	0.97	E			5,119	0.64	C		
		SB	4	8,000	6,393	0.80	D			8,048	1.01	F			6,485	0.81	D			8,082	1.01	F		
	Campus Drive to SR-55	NB	4	8,000	8,346	1.04	F			7,039	0.88	D			8,539	1.07	F			7,230	0.90	E		
		SB	4	8,000	8,148	1.02	F			9,000	1.12	F			8,291	1.04	F			9,120	1.14	F		
	SR-55 to Bear Street	NB	4	8,000	6,563	0.82	D			5,352	0.67	C			6,593	0.82	D			5,489	0.69	C		
		SB	4	8,000	5,371	0.67	C			5,718	0.71	C			5,473	0.68	C			5,769	0.72	D		
Bear Street to I-405	NB	4	8,000	5,863	0.73	D			4,452	0.56	C			5,853	0.73	D			4,569	0.57	C			
	SB	4	8,000	4,741	0.59	C			4,768	0.60	C			4,823	0.60	C			4,809	0.60	C			
SR-261 south of El Camino Real	NB	3	6,000	884	0.15	A			3,074	0.51	C			983	0.16	A			3,128	0.52	C			
	SB	3	6,000	3,615	0.60	C			1,273	0.21	A			3,722	0.62	C			1,310	0.22	A			

*Denotes Project Related Significant Impact in Post-2030



The following segments are forecast to operate at LOS E or F. When compared to the No Project scenario, there is one additional deficiency under AM peak hour conditions, and one additional deficiency under PM peak hour conditions. The deficient segments include the following:

AM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Southbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Southbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Southbound between Newport Avenue and SR-55
- o I-5 Northbound North of SR-55
- o I-5 Southbound North of SR-55
- o I-405 Northbound between Culver Drive and Jamboree Road
- o I-405 Northbound between Jamboree Road and MacArthur Boulevard
- o SR-55 Northbound between Fair Drive and SR-73
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between MacArthur Boulevard and Dyer Road
- o SR-55 Southbound North of I-5
- o SR-73 Northbound between MacArthur Boulevard and University Drive
- o SR-73 Northbound between University Drive and Jamboree Road
- o SR-73 Northbound between Jamboree Road and Birch Street
- o SR-73 Northbound between Birch Street and Campus Drive
- o SR-73 Northbound between Campus Drive and SR-55
- o SR-73 Southbound between Campus Drive and SR-55

PM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Southbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Southbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Southbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Southbound between Newport Avenue and SR-55
- o I-5 Northbound North of SR-55
- o I-5 Southbound North of SR-55
- o I-405 Southbound between Culver Drive and Jamboree Road
- o I-405 Northbound between Jamboree Road and MacArthur Boulevard
- o I-405 Southbound between Jamboree Road and MacArthur Boulevard
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Northbound between MacArthur Boulevard and Dyer Road
- o SR-55 Northbound between Dyer Road and Edinger Avenue
- o SR-73 Southbound between MacArthur Boulevard and University Drive
- o SR-73 Southbound between Jamboree Road and Birch Street
- o SR-73 Southbound between Birch Street and Campus Drive
- o SR-73 Northbound between Campus Drive and SR-55
- o SR-73 Southbound between Campus Drive and SR-55



5.15 Post-2030 Cumulative With Project Freeway Ramp Analysis

The methodology for determining the deficiencies on freeway ramps is consistent with that used for previously studied scenarios. For the Post-2030 Cumulative With Project scenario, freeway ramp deficiencies are identified in **Table 5.14**. **Appendix D** presents detailed HCS worksheets for freeway ramp analysis.

When compared to the Post-2030 No Project scenario, there are two additional deficiencies under the With Project conditions: I-405 Northbound Off-Ramp to Culver Drive and the SR-55 Southbound Loop On-Ramp from MacArthur Boulevard. Impacted locations and mitigation strategies are discussed in **Chapter 6**. The deficient ramps include:

AM Peak Hour:

- Northbound I-5 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to Culver Drive
- Southbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to MacArthur Boulevard
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Northbound SR-55 Off-Ramp to Baker Street
- Southbound SR-55 Off-Ramp to Paularino Avenue
- Southbound SR-55 Off-Ramp to MacArthur Boulevard
- Northbound SR-55 Off-Ramp to Dyer Road
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 Off-Ramp to Birch Street
- Southbound SR-261 On-Ramp from Jamboree Road

PM Peak Hour:

- Northbound I-5 Off-Ramp to Jamboree Road
- Southbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 On-Ramp from MacArthur Boulevard
- Southbound I-405 Loop On-Ramp from Bristol Street
- Northbound I-405 Off-Ramp to Bristol Street
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Southbound SR-55 On-Ramp from Baker Street
- Northbound SR-55 Off-Ramp to Baker Street
- Northbound SR-55 On-Ramp from Paularino Avenue
- Southbound SR-55 Loop On-Ramp from MacArthur Boulevard
- Southbound SR-55 Direct On-Ramp from MacArthur Boulevard
- Northbound SR-55 Loop On-Ramp from Dyer Road
- Northbound SR-55 Direct On-Ramp from Dyer Road
- Northbound SR-73 On-Ramp from MacArthur Boulevard
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 On-Ramp from Campus Drive
- Southbound SR-73 On-Ramp from Bear Street
- Northbound SR-73 Off-Ramp to Bear Street
- Northbound SR-261 Northbound Off-Ramp to Jamboree Road

Figure 5.14 and **Figure 5.15** graphically depict the Post-2030 Cumulative With Project freeway and ramp deficiencies.



Table 5.14: Post-2030 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project									
		Number of Lanes	Ramp Length	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
Culver Drive	SB On Direct	1	1,000	135	0.15	A		177	0.20	A		141	0.16	A		177	0.20	A	
	SB On Loop	1	1,000	374	0.42	B		222	0.25	A		371	0.41	B		214	0.24	A	
	SB Off	2	500	810	0.27	A		1,495	0.50	B		814	0.27	A		1,496	0.50	B	
	NB On Loop	1	1,000	1,070	0.71	C		710	0.47	B		1,030	0.69	C		680	0.45	B	
	NB On Direct	1	1,000	1,216	0.81	D		799	0.53	C		1,268	0.85	D		814	0.54	C	
	NB Off	1	500	330	0.22	A		480	0.32	B		330	0.22	A		480	0.32	B	
Jamboree Road	SB On Direct	1	1,000	420	0.28	A		1,140	0.76	D		380	0.25	A		1,070	0.71	C	
	SB On Loop	1	1,000	590	0.55	C		500	0.46	B		610	0.56	C		510	0.47	B	
	SB Off	2	500	1,430	0.48	B		1,430	0.48	B		1,430	0.48	B		1,510	0.50	B	
	NB On Loop	1	1,000	670	0.62	C		710	0.66	C		680	0.63	C		710	0.66	C	
	NB On Direct	1	1,000	470	0.44	B		480	0.44	B		470	0.44	B		480	0.44	B	
	NB Off	1	500	1,640	1.09	F		1,390	0.93	E		1,580	1.05	F		1,350	0.90	E	
Tustin Ranch Road	SB On	1	1,000	750	0.50	B		550	0.37	B		730	0.49	B		550	0.37	B	
	NB On	2	1,000	370	0.21	A		1,120	0.62	C		370	0.21	A		1,120	0.62	C	
	NB Off	1	500	560	0.37	B		600	0.40	B		550	0.37	B		590	0.39	B	
	SB Off	2	500	1,560	0.69	C		1,080	0.48	B		1,560	0.69	C		1,080	0.48	B	
	SB On	1	1,000	1,040	0.69	C		890	0.59	C		1,100	0.73	D		920	0.61	C	
	NB On	1	1,000	1,030	0.69	C		770	0.51	C		1,030	0.69	C		770	0.51	C	
Red Hill Avenue	NB Off	1	500	860	0.57	C		930	0.62	C		860	0.57	C		950	0.63	C	
	SB Off	1	500	680	0.45	B		710	0.47	B		680	0.45	B		710	0.47	B	
	SB Off	1	500	770	0.51	C		1,000	0.67	C		770	0.51	C		1,000	0.67	C	
	NB On	1	1,000	760	0.51	C		770	0.51	C		750	0.50	B		810	0.54	C	



Table 5.14: Post-2030 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project								
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	HCM Density	LOS	
Culver Drive	SB On Direct	1	1,000	230	0.15	A	670	0.45	B	270	0.18	A	730	0.49	B			
	SB On Loop	1	1,000	250	0.28	A	330	0.37	B	250	0.28	A	340	0.38	B			
	SB Off	2	500	830	0.28	A	1,400	0.47	B	830	0.28	A	1,460	0.49	B			
	NB On Loop	1	1,000	560	0.37	B	400	0.27	A	560	0.37	B	400	0.27	A			
	NB On Direct	1	1,000	930	0.62	C	660	0.44	B	930	0.62	C	690	0.46	B			
	NB Off*	1	500	1,270	0.85	D	1,250	0.83	D	1,360	0.91	E	>Capacity	0.85	D	34.6	D	
Jamboree Road	SB On Direct	2	1,000	510	0.28	A	990	0.55	C	650	0.36	B	1,120	0.62	C			
	SB On Loop	1	1,000	270	0.18	A	660	0.44	B	290	0.19	A	680	0.45	B			
	SB Off*	2	500	2,340	1.04	F	2,110	0.94	E	2,730	1.21	F	2,690	1.20	F			
	NB On Loop	1	1,000	490	0.33	B	900	0.60	C	620	0.41	B	1,110	0.74	D			
	NB On Direct	2	1,000	1,630	0.74	D	1,140	0.52	C	1,800	0.82	D	1,170	0.53	C			
	NB Off	1	500	2,380	1.06	F	900	0.40	B	2,400	1.07	F	1,040	0.46	B			
MacArthur Boulevard	SB Direct On	2	1,000	870	0.29	A	770	0.26	A	860	0.29	A	750	0.25	A			
	SB Off	2	500	2,400	0.80	D	1,570	0.52	C	2,400	0.80	D	1,610	0.54	C			
	NB On*	1	1,000	440	0.29	A	1,530	1.02	F	490	0.33	B	1,590	1.06	F			
	NB Off*	1	500	1,640	1.09	F	890	0.59	C	1,770	1.18	F	920	0.61	C			
	SB Loop On*	1	1,000	1,090	0.73	D	1,490	0.99	E	1,110	0.74	D	1,610	1.07	F			
	SB Off	2	500	1,320	0.59	C	840	0.37	B	1,310	0.58	C	840	0.37	B			
Bristol Street	NB On Loop	1	1,000	234	0.26	A	385	0.43	B	226	0.25	A	382	0.42	B			
	NB On Direct	1	1,000	90	0.06	A	370	0.25	A	100	0.07	A	370	0.25	A			
	NB Off	1	500	740	0.49	B	1,370	0.91	E	760	0.51	C	1,390	0.93	E			



Table 5.14: Post-2030 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Victoria Street	SB Direct On	1	1,000	389	0.26	A	398	0.27	A	389	0.26	A	401	0.27	A
	SB Off	2	500	1,057	0.47	B	1,302	0.58	C	1,065	0.47	B	1,365	0.61	C
	NB Direct On	2	1,000	1,520	0.84	D	1,151	0.64	C	1,556	0.86	D	1,161	0.64	C
	NB Off	1	500	390	0.26	A	438	0.29	A	406	0.27	A	444	0.30	A
	SB Direct On	1	1,000	197	0.22	A	286	0.32	B	199	0.22	A	302	0.34	B
	SB Off	2	500	1,213	0.54	C	1,278	0.57	C	1,223	0.54	C	1,296	0.58	C
Fair Drive	NB Direct On	1	1,000	1,559	1.04	F	1,413	0.94	E	1,583	1.06	F	1,424	0.95	E
	NB Off	1	500	201	0.13	A	169	0.11	A	216	0.14	A	176	0.12	A
	SB On*	1	1,000	510	0.57	C	1,250	1.39	F	510	0.57	C	1,290	1.43	F
Baker Street	SB Off	1	500	1,190	0.79	D	1,140	0.76	D	1,200	0.80	D	1,180	0.79	D
	NB Off*	1	500	1,420	0.95	E	1,300	0.87	D	1,450	0.97	E	1,350	0.90	E
	SB Off	1	500	1,940	1.29	F	1,190	0.79	D	1,950	1.30	F	1,200	0.80	D
Paularino Avenue	NB On	1	1,000	609	0.68	C	1,065	1.18	F	610	0.68	C	1,085	1.21	F
	SB On Direct	1	1,000	760	0.84	D	1,040	1.16	F	760	0.84	D	1,060	1.18	F
	SB On Loop*	1	1,000	170	0.19	A	800	0.89	D	200	0.22	A	870	0.97	E
MacArthur Boulevard	SB Off	1	500	2,100	1.40	F	1,060	0.71	C	2,110	1.41	F	1,110	0.74	D
	NB On Loop	1	1,000	630	0.70	C	790	0.88	D	650	0.72	D	800	0.89	D
	NB On Direct	1	1,000	250	0.17	A	1,210	0.81	D	300	0.20	A	1,280	0.85	D
	NB Off	2	500	1,730	0.77	D	950	0.42	B	1,780	0.79	D	1,000	0.44	B

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Table 5.14: Post-2030 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project									
		Number of Lanes	Ramp Length	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
Dyer Road	SB On	1	1,000	851	0.57	C		1,191	0.79	D		862	0.57	C		1,214	0.81	D	
	SB Off Loop	1	500	661	0.44	B		435	0.29	A		628	0.42	B		444	0.30	A	
	SB Off to Grand	1	500	628	0.42	B		290	0.19	A		633	0.42	B		298	0.20	A	
	NB On Direct*	1	1,000	330	0.22	A		1,350	0.90	E		390	0.26	A	18.9	1,400	0.93	E	>Capacity
	NB On Loop	1	1,000	550	0.61	C		1,020	1.13	F		550	0.61	C		1,020	1.13	F	
	NB Off	1	500	1,660	1.11	F		360	0.24	A		1,670	1.11	F		390	0.26	A	
	SB On	1	1,000	740	0.49	B		870	0.58	C		760	0.51	C		880	0.59	C	
	SB Off	1	500	980	0.65	C		570	0.38	B		950	0.63	C		570	0.38	B	
	NB On	1	1,000	883	0.59	C		1,223	0.82	D		902	0.60	C		1,247	0.83	D	
	NB Off	1	500	915	0.61	C		890	0.59	C		964	0.64	C		932	0.62	C	
Edinger Avenue	SB On	1	1,000	513	0.34	B		368	0.25	A		540	0.36	B		403	0.27	A	
	SB Off	2	500	590	0.26	A		754	0.34	B		592	0.26	A		771	0.34	B	
McFadden Avenue	NB On	1	1,000	1,204	0.80	D		1,010	0.67	C		1,213	0.81	D		1,017	0.68	C	
	NB Off	1	500	584	0.39	B		575	0.38	B		598	0.40	B		602	0.40	B	

SR-55 Continued



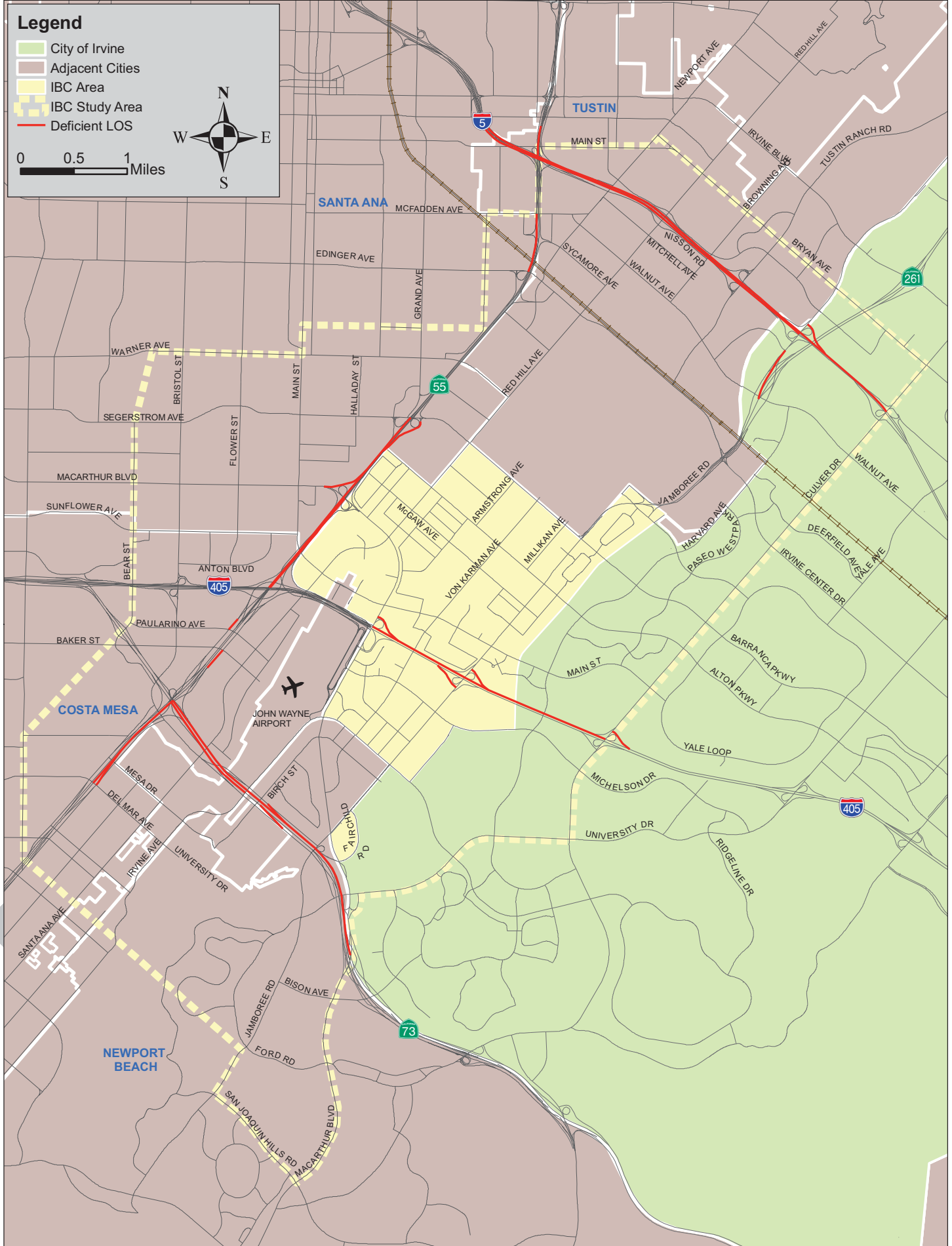
Table 5.14: Post-2030 Cumulative With Project Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
MacArthur Boulevard	SB On	1	1,000	126	0.08	A	980	0.65	C	125	0.08	A	1,019	0.68	C
	SB Off	2	500	1,187	0.40	B	972	0.32	B	1,203	0.40	B	1,014	0.34	B
	NB On	1	1,000	765	0.85	D	841	0.93	E	774	0.86	D	855	0.95	E
	SB Off	1	500	1,040	0.69	C	920	0.61	C	1,070	0.71	C	940	0.63	C
University Drive	NB On	1	1,000	168	0.11	A	235	0.16	A	159	0.11	A	226	0.15	A
	SB On	1	1,000	160	0.11	A	420	0.28	A	160	0.11	A	410	0.27	A
Bison Avenue	SB Off	1	500	1,140	0.76	D	550	0.35	B	1,130	0.75	D	540	0.36	B
	NB On	1	1,000	460	0.31	B	910	0.61	C	480	0.32	B	910	0.61	C
	SB On	1	1,000	448	0.30	A	791	0.53	C	426	0.28	A	779	0.52	C
Jamboree Road	SB Off*	2	500	2,619	1.16	F	2,867	1.27	F	2,727	1.21	F	2,938	1.31	F
	NB On	1	1,000	1,115	0.74	D	1,197	0.80	D	1,134	0.76	D	1,296	0.86	D
	NB Off	1	500	2,194	1.46	F	1,154	0.77	D	2,150	1.43	F	1,156	0.77	D
Campus Drive	SB Off	2	500	1,755	0.78	D	951	0.42	B	1,806	0.80	D	1,038	0.46	B
	NB On*	1	1,000	629	0.42	B	1,983	1.32	F	818	0.55	C	2,111	1.41	F
	SB On	1	1,000	1,160	0.77	D	1,410	0.94	E	1,170	0.78	D	1,410	0.94	E
SR-73 at Bear	SB Off	1	500	530	0.35	B	460	0.31	B	520	0.35	B	450	0.30	A
	NB Off	1	500	930	0.62	C	1,520	1.01	F	970	0.65	C	1,540	1.03	F
	NB On	1	1,000	230	0.15	A	620	0.41	B	230	0.15	A	620	0.41	B
Jamboree Road	SB On	1	1,000	1,367	0.91	E	970	0.65	C	1,371	0.91	E	1,064	0.71	C
	NB Off	1	250	726	0.48	B	1,480	0.99	E	828	0.55	C	1,507	1.00	E
	NB On	1	1,000	377	0.25	A	890	0.59	C	391	0.26	A	961	0.64	C
Walnut Avenue	SB Off	1	500	1,072	0.71	C	406	0.27	A	1,060	0.71	C	390	0.26	A

*Denotes Project Related Significant Impact in Post-2030

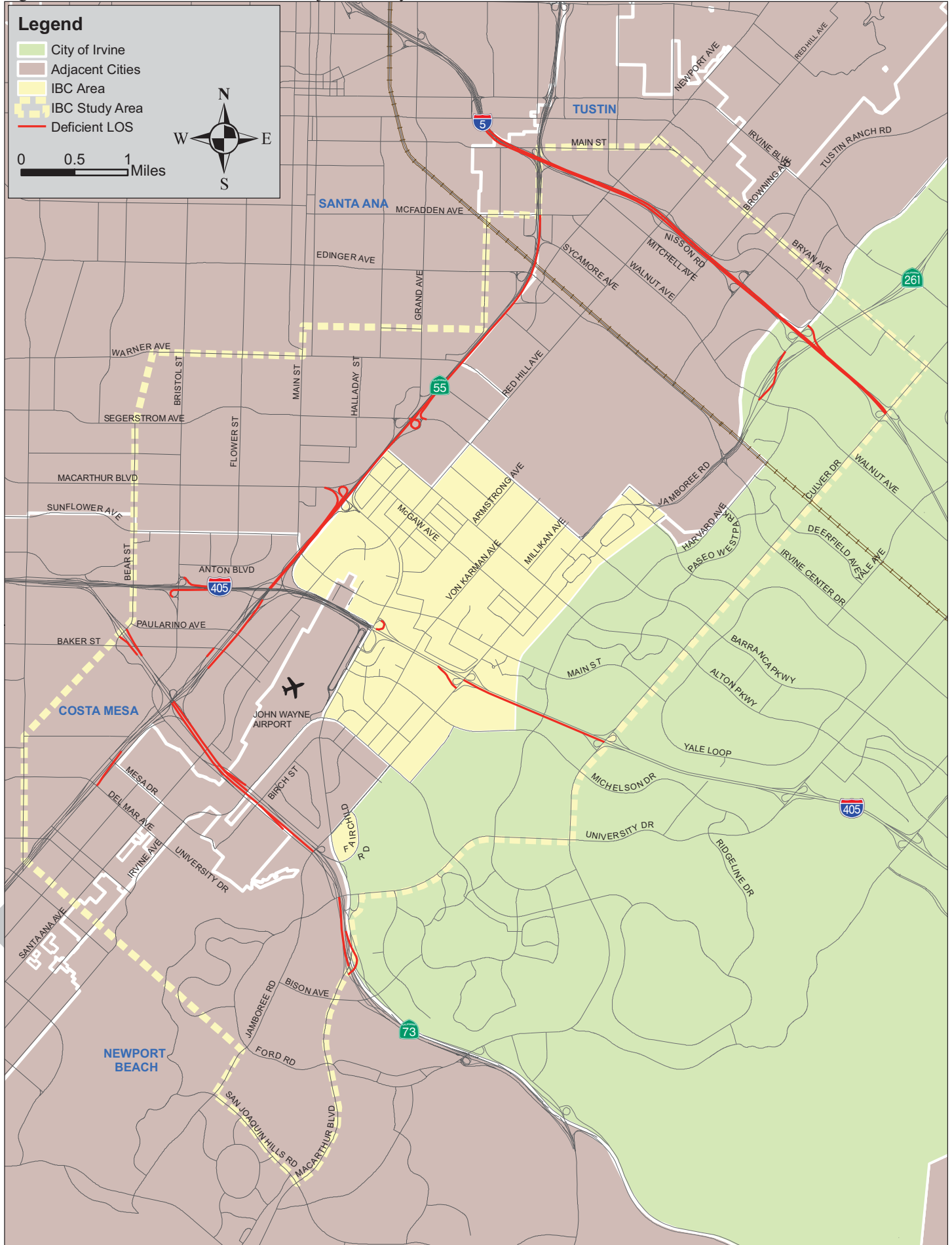
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Figure 5.14: Post-2030 Cumulative With Project Freeway AM Peak Hour Deficiencies



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Figure 5.15: Post-2030 Cumulative With Project Freeway PM Peak Hour Deficiencies



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6.0 Future Improvements and Mitigation for IBC Vision Plan

6.1 Development of Mitigation Strategies

In summary, one arterial segment and 21 intersections are forecast to operate at a deficient LOS under 2015 and Post-2030 conditions. Of the 21 deficient intersections, a project impact is forecast for 15 of the deficient intersections. The arterial segment deficiency is a project related impact. Additionally, a number of freeway mainline segments and ramps are forecast to operate at a deficient LOS. As a general rule, mitigation measures for arterials or intersections begin with identification of any measures that might have been recommended as part of other traffic studies in the area. These mitigation measures are then applied to determine whether they result in roadway segment or intersection operation within acceptable thresholds.

If mitigation measures were not previously identified either as part of a traffic study or planned future improvements, mitigation is achieved by providing adequate capacity for the critical movement for an intersection or for arterial segments. Critical movements are conflicting intersection turning movements that are found to have the highest ICU for opposing movements; i.e. each of the approaches at a four-legged intersection will contain a critical movement that conflicts with an opposing movement. Since the combination of the ICU values for each critical movement defines the ICU, providing additional through lanes or turning lanes is dependent upon whether the critical movement is a through or turn (left or right) movement. The decision of whether additional lanes should be auxiliary lanes that just add capacity to the intersection without widening the street segment or extended to intersections is dependent upon the performance, proximity and improvement needs of adjacent intersections.

Mitigation measures are further analyzed for feasibility. A preliminary feasibility assessment is reliant upon potential cost-effectiveness and right-of-way acquisition. Right-of-way acquisitions are least preferred, as they require relocation of businesses and residents. Compensation for this relocation is an added financial burden to the community. Wherever feasible, additional capacity for through movements or turning movements should be provided through re-striping or widening. Some factors involved in widening an intersection to provide an additional left or right turning lane or to add a through lane are:

- whether there are a sufficient number of receiving lanes through the intersection to accommodate the added lane (triple lefts need at least 3 lanes to turn into)
- whether the opposing left turns would collide, (triple lefts opposite a dual left may not be able to occur simultaneously) so the signal phasing would need to be modified to provide split phasing
- how far to extend a through lane past the intersection so that it has sufficient benefit in increasing the capacity of the intersection. If the through lane ends too soon after the intersection, motorists may not want to bother using it due to the hassle of merging back in to the narrower section.

6.2 Fee Assessment/Fair-share for Improvements

The City of Irvine has applied a fair-share methodology to evaluate the financial responsibility of mitigating IBC Vision project impacts. For intersection improvements within the City of Irvine, the following methodology is applied:

- For project impacts within the City of Irvine, the IBC Vision project is fully responsible
- For project impacts outside the City of Irvine, the project will pay a fair-share

Cumulative deficiencies operate deficiently in both the No Project and With Project conditions but do not have a project impact as identified by the criteria and therefore do not require mitigations.

For impacts that are located in adjacent cities, where the intersection is deficient under No Project conditions and the Project further deteriorates performance, a fair-share to an improvement cost that achieves acceptable performance or existing performance is warranted. For impacts that are located in adjacent cities where the intersection becomes deficient under the With Project condition, a fair-share to an improvement cost that achieves acceptable performance is warranted. The fair-share calculation is based on the difference between the Future With Project and Future No Project total intersection entering volumes divided by the total growth entering volume from Existing to Future With Project conditions. The fair-share proportion is based on the value associated with the peak hour for which the deficiency has been identified. For locations outside the City of Irvine, the fair-shares range from 2.1% for an



improvement in Tustin to 30.2% for an improvement in Newport Beach.

A computational example of the fair-share analysis is provided in **Table 6.1**.

Table 6.1: Fair-share Analysis Computational Example

Sample Intersection																Difference from Existing	Difference from No Project	Fair-share
EXISTING NO PROJECT																		
	ICU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL				
AM	0.45	61	215	26	60	817	105	66	64	52	76	283	68	1,893				
PM	0.47	138	909	104	52	343	41	133	286	65	33	145	47	2,296				
POST-2030 EXISTING GENERAL PLAN BUILDOUT																		
AM	0.93	214	296	72	158	856	348	215	420	136	98	1,158	109	4,080	2,187			
PM	0.84	327	917	127	68	408	104	455	1,185	246	76	709	98	4,720	2,424			
POST-2030 WITH PROJECT																		
AM	0.95	249	323	79	151	853	355	215	421	142	97	1,171	104	4,160	2,267	80	3.5%	
PM	0.85	327	919	125	72	437	112	464	1,184	249	75	701	97	4,762	2,466	42	1.7%	

The example above indicates that the project’s fair-share on the proposed improvement at this intersection is 3.5%. For each scenario analyzed, a fair-share is identified for project related impacts. For intersections where the fair-share varies between the 2015 and Post-2030 scenarios studied, the scenario with the highest percentage is used. Detailed fair-share calculation worksheets are included in **Appendix H**.

For Caltrans facilities the equitable share responsibility for project related freeway mainline and ramp deficiencies has been developed through consultation with Caltrans. For Caltrans facilities, the fair-share is developed by calculating the future forecast With Project AM and PM peak hour volume minus the future forecast No Project AM and PM peak hour volume, divided by the future forecast With Project volume. Thus, the share represents the total growth that the IBC Vision Plan contributes to the freeway system under Post-2030 conditions. The highest share, between the AM and PM peak hour is utilized for significantly impacted locations.

6.3 Policy Framework

The project is committed to identifying improvements for project related impacts as well as cumulative deficiencies. For project impacts within the City of Irvine, the project is responsible for 100% of the cost of the improvement. For all project related impacts outside the City of Irvine, i.e. in Tustin, Costa Mesa, Newport Beach, and Santa Ana, the project is responsible for its fair-share of the improvements. Coordination with adjacent jurisdictions as well as a thorough analysis of each jurisdictions’ performance and mitigation criteria have contributed to the development of these mitigation measures and continued coordination is critical to their implementation. The City of Irvine will work with all the neighboring Cities as well as Caltrans to identify the most appropriate improvement strategies to mitigate the impacts that result from the implementation of the IBC Vision Plan. For Caltrans freeway mainline and ramp facilities, every effort was made to identify the significantly impacted ramps and potential improvement measures. For Caltrans mainline and ramp facilities, the City will coordinate with Caltrans to identify the most feasible strategies to improve the operation of the freeway facilities.

6.4 Intersection Improvements

Deficient intersections within the IBC study area fall under two categories of impact, project related impact and cumulative deficiency. Project impacts are determined using the definition of significant impacts from each city’s traffic impact analysis protocol, discussed in **Chapter 2**. For Costa Mesa, Santa Ana, and Tustin, significant impacts are identified as an increase in intersection ICU of 0.01 or greater under With Project conditions of a deficient intersection when compared to No Project conditions. For those intersections, a fair-share is computed for the project to contribute to the overall cost of the improvement through IBC fees. For the City of Newport Beach, a project impact is identified as an increase of 0.01 or more of the critical movement of a deficient intersection. Cumulative deficiencies are identified as those intersections that fail under both the No Project and With Project conditions but do not have a project impact as identified by the above noted criteria and therefore do not require project related improvements. The City of Irvine threshold for defining project impact is an increase of 0.02 or greater of an intersection ICU. For intersections with shared jurisdictional boundaries, the more conservative methodology was employed.



Where applicable, feasible improvements identified in the 1992 IBC Rezone EIR that have yet to be implemented were recommended as mitigation where appropriate. Additionally, traffic studies and other planning documents were sourced in adjacent jurisdictions to develop mitigation measures for intersection deficiencies.

Table 6.2 identifies future project impacts and cumulative deficiencies by jurisdiction. Project impacts identified under the existing scenarios are not included as impacts because they are considered theoretical impacts and will not be mitigated. Note that intersection #62 – Campus Drive at Bristol Street NB and intersection #93 – Tustin Ranch Road at El Camino Real were identified to have a project related impact under 2015 conditions. These intersections also have a project impact under Post-2030 conditions. Some of the intersections noted in **Table 6.2** were also deficient under 2015 conditions but did not have a project related impact in 2015. These intersections, which have a project related impact or cumulative deficiency under Post-2030 conditions, are identified with an asterisk (*) in **Table 6.2**. Recommended improvements for existing scenarios are presented for future planning purposes only.

Table 6.2: IBC Intersections and Arterial Segments with Project Related Impacts and Future Cumulative Deficiencies

ID	Intersection	Jurisdiction	Project Impact	Cumulative Deficiency
10	SR-55 Frontage Road SB Ramps at Paularino	Costa Mesa		X
12	SR-55 SB Frontage Road at Baker Street	Costa Mesa	X	
13	SR-55 NB Frontage Road at Baker Street	Costa Mesa	X	
141	Jamboree Road at Main Street	Irvine	X	
145	Jamboree Road at Michelson Drive*	Irvine	X	
188	Harvard Avenue at Michelson Drive	Irvine		X
232	Culver Drive at I-405 NB Ramps	Irvine	X	
136	Jamboree Road at Barranca Avenue	Irvine/Tustin	X	
62	Campus Drive at Bristol Street NB*	Newport Beach	X	
85	MacArthur Boulevard at Birch Street	Newport Beach	X	
543	Bristol Street at Segerstrom Avenue	Santa Ana	X	
723	Main Street at Dyer Road (Segerstrom Avenue)	Santa Ana	X	
730	Grand Avenue at Warner Avenue	Santa Ana	X	
3	Newport Avenue at Edinger Avenue	Tustin		X
24	Newport Avenue at Walnut Avenue	Tustin	X	
36	Red Hill Avenue at El Camino Real	Tustin		X (2015 Only)
93	Tustin Ranch Road at El Camino Real*	Tustin	X	
111	Franklin Avenue at Walnut Avenue*	Tustin		X
134	Loop Road/Park Avenue at Warner Avenue*	Tustin	X	
732	SR-55 Northbound Ramps/Del Amo Avenue at Newport Avenue	Tustin		X (2015 Only)
754	Red Hill Avenue at Carnegie Avenue/A Street	Tustin	X	
Total Number of Impacted Intersections			15	6
ID	Arterial Segment	Jurisdiction	Project Impact	Cumulative Deficiency
1884	MacArthur Boulevard between Main Street and SR-55 Southbound	Santa Ana	X	
Total Number of Impacted Arterial Segments			1	0

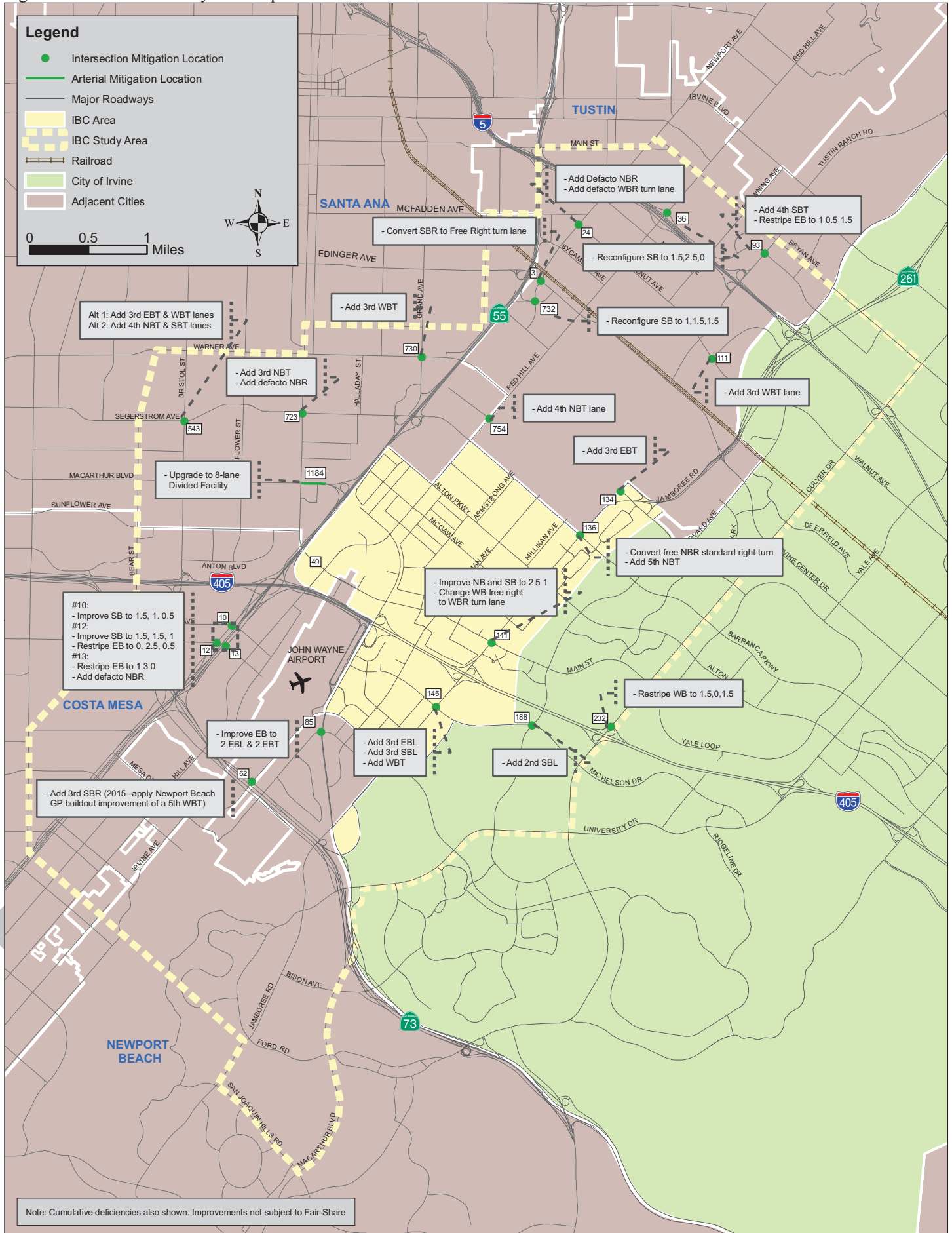
Source: ITAM, City of Irvine, ICU analysis

*Note: Deficient under both 2015 and Post-2030 scenarios.

For the IBC Vision Plan Traffic Study, the improvements recommended include physical improvements rather than operational improvements. Although application of Advanced Traffic Management System (ATMS) strategies have previously been recommended for all intersections within PA 36, these strategies have not been recommended as mitigation strategies for this study. Physical improvements such as restriping, intersection geometrics, or addition of intersection capacity to more efficiently serve forecast future traffic volumes have been identified. Recommended improvements have been developed and evaluated through site analysis to determine feasibility. **Figure 6.1** identifies the locations of the intersections requiring mitigation within the IBC study area.

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to facilitate double sided printing

Figure 6.1: IBC Vision Study Area Improvement Locations



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to facilitate double sided printing



The following sections discuss the intersection deficiencies and recommended mitigations for each jurisdiction within the study area. The accompanying tables identify whether the improvements are required for 2015 conditions or should be implemented for all future conditions. If an intersection impact occurs only in 2015 and subsequent improvements result in acceptable LOS under buildout conditions, the improvement is considered temporary and may be overridden. Recommendations for mitigation at locations where future improvements result in the elimination of the intersection deficiency involve expediting the future improvement.

6.4.1 Costa Mesa

Two intersections within the City of Costa Mesa have project impacts and one location has a cumulative deficiency under Post-2030 Conditions. The City of Irvine will contribute a fair-share for project related impacts. **Table 6.3** identifies the project related impacts and cumulative deficiencies, required mitigation, and resulting LOS for intersections within the City of Costa Mesa. **Appendix F** includes detailed mitigation ICU worksheets. Within Costa Mesa, two intersections have been identified to have project impacts and one has been identified as having a cumulative deficiency. The following intersections are deficient under future scenarios:

- *Intersection #10: SR-55 Frontage Road Southbound Ramps at Paularino Avenue*

The intersection of SR-55 Frontage Road Southbound Ramps and Paularino Avenue is forecast to be cumulatively deficient under both Post-2030 future scenarios. There is no project related significant impact at this location. The proposed improvement at this intersection, to improve the southbound approach to one left turn lane, one shared through left lane, and shared through right turn lane to return the ICU to an acceptable LOS and appears to be physically feasible. Because this is a cumulative deficiency, the project is not responsible for mitigation. Improvements have been recommended to return the intersection back to an acceptable LOS for future planning purposes.

- *Intersection #12: SR-55 Southbound Frontage Road at Baker Street*

ICU analysis indicates that the intersection of SR-55 southbound Frontage Road at Baker Street is forecast to be deficient under Post-2030 AM peak hour conditions and has a project related significant impact. Since the southbound left-turn movement is a critical movement, intersection mitigation would improve the southbound approach to one left turn lane, one shared through left, one through lane, and one right turn lane. Additionally, mitigation to restripe the eastbound approach to two through lanes and a shared through right turn lane would return the intersection to an acceptable LOS under both scenarios.

- *Intersection #13: SR-55 Northbound Frontage Road at Baker Street*

ICU analysis indicates that the intersection of SR-55 Northbound Frontage Road at Baker Street is forecast to be deficient under Post-2030 AM peak hour conditions under the buildout scenario and has a project related significant impact. Since the eastbound through movement is a critical movement, restriping the eastbound approach to include a single left turn lane, three through lanes, and no right turn lane, plus the addition of a northbound defacto right turn lane would return the intersection to an acceptable LOS.

6.4.2 Irvine

Five intersections within the City of Irvine are forecast to operate deficiently under future conditions and will require mitigation to achieve an acceptable LOS. **Table 6.4** presents the mitigation strategy for deficient City of Irvine intersections before and after the mitigation measures are applied. For the five City of Irvine intersections, including one shared location between Irvine and Tustin, four have project related significant impacts and one has a cumulative deficiency. The following intersections are significantly impacted by the proposed project:

- *Intersection #141: Jamboree Road and Main Street*

The intersection at Jamboree Road and Main Street is forecast to be deficient under PM peak hour conditions under the Post-2030 scenario. Because of the high volume on the north and southbound through movements, recommended improvements are the same for both scenarios, to improve the northbound and southbound approaches to 2 left turn lanes, 5 through lanes, and 1 right turn lane. Additionally, as part of this improvement the conversion of the westbound free right turn lane to a single right turn lane would improve traffic flow with the five through lanes on the northbound approach. With this improvement, the intersection returns to an acceptable LOS and the mitigation appears to be physically feasible.

Table 6.3: City of Costa Mesa Proposed Intersection Mitigation

ID	Intersection	Jurisdiction	2015 Cumulative With Project						2015 Cumulative With Project After Mitigation						Post-2030 Cumulative With Project						Post-2030 Cumulative With Project After Mitigation						Mitigation Strategy	Fair-share	
			AM		PM		LOS		AM		PM		LOS		AM		PM		LOS		AM		PM		LOS				
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS					
10	SR-55 Frontage Road SB Ramps at Paularino	CM	No Impact												1.02	F	0.67	B	0.88	D	0.64	B	Improve SB to 1.5, 1.0, 0.5						No Share
12	SR-55 SB Frontage Road at Baker Street	CM	No Impact												1.19	F	0.76	C	0.78	C	0.85	D	Improve SB to 1.5, 1.5, 1, Restripe EB to 0, 2.5, 0.5						8.0%
13	SR-55 NB Frontage Road at Baker Street	CM	No Impact												1.02	F	0.86	D	0.87	D	0.84	D	Restripe EB to 1, 3, 0, Add defacto NBR						8.7%

Note: Cumulative deficiencies are not the responsibility of the project

Table 6.4: City of Irvine Proposed Intersection Mitigation

ID	Intersection	Jurisdiction	2015 Cumulative with Project						2015 Cumulative With Project After Mitigation						Post-2030 Cumulative With Project						Post-2030 Cumulative With Project After Mitigation						Mitigation Strategy	Fair-share
			AM		PM		LOS		AM		PM		LOS		AM		PM		LOS		AM		PM		LOS			
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS				
141	Jamboree Road at Main Street	Irv	0.87	D	0.94	E	0.92	E	1.02	F	0.84	D	0.94	E	0.84	D	0.94	E	Improve NB and SB to 2, 5, 1, Change WB free right to WBR turn lane						100.0%			
145	Jamboree Road at Michelson Drive	Irv	0.75	C	1.12	F	0.81	D	0.91	E	0.79	C	0.98	E	0.79	C	0.98	E	Add 3rd EBL, 3rd SBL, and WBT						100.0%			
188	Harvard Avenue at Michelson Drive	Irv	0.67	B	0.89	D	0.71	C	0.91	E	0.71	C	0.82	D	0.71	C	0.82	D	Add 2nd SBL						100.0%			
232	Culver Drive at I-405 NB Ramps	Irv	0.48	A	0.87	D	0.56	A	0.95	E	0.56	A	0.73	C	0.56	A	0.73	C	Restripe WB to 1.5, 0, 1.5						100.0%			
136	Jamboree Road at Barranca Avenue	Irv/Tus	0.81	D	0.96	E	0.87	D	1.04	F	0.87	D	0.95	E	0.87	D	0.95	E	Convert free NBR standard right-turn, Add 5th NBT						100.0%			

- *Intersection #145: Jamboree Road and Michelson Drive*

This intersection has a project related significant impact under the 2015 and Post-2030 Proposed Project scenarios. The forecast ICU in the worst case scenario is 1.26 in the PM peak hour. Since the eastbound and southbound left turn lanes and the northbound through lane are some of the critical movements, intersection mitigation would require adding substantial capacity to these movements. Recommended improvements are the same in both 2015 and Post-2030 and include the addition of a westbound through lane, third eastbound left turn lane, and restriping of the southbound approach to get a third southbound left from the southbound through movement. However, triple eastbound and southbound left turn improvements are contrary to City standards due to safety and operational concerns associated with the vehicles turning within appropriate receiving lanes. In addition, the City believes that the addition of a triple left turn lane would not operationally improve the intersection capacity because the three lanes would likely not load traffic evenly. Many motorists making the eastbound left turn are destined for the I-405 on ramps, and they have one block in which to merge over into the right lanes, while weaving with the westbound free right traffic that does not stop. Similarly the proximity of the destination for the southbound triple left would inhibit the full operational benefits of this movement as motorists would primarily load in the left and middle lanes of a southbound triple left because many are destined to the Maguire Properties (Park Place).

In addition, there are physical constraints associated with the proposed improvements, including Southern California Edison (SCE) 220kV transmission lines along the west side of Jamboree Road and an SCE substation located at the southeast corner of this intersection. These physical constraints limit the improvements to mitigate the project impacts at this location. Additionally, a future pedestrian overcrossing is planned at this intersection which may inhibit the implementation of the additional westbound through lane, which would fall in the footprint of the future bridge support. This pedestrian crossing may also improve signal operations and ICU levels at this intersection. This intersection improvement will be subject to an override due to its infeasibility.

- *Intersection #188: Harvard Avenue and Michelson Drive*

ICU analysis for all future scenarios indicates that the intersection at Harvard Avenue and Michelson Drive is forecast to be deficient under both Post-2030 Cumulative Baseline No Project and With Project scenarios. The recommended improvement involves the addition of a second southbound left turn lane to reduce the ICU in the PM peak hour. This improvement would return the intersection to an acceptable LOS and appears to be physically feasible.

- *Intersection #232: Culver Drive and I-405 Northbound Ramps*

This intersection is deficient under Post-2030 conditions with a project related significant impact. The extremely high volume and high right turn adjustment on the westbound right turn movement has contributed to the ICU deficiency in the PM peak hour and necessitated the recommendation of restriping the westbound approach of this intersection to one left turn lane, one right turn lane, and a shared left-right turn lane. Implementation of this improvement results in acceptable operations in both the AM and PM peak hours under the Post-2030 scenario and appears to be physically feasible.

- *Intersection #136: Jamboree Road and Barranca Parkway*

This location is a shared location between the Cities of Irvine and Tustin. ICU analysis indicates that the intersection of Jamboree Road at Barranca Parkway is deficient in the PM peak hour under the Post-2030 scenario. There is an extremely high volume on the northbound through movement and relatively small volume on the northbound right-turn movement. Recommended improvements include the conversion of the existing free northbound right-turn lane to a standard right turn lane and addition of a fifth northbound through lane. Implementation of this improvement results in acceptable operations under both scenarios and the mitigation appears to be physically feasible.

6.4.3 Newport Beach

There are two intersections within the City of Newport Beach that are deficient in the forecast future scenarios. Both intersections have a project related significant impact as outlined by the City of Newport Beach's performance and significant impact criteria. These significant impacts are outlined in **Table 6.5**.



The following intersections within the City of Newport Beach have project related significant impacts in the future 2015 and Post-2030 Cumulative scenarios and will need to be improved to achieve acceptable operations.

o *Intersection #62: Campus Drive at Bristol Street NB*

This intersection is deficient in the PM peak hour and has a project related impact under both the interim year and buildout future scenarios. In 2015, the recommended improvement is the implementation of the already planned addition of a fifth westbound through lane, consistent with the City of Newport Beach's General Plan buildout. This improvement will return the intersection to an acceptable LOS in 2015. For the buildout scenario, an additional improvement of a third southbound right turn lane is proposed. Implementation of the identified improvements results in acceptable operations under both scenarios and the mitigation appears to be physically feasible although potentially cost prohibitive due to potential impacts to a structure adjacent to the intersection. The addition of a 5th westbound through lane was identified by the City of Newport Beach as part of the *Newport Beach General Plan Update Traffic Study (Urban Crossroads, 2006)*. The addition of a 3rd southbound right turn lane was identified in the John Wayne Airport (JWA) Improvement Program as an ancillary improvement to support the growth of the Airport. The City should coordinate with Newport Beach and JWA to determine the timing and funding availability for this improvement.

o *Intersection #85: MacArthur Boulevard and Birch Street*

This intersection is deficient under future scenarios with a project impact under the Post-2030 scenario. The recommended improvement would improve the eastbound approach to two eastbound left-turn lanes and two eastbound through lanes. Implementation of this improvement would result in acceptable operations under all scenarios and appears to be physically feasible.

6.4.4 Santa Ana

There are three intersections within Santa Ana that will require mitigation in the future to achieve an acceptable LOS. The project is responsible for a fair-share of the cost of the improvements identified as a project impact. **Table 6.6** identifies required mitigation for intersections within the City of Santa Ana.

For the three intersections within the City of Santa Ana that are deficient in the future scenarios, all have project related significant impacts. The following intersections have project related impacts and will need to be improved to achieve an acceptable LOS.

o *Intersection #543 Bristol Street and Segerstrom Avenue*

This intersection is deficient and has a project impact under the Post-2030 scenario. The critical movements include both the eastbound and westbound through movements and the northbound through and southbound through movements. Two alternative recommended improvements are proposed and outlined below. With implementation of either of these improvements, the intersection operates at an acceptable LOS and the mitigation appears to be physically feasible. The City of Irvine should coordinate with the City of Santa Ana to determine the most appropriate future improvement at this location.

- Alternative 1: Add 3rd eastbound through and westbound through lanes on Segerstrom Avenue
- Alternative 2: Add 4th northbound through and southbound through lanes on Bristol Street

o *Intersection #723 Main Street and Dyer Road (Segerstrom)*

This intersection is deficient and has a project impact under the Post-2030 scenario. The critical movement is the northbound through movement. Recommended improvements include the addition of a third northbound through lane and a defacto northbound right-turn lane. Implementation of these improvements results in acceptable operations under all scenarios and the mitigation appears to be physically feasible.

o *Intersection #730 Grand Avenue and Warner Avenue*

This intersection is deficient and has a project impact under the Post-2030 scenario. The critical movement at this intersection is the westbound through movement and adding additional capacity to this movement would remove the deficiency. Recommended mitigation involves the addition of a third westbound through lane. The mitigation appears to be physically feasible.



Table 6.5: City of Newport Beach Proposed Intersection Mitigation

ID	Intersection	Jurisdiction	2015 Cumulative With Project						2015 Cumulative With Project After Mitigation						Post-2030 Cumulative With Project						Post-2030 Cumulative With Project After Mitigation						Mitigation Strategy	Fair-share			
			AM		PM		LOS		ICU		PM		LOS		ICU		AM		PM		LOS		ICU		AM				PM		LOS
62	Campus Drive at Bristol Street NB	NB	0.62	B	0.92	E	0.57	A	0.85	D	0.76	C	0.95	E	0.76	C	0.70	B	0.89	D	0.76	C	0.83	D	Add 3rd SBR (2015: apply Newport Beach General Plan buildout improvement of a 5th WBT)						30.2%
85	MacArthur Boulevard at Birch Street	NB	No Impact						No Impact						0.73	C	0.97	E	0.70	B	0.89	D	Improve EB to 2 EBL and 2 EBT						19.6%		

Table 6.6: City of Santa Ana Proposed Intersection Mitigation

ID	Intersection	Jurisdiction	2015 Cumulative With Project						2015 Cumulative With Project After Mitigation						Post-2030 Cumulative With Project						Post-2030 Cumulative With Project After Mitigation						Mitigation Strategy	Fair-share									
			AM		PM		LOS		ICU		AM		PM		LOS		ICU		AM		PM		LOS		ICU				AM		PM		LOS		ICU		
543	Bristol Street at Segerstrom Avenue (Alternative 1)	SA	No Impact						No Impact						0.90	D	0.97	E	0.77	C	0.85	D	0.90	D	0.84	D	0.79	C	Add 3rd EBT and WBT lanes						12.7%		
543	Bristol Street at Segerstrom Avenue (Alternative 2)	SA	No Impact						No Impact						0.90	D	0.97	E	0.86	D	0.90	D	0.86	D	0.90	D	0.84	D	0.79	C	Add 4th NBT and SBT lanes						12.7%
723	Main Street at Dyer Road (Segerstrom Avenue)	SA	No Impact						No Impact						0.86	D	0.91	E	0.86	D	0.82	D	0.86	D	0.81	D	Add 3rd NBT, defacto NBR						21.0%				
730	Grand Avenue at Warner Avenue	SA	No Impact						No Impact						0.83	D	0.96	E	0.81	D	0.82	D	0.81	D	Add 3rd WBT						15.8%						



6.4.5 Tustin

There are a total of eight intersections within the City of Tustin that are deficient under 2015 and Post-2030 future scenarios. The project is responsible for a fair-share of impacts identified as project related. The project has no responsibility for cumulative deficiencies but recommends improvements to bring the deficient intersection back to an acceptable LOS for future planning purposes. **Table 6.7** identifies mitigation for intersections within the City of Tustin.

Of these eight deficient intersections within the City of Tustin, four have a project impact and four are cumulatively deficient. Mitigation for Intersection #3 (Newport Avenue at Edinger Avenue), Intersection #36 (Red Hill Avenue at El Camino Real), Intersection #111 (Franklin Avenue at Walnut Avenue), and #732 (SR-55 Northbound Ramps/Del Amo Avenue at Newport Avenue) are not the responsibility of the project as the deficiency is not project related, however improvements have been proposed to return the intersections to an acceptable LOS. The following intersections will require improvements to achieve an acceptable LOS for planning purposes:

- *Intersection #3: Newport Avenue and Edinger Avenue*

This intersection has a cumulative deficiency under the Post-2030 Cumulative scenario. Since there is heavy traffic on the eastbound and southbound right turn movements, recommended mitigation includes conversion of the southbound right-turn lane into a free right-turn lane in Post-2030. Implementation of this improvement would result in acceptable operations and is physically feasible. Because Newport Avenue and Edinger Avenue has been recently reconfigured this intersection should be monitored in the future for potential changes in traffic patterns.

- *Intersection #24: Newport Avenue and Walnut Avenue*

This intersection has a project impact under the Post-2030 condition. The critical movement at this location is the westbound right-turn movement and northbound right turn movement. Hence, it is recommended to add a defacto westbound right turn lane and defacto northbound right turn lane which would mitigate this intersection back to an acceptable operations in the future scenario.

- *Intersection #36: Red Hill Avenue at El Camino Real*

This intersection has a temporary cumulative deficiency under the 2015 scenario. The southbound left turn movement is the critical movement and the proposed improvement reconfigures the approach to one left turn lane, one shared through left, two through lanes, and no right turn lane would return this intersection to an acceptable LOS. Because this location was recently reconfigured, the traffic should be monitored to evaluate if future improvements are indeed warranted.

- *Intersection #93: Tustin Ranch Road and El Camino Real*

This intersection has a project impact under both the 2015 and Post-2030 Cumulative scenarios. Because of heavy traffic on the southbound through movement, the addition of a fourth southbound through lane and restripe the eastbound approach to one left turn lane, a shared through right and a right turn lane would return this intersection to an acceptable LOS under all future scenarios. The recommended mitigation appears to be physically feasible and the project would be responsible for a fair-share.

- *Intersection #111: Franklin Avenue and Walnut Avenue*

This intersection has a cumulative deficiency under both the 2015 and Post-2030 scenarios. The critical movement at this intersection is the westbound through movement, with heavy volume and limited capacity. Improving capacity on this approach to add a third westbound through lane would bring the intersection back to an acceptable LOS under all forecast scenarios. These improvements are provided for future planning purposes.

- *Intersection #134: Loop Road/Park Avenue at Warner Avenue*

This intersection has a project impact under both the 2015 and Post-2030 scenarios. The critical movement at this intersection is the eastbound through movement. Improving capacity on this approach to add a third eastbound through lane would bring the intersection back to an acceptable LOS under all forecast scenarios. This improvement appears to be physically feasible.



- *Intersection #732: SR-55 NB Ramps/Del Amo Avenue at Newport Avenue*

This intersection has a temporary cumulative deficiency under the 2015 scenario. The southbound right turn movement is the critical movement and improving the southbound approach to one left turn lane, one through lane, one right turn lane, and one shared through right would return this intersection to an acceptable LOS. Because this intersection operates at an acceptable LOS under the buildout scenarios, expediting the already planned improvements would be recommended. The project is not responsible for a fair-share at this location.

- *Intersection #754: Red Hill Avenue at Carnegie Avenue/A Street*

This intersection has a project impact under the Post-2030 scenario. The project impact is largely due to heavy traffic on the northbound through movement. Widening this approach to add a 4th northbound through lane would return the intersection to an acceptable LOS under all future scenarios. This intersection is expected to be substantially expanded as a result of development of the Tustin Legacy project and should be monitored to observe if any additional improvements are warranted when that project nears buildout. The project is responsible for a fair-share at this location.



Table 6.7: City of Tustin Proposed Intersection Mitigation

ID	Intersection	Jurisdiction	2015 Cumulative With Project				2015 Cumulative With Project After Mitigation				Post-2030 Cumulative With Project				Post-2030 Cumulative With Project After Mitigation				Mitigation Strategy	Fair-share
			AM	PM	LOS	ICU	AM	PM	LOS	ICU	AM	PM	LOS	ICU	AM	PM	LOS	ICU		
3	Newport Avenue at Edinger Avenue	Tus	No Impact								0.92	E	0.80	C	0.75	C	0.80	C	Convert SBR to Free Right turn lane	No Share
24	Newport Avenue at Walnut Avenue	Tus	No Impact								0.91	E	0.95	E	0.89	D	0.84	D	Add DeFacto NBR and defacto WBR turn lane	6.3%
36	Red Hill Avenue at El Camino Real	Tus	0.62	B	0.91	E	0.62	B	0.87	D	No Impact				Reconfigure SB to 1.5, 2.5, 0				No Share	
93	Tustin Ranch Road at El Camino Real	Tus	1.08	F	0.87	D	0.84	D	0.90	D	1.03	F	0.84	D	0.81	D	0.88	D	Add 4th SBT, Restripe EB to 1, 0.5, 1.5	2.1%
111	Franklin Avenue at Walnut Avenue	Tus	0.52	A	0.99	E	0.47	A	0.85	D	0.57	A	0.97	E	0.50	A	0.81	D	Add 3rd WBT lane	No Share
134	Loop Road/Park Avenue at Warner Avenue	Irv/Tus	0.83	D	1.00	E	0.83	D	0.82	D	0.48	A	1.07	F	0.42	A	0.86	D	Add 3rd EBT	11.6%
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue	Tus	0.51	A	0.91	E	0.51	A	0.59	A	No Impact				Reconfigure SB to 1, 1.5, 1.5				No Share	
754	Red Hill Avenue at Carnegie Avenue/A Street	Tus	No Impact								0.62	B	0.95	E	0.62	B	0.83	D	Add 4th NBT lane	7.3%



6.5 Existing Conditions With Project Impacts

The California Environmental Quality Act (CEQA) requires an evaluation of the impacts relating to the addition of the buildout of the project on the existing highway network. The Existing Conditions with Project impacts are developed as a theoretical exercise to assess where project trips are likely to concentrate and impact the circulation system. The project is not responsible for mitigation of impacts from the Existing Conditions with Project scenario but improvements are proposed for future planning purposes. **Table 6.8** identifies mitigation for all deficient intersections under the 2008 Existing Conditions with Project scenario. Detailed ICU worksheets demonstrating the improvement and ICU with mitigation are included in **Appendix F**.

Table 6.8: 2008 Existing Conditions with Project Intersection Mitigation

ID	Intersection	Jurisdiction	Existing Conditions With Project				Existing Conditions Plus Project After Mitigation				Mitigation Strategy (Existing Conditions with Project)
			AM		PM		AM		PM		
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	
145	Jamboree Road at Michelson Drive	Irv	0.77	C	1.21	F	0.74	C	0.97	E	Add 3rd EBL, 3rd SBL
42	Red Hill Avenue at Barranca Parkway/Dyer Road	Irv	0.91	E	1.01	F	0.63	B	0.79	C	Implement 2015 improvements
36	Red Hill Avenue at El Camino Real	Tus	0.70	B	1.12	F	0.57	A	0.84	D	Implement 2015 Improvements
111	Franklin Avenue at Walnut Avenue	Tus	0.44	A	0.91	E	0.42	A	0.77	C	Add 3rd WBT lane

Although the development of impacts under this scenario is a theoretical exercise, for the purposes of analysis, recommended improvements have been highlighted for the sake of future planning efforts. There are no fair-shares associated with these improvements nor are there any obligations to implement them. The Existing With Project scenario is a theoretical exercise to determine what would happen if all project trips are applied to the existing circulation system. Two of the four intersections that have a project impact identified under the 2008 Existing Conditions with Project scenario are also deficient in 2015 or Post-2030, and the mitigation recommended or elements of the mitigation below, applies to future deficiencies.

- *Intersection #145: Jamboree Road and Michelson Drive*

This intersection is deficient under the 2008 with Project scenario. Recommended improvements are the same for all future forecast alternatives as with Existing Conditions With Project with the exception of the additional westbound through lane. However, as noted above, physical constraints limit the improvements possible to mitigate the project impacts at this location.

- *Intersection #42: Red Hill Avenue at Barranca Parkway/Dyer Road*

This shared intersection between the Cities of Tustin and Irvine is deficient only under the Existing With Project scenario, with a PM peak hour ICU of 1.01. This intersection is programmed for substantial capacity improvements in 2015 as part of the City of Irvine’s areawide Capital Improvement Program, including four lanes on each of the through movements. The application of those improvements will improve the intersection to an acceptable LOS in 2015.

- *Intersection #36: Red Hill Avenue and El Camino Real*

The ICU analysis indicates that this Tustin intersection is deficient under the 2008 Existing Conditions with Project scenario. This intersection is also deficient under Existing Conditions. Implementation of the 2015 improvements (westbound left, westbound through, eastbound left, and eastbound through movements from 1 to 1.5 lanes each) would mitigate the project impact under the Existing Conditions with Project scenario to an acceptable LOS.

- *Intersection #111: Franklin Avenue and Walnut Avenue*

This Tustin intersection is deficient under all future scenarios, as well as the 2008 Existing Conditions with Project scenario, with a PM peak hour ICU of 0.91. As noted above, the westbound through movement at this intersection is the critical movement and the addition of a third westbound through to the existing conditions with project lane configuration eliminates the deficiency at this location.



6.6 Arterial Improvements

For all segments that operate deficiently under daily conditions within the City of Irvine, a peak hour analysis was conducted per the City’s Traffic Analysis Guidelines. It was determined from the results of the peak hour link analysis that no arterial segments were deficient in the AM or PM peak hours. Hence, no arterial segment improvements are recommended within the City of Irvine.

For arterial segments in Newport Beach, Costa Mesa, and Tustin, deficiencies are addressed at the intersection level. If an arterial segment is deficient in the daily conditions, the intersections at either end of the segment are analyzed for peak hour deficiency. It is assumed that improvements at deficient intersections would alleviate the deficiency on the arterial segment. For the City of Santa Ana, arterial segment impacts are identified as an increase of 0.01 to the deficient V/C ratio between the No Project and With Project conditions. The segment of MacArthur Boulevard, from Main Street to SR-55 has a significant project related impact and will require mitigation.

It is recommended to widen MacArthur Boulevard between Main Street and SR-55 to an 8-lane divided facility. The improvement would provide one additional lane in each direction and may require an amendment to the City of Santa Ana General Plan. This forecast deficiency constitutes a project related significant impact according to the City of Santa Ana’s performance criteria. The City of Irvine is responsible for a fair-share for this improvement. **Table 6.9** presents the segment V/C ratio before and after potential improvements. Coordination with Santa Ana is necessary to determine the feasibility of additional capacity on MacArthur Boulevard.

Table 6.9: Arterial Segment Daily LOS After Mitigation

ID	Arterial Segment	Jurisdiction	Post-2030				Improvement	Fair-share
			Cumulative With Project		Cumulative With Project after Mitigation			
			Daily		Daily			
			V/C	LOS	V/C	LOS		
1884	MacArthur Boulevard from Main to SR-55	Santa Ana	0.94	E	0.70	B	Increase arterial capacity from 6-lanes to 8-lanes	31.1%

6.7 Freeway Mainline and Ramp Improvements

6.7.1 Freeway Mainlines

As identified in **Chapters 4 and 5**, there are several freeway mainline deficiencies under the 2015 and Post-2030 future scenarios. For the IBC Post-2030 Cumulative With Project scenario, which includes all regional growth, the volume on all freeway segments within the study area increases when compared with Existing Conditions. The volumes are consistent with the No Project scenario forecast volumes, with some segments and ramps experiencing an increase in the peak hour volume of over 200 vehicles per hour, triggering a significant impact under the City of Irvine and Caltrans agreed upon project impact criteria. **Table 6.10** identifies the freeway mainline segments with a project impact under Post-2030 conditions.



Table 6.10: Freeway Mainline Project Impacts and Fair-share

Location		Direction	Post-2030 Lanes		Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project						Required Mitigation			
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			Trips Difference AM (+200 cars=impact)	Trips Difference PM (+200 cars=impact)	Project Impact V/C	Project Fair-share (V/C)
					Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS				
I-5	Jamboree Road to Tustin Ranch Road	NB	5	10,000	11,649	1.16	F	9,753	0.98	E	11,857	1.19	F	9,660	0.97	E	208	-92	*	1.8%
		SB	5	10,000	8,865	0.89	D	8,879	0.89	D	9,075	0.91	E	9,085	0.91	E	210	207	*	2.3%
	Tustin Ranch Road to Red Hill Avenue	NB	5	10,000	11,459	1.15	F	10,273	1.03	F	11,677	1.17	F	10,190	1.02	F	218	-82	*	1.9%
		SB	5	10,000	9,675	0.97	E	9,409	0.94	E	9,905	0.99	E	9,615	0.96	E	230	207	*	2.3%
	Red Hill Avenue to Newport Avenue	NB	5	10,000	11,629	1.16	F	10,113	1.01	F	11,847	1.18	F	10,010	1.00	E	218	-102	*	1.8%
	Newport Avenue to SR-55	NB	5	10,000	12,389	1.24	F	10,883	1.09	F	12,597	1.26	F	10,820	1.08	F	208	-62	*	1.7%
North of SR-55	SB	5	10,000	10,300	1.03	F	9,774	0.98	E	10,559	1.06	F	9,919	0.99	E	259	145	*	2.5%	
I-405	Jamboree Road to MacArthur Boulevard	NB	6	12,000	11,306	1.13	F	9,650	0.96	E	11,561	1.16	F	9,790	0.98	E	255	140	*	2.2%
		SB	5	10,000	8,366	0.84	D	9,017	0.90	E	8,560	0.86	D	9,288	0.93	E	194	271	*	2.9%
SR-55	I-405 to MacArthur Boulevard	NB	4	8,000	8,401	1.05	F	8,327	1.04	F	8,688	1.09	F	8,586	1.07	F	287	260	*	3.3%
		SB	4	8,000	8,697	1.09	F	8,528	1.07	F	9,134	1.14	F	8,732	1.09	F	437	204	*	4.8%
	MacArthur Boulevard to Dyer Road	NB	5	10,000	7,551	0.76	D	9,377	0.94	E	7,858	0.79	D	9,666	0.97	E	307	290	*	3.9%
		SB	5	10,000	9,867	0.99	E	7,748	0.77	D	10,284	1.03	F	7,912	0.79	D	417	164	*	4.1%
Dyer Road to Edinger Avenue	NB	6	12,000	6,771	0.56	C	11,387	0.95	E	7,128	0.59	C	11,696	0.97	E	357	310	*	5.0%	

Improvements beyond the planned system improvements would be required to maintain an acceptable LOS for the State Highway System. Potential improvement measures would include the addition of one, two, or three lanes to freeway mainline segments. However, capacity improvements to the freeway mainline are not feasible improvement options. The rationale is that Caltrans has not identified any further improvements beyond those already assumed in the buildout analysis for I-5, I-405, SR-55, SR-73, and SR-261 and the City has no control over State facilities. Additional capacity improvements are infeasible due to physical, right-of-way and other environmental constraints

For example, the expansion of the identified freeway segments would involve significant right-of-way acquisition which would involve either the acquisition of residences and/or businesses, or this would involve bringing the freeway facilities close to such residences and businesses. It is not a legal prerogative or policy of the City to support further freeway widening when such widening would have negative impacts on adjacent businesses and residences. Bringing State facilities closer to residences and businesses is also not a social or legal prerogative of the City however, the regional transportation agency, OCTA has identified improvements to be funded by the Renewed Measure M, approved in 2007-08 by the County and participating Cities including the City of Irvine. This analysis does take into consideration improvements identified through this funding source. Finally, the Proposed Project supports recent State legislation to reduce the average vehicle miles travelled as the Project is designed to co-locate urban-style housing and employment opportunities. As a result of these policy prerogatives and identified constraints, the project is not expected to mitigate the freeway mainline segments to an acceptable LOS. As part of the Proposed Project approval and certification of the EIR, the City will develop a Statement of Overriding Considerations for the capacity improvements of freeway mainlines and freeway ramp facilities. Consultation between the City of Irvine and Caltrans is necessary to reach consensus on any potential alternative improvement measures including but not limited to the following strategies:

- o Intelligent Transportation System (ITS) strategies
- o Improved signage to alleviate weaving issues
- o Enhanced on and off-ramp merge and diverge areas utilizing auxiliary lanes
- o Operational improvements to ramp meters and signal timing



Although the implementation of these improvements does not necessarily mitigate the project impact as identified by the volume to capacity ratio analysis, the City will work with Caltrans to identify the most appropriate feasible improvements on the freeway mainlines and is prepared to contribute the identified share to such improvements.

6.7.2 Freeway Ramps

As identified in **Chapters 4 and 5**, there are several freeway ramp deficiencies under the 2015 and Post-2030 future scenarios. For the IBC Post-2030 Cumulative With Project scenario, which includes all regional growth, the volume on many freeway ramps increases when compared with Existing Conditions. The volumes are generally consistent with the No Project scenario forecast volumes, with some segments and ramps experiencing an increase in the peak hour volume of over 30 vehicles per hour, triggering a significant impact under the City of Irvine and Caltrans agreed upon project impact criteria. **Table 6.11** identifies the freeway ramps with a project impact under the Post-2030 Cumulative With Project conditions. The ramps with a project impact under the 2015 Cumulative With Project scenario are also identified. In addition, the table presents the IBC Vision fair-shares for the deficient ramps. The City of Irvine will work with Caltrans to identify the appropriate improvements on the freeway ramps and determine the strategy for implementation of those improvements.

Table 6.11: Freeway Ramp Project Impacts and Fair-share

Interchange	Ramp Type	Ramp Capacity		Post-2030 Cumulative Baseline No Project						Post-2030 Cumulative With Project						Mitigation Post-2030 Cumulative				
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			Trips Difference AM	Trips Difference PM	Project Impact V/C	Project Fair-share (V/C)	
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS					
I-405	Culver Drive	NB Off	1	1,500	1,270	0.85	D	1,250	0.83	D	1,360	0.91	E	1,270	0.85	D	90	20	*	6.6%
	Jamboree Road	SB Off	2	500	2,340	1.04	F	2,110	0.94	E	2,730	1.21	F	2,690	1.20	F	390	580	*	21.6%
	MacArthur Boulevard	NB On	1	1,000	440	0.29	A	1,530	1.02	F	490	0.33	B	1,590	1.06	F	50	60	*	10.2%
		NB Off	1	500	1,640	1.09	F	890	0.59	C	1,770	1.18	F	920	0.61	C	130	30	*	7.3%
	Bristol Street	SB Loop On	1	1,000	1,090	0.73	D	1,490	0.99	E	1,110	0.74	D	1,610	1.07	F	20	120	*	7.5%
SR-55	Baker Street	SB On	1	1,000	510	0.57	C	1,250	1.39	F	510	0.57	C	1,290	1.43	F	0	40	*	3.1%
	Baker Street	NB Off	1	1,500	1,420	0.95	E	1,300	0.87	D	1,450	0.97	E	1,350	0.90	E	30	50	*	3.7%
	MacArthur Boulevard	SB On Loop	1	1,000	170	0.19	A	800	0.89	D	200	0.22	A	870	0.97	E	30	70	*	15.0%
	Dyer Road	NB On Direct	1	1,000	330	0.22	A	1,350	0.90	D	390	0.26	A	1,400	0.93	E	60	50	*	15.4%
SR-73	Jamboree Road	SB Off	2	500	2,619	1.16	F	2,867	1.27	F	2,727	1.21	F	2,938	1.31	F	109	71	*	4.0%
	Campus Drive	NB On	1	1,000	629	0.42	B	1,983	1.32	F	818	0.55	C	2,111	1.41	F	189	128	*	23.1%

There are three locations that have a project impact under the 2015 conditions that improve under the Post-2030 Cumulative With Project conditions. In 2015, the model has distributed greater amounts of traffic to these ramp facilities than in the buildout scenario due to different land use assumptions and buildout improvements throughout the circulation system. The following ramps have a temporary project impact under 2015 conditions:

- o I-405 Northbound Off-Ramp to Jamboree Road
- o SR-55 Northbound Direct On-Ramp from Victoria Street
- o SR-55 Northbound ON-Ramp from MacArthur Boulevard



The regional transportation agency, OCTA has identified improvements to be funded by the Renewed Measure M, approved in 2007-08 by the County and participating Cities including the City of Irvine. It is conceivable that ramp improvements will be incorporated into the freeway facility enhancements planned for the buildout condition. As part of the Proposed Project approval and certification of the EIR, the City will develop a Statement of Overriding Considerations for the capacity improvements of freeway ramp facilities. Pursuant to Caltrans' *Guide for the Preparation of Traffic Impact Studies (2002)*, consultation between the City of Irvine and Caltrans is necessary to reach consensus on feasible operational improvement measures.

6.8 Unavoidable Impacts and Overriding Considerations

6.8.1 City of Irvine Intersections

Although every effort was made, through site analyses and aerial imagery evaluation to ensure that all recommended improvements are physically feasible, there are intersections where improvements may not be possible due to cost, right-of-way concerns, or community opposition. For these intersections a Statement of Overriding Considerations will be included in the Environmental Impact Report (EIR) documenting why a particular improvement is not recommended as mitigation.

The following intersection improvement is likely not feasible due to potential constraints.

- *Intersection #145: Jamboree Road and Michelson Drive*

This intersection has a project related significant impact under the 2015 and Post-2030 Approved Project scenarios, and a cumulative deficiency under the Post-2030 Pending scenarios. Recommended improvements are the same in both 2015 and Post-2030 and include the addition of a third eastbound left and restriping of the southbound approach to get a third southbound left from the southbound through movement. With this improvement, the intersection returns to an acceptable LOS under all scenarios. The recommended triple eastbound and southbound left turn improvements are contrary to City standards due to safety and operational concerns associated with the vehicles turning within appropriate receiving lanes. In addition, as noted previously, the City believes that the triple turn movements would not provide the operational improvements intended due to the proximity of downstream destinations and likely distribution of traffic in the triple left turn lanes. In addition, there are physical constraints associated with the proposed improvements, including Southern California Edison (SCE) 220kV transmission lines along the west side of Jamboree Road and SCE substation located at the southeast corner of this intersection. These physical constraints limit the improvements necessary to mitigate the project impacts at this location. However, a future pedestrian overcrossing is planned at this intersection which may improve signal operations and Intersection Capacity Utilization levels at this intersection.

With implementation of the intersection improvements described in the mitigation discussion above, the significant impacts associated with the Proposed Project would be fully mitigated with the exception of the Jamboree Road/Michelson Drive intersection.

6.8.2 City of Costa Mesa, Newport Beach, Santa Ana, and Tustin Intersections and Arterial Segments

Inasmuch as the primary responsibility for approving and/or completing certain improvements located outside of Irvine lies with agencies other than the City of Irvine (i.e., City of Newport Beach, City of Tustin, City of Santa Ana, City of Costa Mesa, and Caltrans), there is the potential that significant impacts may not be fully mitigated if such improvements are not completed for reasons beyond the City of Irvine's control (i.e., the City of Irvine cannot undertake or require improvements outside of Irvine's jurisdiction). Should that occur, the Project's traffic impact would remain significant.

6.8.3 Caltrans Mainline Segments and Ramps

State highway facilities within the study area are not within the jurisdiction of the City of Irvine. Rather, those improvements are planned, funded, and constructed by the State of California through a legislative and political process involving the State Legislature; the California Transportation Commission (CTC); the California Business, Transportation, and Housing Agency; the California Department of Transportation (Caltrans); and OCTA. Recent funding opportunities designated by OCTA's Renewed Measure M provides the vehicle for designated improvements on the freeway facilities within the study area and were analyzed at their recommended build-out in the IBC Vision.



The City of Irvine has a development fee program in place associated with development in the IBC study area. This program is specifically in place to contribute to the improvement of facilities within Irvine and a fair-share to improvements outside the City of Irvine when significant impacts result from development within the IBC. The City is committed to working with the adjacent Cities and Caltrans to identify the most appropriate improvement strategies for their facilities and acknowledges the fair-share cost of improvements to those facilities, however, the adjacent Cities and Caltrans have full jurisdiction toward implementing the identified improvements under their jurisdiction.



7.0 Buildout Alternative Analysis

7.1 Post-2030 Existing General Plan Buildout

The Post-2030 Existing General Plan Buildout impact analysis evaluates the buildout of the Existing General Plan land uses as compared to the Vision Plan land uses. The circulation setting is identical between the IBC Vision Plan and the Existing General Plan buildout scenarios; however, there are significant land use differences between the two scenarios. The Existing General Plan scenario demonstrates the impacts on the circulation system if the City’s Existing General Plan land uses (approved zoning potential and entitlement) were to be completely built out.

7.2 Post-2030 Existing General Plan Buildout Land Use and Trip Generation

Land Use assumptions for Post-2030 Existing General Plan Buildout conditions are based on prior project approvals and entitlement. **Table 7.1** displays the Post-2030 Existing General Plan Buildout land uses assumed in the model for the IBC. **Table 7.2** displays the ITAM trip generation for the Post-2030 Existing General Plan Buildout scenario. The trip generation quantities and land use quantities by type and IBC TAZs is presented in **Appendix A** and **Appendix J**, respectively. **Figure 7.1** through **Figure 7.3** display the land use differences between the Post-2030 Existing General Plan scenario and the IBC Vision Plan With Project scenario.

Table 7.1: Post-2030 Existing General Plan Buildout Land Use Summary

Scenario	Multi-family Residential (DU)	Retail mix (TSF)	Hotel (Room)	Office mix (TSF)	Industrial Mix (TSF)	Mini-Warehouse (TSF)	Extended Stay Hotel (Room)
2008 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2008 With Project	17,038	1,731	2,880	33,716	13,180	164	598
2015 No Project	5,011	1,341	2,322	26,381	14,701	348	174
2015 With Project	10,929	1,482	2,572	27,810	14,196	348	598
Post-2030 No Project	5,011	1,341	2,322	26,381	14,701	348	174
Post-2030 With Project	17,038	1,731	2,880	33,716	13,180	164	598
Existing General Plan Buildout	9,455	1,637	2,630	36,034	14,724	450	476
Percent Growth (Post-2030 Vision Plan With Project vs. Existing General Plan Buildout)	-80%	-6%	-10%	6%	10%	64%	-26%

Source: City of Irvine

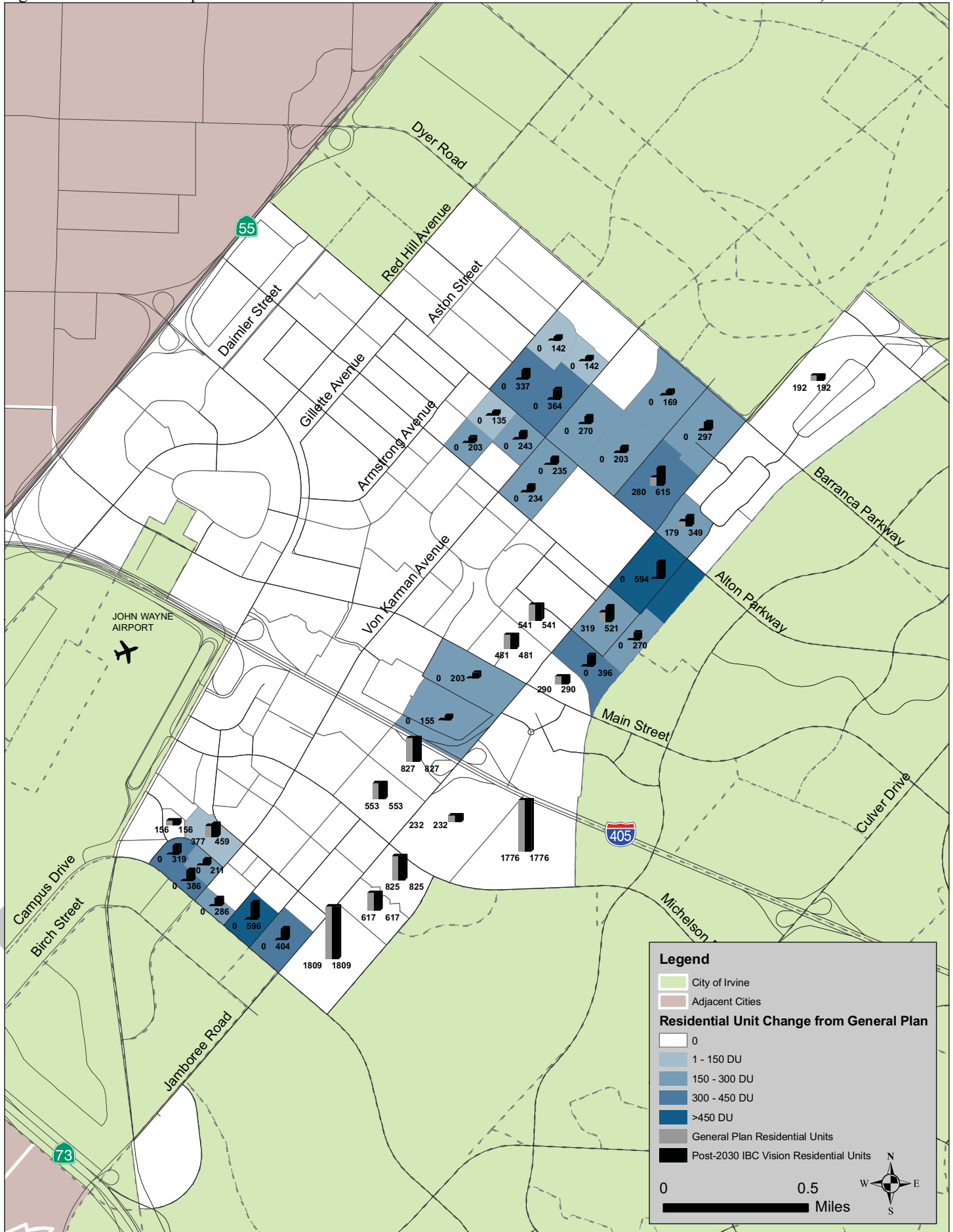
Table 7.2: Post-2030 Existing General Plan Buildout Trip Generation

Scenario	AM-Out	AM-In	PM-Out	PM-In	ADT
2008 No Project	11,191	28,990	27,316	17,367	508,690
2008 With Project	19,336	36,105	35,513	25,795	697,308
2015 No Project	11,191	28,990	27,316	17,367	508,690
2015 With Project	14,858	30,962	29,982	20,793	578,825
Post-2030 No Project	11,191	28,990	27,316	17,367	508,690
Post-2030 With Project	19,336	36,105	35,513	25,795	697,308
Existing General Plan Buildout	15,961	37,272	35,588	23,583	672,309
Percent Growth (Post-2030 Vision Plan With Project vs. Existing General Plan Buildout)	-17%	3%	0%	-9%	-4%

Source: ITAM

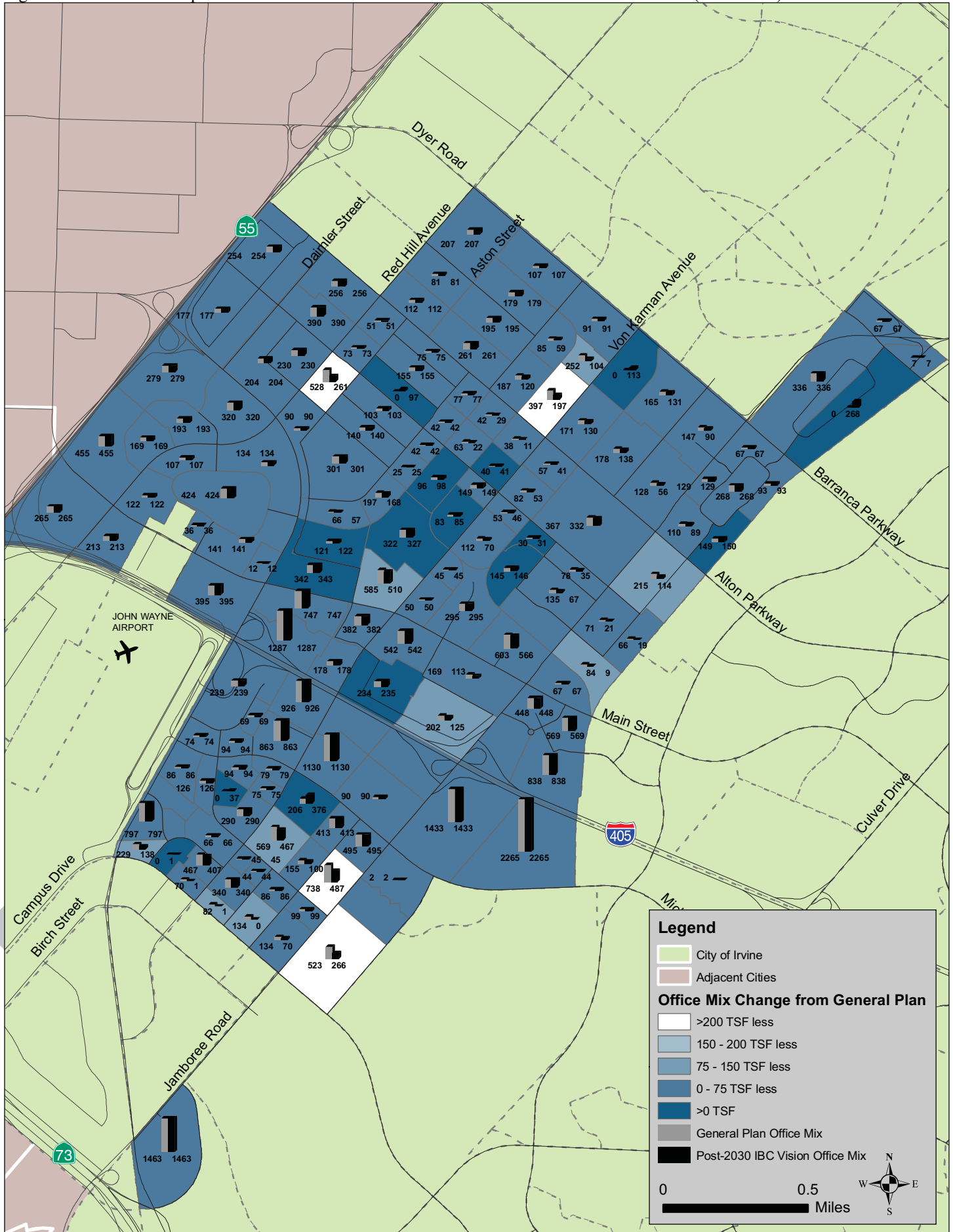
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Figure 7.1: Land Use Comparison between Post-2030 IBC Vision Plan and General Plan Buildout (Residential Units)



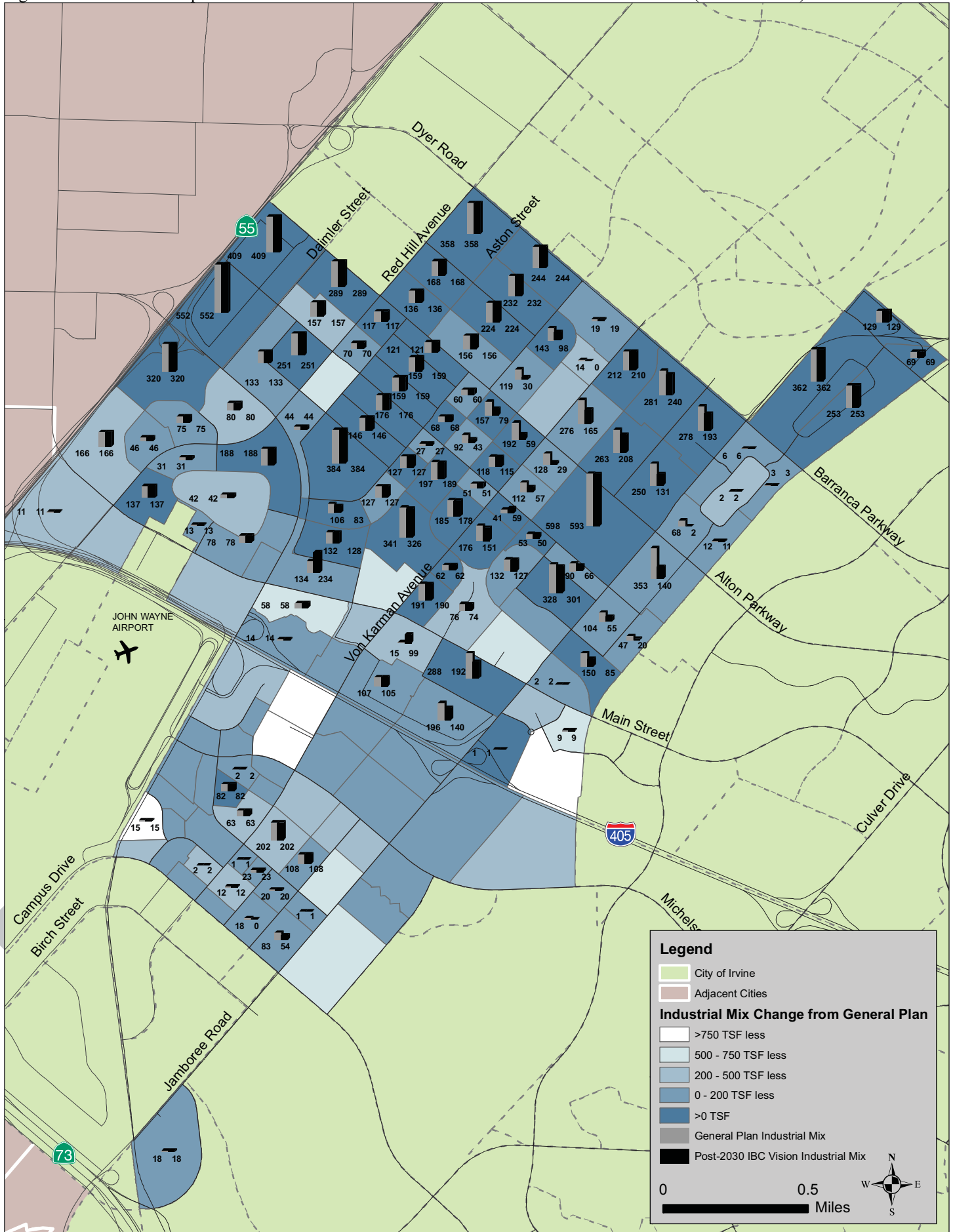
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Figure 7.2: Land Use Comparison between Post-2030 IBC Vision Plan and General Plan Buildout (Office Mix)



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Figure 7.3: Land Use Comparison between Post-2030 IBC Vision Plan and General Plan Buildout (Industrial Mix)



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7.3 Post-2030 Existing General Plan Buildout Daily Arterial Segment Analysis

Under the Post-2030 Existing General Plan Buildout scenario, traffic within the City shows some growth related to future development of the study area as a whole.

Post-2030 Existing General Plan arterial traffic conditions were analyzed based on the projected volumes and future lane configurations. **Table 7.3** presents study area roadway segments, including information on jurisdiction, daily traffic count, classification type, V/C ratio and LOS on each segment and compares the Post-2030 Existing General Plan With and Without the IBC Vision Project. Deficient segments were further analyzed for peak hour performance within the City of Irvine. Alternative methodologies by other cities within the study area called for a different analysis approach.

Figure 7.3 and **Figure 7.4** graphically depict the ADT Traffic Volumes and deficient segment LOS, respectively, for the Post-2030 Existing General Plan Buildout scenario.

Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	6D	10,100	0.18	A	10,200	0.18	A	10,300	0.18	A
2721	Baker Street	Bear Street to Bristol Street		CM	6D	29,600	0.53	A	30,100	0.54	A	30,200	0.54	A
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	6D	36,300	0.65	B	37,000	0.66	B	37,100	0.66	B
1294	Baker Street	SR 55 SB to SR 55 NB		CM	6D	37,800	0.68	B	38,200	0.68	B	38,400	0.69	B
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	6D	21,500	0.38	A	22,000	0.39	A	22,100	0.39	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	6D	6,200	0.11	A	6,200	0.11	A	6,200	0.11	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	6D	19,900	0.36	A	20,100	0.36	A	20,000	0.36	A
2733	Bristol Street	Seegerstrom Avenue to West Alton Avenue		CM	6D	40,400	0.72	C	41,200	0.74	C	41,400	0.74	C
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	6D	44,200	0.79	C	45,000	0.80	C	45,400	0.81	D
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	6D	25,300	0.45	A	25,600	0.46	A	25,800	0.46	A
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	6D	44,400	0.79	C	45,300	0.81	D	45,400	0.81	D
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	8D	69,500	0.93	E	70,500	0.94	E	70,700	0.94	E
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	8D	69,900	0.93	E	71,000	0.95	E	71,000	0.95	E
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	8D	50,600	0.67	B	51,100	0.68	B	51,100	0.68	B
2732	Bristol Street	Paularino Avenue to Baker Street		CM	6D	40,400	0.72	C	41,000	0.73	C	41,000	0.73	C
2730	Bristol Street	Baker Street to SR 55		CM	6D	25,100	0.45	A	25,600	0.46	A	25,500	0.46	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	6D	23,000	0.41	A	23,700	0.42	A	23,500	0.42	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	4D	18,300	0.48	A	18,800	0.49	A	18,700	0.49	A
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	4D	12,900	0.34	A	13,200	0.35	A	13,200	0.35	A
2772	Flower Street	Seegerstrom Avenue to MacArthur Boulevard		CM	4D	11,500	0.30	A	11,800	0.31	A	11,900	0.31	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	4D	13,100	0.34	A	13,300	0.35	A	13,400	0.35	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	4D	9,300	0.24	A	9,300	0.24	A	9,400	0.25	A
2756	Main Street	Sunflower Avenue to SR-55		CM	6D	24,400	0.44	A	27,200	0.49	A	26,900	0.48	A
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	2U	4,900	0.39	A	4,900	0.39	A	5,500	0.44	A



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	2U	4,800	0.38	A	4,700	0.38	A	4,700	0.38	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	4D	13,400	0.35	A	13,900	0.37	A	13,800	0.36	A
2742	Paularino Avenue	Bear Street to Bristol Street		CM	2U	8,400	0.67	B	8,500	0.68	B	8,600	0.69	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	4D	21,600	0.57	A	21,600	0.57	A	21,700	0.57	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	4D	23,500	0.62	B	23,800	0.63	B	23,900	0.63	B
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	4D	7,400	0.19	A	7,500	0.20	A	7,600	0.20	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	4D	17,300	0.46	A	17,300	0.46	A	17,300	0.46	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	6D	19,300	0.34	A	20,800	0.37	A	20,800	0.37	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	6D	21,000	0.38	A	21,900	0.39	A	21,900	0.39	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	6D	23,500	0.42	A	23,900	0.43	A	23,900	0.43	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	4D	9,000	0.24	A	9,000	0.24	A	9,000	0.24	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	2U	10,300	0.82	D	11,000	0.88	D	10,900	0.87	D
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4D	4,600	0.14	A	6,500	0.20	A	6,500	0.20	A
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	13,200	0.41	A	14,700	0.46	A	14,400	0.45	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	4D	16,800	0.53	A	18,100	0.57	A	18,000	0.56	A
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	6D	17,600	0.33	A	19,100	0.35	A	18,800	0.35	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	6D	18,100	0.34	A	19,800	0.37	A	19,500	0.36	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	17,300	0.32	A	18,600	0.34	A	18,500	0.34	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	6D	14,400	0.27	A	15,400	0.29	A	15,300	0.28	A
783	Alton Parkway	San Marino to Culver Drive		Irv	6D	24,000	0.44	A	25,100	0.46	A	25,200	0.47	A
735	Barranca Parkway (Dyer)	Pullman to Red Hill Avenue		Irv	6D	28,000	0.52	A	30,500	0.56	A	30,300	0.56	A
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	7D	30,300	0.48	A	32,000	0.51	A	31,700	0.50	A
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	7D	29,800	0.47	A	31,300	0.50	A	30,800	0.49	A
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	7D	22,000	0.35	A	23,300	0.37	A	22,900	0.36	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	6D	28,500	0.53	A	30,200	0.56	A	29,500	0.55	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	6D	25,000	0.46	A	26,300	0.49	A	25,800	0.48	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	23,900	0.44	A	24,800	0.46	A	24,500	0.45	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	6D	26,400	0.49	A	27,400	0.51	A	27,100	0.50	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	6D	26,000	0.48	A	26,900	0.50	A	26,700	0.49	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	4D	25,300	0.79	C	25,400	0.79	C	25,300	0.79	C
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	4D	23,200	0.73	C	23,100	0.72	C	23,100	0.72	C
539	Bryan Avenue	El Camino Real to Rubicon		Irv	4D	20,100	0.63	B	20,000	0.63	B	20,000	0.63	B
540	Bryan Avenue	Rubicon to Culver		Irv	4D	26,300	0.82	D	26,400	0.83	D	26,400	0.83	D
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	6D	18,900	0.35	A	22,500	0.42	A	21,300	0.39	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	4D	15,900	0.50	A	18,000	0.56	A	17,300	0.54	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	4D	15,000	0.47	A	16,600	0.52	A	16,000	0.50	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	4D	13,200	0.41	A	14,100	0.44	A	14,000	0.44	A
877	Campus Drive	Jamboree Road to Carlson	a	Irv	4D	28,800	0.90	D	30,300	0.95	E	30,500	0.95	E



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
		Avenue												
879	Campus Drive	Carlson Avenue to University		Irv	4U	31,100	1.11	F	32,100	1.15	F	32,000	1.14	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	4D	5,700	0.18	A	6,800	0.21	A	6,800	0.21	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	Maj5D+1AUX	45,200	0.91	E	45,300	0.92	E	45,400	0.92	E
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	6D	57,200	1.06	F	57,600	1.07	F	57,900	1.07	F
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	6D	51,300	0.95	E	51,900	0.96	E	52,100	0.96	E
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	6D	48,200	0.89	D	48,500	0.90	D	48,800	0.90	D
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	Maj6D+1AUX	42,600	0.73	C	43,100	0.74	C	43,500	0.74	C
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	6D	46,600	0.86	D	47,400	0.88	D	47,500	0.88	D
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	6D	47,100	0.87	D	48,300	0.89	D	48,600	0.90	D
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	6D	51,300	0.95	E	52,900	0.98	E	52,800	0.98	E
220	Culver Drive	Alton Parkway to Main Street		Irv	6D	51,700	0.96	E	53,600	0.99	E	53,500	0.99	E
221	Culver Drive	Main Street to San Leandro		Irv	6D	52,700	0.98	E	54,300	1.01	F	54,100	1.00	E
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	6D	58,800	1.09	F	60,500	1.12	F	60,300	1.12	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	6D	59,400	1.10	F	61,700	1.14	F	61,800	1.14	F
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	6D	46,600	0.86	D	46,800	0.87	D	46,900	0.87	D
226	Culver Drive	Sandburg Way to University Drive		Irv	6D	38,700	0.72	C	39,000	0.72	C	39,000	0.72	C
1206	El Camino Real	Jamboree Road to Alliance		Irv	4D	24,700	0.77	C	24,600	0.77	C	24,600	0.77	C
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4D	5,500	0.17	A	5,800	0.18	A	6,100	0.19	A
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	4U	11,500	0.41	A	11,800	0.42	A	11,700	0.42	A
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	4U	13,900	0.50	A	14,300	0.51	A	14,300	0.51	A
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	4U	12,900	0.46	A	13,200	0.47	A	13,200	0.47	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	4D	14,800	0.46	A	15,700	0.49	A	15,900	0.50	A
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	4D	15,400	0.48	A	16,100	0.50	A	16,400	0.51	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	4D	17,100	0.53	A	17,700	0.55	A	17,900	0.56	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	4D	18,200	0.57	A	19,200	0.60	A	19,300	0.60	A
2829	Harvard Avenue	San Juan to San Leon		Irv	4D	17,000	0.53	A	18,300	0.57	A	18,400	0.58	A
178	Harvard Avenue	San Leon to Alton Parkway		Irv	4D	18,700	0.58	A	20,100	0.63	B	20,300	0.63	B
179	Harvard Avenue	Alton Parkway to San Marino		Irv	4D	21,700	0.68	B	23,300	0.73	C	23,100	0.72	C
180	Harvard Avenue	San Marino to Main Street		Irv	4D	22,500	0.70	B	24,300	0.76	C	24,100	0.75	C
181	Harvard Avenue	Main Street to Coronado		Irv	4D	15,300	0.48	A	16,800	0.53	A	16,600	0.52	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	4D	22,900	0.72	C	25,100	0.78	C	24,900	0.78	C
183	Harvard Avenue	Michelson Drive to University Drive		Irv	2U	10,800	0.83	D	11,700	0.90	D	11,500	0.88	D
675	Irvine Center Drive	Harvard Avenue to Hearthstone		Irv	6D	26,900	0.50	A	27,000	0.50	A	26,900	0.50	A
676	Irvine Center Drive	Hearthstone to Culver Drive		Irv	6D	25,500	0.47	A	25,700	0.48	A	25,600	0.47	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	8D	41,200	0.57	A	41,300	0.57	A	41,700	0.58	A



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	Maj7D+1AUX	63,900	0.95	E	64,200	0.95	E	64,500	0.96	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	8D	70,200	0.98	E	69,700	0.97	E	70,000	0.97	E
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	8D	64,300	0.89	D	63,300	0.88	D	63,600	0.88	D
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	5D	59,400	1.32	F	61,000	1.36	F	61,200	1.36	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)*		Irv	Exp8	95,600	0.53	A	99,300	0.55	A	100,600	0.56	A
136	Jamboree Road	Edinger Avenue to Warner Avenue*		Irv	Exp8	83,500	0.46	A	87,300	0.49	A	88,000	0.49	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	Exp8	77,800	0.43	A	81,500	0.45	A	82,100	0.46	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	8D	56,700	0.79	C	61,400	0.85	D	61,300	0.85	D
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	8D	54,500	0.76	C	59,700	0.83	D	58,800	0.82	D
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	8D	50,900	0.71	C	56,500	0.78	C	55,900	0.78	C
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	8D	49,300	0.68	B	55,500	0.77	C	54,300	0.75	C
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	8D	57,900	0.80	C	67,300	0.93	E	65,300	0.91	E
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	Maj8D+2AUX	55,300	0.68	B	63,900	0.79	C	62,900	0.78	C
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	Maj8D+2AUX	74,800	0.92	E	90,600	1.12	F	90,100	1.11	F
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	7D	56,500	0.90	D	65,400	1.04	F	64,900	1.03	F
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	8D	51,800	0.72	C	55,700	0.77	C	54,500	0.76	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	6D	46,200	0.86	D	51,500	0.95	E	50,900	0.94	E
152	Jamboree Road	Birch Street to Fairchild Road		Irv	7D	37,800	0.60	A	41,700	0.66	B	41,200	0.65	B
154	Jamboree Road	Fairchild Road to Koll Center		Irv	6D	37,900	0.70	B	42,700	0.79	C	42,300	0.78	C
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	6D	29,600	0.55	A	33,200	0.61	B	33,000	0.61	B
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	5D	38,200	0.85	D	43,300	0.96	E	43,100	0.96	E
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	7D	16,800	0.27	A	18,800	0.30	A	18,700	0.30	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	7D	27,100	0.43	A	30,200	0.48	A	30,000	0.48	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	Maj8D+2AUX	37,300	0.46	A	42,000	0.52	A	41,800	0.52	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	Maj8D+1AUX	53,100	0.69	B	60,800	0.79	C	59,900	0.78	C
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	8D	45,900	0.64	B	50,200	0.70	B	49,300	0.68	B
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	8D	38,500	0.53	A	39,300	0.55	A	38,700	0.54	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	6D	37,100	0.69	B	38,300	0.71	C	38,100	0.71	C
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	6D	44,000	0.81	D	45,400	0.84	D	45,400	0.84	D
817	Main Street	McDermott to Red Hill Avenue	a	Irv	6D	21,600	0.40	A	24,200	0.45	A	23,900	0.44	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	6D	18,800	0.35	A	20,900	0.39	A	20,800	0.39	A



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	6D	28,700	0.53	A	31,700	0.59	A	31,400	0.58	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	Maj7D+1AUX	37,000	0.55	A	40,100	0.59	A	40,000	0.59	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	Maj6D+1AUX	18,900	0.32	A	21,900	0.37	A	21,500	0.37	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	6D	17,300	0.32	A	19,900	0.37	A	19,500	0.36	A
823	Main Street	Siglo to Jamboree Road	a	Irv	6D	22,900	0.42	A	27,200	0.50	A	27,100	0.50	A
824	Main Street	Jamboree Road to Union	a	Irv	Maj6D+1AUX	19,200	0.33	A	21,100	0.36	A	21,000	0.36	A
825	Main Street	Veneto to Harvard Avenue		Irv	6D	10,600	0.20	A	11,600	0.21	A	11,600	0.21	A
826	Main Street	Harvard Avenue to San Mateo		Irv	4D	11,500	0.36	A	12,500	0.39	A	12,600	0.39	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	4D	9,000	0.28	A	9,600	0.30	A	9,600	0.30	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	4D	3,700	0.12	A	5,600	0.18	A	5,600	0.18	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	5,900	0.18	A	7,900	0.25	A	7,500	0.23	A
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	4D	6,900	0.22	A	9,000	0.28	A	8,600	0.27	A
1449	McGaw Avenue	Jamboree Road to Murphy Avenue		Irv	4D	2,600	0.08	A	5,500	0.17	A	4,400	0.14	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	5D	15,700	0.35	A	19,200	0.43	A	19,100	0.42	A
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	4D	11,900	0.37	A	14,500	0.45	A	14,200	0.44	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	Prim4D+1AUX	11,500	0.31	A	14,600	0.39	A	14,600	0.39	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	Prim5	19,200	0.45	A	22,300	0.52	A	22,000	0.51	A
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	Prim4D+2AUX	17,000	0.40	A	23,400	0.54	A	23,300	0.54	A
847	Michelson Drive	Carlson Avenue to Prince		Irv	Prim4D+1AUX	18,100	0.48	A	25,900	0.69	B	25,900	0.69	B
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	4D	17,300	0.54	A	22,400	0.70	B	22,500	0.70	B
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	4D	12,600	0.39	A	14,400	0.45	A	14,500	0.45	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	4D	17,900	0.56	A	20,400	0.64	B	20,600	0.64	B
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	6D	30,700	0.57	A	34,600	0.64	B	34,300	0.64	B
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	6D	30,900	0.57	A	35,000	0.65	B	34,700	0.64	B
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	6D	32,900	0.61	B	37,800	0.70	B	37,000	0.69	B
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	6D	40,500	0.75	C	47,100	0.87	D	46,800	0.87	D
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	6D	13,000	0.24	A	14,900	0.28	A	14,600	0.27	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	6D	17,000	0.31	A	19,500	0.36	A	19,100	0.35	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	6D	37,100	0.69	B	38,000	0.70	B	38,100	0.71	C
188	University Drive	California Avenue to Mesa Road		Irv	6D	43,700	0.81	D	45,000	0.83	D	45,000	0.83	D
187	University Drive	Mesa Road to Campus Drive		Irv	6D	43,700	0.81	D	44,700	0.83	D	44,600	0.83	D
880	University Drive	Campus Drive to Harvard Avenue		Irv	6D	35,400	0.66	B	36,700	0.68	B	36,700	0.68	B
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	6D	33,100	0.61	B	33,400	0.62	B	33,600	0.62	B
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	6D	33,100	0.61	B	33,400	0.62	B	33,600	0.62	B



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	4D	28,300	0.88	D	31,400	0.98	E	31,400	0.98	E
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	4D	21,500	0.67	B	24,400	0.76	C	23,700	0.74	C
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	4D	21,200	0.66	B	24,100	0.75	C	23,600	0.74	C
103	Von Karman Avenue	Anchor to Main Street	a	Irv	4D	21,600	0.68	B	24,600	0.77	C	24,100	0.75	C
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	Prim4D+1AUX	21,500	0.57	A	25,600	0.68	B	25,200	0.67	B
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	Prim4D+1AUX	23,600	0.63	B	27,900	0.74	C	27,100	0.72	C
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	4D	19,500	0.61	B	22,600	0.71	C	21,700	0.68	B
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	4D	19,200	0.60	A	22,400	0.70	B	21,300	0.67	B
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	4D	17,300	0.54	A	19,400	0.61	B	18,100	0.57	A
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	Prim4D+1AUX	22,000	0.59	A	22,200	0.59	A	22,100	0.59	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	Maj6D+1AUX	23,100	0.39	A	23,000	0.39	A	23,000	0.39	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	Prim5D+1AUX	21,700	0.48	A	21,900	0.48	A	21,900	0.48	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	4D	19,400	0.61	B	19,500	0.61	B	19,500	0.61	B
597	Walnut Avenue	Mall Street to Culver Drive		Irv	4D	25,900	0.81	D	25,900	0.81	D	25,900	0.81	D
728	Warner Avenue	Construction North to Harvard Avenue		Irv	4D	14,500	0.45	A	14,700	0.46	A	14,700	0.46	A
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	4D	9,300	0.29	A	9,300	0.29	A	9,300	0.29	A
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	4D	10,300	0.32	A	10,300	0.32	A	10,300	0.32	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	4D	20,400	0.51	A	21,000	0.53	A	20,900	0.52	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	4D	24,200	0.61	B	24,800	0.62	B	24,800	0.62	B
874	Birch Street	East of MacArthur Boulevard		NB	4D	25,800	0.65	B	27,000	0.68	B	26,600	0.67	B
69	Birch Street	West of MacArthur Boulevard		NB	4D	16,500	0.41	A	17,400	0.44	A	17,400	0.44	A
875	Birch Street	East of Von Karman Avenue		NB	4D	25,200	0.63	B	26,800	0.67	B	26,400	0.66	B
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	6D	9,900	0.17	A	10,100	0.17	A	10,200	0.18	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	4D	16,600	0.42	A	16,700	0.42	A	16,600	0.42	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive*		NB	3D	9,300	0.39	A	9,600	0.40	A	9,500	0.40	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue*		NB	3D	15,000	0.63	B	16,000	0.67	B	15,900	0.66	B
1303	Bristol Street SB	Campus Drive to Birch Street*		NB	3D	21,100	0.88	D	21,400	0.89	D	21,500	0.90	D
1305	Bristol Street NB	Birch Street to Campus Drive*		NB	3D	18,500	0.77	C	19,200	0.80	C	19,300	0.80	C
1312	Bristol Street SB	West of Jamboree Road*		NB	4D	22,500	0.56	A	23,000	0.58	A	23,100	0.58	A
1580	Bristol Street NB	West of Jamboree Road*		NB	3D	20,000	0.83	D	20,200	0.84	D	20,000	0.83	D
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	6D	31,200	0.54	A	34,400	0.59	A	33,700	0.58	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	4D	9,100	0.23	A	9,100	0.23	A	9,100	0.23	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	6D	22,900	0.39	A	24,400	0.42	A	23,900	0.41	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	6D	21,400	0.37	A	24,200	0.42	A	24,200	0.42	A
2768	Irvine Avenue	South of University Drive		NB	4D	22,300	0.56	A	22,500	0.56	A	22,500	0.56	A



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
156	Jamboree Road	South of MacArthur Boulevard		NB	8D	28,800	0.42	A	31,000	0.46	A	31,000	0.46	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	8D	40,300	0.59	A	46,600	0.69	B	46,600	0.69	B
157	Jamboree Road	South of Bristol Street		NB	6D	36,000	0.62	B	37,400	0.64	B	37,300	0.64	B
159	Jamboree Road	University Drive to Bison Avenue		NB	6D	35,100	0.61	B	36,000	0.62	B	36,000	0.62	B
1777	Jamboree Road	Bison Avenue to Ford Road		NB	6D	28,500	0.49	A	29,400	0.51	A	29,400	0.51	A
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	8D	24,100	0.35	A	24,500	0.36	A	24,400	0.36	A
75	MacArthur Boulevard	South of Birch Street		NB	6D	25,500	0.44	A	26,400	0.46	A	26,300	0.45	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	6D	25,900	0.45	A	27,500	0.47	A	27,200	0.47	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	6D	46,400	0.80	C	47,100	0.81	D	47,000	0.81	D
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	8D	78,100	1.15	F	78,900	1.16	F	79,000	1.16	F
2767	University Drive	East of Irvine Avenue		NB	2U	1,400	0.14	A	1,400	0.14	A	1,400	0.14	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	5D	19,200	0.40	A	19,300	0.40	A	19,400	0.40	A
112	Von Karman Avenue	South of Campus Drive		NB	4D	11,900	0.30	A	13,000	0.33	A	12,500	0.31	A
113	Von Karman Avenue	South of Birch Street		NB	4D	12,800	0.32	A	14,000	0.35	A	13,500	0.34	A
2795	Dyer Road	Main Street to Halladay Street		SA	6D	30,900	0.55	A	32,000	0.57	A	31,900	0.57	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	6D	33,500	0.60	A	35,300	0.63	B	35,100	0.62	B
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	6D	46,000	0.82	D	49,100	0.87	D	48,700	0.87	D
734	Dyer Road	SR-55 NB to Pullman Street		SA	6D	32,100	0.57	A	34,500	0.61	B	34,300	0.61	B
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	6D	23,000	0.41	A	24,200	0.43	A	24,000	0.43	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	6D	21,500	0.38	A	22,500	0.40	A	22,100	0.39	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	2U	4,900	0.41	A	5,400	0.45	A	5,400	0.45	A
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	2U	1,600	0.13	A	1,700	0.14	A	1,700	0.14	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	6D	35,800	0.64	B	37,700	0.67	B	37,800	0.67	B
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	6D	51,000	0.91	E	52,800	0.94	E	52,600	0.93	E
2796	Main Street	Segerstrom Avenue to Alton Avenue		SA	6D	25,300	0.45	A	26,000	0.46	A	26,200	0.47	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	6D	28,500	0.51	A	29,500	0.52	A	29,700	0.53	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	6D	29,800	0.53	A	30,900	0.55	A	30,900	0.55	A
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	6D	31,700	0.56	A	32,900	0.58	A	33,100	0.59	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	4D	3,900	0.10	A	3,900	0.10	A	3,900	0.10	A
2736	Segerstrom Avenue	Bristol Street to Flower Street		SA	6D	15,600	0.28	A	16,100	0.29	A	16,100	0.29	A
2771	Segerstrom Avenue	Flower Street to Main Street		SA	6D	23,600	0.42	A	24,300	0.43	A	24,200	0.43	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	6D	34,500	0.61	B	35,600	0.63	B	35,800	0.64	B
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	6D	42,000	0.75	C	43,700	0.78	C	43,500	0.77	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	6D	19,600	0.35	A	21,400	0.38	A	21,300	0.38	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	6D	21,900	0.39	A	24,400	0.43	A	23,900	0.42	A



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4U	6,200	0.25	A	6,400	0.26	A	6,400	0.26	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	4U	18,800	0.75	C	19,000	0.76	C	19,000	0.76	C
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	4U	18,600	0.74	C	18,700	0.75	C	18,700	0.75	C
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	4D	21,100	0.56	A	21,200	0.57	A	21,100	0.56	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	4D	21,800	0.58	A	21,900	0.58	A	21,900	0.58	A
44	Edinger Avenue	West of Newport Avenue		Tus	6D	52,300	0.93	E	52,800	0.94	E	52,900	0.94	E
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	6D	25,900	0.46	A	26,300	0.47	A	26,400	0.47	A
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	6D	31,300	0.56	A	31,900	0.57	A	31,700	0.56	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	4U	14,400	0.58	A	14,700	0.59	A	14,700	0.59	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	4U	9,000	0.36	A	9,000	0.36	A	9,000	0.36	A
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	4U	9,800	0.39	A	9,900	0.40	A	9,900	0.40	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	4D	15,900	0.42	A	16,000	0.43	A	16,000	0.43	A
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	6D	27,600	0.49	A	28,200	0.50	A	28,100	0.50	A
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	6D	18,500	0.33	A	18,800	0.33	A	18,900	0.34	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	8,200	0.66	B	8,000	0.64	B	8,000	0.64	B
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	2U	5,800	0.46	A	5,700	0.46	A	5,700	0.46	A
6	Newport Avenue	El Camino Real to I-5		Tus	6D	37,000	0.66	B	37,500	0.67	B	37,900	0.67	B
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	6D	40,100	0.71	C	40,600	0.72	C	40,800	0.72	C
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	6D	39,100	0.69	B	39,900	0.71	C	40,100	0.71	C
49	Newport Avenue	North of Sycamore Avenue		Tus	6D	22,800	0.40	A	23,400	0.42	A	23,700	0.42	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	4U	34,600	1.38	F	35,300	1.41	F	35,700	1.43	F
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	2U	6,000	0.48	A	6,000	0.48	A	6,000	0.48	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	2U	5,200	0.42	A	5,200	0.42	A	5,200	0.42	A
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	6D	43,200	0.77	C	43,200	0.77	C	43,200	0.77	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	6D	39,000	0.69	B	39,000	0.69	B	39,000	0.69	B
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	6D	38,200	0.68	B	38,200	0.68	B	38,200	0.68	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	6D	26,700	0.47	A	26,700	0.47	A	26,700	0.47	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	6D	26,000	0.46	A	26,500	0.47	A	26,800	0.48	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	6D	27,500	0.49	A	27,500	0.49	A	27,500	0.49	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	6D	30,000	0.53	A	30,000	0.53	A	30,000	0.53	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	6D	28,300	0.50	A	29,000	0.52	A	29,600	0.53	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	6D	31,600	0.56	A	33,400	0.59	A	33,600	0.60	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	7D	31,800	0.48	A	34,400	0.52	A	34,200	0.52	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	4U	7,400	0.30	A	7,500	0.30	A	7,500	0.30	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	8,400	0.34	A	8,500	0.34	A	8,600	0.34	A
85	Tustin Ranch Road	North of I-5		Tus	6D	38,500	0.68	B	38,300	0.68	B	38,500	0.68	B



Table 7.3: Post-2030 Existing General Plan Buildout Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classifications	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Existing General Plan Buildout		
						Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	6D	36,600	0.65	B	36,900	0.66	B	37,400	0.66	B
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	15,900	0.64	B	16,500	0.66	B	16,600	0.66	B
587	Walnut Avenue	East of Newport Avenue		Tus	4U	20,800	0.83	D	21,000	0.84	D	21,000	0.84	D
589	Walnut Avenue	East of Red Hill Avenue		Tus	4D	17,400	0.46	A	17,500	0.47	A	17,500	0.47	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	4D	22,500	0.60	A	22,700	0.61	B	22,700	0.61	B
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	4D	21,000	0.56	A	21,200	0.57	A	21,100	0.56	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	6D	34,300	0.61	B	35,900	0.64	B	35,700	0.63	B

Table 7.3 indicates the following deficient segments for the Post-2030 Existing General Plan Buildout alternative:

- 2728—Bristol Street from Anton Boulevard to I-405 Northbound Ramps (Costa Mesa)
- 2751—Bristol Street from I-405 Northbound Ramps to I-405 Southbound Ramps (Costa Mesa)
- 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- 726—Culver Drive from I-5 NB Ramps to I-5 SB Ramps (Irvine)
- 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- 214—Culver Drive from Scottsdale Drive to Walnut Avenue (Irvine)
- 219—Culver Drive from Barranca Parkway to Alton Parkway (Irvine)
- 220—Culver Drive from Alton Parkway to Main Street (Irvine)
- 221—Culver Drive from Main Street to San Leandro (Irvine)
- 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)
- 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- 148—Jamboree Road from I-405 On-Ramp to Michelson Drive (Irvine)
- 149—Jamboree Road from Michelson Drive to Dupont Drive (Irvine)
- 151—Jamboree Road from Campus Drive to Birch Street (Irvine)
- 1301—MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)
- 1884—MacArthur Boulevard from Main Street to SR-55 Southbound (Santa Ana)
- 44—Edinger Avenue West of Newport Avenue (Tustin)
- 1585—Newport Avenue from Valencia Avenue to Edinger Avenue (Tustin)

When compared to the Post-2030 With Vision Plan Project, there are some minor differences in the total ADT for the arterial segments within the study area. However, there are no differences in the total number of deficient segments under daily conditions. Arterial segment number #1884 MacArthur Boulevard from Main Street to SR-55 in the City of Santa Ana is deficient under the Post-2030 Existing General Plan Buildout scenario and would need to be improved if the current General Plan land uses are built out.

7.4 Post-2030 Existing General Plan Buildout Peak Hour Link Analysis

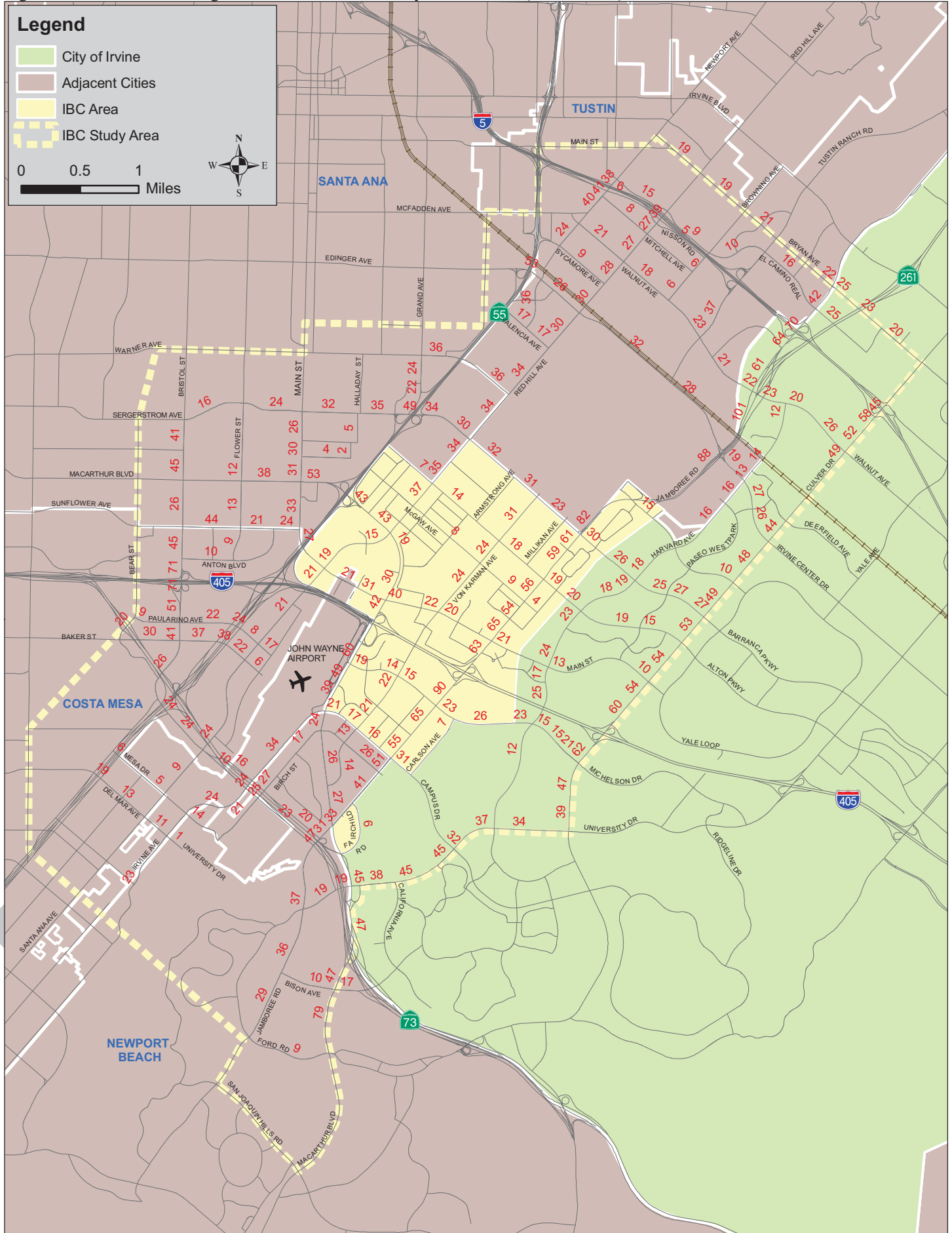
Peak hour directional traffic volumes were obtained from forecast peak hour turning movement volumes for intersections upstream and downstream for each deficient arterial segment. **Table 7.4** presents the results of peak hour link analysis, indicating that all deficient arterial segments that are deficient under daily conditions operate at an acceptable LOS in both peak hours, performing at LOS D or better, and hence no mitigation measures are recommended at this time for these facilities.



Table 7.4: Post-2030 Existing General Plan Buildout Peak Hour Link Analysis

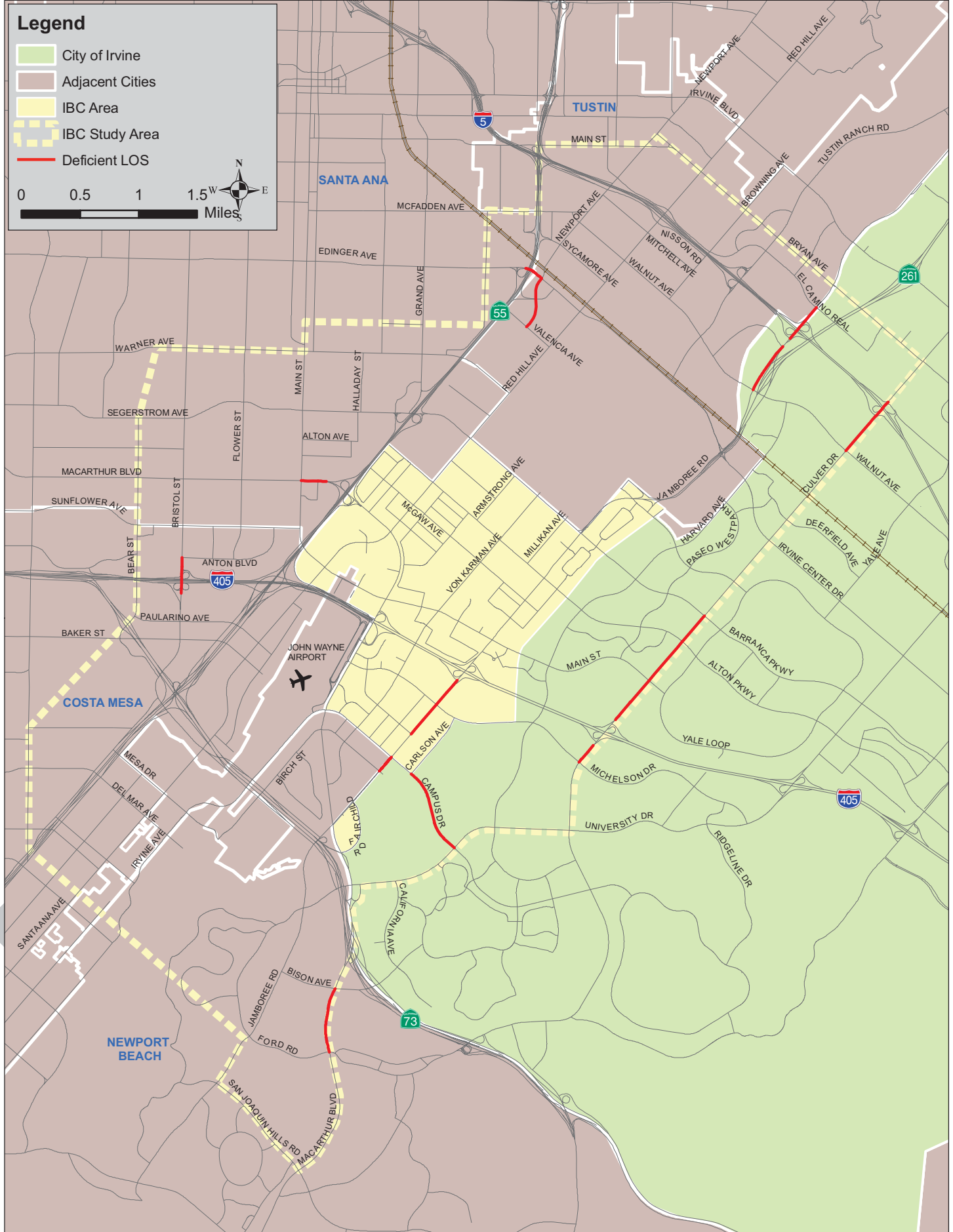
ID	Arterial	Segment Limits	Facility Type	Peak Hour Volume				AM				PM			
				AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
				NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
879	Campus Drive	Carlson Avenue to University	4U	1,270	1,660	1,930	1,490	0.40	A	0.42	A	0.60	A	0.37	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps	Maj5D+1 AUX	1,720	2,590	3,060	1,740	0.36	A	0.65	B	0.64	B	0.44	A
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,440	2,640	2,350	2,420	0.30	A	0.55	A	0.49	A	0.50	A
214	Culver Drive	Scottsdale Drive to Walnut Avenue	6D	1,440	2,720	2,530	2,140	0.30	A	0.57	A	0.53	A	0.45	A
219	Culver Drive	Barranca Parkway to Alton Parkway	6D	1,340	2,690	2,720	1,700	0.28	A	0.56	A	0.57	A	0.35	A
220	Culver Drive	Alton Parkway to Main Street	6D	1,420	2,820	2,860	2,000	0.30	A	0.59	A	0.60	A	0.42	A
221	Culver Drive	Main Street to San Leandro	6D	1,390	2,880	2,730	1,970	0.29	A	0.51	A	0.57	A	0.35	A
222	Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,370	2,210	2,950	1,960	0.29	A	0.39	A	0.61	B	0.35	A
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,430	2,410	2,520	1,770	0.30	A	0.43	A	0.53	A	0.32	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D+1 AUX	1,800	2,330	3,630	2,140	0.28	A	0.42	A	0.57	A	0.38	A
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	8D	1,900	2,900	3,250	2,090	0.30	A	0.45	A	0.51	A	0.33	A
133	Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,770	2,010	3,340	1,190	0.37	A	0.63	B	0.70	B	0.37	A
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	Maj8D+2 AUX	2,460	4,350	4,700	3,890	0.34	A	0.60	A	0.65	B	0.54	A
149	Jamboree Road	Michelson Drive to Dupont Drive	7D	1,830	3,380	3,260	2,720	0.29	A	0.70	B	0.51	A	0.57	A
151	Jamboree Road	Campus Drive to Birch Street	6D	1,950	2,480	2,660	2,740	0.41	A	0.52	A	0.55	A	0.57	A

Figure 7.4: Post-2030 Existing General Plan Buildout Daily Arterial ADT (in thousands)



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Figure 7.5: Post-2030 Existing General Plan Buildout Daily Arterial Deficiencies



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7.5 Post-2030 Existing General Plan Buildout Intersection Analysis

ICU analysis was performed on every intersection within the study area for the Post-2030 Existing General Plan Buildout scenario to provide a comparison with the buildout of the IBC Vision Plan. The intersection analysis includes both a reporting of intersection ICU and the corresponding LOS and is displayed in **Table 7.5**, while detailed ICU worksheets for study intersections are presented in **Appendix B**. For shared jurisdictions, the more conservative analysis methodology was utilized. **Figure 7.6** and **Figure 7.7** graphically present the AM and PM peak hour intersection ICU for deficient intersections for the Post-2030 Existing General Plan Buildout scenario.

When comparing the Post-2030 With Vision Plan Project scenario and the Buildout of the Existing General Plan, there are two additional intersections that are deficient, #7: SR-55 Northbound Ramps at Dyer Road, and #719: Flower Street at Segerstrom Avenue, both in the City of Santa Ana. This indicates that the IBC Vision Plan actually reduces traffic on those facilities and leads to a more acceptable circulation system when compared with the buildout of the current City of Irvine General Plan, without the Vision Plan. Based on the Post-2030 Existing General Plan, the following intersections within the study area are forecast to operate at a deficient LOS:

AM Peak Hour:

- #10: SR-55 Frontage Road Southbound Ramps at Paularino Avenue (Costa Mesa)
- #12: SR-55 Southbound Frontage Road at Baker Street (Costa Mesa)
- #13: SR-55 Northbound Frontage Road at Baker Street (Costa Mesa)
- #3: Newport Avenue at Edinger Avenue (Tustin)
- #24: Newport Avenue at Walnut Avenue (Tustin)
- #93: Tustin Ranch Road at El Camino Real (Tustin)

PM Peak Hour:

- #141: Jamboree Road at Main Street (Irvine)
- #145: Jamboree Road at Michelson Drive (Irvine)
- #188: Harvard Avenue at Michelson Drive (Irvine)
- #232: Culver Drive at I-405 Northbound Ramps (Irvine)
- #134: Loop Road/Park Avenue at Warner Avenue (Irvine/Tustin)
- #136: Jamboree Road at Barranca Avenue (Irvine/Tustin)
- #62: Campus Drive at Bristol Street (Newport Beach)
- #85: MacArthur Boulevard at Birch Street (Newport Beach)
- #7: SR-55 Northbound Ramps at Dyer Road (Santa Ana)
- #543: Bristol Street at Segerstrom Avenue (Santa Ana)
- #719: Flower Street at Segerstrom Avenue (Santa Ana)
- #723: Main Street at Dyer Road (Segerstrom Avenue) (Santa Ana)
- #730: Grand Avenue at Warner Avenue (Santa Ana)
- #24: Newport Avenue at Walnut Avenue (Tustin)
- #111: Franklin Avenue at Walnut Avenue (Tustin)
- #754: Red Hill Avenue at Carnegie Avenue/A Street (Tustin/Santa Ana)

7.6 Post-2030 Existing General Plan Buildout Freeway Mainline Analysis

The freeway mainline volumes were forecast by ITAM. The volumes, densities, and levels of service reflect the future potential deficiencies of each freeway segment by Post-2030 with the City of Irvine Existing General Plan Buildout. The peak hour volumes, V/C ratios, LOS, HCM density, and LOS are shown in **Table 7.6**. **Appendix C** presents detailed HCS worksheets for freeway mainline analysis.



Table 7.5: Post-2030 Existing General Plan Buildout Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 Existing General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino			CM	1.02	F	0.66	B	1.02	F	0.67	B	1.03	F	0.67	B
11	SR-55 Frontage Road NB Ramps at Paularino			CM	0.78	C	0.83	D	0.79	C	0.85	D	0.80	C	0.84	D
12	SR-55 SB Frontage Road at Baker Street			CM	1.18	F	0.76	C	1.19	F	0.78	C	1.22	F	0.77	C
13	SR-55 NB Frontage Road at Baker Street			CM	1.01	F	0.82	D	1.02	F	0.86	D	1.04	F	0.85	D
50	Red Hill Avenue at Paularino Avenue			CM	0.70	B	0.84	D	0.71	C	0.88	D	0.70	B	0.89	D
51	Red Hill Avenue at Baker Street			CM	0.67	B	0.86	D	0.68	B	0.90	D	0.69	B	0.90	D
52	Red Hill Avenue at Bristol Street			CM	0.73	C	0.53	A	0.76	C	0.55	A	0.74	C	0.55	A
541	Bear Street at Baker Street			CM	0.76	C	0.68	B	0.78	C	0.70	B	0.80	C	0.69	B
542	Bear Street at Paularino Avenue			CM	0.45	A	0.65	B	0.45	A	0.67	B	0.45	A	0.65	B
545	Bristol Street at Sunflower Avenue			CM	0.67	B	0.79	C	0.68	B	0.79	C	0.67	B	0.80	C
546	Bristol Street at Anton Boulevard			CM	0.43	A	0.71	C	0.44	A	0.72	C	0.44	A	0.72	C
547	Bristol Street and Paularino Avenue			CM	0.64	B	0.85	D	0.65	B	0.86	D	0.65	B	0.86	D
548	Bristol Street at Baker Street			CM	0.60	A	0.73	C	0.61	B	0.75	C	0.63	B	0.75	C
549	Newport Boulevard SB at Bristol Street			CM	0.25	A	0.50	A	0.25	A	0.52	A	0.26	A	0.52	A
550	Newport Boulevard NB at Bristol Street			CM	0.32	A	0.40	A	0.32	A	0.42	A	0.34	A	0.42	A
715	Bristol Street at I-405 NB Off Ramps			CM	0.49	A	0.68	B	0.49	A	0.70	B	0.48	A	0.70	B
716	Bristol Street at I-405 SB Off Ramps			CM	0.71	C	0.69	B	0.70	B	0.70	B	0.70	B	0.69	B
717	Bear Street at SR-73 SB Ramps			CM	0.56	A	0.88	D	0.58	A	0.89	D	0.57	A	0.90	D
718	Bear Street at SR-73 NB Ramps			CM	0.40	A	0.66	B	0.42	A	0.68	B	0.41	A	0.68	B
721	Flower Street at Sunflower Avenue			CM	0.42	A	0.54	A	0.43	A	0.57	A	0.44	A	0.57	A
722	Anton Boulevard at Sunflower Avenue			CM	0.39	A	0.35	A	0.40	A	0.40	A	0.41	A	0.38	A
726	Main Street at Sunflower Avenue			CM	0.59	A	0.75	C	0.66	B	0.80	C	0.69	B	0.81	D
735	Newport Boulevard NB at Del Mar Avenue			CM	0.66	B	0.50	A	0.67	B	0.50	A	0.68	B	0.51	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue			CM	0.41	A	0.52	A	0.42	A	0.53	A	0.42	A	0.53	A
737	Newport Boulevard NB at Mesa Road			CM	0.29	A	0.32	A	0.28	A	0.33	A	0.30	A	0.32	A
738	Newport Boulevard SB at Mesa Road			CM	0.22	A	0.60	A	0.22	A	0.61	B	0.22	A	0.61	B
45	Red Hill Avenue at McGaw Avenue	a		Irv	0.57	A	0.69	B	0.65	B	0.76	C	0.62	B	0.81	D
47	Red Hill Avenue at MacArthur Avenue	a		Irv	0.74	C	0.82	D	0.83	D	0.91	E	0.84	D	0.90	D
48	Red Hill Avenue at Sky Park North	a		Irv	0.41	A	0.58	A	0.45	A	0.63	B	0.46	A	0.61	B
49	Red Hill Avenue at Main Street	a		Irv	0.73	C	0.82	D	0.79	C	0.86	D	0.81	D	0.86	D
70	Gillette Avenue at Main Street	a		Irv	0.38	A	0.73	C	0.47	A	0.77	C	0.45	A	0.75	C
77	MacArthur Boulevard at Sky Park East	a		Irv	0.30	A	0.41	A	0.32	A	0.43	A	0.33	A	0.43	A
78	MacArthur Boulevard at Main Street	a		Irv	0.60	A	0.80	C	0.69	B	0.91	E	0.67	B	0.90	D



Table 7.5: Post-2030 Existing General Plan Buildout Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 Existing General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
79	MacArthur Boulevard at I-405 NB Ramps	a		Irv	0.70	B	0.70	B	0.80	C	0.75	C	0.80	C	0.76	C
80	MacArthur Boulevard at I-405 SB Ramps	a		Irv	0.60	A	0.74	C	0.66	B	0.83	D	0.64	B	0.82	D
82	MacArthur Boulevard at Michelson Drive	a		Irv	0.65	B	0.85	D	0.70	B	0.95	E	0.70	B	0.95	E
83	MacArthur Boulevard at Douglas Avenue	a		Irv	0.39	A	0.43	A	0.47	A	0.55	A	0.45	A	0.55	A
87	Dupont Drive at Michelson Drive	a		Irv	0.39	A	0.43	A	0.50	A	0.56	A	0.50	A	0.56	A
98	Von Karman Avenue at Alton Parkway	a		Irv	0.69	B	0.89	D	0.77	C	0.95	E	0.76	C	0.92	E
99	Von Karman Avenue at McGaw Avenue	a		Irv	0.62	B	0.81	D	0.72	C	0.91	E	0.69	B	0.88	D
100	Von Karman Avenue at Main Street	a		Irv	0.71	C	0.80	C	0.84	D	0.88	D	0.82	D	0.87	D
101	Von Karman Avenue at Morse Avenue	a		Irv	0.48	A	0.60	A	0.58	A	0.68	B	0.55	A	0.68	B
102	Von Karman Avenue at Michelson Drive	a		Irv	0.61	B	0.83	D	0.72	C	0.94	E	0.70	B	0.92	E
103	Von Karman Avenue at Dupont Drive	a		Irv	0.46	A	0.57	A	0.61	B	0.72	C	0.61	B	0.70	B
104	Von Karman Avenue at Martin	a		Irv	0.38	A	0.60	A	0.47	A	0.69	B	0.44	A	0.67	B
115	Millikan Avenue at Alton Parkway	a		Irv	0.42	A	0.44	A	0.46	A	0.48	A	0.45	A	0.50	A
116	Cartwright Road at Main Street	a		Irv	0.36	A	0.57	A	0.46	A	0.69	B	0.43	A	0.66	B
119	Teller Avenue at Michelson Drive	a		Irv	0.49	A	0.57	A	0.62	B	0.71	C	0.61	B	0.65	B
128	Jamboree Road at I-5 NB Ramps	b		Irv	0.67	B	0.73	C	0.65	B	0.72	C	0.66	B	0.73	C
129	Jamboree Road at I-5 SB Ramps	b		Irv	0.68	B	0.63	B	0.65	B	0.62	B	0.67	B	0.63	B
130	Jamboree Road at Michelle Drive			Irv	0.76	C	0.71	C	0.80	C	0.70	B	0.80	C	0.69	B
131	Jamboree Road SB at Walnut Avenue			Irv	0.47	A	0.55	A	0.48	A	0.57	A	0.50	A	0.58	A
132	Jamboree Road NB at Walnut Avenue			Irv	0.57	A	0.72	C	0.58	A	0.73	C	0.56	A	0.72	C
137	Jamboree Road at Beckman Avenue	a		Irv	0.69	B	0.75	C	0.73	C	0.78	C	0.72	C	0.79	C
138	Jamboree Road at Alton Parkway	a		Irv	0.78	C	0.80	C	0.82	D	0.83	D	0.83	D	0.84	D
139	Jamboree Road at McGaw Avenue	a		Irv	0.62	B	0.70	B	0.70	B	0.74	C	0.68	B	0.75	C
140	Jamboree Road at Kelvin Avenue	a		Irv	0.64	B	0.64	B	0.84	D	0.74	C	0.76	C	0.70	B
141	Jamboree Road at Main Street	a		Irv	0.82	D	0.92	E	0.92	E	1.02	F	0.92	E	1.02	F
143	Jamboree Road at I-405 NB Ramps	a,b		Irv	0.65	B	0.84	D	0.71	C	0.95	E	0.74	C	0.92	E
144	Jamboree Road at I-405 SB Ramps	a,b		Irv	0.80	C	0.88	D	0.91	E	0.97	E	0.94	E	0.95	E
145	Jamboree Road at Michelson Drive	a		Irv	0.74	C	1.05	F	0.81	D	1.26	F	0.82	D	1.23	F
146	Jamboree Road at Dupont Road	a		Irv	0.69	B	0.73	C	0.74	C	0.85	D	0.76	C	0.84	D
164	Construction Circle South at Barranca Parkway	a		Irv	0.44	A	0.61	B	0.45	A	0.68	B	0.45	A	0.64	B
168	Murphy Avenue at Alton Parkway	a		Irv	0.43	A	0.71	C	0.48	A	0.79	C	0.45	A	0.80	C
170	Union at Main Street	a		Irv	0.37	A	0.56	A	0.41	A	0.62	B	0.41	A	0.62	B
171	Veneto at Main Street			Irv	0.37	A	0.52	A	0.39	A	0.55	A	0.40	A	0.56	A
174	Carlson Avenue at Michelson Drive	a		Irv	0.49	A	0.61	B	0.69	B	0.79	C	0.70	B	0.79	C
175	Carlson Avenue at Campus Drive	a		Irv	0.69	B	0.74	C	0.74	C	0.85	D	0.74	C	0.84	D
180	Harvard Avenue at Walnut Avenue			Irv	0.54	A	0.53	A	0.54	A	0.54	A	0.53	A	0.54	A
183	Harvard Avenue at Warner Avenue			Irv	0.68	B	0.71	C	0.69	B	0.73	C	0.70	B	0.74	C



Table 7.5: Post-2030 Existing General Plan Buildout Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 Existing General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
184	Harvard Avenue at Barranca Parkway			Irv	0.61	B	0.68	B	0.63	B	0.70	B	0.65	B	0.71	C
185	Harvard Avenue at Alton Parkway			Irv	0.63	B	0.74	C	0.65	B	0.75	C	0.69	B	0.77	C
186	Harvard Avenue at Main Street			Irv	0.55	A	0.74	C	0.60	A	0.79	C	0.61	B	0.78	C
187	Harvard Avenue at Coronado			Irv	0.53	A	0.57	A	0.58	A	0.58	A	0.57	A	0.58	A
188	Harvard Avenue at Michelson Drive			Irv	0.64	B	0.91	E	0.71	C	0.91	E	0.71	C	0.91	E
189	Harvard Avenue at University Drive			Irv	0.82	D	0.80	C	0.86	D	0.85	D	0.86	D	0.84	D
190	University Drive at Campus Drive		√	Irv	0.77	C	0.79	C	0.79	C	0.84	D	0.80	C	0.83	D
191	Mesa Road at University Drive			Irv	0.48	A	0.79	C	0.49	A	0.81	D	0.48	A	0.82	D
192	California Avenue at University Drive			Irv	0.83	D	0.85	D	0.83	D	0.90	D	0.83	D	0.89	D
193	MacArthur Boulevard NB at University Drive			Irv	0.66	B	0.70	B	0.67	B	0.73	C	0.67	B	0.73	C
196	Hearthstone Boulevard at Irvine Center Drive			Irv	0.67	B	0.66	B	0.67	B	0.67	B	0.67	B	0.67	B
198	Paseo Westpark at Wamer Avenue			Irv	0.58	A	0.48	A	0.58	A	0.48	A	0.59	A	0.48	A
199	Paseo Westpark at Barranca Parkway			Irv	0.54	A	0.60	A	0.52	A	0.61	B	0.54	A	0.61	B
200	Paseo Westpark at Alton Parkway			Irv	0.55	A	0.59	A	0.57	A	0.63	B	0.58	A	0.64	B
201	Paseo Westpark at Main Street			Irv	0.61	B	0.52	A	0.62	B	0.53	A	0.64	B	0.54	A
221	Culver Drive at Bryan Avenue			Irv	0.89	D	0.74	C	0.89	D	0.76	C	0.89	D	0.75	C
222	Culver Drive at Trabuco Road			Irv	0.78	C	0.77	C	0.78	C	0.77	C	0.77	C	0.77	C
223	Culver Drive at I-5 SB Ramps			Irv	0.60	A	0.65	B	0.60	A	0.65	B	0.61	B	0.65	B
224	Culver Drive at Walnut Avenue		√	Irv	0.76	C	0.83	D	0.76	C	0.83	D	0.77	C	0.84	D
225	Culver Drive at Deerfield Drive			Irv	0.80	C	0.84	D	0.81	D	0.85	D	0.82	D	0.86	D
226	Culver Drive at Irvine Center Drive		√	Irv	0.72	C	0.66	B	0.73	C	0.66	B	0.74	C	0.67	B
227	Culver Drive at Wamer Avenue			Irv	0.80	C	0.63	B	0.82	D	0.66	B	0.84	D	0.67	B
228	Culver Drive at Barranca Parkway		√	Irv	0.83	D	0.73	C	0.85	D	0.75	C	0.85	D	0.77	C
229	Culver Drive at Alton Parkway		√	Irv	0.76	C	0.80	C	0.77	C	0.83	D	0.80	C	0.84	D
230	Culver Drive at Main Street			Irv	0.72	C	0.71	C	0.72	C	0.73	C	0.72	C	0.73	C
231	Culver Drive at San Leandro			Irv	0.79	C	0.59	A	0.81	D	0.61	B	0.81	D	0.60	A
232	Culver Drive at I-405 NB Ramps			Irv	0.56	A	0.92	E	0.56	A	0.95	E	0.57	A	0.94	E
233	Culver Drive at I-405 SB Ramps			Irv	0.55	A	0.62	B	0.58	A	0.65	B	0.58	A	0.65	B
234	Culver Drive at Michelson Drive			Irv	0.60	A	0.77	C	0.64	B	0.80	C	0.62	B	0.80	C
235	Culver Drive at University Drive		√	Irv	0.55	A	0.70	B	0.55	A	0.72	C	0.55	A	0.72	C
337	Von Karman Avenue at Quartz	a		Irv	0.57	A	0.73	C	0.62	B	0.77	C	0.61	B	0.77	C
439	Bixby at Michelson Drive			Irv	0.28	A	0.45	A	0.43	A	0.56	A	0.43	A	0.57	A
440	Siglo at Main Street			Irv	0.37	A	0.51	A	0.50	A	0.60	A	0.50	A	0.59	A
472	Obsidian at Michelson Drive	a		Irv	0.45	A	0.34	A	0.54	A	0.46	A	0.55	A	0.44	A
84	MacArthur Boulevard at Campus Drive	a		Irv/NB	0.62	B	0.68	B	0.66	B	0.73	C	0.67	B	0.70	B
105	Von Karman Avenue at Campus Drive	a		Irv/NB	0.56	A	0.87	D	0.62	B	0.90	D	0.62	B	0.90	D
121	Teller Avenue at Campus Drive	a		Irv/NB	0.39	A	0.50	A	0.47	A	0.56	A	0.49	A	0.56	A
147	Jamboree Road at Campus Drive	a		Irv/NB	0.77	C	0.73	C	0.87	D	0.76	C	0.83	D	0.77	C
149	Jamboree Road at Fairchild Road	a		Irv/NB	0.71	C	0.74	C	0.81	D	0.82	D	0.84	D	0.82	D
150	Jamboree Road at MacArthur Boulevard	a,b		Irv/NB	0.82	D	0.76	C	0.88	D	0.83	D	0.85	D	0.83	D



Table 7.5: Post-2030 Existing General Plan Buildout Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 Existing General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
176	Fairchild Avenue at MacArthur Boulevard	a		Irv/NB	0.85	D	0.74	C	0.88	D	0.79	C	0.89	D	0.80	C
43	Red Hill Avenue at Deere Avenue	a		Irv/SA	0.48	A	0.72	C	0.54	A	0.78	C	0.56	A	0.79	C
44	Red Hill Avenue at Alton Parkway	a		Irv/SA	0.54	A	0.89	D	0.60	A	0.92	E	0.60	A	0.92	E
9	SR-55 NB Ramps at MacArthur Boulevard	a		Irv/SA	0.83	D	0.60	A	0.86	D	0.63	B	0.88	D	0.64	B
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a		Irv/SA/Tus	0.65	B	0.75	C	0.70	B	0.75	C	0.70	B	0.77	C
71	Armstrong Avenue at Barranca Avenue	a		Irv/Tus	0.44	A	0.49	A	0.50	A	0.53	A	0.53	A	0.56	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca Parkway	a		Irv/Tus	0.55	A	0.73	C	0.57	A	0.79	C	0.62	B	0.78	C
112	Myford Road at Michelle Drive			Irv/Tus	0.31	A	0.44	A	0.29	A	0.42	A	0.30	A	0.43	A
113	Myford Road at Walnut Avenue			Irv/Tus	0.48	A	0.53	A	0.48	A	0.53	A	0.48	A	0.53	A
114	Millikan Avenue/District Way at Barranca Parkway	a		Irv/Tus	0.37	A	0.72	C	0.46	A	0.76	C	0.41	A	0.76	C
126	Jamboree Road at Bryan Avenue			Irv/Tus	0.72	C	0.64	B	0.72	C	0.63	B	0.72	C	0.63	B
127	Jamboree Road at El Camino Real			Irv/Tus	0.70	B	0.72	C	0.70	B	0.70	B	0.71	C	0.71	C
134	Loop Road/Park Avenue at Warner Avenue			Irv/Tus	0.43	A	1.05	F	0.48	A	1.07	F	0.46	A	1.07	F
136	Jamboree Road at Barranca Avenue	a		Irv/Tus	0.86	D	1.03	F	0.87	D	1.04	F	0.90	D	1.06	F
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive			Irv/Tus	0.63	B	0.64	B	0.62	B	0.63	B	0.59	A	0.65	B
182	Harvard Avenue at Paseo Westpark/Moffett Drive			Irv/Tus	0.51	A	0.48	A	0.54	A	0.51	A	0.56	A	0.52	A
441	Loop Road at Jamboree Road SB Ramps			Irv/Tus	0.28	A	0.19	A	0.27	A	0.19	A	0.27	A	0.18	A
61	Campus Drive at Airport Way			NB	0.41	A	0.70	B	0.47	A	0.71	C	0.50	A	0.73	C
62	Campus Drive at Bristol Street NB			NB	0.72	C	0.92	E	0.76	C	0.95	E	0.79	C	0.95	E
63	Campus Drive at Bristol Street SB			NB	0.83	D	0.57	A	0.87	D	0.59	A	0.89	D	0.59	A
64	Birch Street at Bristol Street NB			NB	0.72	C	0.70	B	0.74	C	0.75	C	0.75	C	0.76	C
65	Birch Street at Bristol Street SB			NB	0.50	A	0.59	A	0.51	A	0.59	A	0.52	A	0.60	A
85	MacArthur Boulevard at Birch Street			NB	0.73	C	0.92	E	0.73	C	0.97	E	0.72	C	0.96	E
106	Von Karman Avenue at Birch Street			NB	0.48	A	0.62	B	0.48	A	0.68	B	0.49	A	0.67	B
107	Von Karman Avenue at MacArthur Boulevard			NB	0.35	A	0.53	A	0.37	A	0.56	A	0.37	A	0.56	A
148	Jamboree Road at Birch Street			NB	0.47	A	0.56	A	0.50	A	0.66	B	0.47	A	0.65	B
151	Jamboree Road at Bristol Street NB			NB	0.41	A	0.53	A	0.39	A	0.54	A	0.41	A	0.55	A
153	Jamboree Road at Bristol Street SB			NB	0.45	A	0.51	A	0.48	A	0.53	A	0.49	A	0.55	A
154	Jamboree Road at Eastbluff Drive			NB	0.61	B	0.60	A	0.62	B	0.61	B	0.63	B	0.61	B
155	Jamboree Road at Bison Avenue			NB	0.45	A	0.52	A	0.46	A	0.52	A	0.47	A	0.52	A
156	Jamboree Road at Ford Road			NB	0.63	B	0.74	C	0.63	B	0.75	C	0.64	B	0.75	C
178	MacArthur Boulevard at Bison Avenue			NB	0.62	B	0.71	C	0.62	B	0.72	C	0.63	B	0.72	C
179	MacArthur Boulevard at Ford Road			NB	0.69	B	0.71	C	0.67	B	0.70	B	0.67	B	0.70	B



Table 7.5: Post-2030 Existing General Plan Buildout Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 Existing General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
194	MacArthur Boulevard SB at University Drive			NB	0.72	C	0.65	B	0.75	C	0.72	C	0.74	C	0.72	C
195	SR-73 SB Ramps at University Drive			NB	0.76	C	0.58	A	0.77	C	0.61	B	0.78	C	0.60	A
733	Irvine Avenue at Mesa Drive			NB/OC	0.51	A	0.71	C	0.51	A	0.73	C	0.53	A	0.73	C
734	Irvine Avenue at University Drive/Del Mar Avenue			NB/OC	0.47	A	0.58	A	0.49	A	0.60	A	0.51	A	0.61	B
741	Jamboree Road at San Joaquin Hills Road			NB	0.56	A	0.56	A	0.56	A	0.56	A	0.56	A	0.56	A
742	MacArthur Boulevard at San Joaquin Hills Road			NB	0.63	B	0.63	B	0.62	B	0.63	B	0.62	B	0.63	B
4	SR-55 SB Ramps at Edinger Avenue	b		SA	0.74	C	0.73	C	0.75	C	0.76	C	0.76	C	0.74	C
5	Hotel Terrace Drive at Dyer Road			SA	0.59	A	0.66	B	0.61	B	0.69	B	0.62	B	0.68	B
6	Grand Avenue at Dyer Road			SA	0.56	A	0.64	B	0.57	A	0.69	B	0.60	A	0.68	B
7	SR-55 NB Ramps at Dyer Road			SA	0.85	D	0.86	D	0.88	D	0.89	D	0.91	E	0.93	E
8	SR-55 SB Ramps at MacArthur Boulevard	c		SA	0.76	C	0.61	B	0.79	C	0.62	B	0.81	D	0.62	B
29	Pullman Street at Barranca Parkway			SA	0.53	A	0.82	D	0.57	A	0.85	D	0.59	A	0.87	D
543	Bristol Street at Segerstrom Avenue			SA	0.85	D	0.95	E	0.90	D	0.97	E	0.91	E	0.99	E
544	Bristol Street at MacArthur Boulevard			SA	0.67	B	0.83	D	0.67	B	0.84	D	0.69	B	0.84	D
719	Flower Street at Segerstrom Avenue			SA	0.87	D	0.86	D	0.89	D	0.88	D	0.91	E	0.89	D
720	Flower Street at MacArthur Boulevard			SA	0.63	B	0.82	D	0.68	B	0.85	D	0.71	C	0.86	D
723	Main Street at Dyer Road (Segerstrom Avenue)			SA	0.81	D	0.89	D	0.86	D	0.91	E	0.87	D	0.93	E
724	Main Street at Alton Avenue			SA	0.36	A	0.49	A	0.38	A	0.52	A	0.39	A	0.53	A
725	Main Street and MacArthur Boulevard (w/o SR-55)	c		SA	0.61	B	0.60	A	0.64	B	0.62	B	0.65	B	0.62	B
727	Halladay Street at Dyer Road			SA	0.58	A	0.68	B	0.65	B	0.74	C	0.67	B	0.74	C
728	Halladay Street East at Alton Parkway			SA	0.21	A	0.31	A	0.27	A	0.37	A	0.28	A	0.36	A
729	Halladay Street West at Alton Parkway			SA	0.20	A	0.25	A	0.26	A	0.28	A	0.28	A	0.29	A
730	Grand Avenue at Warner Avenue			SA	0.79	C	0.92	E	0.83	D	0.96	E	0.84	D	0.98	E
731	Grand Avenue at SR-55 SB Ramps			SA	0.57	A	0.45	A	0.61	B	0.48	A	0.60	A	0.48	A
3	Newport Avenue at Edinger Avenue			Tus	0.92	E	0.78	C	0.92	E	0.80	C	0.95	E	0.81	D
14	Walnut Avenue to McFadden Avenue			Tus	0.51	A	0.56	A	0.51	A	0.57	A	0.53	A	0.56	A
18	Newport Avenue at Bryan Avenue			Tus	0.58	A	0.65	B	0.59	A	0.66	B	0.59	A	0.67	B
19	Newport Avenue at Main Street			Tus	0.59	A	0.75	C	0.60	A	0.76	C	0.62	B	0.76	C
20	Newport Avenue at El Camino Real			Tus	0.78	C	0.74	C	0.79	C	0.74	C	0.82	D	0.75	C
21	Newport Avenue at I-5 NB Ramps			Tus	0.66	B	0.58	A	0.67	B	0.59	A	0.69	B	0.59	A
22	Newport Avenue at I-5 SB Ramps			Tus	0.53	A	0.74	C	0.55	A	0.75	C	0.55	A	0.75	C
23	Newport Avenue at McFadden Avenue			Tus	0.68	B	0.54	A	0.69	B	0.55	A	0.70	B	0.55	A
24	Newport Avenue at Walnut Avenue			Tus	0.91	E	0.93	E	0.91	E	0.95	E	0.93	E	0.94	E
25	Newport Avenue at Sycamore Avenue			Tus	0.63	B	0.64	B	0.63	B	0.66	B	0.64	B	0.67	B



Table 7.5: Post-2030 Existing General Plan Buildout Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 Existing General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
27	Del Amo Avenue at Edinger Avenue			Tus	0.49	A	0.42	A	0.50	A	0.43	A	0.52	A	0.43	A
35	Red Hill Avenue at Bryan Avenue			Tus	0.60	A	0.61	B	0.60	A	0.62	B	0.60	A	0.62	B
36	Red Hill Avenue at El Camino Real			Tus	0.62	B	0.83	D	0.63	B	0.84	D	0.62	B	0.83	D
37	Red Hill Avenue at Nisson Road			Tus	0.64	B	0.69	B	0.64	B	0.69	B	0.65	B	0.69	B
38	Red Hill Avenue at Walnut Avenue			Tus	0.76	C	0.84	D	0.75	C	0.85	D	0.76	C	0.85	D
39	Red Hill Avenue at Sycamore Avenue			Tus	0.63	B	0.60	A	0.62	B	0.63	B	0.62	B	0.64	B
40	Red Hill Avenue at Edinger Avenue			Tus	0.73	C	0.78	C	0.74	C	0.77	C	0.75	C	0.77	C
55	Browning Avenue at Bryan Avenue			Tus	0.56	A	0.67	B	0.56	A	0.67	B	0.55	A	0.67	B
56	Browning Avenue at El Camino Real			Tus	0.33	A	0.43	A	0.34	A	0.44	A	0.35	A	0.43	A
58	Browning Avenue at Walnut Avenue			Tus	0.45	A	0.62	B	0.47	A	0.61	B	0.47	A	0.62	B
92	Tustin Ranch Road at Bryan Avenue			Tus	0.81	D	0.86	D	0.80	C	0.87	D	0.82	D	0.87	D
93	Tustin Ranch Road at El Camino Real			Tus	1.02	F	0.84	D	1.03	F	0.84	D	1.04	F	0.85	D
94	Tustin Ranch Road at I-5 NB Ramps			Tus	0.73	C	0.52	A	0.72	C	0.53	A	0.72	C	0.53	A
95	Tustin Ranch Road at I-5 SB Ramps			Tus	0.85	D	0.57	A	0.85	D	0.57	A	0.86	D	0.58	A
96	Tustin Ranch Road at Walnut Avenue			Tus	0.79	C	0.68	B	0.79	C	0.68	B	0.82	D	0.70	B
109	Myford Road at Bryan Avenue			Tus	0.55	A	0.55	A	0.54	A	0.57	A	0.55	A	0.57	A
110	Myford Road at El Camino Real			Tus	0.38	A	0.61	B	0.38	A	0.61	B	0.38	A	0.62	B
111	Franklin Avenue at Walnut Avenue			Tus	0.56	A	0.97	E	0.57	A	0.97	E	0.56	A	0.97	E
133	Jamboree Road at Edinger Avenue	b		Tus	0.51	A	0.68	B	0.52	A	0.69	B	0.53	A	0.69	B
445	Tustin Ranch Road at Warner Avenue North			Tus	0.49	A	0.56	A	0.52	A	0.60	A	0.51	A	0.58	A
446	Tustin Ranch Road at Warner Avenue South			Tus	0.65	B	0.55	A	0.65	B	0.58	A	0.68	B	0.57	A
447	Armstrong Avenue/Severys Road at Valencia Avenue			Tus	0.54	A	0.43	A	0.54	A	0.43	A	0.55	A	0.43	A
448	Armstrong Avenue at Warner Avenue			Tus	0.40	A	0.49	A	0.43	A	0.51	A	0.40	A	0.51	A
453	Red Hill Avenue at Valencia Avenue			Tus	0.66	B	0.77	C	0.67	B	0.77	C	0.67	B	0.77	C
454	Tustin Ranch Road at Valencia Avenue			Tus	0.54	A	0.54	A	0.57	A	0.55	A	0.58	A	0.56	A
455	East Connector-Jamboree Plaza at Edinger Avenue			Tus	0.34	A	0.33	A	0.33	A	0.34	A	0.34	A	0.35	A
456	North Loop Road at Valencia Avenue			Tus	0.25	A	0.24	A	0.25	A	0.25	A	0.25	A	0.25	A
457	North Loop Road at Moffett Drive			Tus	0.13	A	0.16	A	0.13	A	0.16	A	0.13	A	0.16	A
478	Red Hill Avenue at I-5 NB Ramps			Tus	0.83	D	0.63	B	0.82	D	0.64	B	0.81	D	0.64	B
479	Red Hill Avenue at I-5 SB Ramps			Tus	0.82	D	0.82	D	0.85	D	0.84	D	0.84	D	0.84	D
480	Tustin Ranch Road Connector at Edinger Avenue			Tus	0.19	A	0.23	A	0.20	A	0.24	A	0.20	A	0.24	A
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue			Tus	0.61	B	0.89	D	0.61	B	0.90	D	0.64	B	0.89	D
739	Newport Avenue at Mitchell Avenue			Tus	0.67	B	0.70	B	0.68	B	0.71	C	0.69	B	0.72	C
740	Red Hill Avenue at Mitchell Avenue			Tus	0.62	B	0.64	B	0.64	B	0.64	B	0.62	B	0.64	B

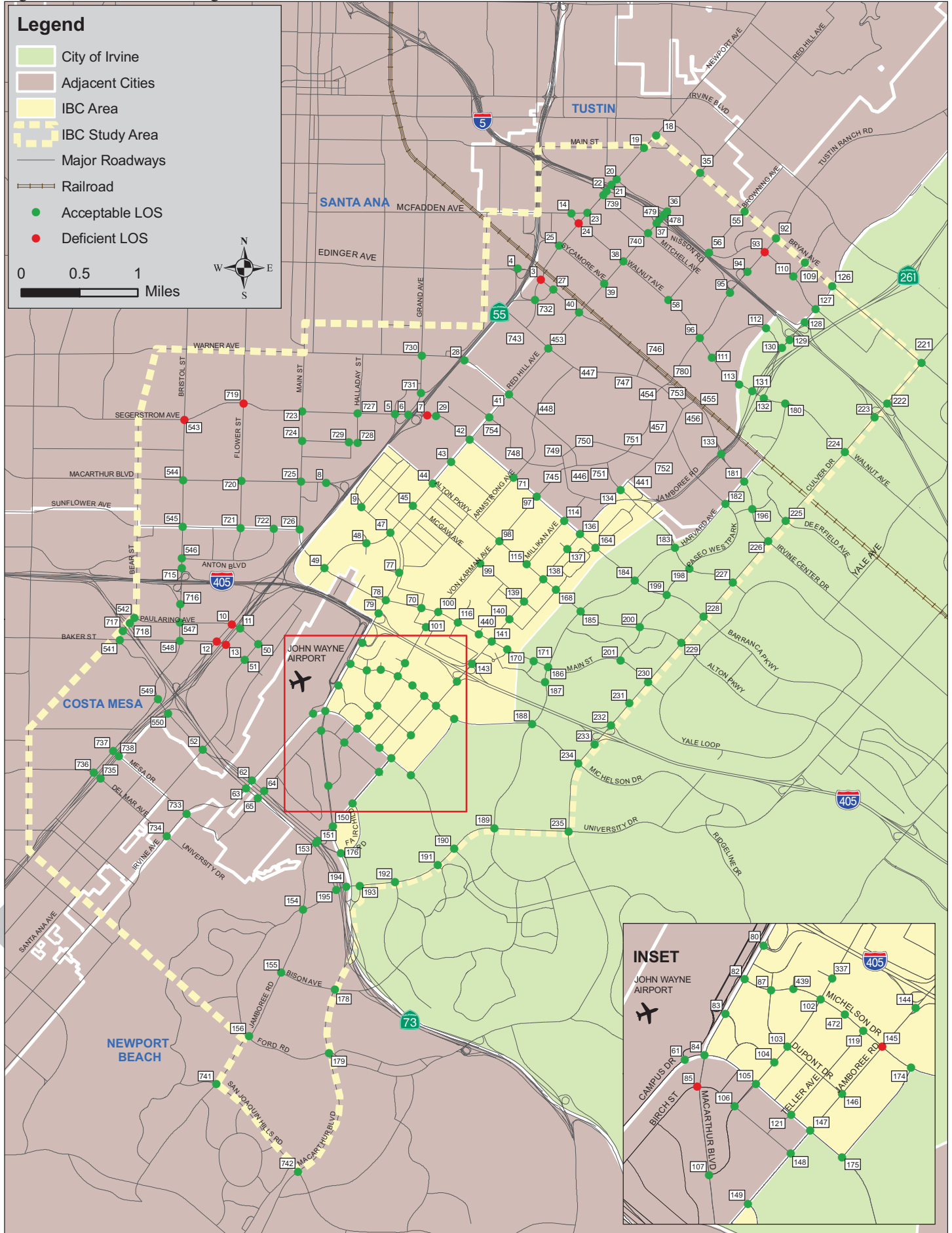


Table 7.5: Post-2030 Existing General Plan Buildout Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 Existing General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
743	Newport Avenue at Valencia Avenue			Tus	0.59	A	0.73	C	0.59	A	0.75	C	0.60	A	0.75	C
745	Tustin Ranch Road at Park Avenue			Tus	0.57	A	0.51	A	0.58	A	0.53	A	0.58	A	0.53	A
746	Kensington Park Drive at Edinger Avenue			Tus	0.58	A	0.62	B	0.59	A	0.63	B	0.58	A	0.63	B
747	Kensington Park Drive at Valencia Avenue			Tus	0.32	A	0.33	A	0.32	A	0.33	A	0.32	A	0.33	A
748	Armstrong Avenue at A Street			Tus	0.50	A	0.58	A	0.53	A	0.60	A	0.52	A	0.59	A
749	Park Avenue at A Street			Tus	0.67	B	0.52	A	0.67	B	0.52	A	0.68	B	0.52	A
750	Legacy Road at Warner Avenue			Tus	0.44	A	0.50	A	0.43	A	0.49	A	0.43	A	0.49	A
751	Tustin Ranch Road at Legacy Road			Tus	0.46	A	0.44	A	0.48	A	0.45	A	0.49	A	0.46	A
752	Legacy Road at North Loop Road			Tus	0.21	A	0.17	A	0.20	A	0.17	A	0.20	A	0.16	A
753	Tustin Ranch Road at Edinger Avenue Connector			Tus	0.51	A	0.49	A	0.53	A	0.50	A	0.55	A	0.51	A
28	Pullman Street at Warner Avenue			Tus/SA	0.57	A	0.64	B	0.58	A	0.67	B	0.61	B	0.68	B
41	Red Hill Avenue at Warner Avenue			Tus/SA	0.85	D	0.82	D	0.90	D	0.86	D	0.88	D	0.88	D
754	Red Hill Avenue at Carnegie Avenue/A Street			Tus/SA	0.61	B	0.93	E	0.62	B	0.95	E	0.62	B	0.95	E

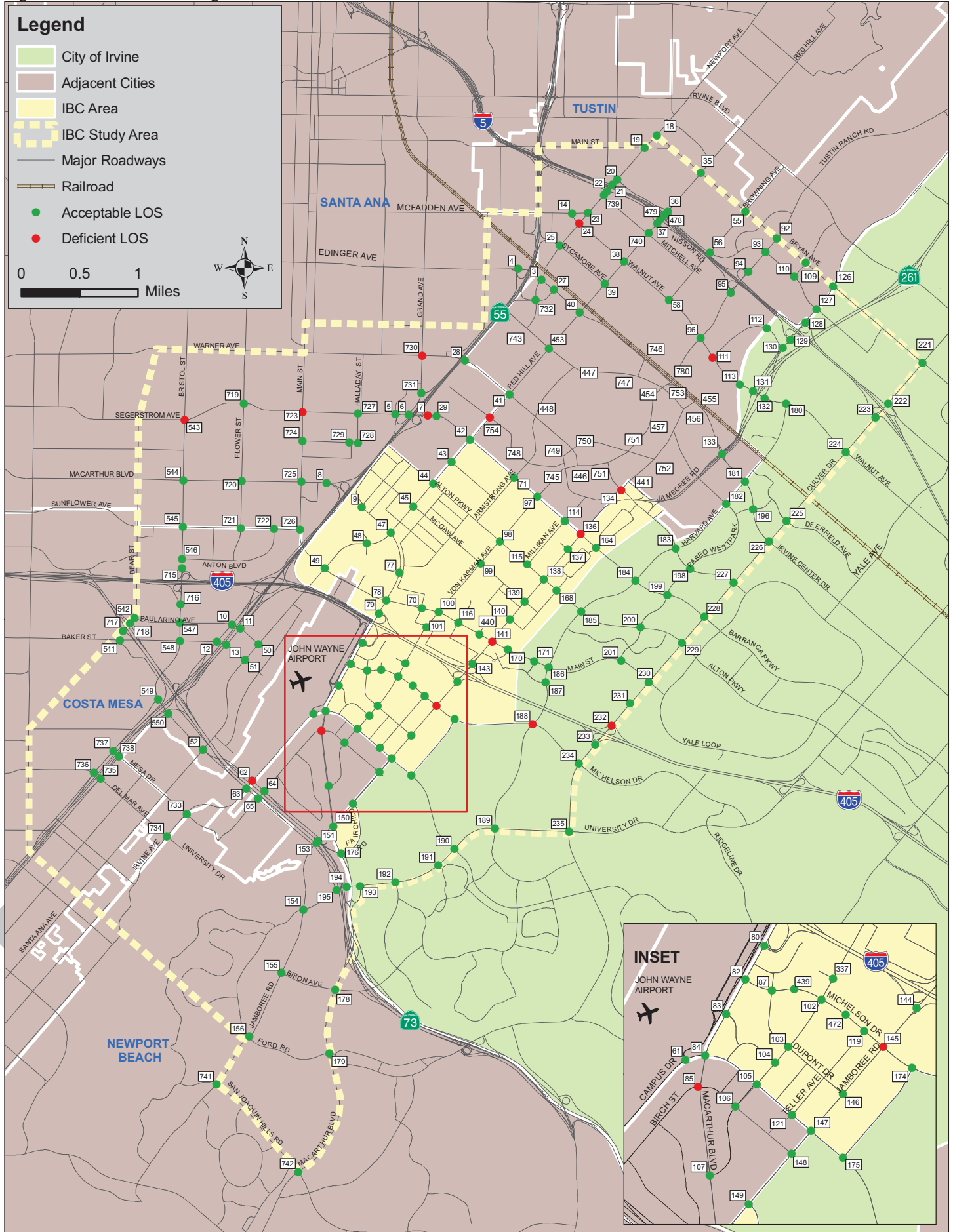
- Denotes intersection operating at a deficient LOS
- a Intersection within Irvine Planning Area 36--LOS E acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E acceptable
- √ ATMS credit-Reduction of 0.05 applied to ICU

Figure 7.6: Post-2030 Existing General Plan Buildout AM Peak Hour Intersection Deficiencies



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Figure 7.7: Post-2030 Existing General Plan Buildout PM Peak Hour Intersection Deficiencies



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Table 7.6: Post-2030 Existing General Plan Buildout Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Post-2030 Cumulative With Vision Plan Project						Post-2030 Existing General Plan						
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
				Volume	V/C	LOS	LOS	HCM Density	LOS	Volume	V/C	LOS	Volume	V/C	LOS	
1-5	Culver Drive to Jamboree Road	NB	5	10,000	12,287	1.23	F	9,820	0.98	E	12,038	1.20	F	9,850	0.98	E
		SB	5	10,000	8,635	0.86	D	9,155	0.92	E	8,594	0.86	D	9,026	0.90	E
	Jamboree Road to Tusfin Ranch Road	NB	5	10,000	11,857	1.19	F	9,660	0.97	E	11,568	1.16	F	9,690	0.97	E
		SB	5	10,000	9,075	0.91	E	9,085	0.91	E	9,044	0.90	E	8,916	0.89	D
	Tusfin Ranch Road to Red Hill Avenue	NB	5	10,000	11,677	1.17	F	10,190	1.02	F	11,378	1.14	F	10,220	1.02	F
		SB	5	10,000	9,905	0.99	E	9,615	0.96	E	9,874	0.99	E	9,446	0.94	E
	Red Hill Avenue to Newport Avenue	NB	5	10,000	11,847	1.18	F	10,010	1.00	E	11,568	1.16	F	10,040	1.00	E
		SB	5	10,000	9,485	0.95	E	9,405	0.94	E	9,454	0.95	E	9,236	0.92	E
	Newport Avenue to SR-55	NB	5	10,000	12,597	1.26	F	10,820	1.08	F	12,328	1.23	F	10,850	1.08	F
		SB	5	10,000	10,255	1.03	F	10,405	1.04	F	10,224	1.02	F	10,236	1.02	F
North of SR-55	NB	5	10,000	10,766	1.08	F	9,845	0.98	E	10,661	1.07	F	9,813	0.98	E	
	SB	5	10,000	10,559	1.06	F	9,919	0.99	E	10,485	1.05	F	9,771	0.98	E	
Culver Drive to Jamboree Road	NB	5	10,000	11,541	1.15	F	8,550	0.85	D	11,678	1.17	F	8,464	0.85	D	
	SB	4	8,000	6,770	0.85	D	8,398	1.05	F	6,743	0.84	D	8,454	1.06	F	
Jamboree Road to MacArthur Boulevard	NB	5	10,000	11,561	1.16	F	9,790	0.98	E	11,448	1.14	F	9,804	0.98	E	
	SB	5	10,000	8,560	0.86	D	9,288	0.93	E	8,793	0.88	D	9,174	0.92	E	
MacArthur Boulevard to SR-55	NB	6	12,000	10,281	0.86	D	10,460	0.87	D	10,068	0.84	D	10,544	0.88	D	
	SB	6	12,000	10,100	0.84	D	10,148	0.85	D	10,323	0.86	D	10,014	0.83	D	
SR-55 to Bristol Street	NB	5	10,000	6,234	0.62	C	6,316	0.63	C	6,096	0.61	C	6,427	0.64	C	
	SB	5	10,000	7,866	0.79	D	6,974	0.70	C	8,041	0.80	D	6,890	0.69	C	
Bristol Street to SR-73	NB	5	10,000	5,799	0.58	C	5,678	0.57	C	5,678	0.57	C	5,785	0.58	C	
	SB	5	10,000	8,066	0.81	D	6,204	0.62	C	8,231	0.82	D	6,110	0.61	C	



Table 7.6: Post-2030 Existing General Plan Buildout Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Post-2030 Cumulative With Vision Plan Project								Post-2030 Existing General Plan							
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour				PM Peak Hour				AM Peak Hour				PM Peak Hour			
				Volume	V/C	LOS	HCM Density	LOS	HCM Density	LOS	HCM Density	Volume	V/C	LOS	HCM Density	Volume	V/C	LOS	HCM Density
South of Victoria Street	NB	4	8,000	4,904	0.61	C		4,083	0.51	C		4,894	0.61	C		4,049	0.51	C	
	SB	3	6,000	3,879	0.65	C		4,351	0.73	D		3,873	0.65	C		4,403	0.73	D	
Victoria Street to Fair Drive	NB	4	8,000	6,054	0.76	D		4,800	0.60	C		6,123	0.77	D		4,775	0.60	C	
	SB	4	8,000	4,555	0.57	C		5,315	0.66	C		4,545	0.57	C		5,358	0.67	C	
Fair Drive to SR-73	NB	4	8,000	7,421	0.93	E		6,048	0.76	D		7,472	0.93	E		6,016	0.75	D	
	SB	4	8,000	5,579	0.70	C		6,310	0.79	D		5,556	0.69	C		6,355	0.79	D	
SR-73 to Baker Street	NB	4	8,000	5,729	0.72	D		4,370	0.55	C		5,764	0.72	D		4,343	0.54	C	
	SB	4	8,000	5,498	0.69	C		6,651	0.83	D		5,492	0.69	C		6,686	0.84	D	
Baker Street to I-405	NB	4	8,000	4,279	0.53	C		3,020	0.38	B		4,334	0.54	C		2,993	0.37	B	
	SB	4	8,000	6,188	0.77	D		6,541	0.82	D		6,182	0.77	D		6,546	0.82	D	
I-405 to MacArthur Boulevard	NB	4	8,000	8,688	1.09	F		8,586	1.07	F		8,586	1.07	F		8,633	1.08	F	
	SB	4	8,000	9,134	1.14	F		8,732	1.09	F		8,974	1.12	F		8,771	1.10	F	
MacArthur Boulevard to Dyer Road	NB	5	10,000	7,858	0.79	D	24.8	9,666	0.97	E	33.4	7,686	0.77	D	24.1	9,743	0.97	E	33.9
	SB	5	10,000	10,284	1.03	F		7,912	0.79	D		10,204	1.02	F		7,911	0.79	D	
Dyer Road to Edinger Avenue	NB	6	12,000	7,128	0.59	C	18.4	11,696	0.97	E	33.9	6,876	0.57	C	17.8	11,843	0.99	E	34.7
	SB	6	12,000	10,682	0.89	D		7,440	0.62	C		10,679	0.89	D		7,431	0.62	C	
Edinger Avenue to McFadden Street/Sycamore Avenue	NB	7	14,000	7,066	0.50	B		12,011	0.86	D		6,791	0.49	B		12,130	0.87	D	
	SB	7	14,000	10,872	0.78	D		7,130	0.51	C		10,939	0.78	D		7,121	0.51	C	
McFadden Street/Sycamore Avenue to I-5	NB	5	10,000	7,680	0.55	C		12,426	0.89	D		7,399	0.53	C	16.5	12,584	0.90	E	29.9
	SB	5	10,000	10,924	0.78	D		7,498	0.54	C		11,001	0.79	D		7,479	0.53	C	
North of I-5	NB	5	10,000	7,481	0.75	D		8,517	0.85	D		7,223	0.72	D		8,747	0.87	D	
	SB	5	10,000	9,748	0.97	E		7,275	0.73	D		9,829	0.98	E	34.7	7,170	0.72	D	22.4

SR-55



Table 7.6: Post-2030 Existing General Plan Buildout Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Post-2030 Cumulative With Vision Plan Project						Post-2030 Existing General Plan						
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	
SR-73	MacArthur Boulevard to University Drive	NB	4	8,000	8,737	1.09	F	4,979	0.62	C	8,652	1.08	F	4,965	0.62	C
		SB	4	8,000	4,647	0.58	C	7,243	0.91	E	4,646	0.58	C	7,231	0.90	E
	University Drive to Jamboree Road	NB	4	8,000	8,737	1.09	F	4,979	0.62	C	8,652	1.08	F	4,965	0.62	C
		SB	4	8,000	4,183	0.52	C	5,924	0.74	D	4,174	0.52	C	5,888	0.74	D
	Jamboree Road to Birch Street	NB	4	8,000	9,871	1.23	F	6,276	0.78	D	9,778	1.22	F	6,274	0.78	D
		SB	4	8,000	6,485	0.81	D	8,082	1.01	F	6,540	0.82	D	8,008	1.00	E
	Birch Street to Campus Drive	NB	4	8,000	7,721	0.97	E	5,119	0.64	C	7,572	0.95	E	5,112	0.64	C
		SB	4	8,000	6,485	0.81	D	8,082	1.01	F	6,540	0.82	D	8,008	1.00	E
Campus Drive to SR-55	NB	4	8,000	8,539	1.07	F	7,230	0.90	E	8,303	1.04	F	7,282	0.91	E	
	SB	4	8,000	8,291	1.04	F	9,120	1.14	F	8,438	1.05	F	9,008	1.13	F	
SR-55 to Bear Street	NB	4	8,000	6,593	0.82	D	5,489	0.69	C	6,404	0.80	D	5,529	0.69	C	
	SB	4	8,000	5,473	0.68	C	5,769	0.72	D	5,587	0.70	C	5,670	0.71	C	
Bear Street to I-405	NB	4	8,000	5,853	0.73	D	4,569	0.57	C	5,684	0.71	C	4,619	0.58	C	
	SB	4	8,000	4,823	0.60	C	4,809	0.60	C	4,927	0.62	C	4,710	0.59	C	
SR-261 south of El Camino Real	NB	3	6,000	983	0.16	A	3,128	0.52	C	908	0.15	A	3,234	0.54	C	
	SB	3	6,000	3,722	0.62	C	1,310	0.22	A	3,838	0.64	C	1,300	0.22	A	



According to the analysis, the following segments are forecast to be deficient and will need to be improved in order to operate at an acceptable LOS. When compared to the IBC Vision Plan buildout scenario, there is one fewer mainline segment which becomes deficient with the trip distribution from the Existing General Plan buildout in the AM peak hour and one fewer segment in the PM peak hour. Because of the differing distribution of trips between the Vision Plan and the Existing General Plan, the freeway facilities generally operate at a slightly better LOS with the Existing General Plan buildout. There is one segment, SR-55 McFadden Street/Sycamore Avenue to I-5, which becomes deficient under the Existing General Plan scenario, when compared to the IBC Vision Plan buildout. The deficient segments include the following:

AM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Southbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Southbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Southbound between Newport Avenue and SR-55
- o I-5 Northbound North of SR-55
- o I-5 Southbound North of SR-55
- o I-405 Northbound between Culver Drive and Jamboree Road
- o I-405 Northbound between Jamboree Road and MacArthur Boulevard
- o SR-55 Northbound between Fair Drive and SR-73
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between MacArthur Boulevard and Dyer Road
- o SR-55 Southbound North of I-5
- o SR-73 Northbound between MacArthur Boulevard and University Drive
- o SR-73 Northbound between University Drive and Jamboree Road
- o SR-73 Northbound between Jamboree Road and Birch Street
- o SR-73 Northbound between Birch Street and Campus Drive
- o SR-73 Northbound between Campus Drive and SR-55
- o SR-73 Southbound between Campus Drive and SR-55

PM Peak Hour:

- o I-5 Northbound between Culver Drive and Jamboree Road
- o I-5 Southbound between Culver Drive and Jamboree Road
- o I-5 Northbound between Jamboree Road and Tustin Ranch Road
- o I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- o I-5 Northbound between Red Hill Avenue and Newport Avenue
- o I-5 Southbound between Red Hill Avenue and Newport Avenue
- o I-5 Northbound between Newport Avenue and SR-55
- o I-5 Southbound between Newport Avenue and SR-55
- o I-5 Northbound North of SR-55
- o I-5 Southbound North of SR-55
- o I-405 Southbound between Culver Drive and Jamboree Road
- o SR-55 Northbound between I-405 and MacArthur Boulevard
- o SR-55 Southbound between I-405 and MacArthur Boulevard
- o SR-55 Northbound between MacArthur Boulevard and Dyer Road
- o SR-55 Northbound between Dyer Road and Edinger Avenue
- o SR-55 Northbound between McFadden Street/Sycamore Avenue and I-5
- o SR-73 Southbound between Jamboree Road and Birch Street
- o SR-73 Southbound between Campus Drive and SR-55
- o SR-73 Northbound between Birch Street and Campus Drive
- o SR-73 Southbound between Campus Drive and SR-55



7.7 Post-2030 Existing General Plan Buildout Peak Hour Freeway Ramp Analysis

The methodology for determining the deficiencies on freeway ramps is consistent with that used for previous scenarios studied. For the Post-2030 Existing General Plan scenario, freeway ramp deficiencies are identified in **Table 7.7. Appendix D** presents detailed HCS worksheets for freeway ramp analysis.

There are two additional deficient ramps under the Existing General Plan scenario, Northbound SR-55 On-Ramp from Victoria Street and the Northbound SR-55 Loop On-Ramp from MacArthur. The following ramps are deficient under the Post-2030 Existing General Plan scenario:

AM Peak Hour:

- Northbound I-5 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to Culver Drive
- Southbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 Off-Ramp to MacArthur Boulevard
- Northbound SR-55 Direct On-Ramp from Victoria Street
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Northbound SR-55 Off-Ramp to Baker Street
- Southbound SR-55 Off-Ramp to Paularino Avenue
- Southbound SR-55 Off-Ramp to MacArthur Boulevard
- Northbound SR-55 Off-Ramp to Dyer Road
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 Off-Ramp to Birch Street
- Southbound SR-261 On-Ramp from Jamboree Road

PM Peak Hour:

- Northbound I-5 Off-Ramp to Jamboree Road
- Southbound I-405 Off-Ramp to Jamboree Road
- Northbound I-405 On-Ramp from MacArthur Boulevard
- Southbound I-405 Loop On-Ramp from Bristol Street
- Northbound I-405 Off-Ramp to Bristol Street
- Northbound SR-55 Direct On-Ramp from Fair Drive
- Southbound SR-55 On-Ramp from Baker Street
- Northbound SR-55 Off-Ramp to Baker Street
- Northbound SR-55 On-Ramp from Paularino Avenue
- Southbound SR-55 Loop On-Ramp from MacArthur Boulevard
- Southbound SR-55 Direct On-Ramp from MacArthur Boulevard
- Northbound SR-55 Loop On-Ramp from Dyer Road
- Northbound SR-55 Direct On-Ramp from Dyer Road
- Northbound SR-73 On-Ramp from MacArthur Boulevard
- Southbound SR-73 Off-Ramp to Jamboree Road
- Northbound SR-73 On-Ramp from Campus Drive
- Southbound SR-73 On-Ramp from Bear Street
- Northbound SR-73 Off-Ramp to Bear Street
- Northbound SR-261 Northbound Off-Ramp to Jamboree Road

Figure 7.8 and **Figure 7.9** graphically depict the Post-2030 Existing General Plan Buildout freeway and ramp deficiencies.



Table 7.7: Post-2030 Existing General Plan Buildout Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 Existing General Plan								
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
				Volume	V/C	LOS	LOS	HCM Density	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Culver Drive	SB On Direct	1	1,000	141	0.16	A	177	0.20	A	136	0.15	A	186	0.21	A	186	0.21	A
	SB On Loop	1	1,000	371	0.41	B	214	0.24	A	371	0.41	B	217	0.24	A	217	0.24	A
	SB Off	2	500	814	0.27	A	1,496	0.50	B	811	0.27	A	1,472	0.49	B	1,472	0.49	B
	NB On Loop	1	1,000	1,030	0.69	C	680	0.45	B	1,070	0.71	C	700	0.47	B	700	0.47	B
	NB On Direct	1	1,000	1,268	0.85	D	814	0.54	C	1,217	0.81	D	805	0.54	C	805	0.54	C
	NB Off	1	500	330	0.22	A	480	0.32	B	330	0.22	A	480	0.32	B	480	0.32	B
Jamboree Road	SB On Direct	1	1,000	380	0.25	A	1,070	0.71	C	370	0.25	A	1,090	0.73	D	370	0.25	A
	SB On Loop	1	1,000	610	0.56	C	510	0.47	B	610	0.56	C	510	0.47	B	510	0.47	B
	SB Off	2	500	1,430	0.48	B	1,510	0.50	B	1,430	0.48	B	1,490	0.50	B	1,490	0.50	B
	NB On Loop	1	1,000	680	0.63	C	710	0.66	C	670	0.62	C	710	0.66	C	710	0.66	C
	NB On Direct	1	1,000	470	0.44	B	480	0.44	B	470	0.44	B	480	0.44	B	480	0.44	B
	NB Off	1	500	1,580	1.05	F	1,350	0.90	E	1,610	1.07	F	1,350	0.90	E	1,350	0.90	E
Tustin Ranch Road	SB On	1	1,000	730	0.49	B	550	0.37	B	730	0.49	B	550	0.37	B	550	0.37	B
	NB On	2	1,000	370	0.21	A	1,120	0.62	C	370	0.21	A	1,120	0.62	C	1,120	0.62	C
	NB Off	1	500	550	0.37	B	590	0.39	B	590	0.37	B	560	0.37	B	590	0.39	B
	SB Off	2	500	1,560	0.69	C	1,080	0.48	B	1,560	0.69	C	1,080	0.48	B	1,080	0.48	B
	SB On	1	1,000	1,100	0.73	D	920	0.61	C	1,100	0.73	D	920	0.61	C	920	0.61	C
	NB On	1	1,000	1,030	0.69	C	770	0.51	C	1,030	0.69	C	770	0.51	C	770	0.51	C
Red Hill Avenue	NB Off	1	500	860	0.57	C	950	0.63	C	840	0.56	C	950	0.63	C	950	0.63	C
	SB Off	1	500	680	0.45	B	710	0.47	B	680	0.45	B	710	0.47	B	710	0.47	B
	SB Off	1	500	770	0.51	C	1,000	0.67	C	770	0.51	C	1,000	0.67	C	1,000	0.67	C
	NB On	1	1,000	750	0.50	B	810	0.54	C	760	0.51	C	810	0.54	C	810	0.54	C
Newport Boulevard	SB Off	1	500	770	0.51	C	1,000	0.67	C	770	0.51	C	1,000	0.67	C	1,000	0.67	C
	NB On	1	1,000	750	0.50	B	810	0.54	C	760	0.51	C	810	0.54	C	810	0.54	C



Table 7.7: Post-2030 Existing General Plan Buildout Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 Existing General Plan											
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour								
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS						
Culver Drive	SB On Direct	1	1,000	270	0.18	A	730	0.49	B	260	0.17	A	730	0.49	B	730	0.49	B			
	SB On Loop	1	1,000	250	0.28	A	340	0.38	B	250	0.28	A	340	0.38	B	340	0.38	B			
	SB Off	2	500	830	0.28	A	1,460	0.49	B	830	0.28	A	1,440	0.48	B	1,440	0.48	B			
	NB On Loop	1	1,000	560	0.37	B	400	0.27	A	560	0.37	B	400	0.27	A	400	0.27	A			
	NB On Direct	1	1,000	930	0.62	C	690	0.46	B	930	0.62	C	690	0.46	B	690	0.46	B			
	NB Off	1	500	1,360	0.91	E	1,270	0.85	D	1,270	0.85	D	1,370	0.91	E	1,270	0.85	D	34.3	D	
	SB On Direct	2	1,000	650	0.36	B	1,120	0.62	C	600	0.33	B	600	0.33	B	600	0.33	B			
	SB On Loop	1	1,000	290	0.19	A	680	0.45	B	280	0.19	A	280	0.19	A	710	0.47	B			
	SB Off	2	500	2,730	1.21	F	2,690	1.20	F	2,930	1.30	F	2,930	1.30	F	2,590	1.15	F			
	NB On Loop	1	1,000	620	0.41	B	1,110	0.74	D	600	0.40	B	600	0.40	B	1,130	0.75	D			
Jamboree Road	NB On Direct	2	1,000	1,800	0.82	D	1,170	0.53	C	1,700	0.77	D	1,700	0.77	D	1,220	0.55	C			
	NB Off	1	500	2,400	1.07	F	1,040	0.46	B	1,040	0.46	B	2,530	1.12	F	1,010	0.45	B			
	SB Direct On	2	1,000	860	0.29	A	750	0.25	A	870	0.29	A	870	0.29	A	760	0.25	A			
	SB Off	2	500	2,400	0.80	D	1,610	0.54	C	2,400	0.80	D	2,400	0.80	D	1,600	0.53	C			
	NB On	1	1,000	490	0.33	B	1,590	1.06	F	460	0.31	B	460	0.31	B	1,660	1.11	F			
	NB Off	1	500	1,770	1.18	F	920	0.61	C	1,840	1.23	F	1,840	1.23	F	920	0.61	C			
	SB Loop On	1	1,000	1,110	0.74	D	1,610	1.07	F	1,120	0.75	D	1,120	0.75	D	1,620	1.08	F			
	SB Off	2	500	1,310	0.58	C	840	0.37	B	1,310	0.58	C	1,310	0.58	C	840	0.37	B			
	NB On Loop	1	1,000	226	0.25	A	382	0.42	B	222	0.25	A	222	0.25	A	388	0.43	B			
	NB On Direct	1	1,000	100	0.07	A	370	0.25	A	110	0.07	A	110	0.07	A	370	0.25	A			
NB Off	1	500	760	0.51	C	1,390	0.93	E	750	0.50	B	750	0.50	B	1,400	0.93	E				
MacArthur Boulevard	SB Off	2	500	2,400	0.80	D	1,610	0.54	C	2,400	0.80	D	2,400	0.80	D	1,600	0.53	C			
	NB On	1	1,000	490	0.33	B	1,590	1.06	F	460	0.31	B	460	0.31	B	1,660	1.11	F			
	NB Off	1	500	1,770	1.18	F	920	0.61	C	1,840	1.23	F	1,840	1.23	F	920	0.61	C			
	SB Loop On	1	1,000	1,110	0.74	D	1,610	1.07	F	1,120	0.75	D	1,120	0.75	D	1,620	1.08	F			
	SB Off	2	500	1,310	0.58	C	840	0.37	B	1,310	0.58	C	1,310	0.58	C	840	0.37	B			
	NB On Loop	1	1,000	226	0.25	A	382	0.42	B	222	0.25	A	222	0.25	A	388	0.43	B			
	NB On Direct	1	1,000	100	0.07	A	370	0.25	A	110	0.07	A	110	0.07	A	370	0.25	A			
	NB Off	1	500	760	0.51	C	1,390	0.93	E	750	0.50	B	750	0.50	B	1,400	0.93	E			
	Bristol Street	SB Off	2	500	2,400	0.80	D	1,610	0.54	C	2,400	0.80	D	2,400	0.80	D	1,600	0.53	C		
		NB On	1	1,000	490	0.33	B	1,590	1.06	F	460	0.31	B	460	0.31	B	1,660	1.11	F		
NB Off		1	500	1,770	1.18	F	920	0.61	C	1,840	1.23	F	1,840	1.23	F	920	0.61	C			
SB Loop On		1	1,000	1,110	0.74	D	1,610	1.07	F	1,120	0.75	D	1,120	0.75	D	1,620	1.08	F			
SB Off		2	500	1,310	0.58	C	840	0.37	B	1,310	0.58	C	1,310	0.58	C	840	0.37	B			
NB On Loop		1	1,000	226	0.25	A	382	0.42	B	222	0.25	A	222	0.25	A	388	0.43	B			
NB On Direct		1	1,000	100	0.07	A	370	0.25	A	110	0.07	A	110	0.07	A	370	0.25	A			
NB Off		1	500	760	0.51	C	1,390	0.93	E	750	0.50	B	750	0.50	B	1,400	0.93	E			

1-405



Table 7.7: Post-2030 Existing General Plan Buildout Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 Existing General Plan					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Victoria Street	SB Direct On	1	1,000	389	0.26	A	401	0.27	A	393	0.26	A	400	0.27	A
	SB Off	2	500	1,065	0.47	B	1,365	0.61	C	1,064	0.47	B	1,355	0.60	C
	NB Direct On	2	1,000	1,556	0.86	D	1,161	0.64	C	1,634	0.91	E	1,171	0.65	C
	NB Off	1	500	406	0.27	A	444	0.30	A	405	0.27	A	445	0.30	A
Fair Drive	SB Direct On	1	1,000	199	0.22	A	302	0.34	B	199	0.22	A	306	0.34	B
	SB Off	2	500	1,223	0.54	C	1,296	0.58	C	1,210	0.54	C	1,304	0.58	C
	NB Direct On	1	1,000	1,583	1.06	F	1,424	0.95	E	1,574	1.05	F	1,417	0.94	E
	NB Off	1	500	216	0.14	A	176	0.12	A	225	0.15	A	176	0.12	A
Baker Street	SB On	1	1,000	510	0.57	C	1,290	1.43	F	500	0.56	C	1,300	1.44	F
	SB Off	1	500	1,200	0.80	D	1,180	0.79	D	1,190	0.79	D	1,160	0.77	D
	NB Off	1	500	1,450	0.97	E	1,350	0.90	E	1,430	0.95	E	1,350	0.90	E
	SB Off	1	500	1,950	1.30	F	1,200	0.80	D	1,940	1.29	F	1,180	0.79	D
Paularino Avenue	NB On	1	1,000	610	0.68	C	1,085	1.21	F	617	0.69	C	1,074	1.19	F
	SB On Direct	1	1,000	760	0.84	D	1,060	1.18	F	760	0.84	D	1,070	1.19	F
	SB On Loop	1	1,000	200	0.22	A	870	0.97	E	190	0.21	A	890	0.99	E
	SB Off	1	500	2,110	1.41	F	1,110	0.74	D	2,180	1.45	F	1,100	0.73	D
MacArthur Boulevard	NB On Loop	1	1,000	650	0.72	D	800	0.89	D	640	0.71	C	810	0.90	E
	NB On Direct	1	1,000	300	0.20	A	1,280	0.85	D	300	0.20	A	1,290	0.86	D
	NB Off	2	500	1,780	0.79	D	1,000	0.44	B	1,840	0.82	D	990	0.44	B

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Table 7.7: Post-2030 Existing General Plan Buildout Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 Existing General Plan									
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			AM Peak Hour						
				Volume	V/C	LOS	HCM Density	LOS	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS		
Dyer Road	SB On	1	1,000	862	0.57	C		1,214	0.81	D		856	0.57	C		1,216	0.81	D	
	SB Off Loop	1	500	628	0.42	B		444	0.30	A		675	0.45	B		434	0.29	A	
	SB Off to Grand	1	500	633	0.42	B		298	0.20	A		656	0.44	B		302	0.20	A	
	NB On Direct	1	1,000	390	0.26	A	B	1,400	0.93	E	>Capacity	330	0.22	A	B	1,470	0.98	E	>Capacity
	NB On Loop	1	1,000	550	0.61	C		1,020	1.13	F		550	0.61	C		1,020	1.13	F	
	NB Off	1	500	1,670	1.11	F		390	0.26	A		1,690	1.13	F		390	0.26	A	
	SB On	1	1,000	760	0.51	C		880	0.59	C		750	0.50	B		880	0.59	C	
	SB Off	1	500	950	0.63	C		570	0.38	B		1,010	0.67	C		570	0.38	B	
	NB On	1	1,000	902	0.60	C		1,247	0.83	D		887	0.59	C		1,205	0.80	D	
	NB Off	1	500	964	0.64	C		932	0.62	C		972	0.65	C		918	0.61	C	
McFadden Avenue	SB On	1	1,000	540	0.36	B		403	0.27	A		534	0.36	B		406	0.27	A	
	SB Off	2	500	592	0.26	A		771	0.34	B		597	0.27	A		763	0.34	B	
Edinger Avenue	NB On	1	1,000	1,213	0.81	D		1,017	0.68	C		1,194	0.80	D		1,045	0.70	C	
	NB Off	1	500	598	0.40	B		602	0.40	B		587	0.39	B		591	0.39	B	

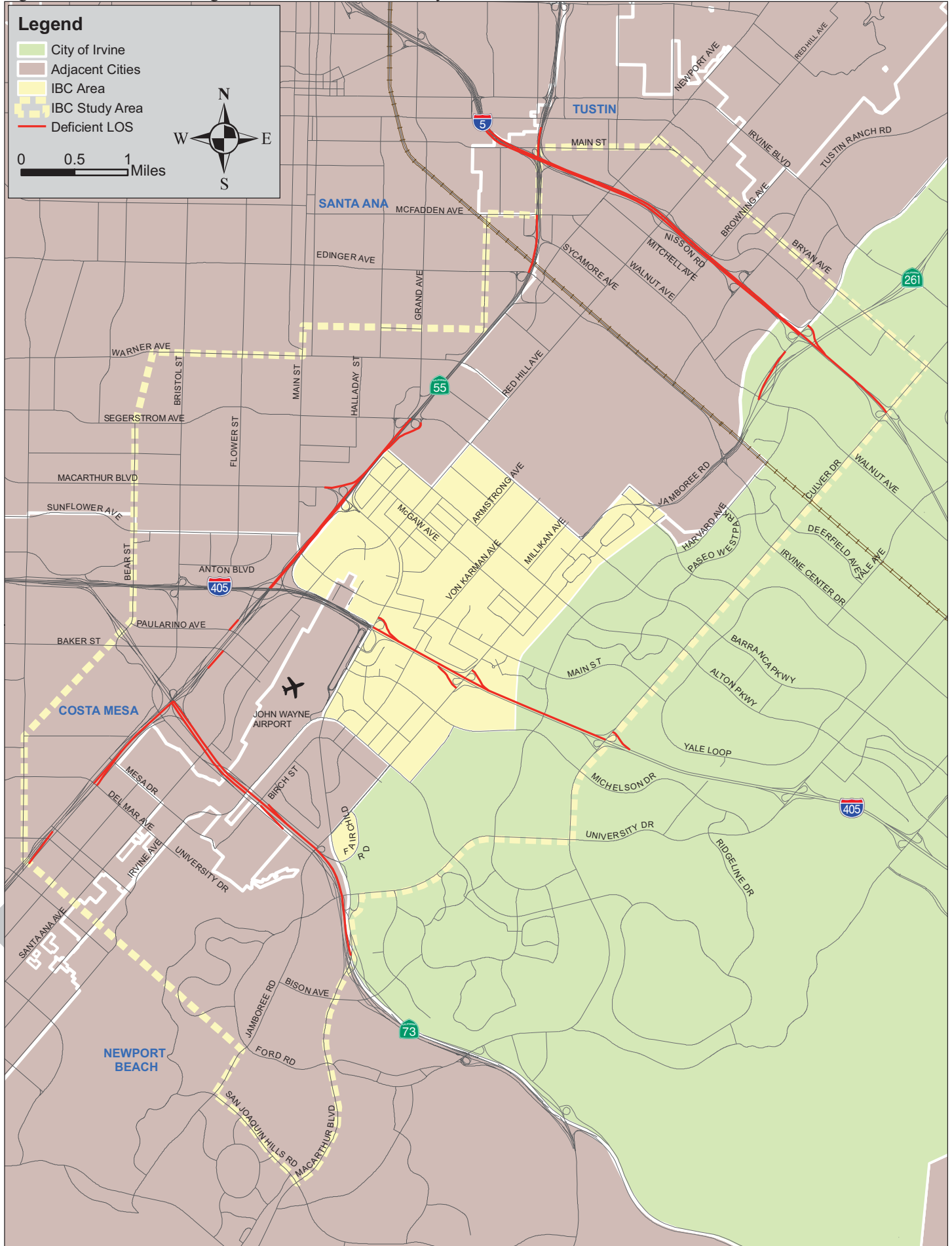
SR-55 Continued



Table 7.7: Post-2030 Existing General Plan Buildout Freeway Peak Hour Freeway Ramp LOS

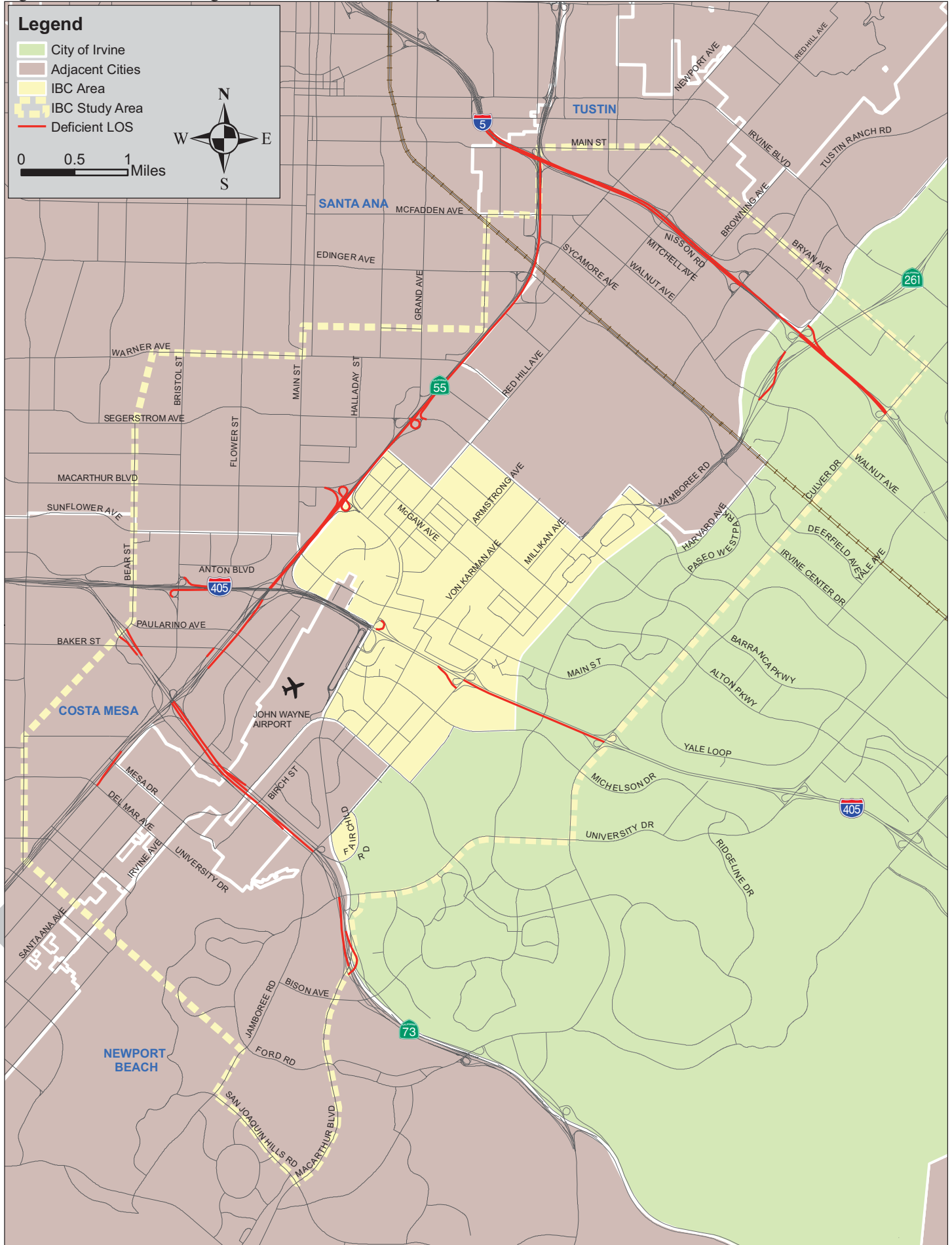
Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 Existing General Plan					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
MacArthur Boulevard	SB On	1	1,000	125	0.08	A	1,019	0.68	C	123	0.08	A	1,051	0.70	C
	SB Off	2	500	1,203	0.40	B	1,014	0.34	B	1,209	0.40	B	1,022	0.34	B
	NB On	1	1,000	774	0.86	D	855	0.95	E	751	0.83	D	849	0.94	E
	SB Off	1	500	1,070	0.71	C	940	0.63	C	1,080	0.72	D	930	0.62	C
	NB On	1	1,000	159	0.11	A	226	0.15	A	160	0.11	A	224	0.15	A
	SB On	1	1,000	160	0.11	A	410	0.27	A	160	0.11	A	420	0.28	A
Bison Avenue	SB Off	1	500	1,130	0.75	D	540	0.36	B	1,150	0.77	D	540	0.36	B
	NB On	1	1,000	480	0.32	B	910	0.61	C	470	0.31	B	910	0.61	C
	SB On	1	1,000	426	0.28	A	779	0.52	C	423	0.28	A	787	0.52	C
Jamboree Road	SB Off	2	500	2,727	1.21	F	2,938	1.31	F	2,788	1.24	F	2,908	1.29	F
	NB On	1	1,000	1,134	0.76	D	1,296	0.86	D	1,126	0.75	D	1,309	0.87	D
	NB Off	1	500	2,150	1.43	F	1,156	0.77	D	2,206	1.47	F	1,162	0.77	D
Campus Drive	SB Off	2	500	1,806	0.80	D	1,038	0.46	B	1,898	0.84	D	1,000	0.44	B
	NB On	1	1,000	818	0.55	C	2,111	1.41	F	730	0.49	B	2,170	1.45	F
	SB On	1	1,000	1,170	0.78	D	1,410	0.94	E	1,180	0.79	D	1,410	0.94	E
SR-73 at Bear	SB Off	1	500	520	0.35	B	450	0.30	A	520	0.35	B	450	0.30	A
	NB Off	1	500	970	0.65	C	1,540	1.03	F	950	0.63	C	1,530	1.02	F
	NB On	1	1,000	230	0.15	A	620	0.41	B	230	0.15	A	620	0.41	B
Jamboree Road	SB On	1	1,000	1,371	0.91	E	1,064	0.71	C	1,428	0.95	E	963	0.64	C
	NB Off	1	250	828	0.55	C	1,507	1.00	E	776	0.52	C	1,569	1.05	F
Walnut Avenue	NB On	1	1,000	391	0.26	A	961	0.64	C	369	0.25	A	977	0.65	C
	SB Off	1	500	1,060	0.71	C	390	0.26	A	1,166	0.78	D	386	0.26	A

Figure 7.8: Post-2030 Existing General Plan Buildout Freeway AM Peak Hour Deficiencies



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Figure 7.9: Post-2030 Existing General Plan Buildout Freeway PM Peak Hour Deficiencies



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7.8 Post-2030 With Project (MPAH Network)

The Post-2030 With Project (MPAH Network) impact analysis evaluates the proposed IBC Vision With Project scenario with the specific unfunded circulation network improvements identified in the 1992 IBC Rezone EIR. This buildout alternative was prepared to identify whether there were differences in resulting impacts when compared to the IBC Vision Plan network (constrained network) that removed specific unfunded improvements identified in the 1992 IBC Rezone EIR and to help determine if these improvements are necessary under buildout conditions or should be removed from the City's General Plan. The following improvements are included in the MPAH Network:

- Barranca Parkway between Red Hill Avenue and Jamboree Road (widen to a 8-lane divided roadway from a 7-lane divided roadway)
- Jamboree Road between Barranca Parkway and McGaw Avenue (widen to a 10-lane divided roadway from an 8-lane divided roadway)
- Main Street between Red Hill and Harvard (widen to a 6-lane divided arterial with 2 auxiliary lanes from a 6-lane divided roadway)
- MacArthur Boulevard between Fitch and Main Street (widen to a 8-lane divided roadway from a 7-lane divided roadway)
- Red Hill Avenue between Barranca Parkway and Main Street (widen to an 8-lane divided roadway from a 6-lane roadway)
- Alton Avenue between Red Hill Avenue and Jamboree Road (widen from a 6-lane divided roadway from a 4-lane divided roadway)
- Von Karman Avenue between Barranca Parkway and Michelson (widen to 6-lane divided roadway from a 4-lane divided roadway)
- Alton Avenue Overcrossing at the SR-55 freeway with High Occupancy Vehicle (HOV) drop ramps
- Von Karman Avenue at the I-405 freeway HOV drop ramps
- Red Hill Avenue between Edinger Avenue and Barranca Parkway (widen to an 8-lane divided roadway from a 6-lane divided roadway between Edinger and Warner and a 7-lane divided roadway between Warner and Barranca Parkway/Dyer Road)*
- Barranca Parkway/Dyer Road between Pullman and Red Hill Avenue (widen to an 8-lane divided roadway from a 6-lane divided roadway)**

*Located within the City of Tustin

**Located within the City of Santa Ana

7.9 Post-2030 With Project (MPAH Network) Land Use and Trip Generation

The land use setting for Post-2030 With Project (MPAH Network) is identical to that for the Post-2030 With Vision Plan Project. The network circulation assumptions have been adjusted to include the unfunded improvements identified in the 1992 IBC Rezone EIR. The following discussion describes the performance of the circulation system with these MPAH improvements in place.

7.10 Post-2030 With Project (MPAH Network) Daily Arterial Segment Analysis

Post-2030 arterial traffic conditions were analyzed based on the projected volumes and future lane configurations with all unfunded improvements identified in the 1992 IBC Rezone EIR applied. **Table 7.8** presents study area roadway segments, including information on jurisdiction, daily traffic count, classification type, V/C ratio and LOS on each segment. Deficient segments were further analyzed for peak hour performance within the City of Irvine. Alternative methodologies by other cities within the study area called for a different analysis approach. There are some differences in the daily V/C LOS between the Post-2030 constrained network and MPAH Network scenarios.

There are 20 deficient segments under the Post-2030 With Project (MPAH Network) daily conditions, two segments located within Costa Mesa, 16 of the segments in Irvine, one segment in Newport Beach, and one segment in Tustin. As noted above, LOS E indicates a deficient segment for arterial segments outside Planning Area (PA) 36 within the City of Irvine. PA 36 segments are deficient at LOS F. Deficient segments under the Post-2030 With Project (MPAH Network) conditions include the following:



- 2728—Bristol Street from Anton Boulevard to I-405 Northbound Ramps (Costa Mesa)
- 2751—Bristol Street from I-405 Northbound Ramps to I-405 Southbound Ramps (Costa Mesa)
- 770—Alton Parkway from Daimler Street to Red Hill Avenue (Irvine)
- 879—Campus Drive from Carlson Avenue to University Drive (Irvine)
- 726—Culver Drive from I-5 NB Ramps to I-5 SB Ramps (Irvine)
- 213—Culver Drive from I-5 SB Off-Ramp to Scottsdale Drive (Irvine)
- 214—Culver Drive from Scottsdale Drive to Walnut Avenue (Irvine)
- 219—Culver Drive from Barranca Parkway to Alton Parkway (Irvine)
- 220—Culver Drive from Alton Parkway to Main Street (Irvine)
- 221—Culver Drive from Main Street to San Leandro (Irvine)
- 222—Culver Drive from San Leandro to I-405 NB On-Ramp (Irvine)
- 224—Culver Drive from I-405 SB On-Ramp to Michelson Drive (Irvine)
- 130—Jamboree Road from El Camino Real to I-5 NB On-Ramp (Irvine)
- 958—Jamboree Road from I-5 NB Ramps to I-5 SB Off-Ramp (Irvine)
- 133—Jamboree Road from Michelle Drive to Walnut Avenue (Irvine)
- 148—Jamboree Road from I-405 On-Ramp to Michelson Drive (Irvine)
- 149—Jamboree Road from Michelson Drive to Dupont Drive (Irvine)
- 151—Jamboree Road from Campus Drive to Birch Street (Irvine)
- 1301—MacArthur Boulevard from Bison Avenue to Ford Road (Newport Beach)
- 1585—Newport Avenue from Valencia Avenue to Edinger Avenue (Tustin)

Two locations become acceptable under daily conditions when the MPAH improvements are applied, #1884, MacArthur between Main Street and SR-55 in the City of Santa Ana, and #44 Edinger Avenue West of Newport Boulevard. The location in Santa Ana has a project related significant impact under the Post-2030 With Project (constrained network) scenario. Arterial improvements within the vicinity of these segments, including the Alton Avenue crossing of SR-55 south of this area, contribute to traffic being diverted in the MPAH network and resulting in an improved LOS. Additionally, segment #770, Alton Parkway between Daimler Street and Red Hill Avenue becomes deficient with the MPAH improvements applied. This segment would likely need to be improved to accommodate additional traffic diversion to the Alton Avenue crossing of SR-55.

Figure 7.10 and Figure 7.11 display the arterial ADT and LOS for the Post-2030 With Project (MPAH Network) scenario. Deficient segments in the City of Irvine are evaluated under peak hour conditions in the following section. Santa Ana identifies significant project impacts based on the arterial daily LOS; however, there are no segments in the City of Santa Ana that are deficient under the Post-2030 With Project (MPAH Network) scenario.

Table 7.8: Post-2030 With Project (MPAH Network) Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Arterial Segment Classification (MPAH Network)	Post-2030 Cumulative With Project (MPAH)		
						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
2725	Anton Boulevard	Bristol Street to Sunflower Avenue		CM	6D	10,100	0.18	A	10,200	0.18	A	6D	10,200	0.18	A
2721	Baker Street	Bear Street to Bristol Street		CM	6D	29,600	0.53	A	30,100	0.54	A	6D	30,500	0.54	A
2729	Baker Street	Bristol Street to SR 55 SB Ramps		CM	6D	36,300	0.65	B	37,000	0.66	B	6D	37,300	0.67	B
1294	Baker Street	SR 55 SB to SR 55 NB		CM	6D	37,800	0.68	B	38,200	0.68	B	6D	38,400	0.69	B
1468	Baker Street	SR 55 NB to Red Hill Avenue		CM	6D	21,500	0.38	A	22,000	0.39	A	6D	22,300	0.40	A
1469	Baker Street	Red Hill Avenue to Airway Avenue		CM	6D	6,200	0.11	A	6,200	0.11	A	6D	6,200	0.11	A
2723	Bear Street	Paularino Avenue to Baker Street		CM	6D	19,900	0.36	A	20,100	0.36	A	6D	20,000	0.36	A
2733	Bristol Street	Segerstrom Avenue to West Alton Avenue		CM	6D	40,400	0.72	C	41,200	0.74	C	6D	40,400	0.72	C
2737	Bristol Street	West Alton Avenue to MacArthur Boulevard		CM	6D	44,200	0.79	C	45,000	0.80	C	6D	44,200	0.79	C
2738	Bristol Street	MacArthur Boulevard to Sunflower Avenue		CM	6D	25,300	0.45	A	25,600	0.46	A	6D	25,100	0.45	A



Table 7.8: Post-2030 With Project (MPAH Network) Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Arterial Segment Classification (MPAH Network)	Post-2030 Cumulative With Project (MPAH)		
						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
2727	Bristol Street	Sunflower Avenue to Anton Boulevard		CM	6D	44,400	0.79	C	45,300	0.81	D	6D	44,300	0.79	C
2728	Bristol Street	Anton Boulevard to I-405 NB Ramps		CM	8D	69,500	0.93	E	70,500	0.94	E	8D	69,100	0.92	E
2751	Bristol Street	I-405 NB Ramps to I-405 SB Ramps		CM	8D	69,900	0.93	E	71,000	0.95	E	8D	70,000	0.93	E
2745	Bristol Street	I-405 SB Ramp to Paularino Avenue		CM	8D	50,600	0.67	B	51,100	0.68	B	8D	50,500	0.67	B
2732	Bristol Street	Paularino Avenue to Baker Street		CM	6D	40,400	0.72	C	41,000	0.73	C	6D	40,500	0.72	C
2730	Bristol Street	Baker Street to SR 55		CM	6D	25,100	0.45	A	25,600	0.46	A	6D	25,400	0.45	A
1888	Bristol Street	SR-55 to Red Hill Avenue		CM	6D	23,000	0.41	A	23,700	0.42	A	6D	23,300	0.42	A
2793	Del Mar Avenue	Newport Boulevard SB to Newport Boulevard NB		CM	4D	18,300	0.48	A	18,800	0.49	A	4D	18,700	0.49	A
2791	Del Mar Avenue	Newport Boulevard to Santa Ana Avenue		CM	4D	12,900	0.34	A	13,200	0.35	A	4D	13,100	0.34	A
2772	Flower Street	Segerstrom Avenue to MacArthur Boulevard		CM	4D	11,500	0.30	A	11,800	0.31	A	4D	11,400	0.30	A
2804	Flower Street	MacArthur Boulevard to Sunflower Avenue		CM	4D	13,100	0.34	A	13,300	0.35	A	4D	13,400	0.35	A
2760	Flower Street	Sunflower Avenue to Anton Boulevard		CM	4D	9,300	0.24	A	9,300	0.24	A	4D	9,300	0.24	A
2756	Main Street	Sunflower Avenue to SR-55		CM	6D	24,400	0.44	A	27,200	0.49	A	6D	23,600	0.42	A
2785	Mesa Drive	Newport Boulevard SB to Newport Boulevard NB		CM	2U	4,900	0.39	A	4,900	0.39	A	2U	4,900	0.39	A
2783	Mesa Drive	Newport Boulevard NB to Santa Ana Avenue		CM	2U	4,800	0.38	A	4,700	0.38	A	2U	4,700	0.38	A
2779	Mesa Drive	Irvine Avenue to Birch Street		CM	4D	13,400	0.35	A	13,900	0.37	A	4D	13,700	0.36	A
2742	Paularino Avenue	Bear Street to Bristol Street		CM	2U	8,400	0.67	B	8,500	0.68	B	2U	8,400	0.67	B
2746	Paularino Avenue	Bristol Street to SR-55 SB		CM	4D	21,600	0.57	A	21,600	0.57	A	4D	21,500	0.57	A
1291	Paularino Avenue	SR-55 SB to SR-55 NB		CM	4D	23,500	0.62	B	23,800	0.63	B	4D	23,700	0.62	B
1344	Paularino Avenue	SR-55 NB to Red Hill Avenue		CM	4D	7,400	0.19	A	7,500	0.20	A	4D	7,500	0.20	A
1342	Paularino Avenue	Red Hill Avenue to Airway Avenue		CM	4D	17,300	0.46	A	17,300	0.46	A	4D	17,000	0.45	A
39	Red Hill Avenue	Main Street to Paularino Avenue	a	CM	6D	19,300	0.34	A	20,800	0.37	A	6D	22,500	0.40	A
1340	Red Hill Avenue	Paularino Avenue to Baker Street		CM	6D	21,000	0.38	A	21,900	0.39	A	6D	23,100	0.41	A
40	Red Hill Avenue	Baker Street to Bristol Street		CM	6D	23,500	0.42	A	23,900	0.43	A	6D	24,400	0.44	A
41	Santa Ana Avenue	Mesa Drive to Bristol Street		CM	4D	9,000	0.24	A	9,000	0.24	A	4D	9,000	0.24	A
2769	University Drive	Santa Ana Avenue to Irvine Avenue		CM	2U	10,300	0.82	D	11,000	0.88	D	2U	10,700	0.86	D
770	Alton Parkway	Daimler Street to Red Hill Avenue	a	Irv	4D	4,600	0.14	A	6,500	0.20	A	4D	34,900	1.09	F
776	Alton Parkway	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	13,200	0.41	A	14,700	0.46	A	6D	23,400	0.43	A
778	Alton Parkway	Von Karman Avenue to Jamboree Road	a	Irv	4D	16,800	0.53	A	18,100	0.57	A	6D	25,500	0.47	A
779	Alton Parkway	Jamboree Road to Murphy Avenue	a	Irv	6D	17,600	0.33	A	19,100	0.35	A	6D	23,900	0.44	A
780	Alton Parkway	Murphy Avenue to Harvard Avenue		Irv	6D	18,100	0.34	A	19,800	0.37	A	6D	23,200	0.43	A
781	Alton Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	17,300	0.32	A	18,600	0.34	A	6D	21,100	0.39	A
1378	Alton Parkway	Paseo Westpark to San Marino		Irv	6D	14,400	0.27	A	15,400	0.29	A	6D	16,900	0.31	A
783	Alton Parkway	San Marino to Culver Drive		Irv	6D	24,000	0.44	A	25,100	0.46	A	6D	26,600	0.49	A
735	Barranca Parkway	Pullman to Red Hill Avenue		Irv	6D	28,000	0.52	A	30,500	0.56	A	8D	27,800	0.39	A



Table 7.8: Post-2030 With Project (MPAH Network) Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Arterial Segment Classification (MPAH Network)	Post-2030 Cumulative With Project (MPAH)		
						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
	(Dyer)														
736	Barranca Parkway	Red Hill Avenue to Armstrong	a	Irv	7D	30,300	0.48	A	32,000	0.51	A	8D	30,300	0.42	A
739	Barranca Parkway	Armstrong to Von Karman Avenue	a	Irv	7D	29,800	0.47	A	31,300	0.50	A	8D	30,200	0.42	A
740	Barranca Parkway	Von Karman Avenue to Jamboree Road	a	Irv	7D	22,000	0.35	A	23,300	0.37	A	8D	22,600	0.31	A
743	Barranca Parkway	Jamboree Road to Construction Circle	a	Irv	6D	28,500	0.53	A	30,200	0.56	A	6D	29,800	0.55	A
744	Barranca Parkway	Construction Circle to Harvard Avenue	a	Irv	6D	25,000	0.46	A	26,300	0.49	A	6D	25,900	0.48	A
745	Barranca Parkway	Harvard Avenue to Paseo Westpark		Irv	6D	23,900	0.44	A	24,800	0.46	A	6D	25,000	0.46	A
747	Barranca Parkway	Paseo Westpark to Santa Rosa		Irv	6D	26,400	0.49	A	27,400	0.51	A	6D	27,900	0.52	A
748	Barranca Parkway	Santa Rosa to Culver Drive		Irv	6D	26,000	0.48	A	26,900	0.50	A	6D	27,000	0.50	A
538	Bryan Avenue	Jamboree Road to Marketplace		Irv	4D	25,300	0.79	C	25,400	0.79	C	4D	25,200	0.79	C
1812	Bryan Avenue	Marketplace to El Camino Real		Irv	4D	23,200	0.73	C	23,100	0.72	C	4D	23,100	0.72	C
539	Bryan Avenue	El Camino Real to Rubicon		Irv	4D	20,100	0.63	B	20,000	0.63	B	4D	20,000	0.63	B
540	Bryan Avenue	Rubicon to Culver		Irv	4D	26,300	0.82	D	26,400	0.83	D	4D	26,400	0.83	D
869	Campus Drive	MacArthur Boulevard to Martin	a	Irv	6D	18,900	0.35	A	22,500	0.42	A	6D	21,500	0.40	A
870	Campus Drive	Martin to Von Karman Avenue	a	Irv	4D	15,900	0.50	A	18,000	0.56	A	4D	17,800	0.56	A
871	Campus Drive	Von Karman Avenue to Teller Avenue	a	Irv	4D	15,000	0.47	A	16,600	0.52	A	4D	16,800	0.53	A
872	Campus Drive	Teller Avenue to Jamboree Road	a	Irv	4D	13,200	0.41	A	14,100	0.44	A	4D	14,300	0.45	A
877	Campus Drive	Jamboree Road to Carlson Avenue	a	Irv	4D	28,800	0.90	D	30,300	0.95	E	4D	30,400	0.95	E
879	Campus Drive	Carlson Avenue to University		Irv	4U	31,100	1.11	F	32,100	1.15	F	4U	32,300	1.15	F
166	Carlson Avenue	Michelson Drive to Campus Drive	a	Irv	4D	5,700	0.18	A	6,800	0.21	A	4D	6,900	0.22	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps		Irv	Maj5D+ 1AUX	45,200	0.91	E	45,300	0.92	E	Maj5D+ 1AUX	45,300	0.92	E
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive		Irv	6D	57,200	1.06	F	57,600	1.07	F	6D	57,200	1.06	F
214	Culver Drive	Scottsdale Drive to Walnut Avenue		Irv	6D	51,300	0.95	E	51,900	0.96	E	6D	51,600	0.96	E
215	Culver Drive	Walnut Avenue to Deerfield Avenue		Irv	6D	48,200	0.89	D	48,500	0.90	D	6D	48,100	0.89	D
216	Culver Drive	Deerfield Avenue to Irvine Center Drive		Irv	Maj6D+ 1AUX	42,600	0.73	C	43,100	0.74	C	Maj6D+ 1AUX	42,900	0.73	C
217	Culver Drive	Irvine Center Drive to Warner Avenue		Irv	6D	46,600	0.86	D	47,400	0.88	D	6D	46,800	0.87	D
218	Culver Drive	Warner Avenue to Barranca Parkway		Irv	6D	47,100	0.87	D	48,300	0.89	D	6D	47,200	0.87	D
219	Culver Drive	Barranca Parkway to Alton Parkway		Irv	6D	51,300	0.95	E	52,900	0.98	E	6D	51,200	0.95	E
220	Culver Drive	Alton Parkway to Main Street		Irv	6D	51,700	0.96	E	53,600	0.99	E	6D	52,100	0.96	E
221	Culver Drive	Main Street to San Leandro		Irv	6D	52,700	0.98	E	54,300	1.01	F	6D	52,500	0.97	E
222	Culver Drive	San Leandro to I-405 NB On-Ramp		Irv	6D	58,800	1.09	F	60,500	1.12	F	6D	58,600	1.09	F
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive		Irv	6D	59,400	1.10	F	61,700	1.14	F	6D	60,800	1.13	F
225	Culver Drive	Michelson Drive to Sandburg Way		Irv	6D	46,600	0.86	D	46,800	0.87	D	6D	46,600	0.86	D
226	Culver Drive	Sandburg Way to University Drive		Irv	6D	38,700	0.72	C	39,000	0.72	C	6D	38,800	0.72	C
1206	El Camino Real	Jamboree Road to Alliance		Irv	4D	24,700	0.77	C	24,600	0.77	C	4D	24,600	0.77	C
169	Fairchild Road	MacArthur Boulevard to Jamboree Road		Irv	4D	5,500	0.17	A	5,800	0.18	A	4D	6,000	0.19	A



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ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Arterial Segment Classification (MPAH Network)	Post-2030 Cumulative With Project (MPAH)		
						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
170	Harvard Avenue	Walnut Avenue to Poplar Street		Irv	4U	11,500	0.41	A	11,800	0.42	A	4U	11,600	0.41	A
3040	Harvard Avenue	Poplar Street to Deerfield Avenue		Irv	4U	13,900	0.50	A	14,300	0.51	A	4U	14,100	0.50	A
171	Harvard Avenue	Deerfield Avenue to Irvine Center Drive		Irv	4U	12,900	0.46	A	13,200	0.47	A	4U	13,000	0.46	A
172	Harvard Avenue	Irvine Center Drive to Paseo Westpark		Irv	4D	14,800	0.46	A	15,700	0.49	A	4D	15,100	0.47	A
174	Harvard Avenue	Paseo Westpark to Warner Avenue		Irv	4D	15,400	0.48	A	16,100	0.50	A	4D	15,400	0.48	A
175	Harvard Avenue	Warner to Barranca Parkway		Irv	4D	17,100	0.53	A	17,700	0.55	A	4D	16,900	0.53	A
177	Harvard Avenue	Barranca Parkway to San Juan		Irv	4D	18,200	0.57	A	19,200	0.60	A	4D	17,900	0.56	A
2829	Harvard Avenue	San Juan to San Leon		Irv	4D	17,000	0.53	A	18,300	0.57	A	4D	17,400	0.54	A
178	Harvard Avenue	San Leon to Alton Parkway		Irv	4D	18,700	0.58	A	20,100	0.63	B	4D	19,100	0.60	A
179	Harvard Avenue	Alton Parkway to San Marino		Irv	4D	21,700	0.68	B	23,300	0.73	C	4D	23,200	0.73	C
180	Harvard Avenue	San Marino to Main Street		Irv	4D	22,500	0.70	B	24,300	0.76	C	4D	24,000	0.75	C
181	Harvard Avenue	Main Street to Coronado		Irv	4D	15,300	0.48	A	16,800	0.53	A	4D	16,500	0.52	A
182	Harvard Avenue	Coronado to Michelson Drive		Irv	4D	22,900	0.72	C	25,100	0.78	C	4D	24,500	0.77	C
183	Harvard Avenue	Michelson Drive to University Drive		Irv	2U	10,800	0.83	D	11,700	0.90	D	2U	11,700	0.90	D
675	Irvine Center Drive	Harvard Avenue to Hearthstone		Irv	6D	26,900	0.50	A	27,000	0.50	A	6D	26,900	0.50	A
676	Irvine Center Drive	Hearthstone to Culver Drive		Irv	6D	25,500	0.47	A	25,700	0.48	A	6D	25,500	0.47	A
129	Jamboree Road	Bryan Avenue to El Camino		Irv	8D	41,200	0.57	A	41,300	0.57	A	8D	41,600	0.58	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp		Irv	Maj7D+1AUX	63,900	0.95	E	64,200	0.95	E	Maj7D+1AUX	64,600	0.96	E
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp		Irv	8D	70,200	0.98	E	69,700	0.97	E	8D	70,000	0.97	E
131	Jamboree Road	I-5 SB Off-Ramp to Michelle Drive		Irv	8D	64,300	0.89	D	63,300	0.88	D	8D	63,200	0.88	D
133	Jamboree Road	Michelle Drive to Walnut Avenue		Irv	5D	59,400	1.32	F	61,000	1.36	F	5D	60,900	1.35	F
135	Jamboree Road	Walnut Ave to Edinger Ave (& Frontage Roads)*		Irv	Exp8	95,600	0.53	A	99,300	0.55	A	Exp8	99,800	0.55	A
136	Jamboree Road	Edinger Avenue to Warner Avenue*		Irv	Exp8	83,500	0.46	A	87,300	0.49	A	Exp8	87,800	0.49	A
137	Jamboree Road	Warner Avenue to Barranca Parkway	a	Irv	Exp8	77,800	0.43	A	81,500	0.45	A	Exp8	82,100	0.46	A
138	Jamboree Road	Barranca Parkway to Beckman Avenue	a	Irv	8D	56,700	0.79	C	61,400	0.85	D	10D	62,400	0.69	B
1503	Jamboree Road	Beckman Avenue to Alton Parkway	a	Irv	8D	54,500	0.76	C	59,700	0.83	D	10D	60,600	0.67	B
140	Jamboree Road	Alton Parkway to McGaw Avenue	a	Irv	8D	50,900	0.71	C	56,500	0.78	C	10D	55,900	0.62	B
142	Jamboree Road	McGaw Avenue to Kelvin Avenue	a	Irv	8D	49,300	0.68	B	55,500	0.77	C	8D	53,900	0.75	C
144	Jamboree Road	Kelvin Avenue to Main Street	a	Irv	8D	57,900	0.80	C	67,300	0.93	E	8D	64,600	0.90	D
145	Jamboree Road	Main Street to I-405 Off-Ramp		Irv	Maj8D+2AUX	55,300	0.68	B	63,900	0.79	C	Maj8D+2AUX	61,100	0.75	C
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	a	Irv	Maj8D+2AUX	74,800	0.92	E	90,600	1.12	F	Maj8D+2AUX	84,500	1.04	F
149	Jamboree Road	Michelson Drive to Dupont Drive	a	Irv	7D	56,500	0.90	D	65,400	1.04	F	7D	64,100	1.02	F
150	Jamboree Road	Dupont Drive to Campus Drive	a	Irv	8D	51,800	0.72	C	55,700	0.77	C	8D	55,400	0.77	C
151	Jamboree Road	Campus Drive to Birch Street		Irv	6D	46,200	0.86	D	51,500	0.95	E	6D	51,400	0.95	E
152	Jamboree Road	Birch Street to Fairchild Road		Irv	7D	37,800	0.60	A	41,700	0.66	B	7D	41,400	0.66	B
154	Jamboree Road	Fairchild Road to Koll Center		Irv	6D	37,900	0.70	B	42,700	0.79	C	6D	42,500	0.79	C



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						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
155	Jamboree Road	Koll Center to MacArthur Boulevard	a	Irv	6D	29,600	0.55	A	33,200	0.61	B	6D	32,900	0.61	B
814	MacArthur Boulevard	Fitch to Red Hill Avenue	a	Irv	5D	38,200	0.85	D	43,300	0.96	E	8D	37,200	0.52	A
815	MacArthur Boulevard	Red Hill Avenue to Skypark Boulevard	a	Irv	7D	16,800	0.27	A	18,800	0.30	A	8D	19,500	0.27	A
1524	MacArthur Boulevard	Skypark Boulevard to Main Street	a	Irv	7D	27,100	0.43	A	30,200	0.48	A	8D	31,200	0.43	A
60	MacArthur Boulevard	Main Street to I-405 NB Off-Ramp	a	Irv	Maj8D+ 2AUX	37,300	0.46	A	42,000	0.52	A	Maj8D+ 2AUX	40,900	0.50	A
62	MacArthur Boulevard	I-405 SB On-Ramp to Michelson Drive	a	Irv	Maj8D+ 1AUX	53,100	0.69	B	60,800	0.79	C	Maj8D+ 1AUX	58,700	0.77	C
63	MacArthur Boulevard	Michelson Drive to Douglass	a	Irv	8D	45,900	0.64	B	50,200	0.70	B	8D	50,100	0.70	B
64	MacArthur Boulevard	Douglass to Campus Drive		Irv	8D	38,500	0.53	A	39,300	0.55	A	8D	39,300	0.55	A
916	MacArthur Boulevard	Jamboree Road to Fairchild Road	a	Irv	6D	37,100	0.69	B	38,300	0.71	C	6D	38,600	0.71	C
917	MacArthur Boulevard	Fairchild Road to University Drive		Irv	6D	44,000	0.81	D	45,400	0.84	D	6D	45,400	0.84	D
817	Main Street	McDermott to Red Hill Avenue	a	Irv	6D	21,600	0.40	A	24,200	0.45	A	6D	21,300	0.39	A
818	Main Street	Red Hill Avenue to Executive Park	a	Irv	6D	18,800	0.35	A	20,900	0.39	A	Maj6D+ 2AUX	18,900	0.30	A
819	Main Street	Executive Park to MacArthur Boulevard	a	Irv	6D	28,700	0.53	A	31,700	0.59	A	Maj6D+ 2AUX	29,100	0.46	A
820	Main Street	MacArthur Boulevard to Mercantile	a	Irv	Maj7D+ 1AUX	37,000	0.55	A	40,100	0.59	A	Maj7D+ 1AUX	37,500	0.56	A
821	Main Street	Gillette Avenue to Von Karman Avenue	a	Irv	Maj6D+ 1AUX	18,900	0.32	A	21,900	0.37	A	Maj6D+ 2AUX	21,400	0.34	A
822	Main Street	Von Karman Avenue to Cartwright	a	Irv	6D	17,300	0.32	A	19,900	0.37	A	Maj6D+ 2AUX	18,900	0.30	A
823	Main Street	Siglo to Jamboree Road	a	Irv	6D	22,900	0.42	A	27,200	0.50	A	Maj6D+ 2AUX	25,200	0.40	A
824	Main Street	Jamboree Road to Union	a	Irv	Maj6D+ 1AUX	19,200	0.33	A	21,100	0.36	A	Maj6D+ 2AUX	20,600	0.33	A
825	Main Street	Veneto to Harvard Avenue		Irv	6D	10,600	0.20	A	11,600	0.21	A	Maj6D+ 2AUX	11,000	0.17	A
826	Main Street	Harvard Avenue to San Mateo		Irv	4D	11,500	0.36	A	12,500	0.39	A	4D	11,800	0.37	A
827	Main Street	Paseo Westpark to Culver Drive		Irv	4D	9,000	0.28	A	9,600	0.30	A	4D	9,400	0.29	A
1507	McGaw Avenue	Daimler Street to Red Hill Avenue	a	Irv	4D	3,700	0.12	A	5,600	0.18	A	4D	6,300	0.20	A
808	McGaw Avenue	Red Hill Avenue to Von Karman Avenue	a	Irv	4D	5,900	0.18	A	7,900	0.25	A	4D	7,600	0.24	A
810	McGaw Avenue	Von Karman Avenue to Jamboree Road	a	Irv	4D	6,900	0.22	A	9,000	0.28	A	4D	8,400	0.26	A
1449	McGaw Avenue	Jamboree Road to Murphy Avenue		Irv	4D	2,600	0.08	A	5,500	0.17	A	4D	4,900	0.15	A
840	Michelson Drive	MacArthur Boulevard to Dupont Drive	a	Irv	5D	15,700	0.35	A	19,200	0.43	A	5D	18,200	0.40	A
843	Michelson Drive	Bixby to Von Karman Avenue	a	Irv	4D	11,900	0.37	A	14,500	0.45	A	4D	14,100	0.44	A
844	Michelson Drive	Von Karman Avenue to Obsidian	a	Irv	Prim4D+ 1AUX	11,500	0.31	A	14,600	0.39	A	Prim4D+ 1AUX	15,800	0.42	A
845	Michelson Drive	Teller Avenue to Jamboree Road	a	Irv	Prim5	19,200	0.45	A	22,300	0.52	A	Prim5	22,800	0.53	A



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						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
846	Michelson Drive	Jamboree Road to Carlson Avenue	a	Irv	Prim4D+ 2AUX	17,000	0.40	A	23,400	0.54	A	Prim4D+ 2AUX	23,500	0.55	A
847	Michelson Drive	Carlson Avenue to Prince		Irv	Prim4D+ 1AUX	18,100	0.48	A	25,900	0.69	B	Prim4D+ 1AUX	25,700	0.69	B
848	Michelson Drive	Riparian View to Harvard Avenue		Irv	4D	17,300	0.54	A	22,400	0.70	B	4D	21,500	0.67	B
1346	Michelson Drive	Harvard Avenue to Parkside Drive		Irv	4D	12,600	0.39	A	14,400	0.45	A	4D	14,400	0.45	A
850	Michelson Drive	Parkside Drive to Culver Drive		Irv	4D	17,900	0.56	A	20,400	0.64	B	4D	20,300	0.63	B
31	Red Hill Avenue	Dyer/Barranca Parkway to Deere Avenue	a	Irv	6D	30,700	0.57	A	34,600	0.64	B	8D	33,800	0.47	A
32	Red Hill Avenue	Deere Avenue to Alton Parkway	a	Irv	6D	30,900	0.57	A	35,000	0.65	B	8D	34,400	0.48	A
33	Red Hill Avenue	Alton Parkway to McGaw Avenue	a	Irv	6D	32,900	0.61	B	37,800	0.70	B	8D	34,700	0.48	A
36	Red Hill Avenue	McGaw Avenue to MacArthur Boulevard	a	Irv	6D	40,500	0.75	C	47,100	0.87	D	8D	43,300	0.60	A
37	Red Hill Avenue	MacArthur Boulevard to Skypark	a	Irv	6D	13,000	0.24	A	14,900	0.28	A	8D	15,400	0.21	A
38	Red Hill Avenue	Skypark to Main Street	a	Irv	6D	17,000	0.31	A	19,500	0.36	A	8D	20,100	0.28	A
189	University Drive	MacArthur Boulevard to California Avenue		Irv	6D	37,100	0.69	B	38,000	0.70	B	6D	37,800	0.70	B
188	University Drive	California Avenue to Mesa Road		Irv	6D	43,700	0.81	D	45,000	0.83	D	6D	44,700	0.83	D
187	University Drive	Mesa Road to Campus Drive		Irv	6D	43,700	0.81	D	44,700	0.83	D	6D	44,500	0.82	D
880	University Drive	Campus Drive to Harvard Avenue		Irv	6D	35,400	0.66	B	36,700	0.68	B	6D	36,200	0.67	B
881	University Drive	Harvard Avenue to San Joaquin Hills Road		Irv	6D	33,100	0.61	B	33,400	0.62	B	6D	33,200	0.61	B
882	University Drive	San Joaquin Hills Road to Culver Drive		Irv	6D	33,100	0.61	B	33,400	0.62	B	6D	33,200	0.61	B
98	Von Karman Avenue	Barranca Parkway to Alton Parkway	a	Irv	4D	28,300	0.88	D	31,400	0.98	E	6D	36,200	0.67	B
100	Von Karman Avenue	Alton Parkway to McGaw Avenue	a	Irv	4D	21,500	0.67	B	24,400	0.76	C	6D	31,000	0.57	A
102	Von Karman Avenue	McGaw Avenue to Anchor	a	Irv	4D	21,200	0.66	B	24,100	0.75	C	6D	30,900	0.57	A
103	Von Karman Avenue	Anchor to Main Street	a	Irv	4D	21,600	0.68	B	24,600	0.77	C	6D	30,800	0.57	A
104	Von Karman Avenue	Main Street to Morse Avenue	a	Irv	Prim4D+ 1AUX	21,500	0.57	A	25,600	0.68	B	6D	32,200	0.60	A
107	Von Karman Avenue	Quartz to Michelson Drive	a	Irv	Prim4D+ 1AUX	23,600	0.63	B	27,900	0.74	C	6D	39,100	0.72	C
108	Von Karman Avenue	Michelson Drive to Dupont Drive	a	Irv	4D	19,500	0.61	B	22,600	0.71	C	4D	28,100	0.88	D
110	Von Karman Avenue	Dupont Drive to Martin	a	Irv	4D	19,200	0.60	A	22,400	0.70	B	4D	25,600	0.80	C
111	Von Karman Avenue	Martin to Campus Drive	a	Irv	4D	17,300	0.54	A	19,400	0.61	B	4D	22,300	0.70	B
594	Walnut Avenue	Myford to Jamboree SB Off-Ramp		Irv	Prim4D+ 1AUX	22,000	0.59	A	22,200	0.59	A	Prim4D+ 1AUX	22,000	0.59	A
593	Walnut Avenue	Jamboree Road to Peters Canyon		Irv	Maj6D+ 1AUX	23,100	0.39	A	23,000	0.39	A	Maj6D+ 1AUX	23,000	0.39	A
595	Walnut Avenue	Peters Canyon to Harvard Avenue		Irv	Prim5D+ 1AUX	21,700	0.48	A	21,900	0.48	A	Prim5D+ 1AUX	21,900	0.48	A
596	Walnut Avenue	Harvard Avenue to Mall Street		Irv	4D	19,400	0.61	B	19,500	0.61	B	4D	19,500	0.61	B
597	Walnut Avenue	Mall Street to Culver Drive		Irv	4D	25,900	0.81	D	25,900	0.81	D	4D	25,900	0.81	D
728	Warner Avenue	Construction North to Harvard Avenue		Irv	4D	14,500	0.45	A	14,700	0.46	A	4D	14,400	0.45	A



Table 7.8: Post-2030 With Project (MPAH Network) Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Arterial Segment Classification (MPAH Network)	Post-2030 Cumulative With Project (MPAH)		
						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
729	Warner Avenue	Harvard Avenue to Paseo Westpark		Irv	4D	9,300	0.29	A	9,300	0.29	A	4D	9,300	0.29	A
732	Warner Avenue	Santa Ynez to Culver Drive		Irv	4D	10,300	0.32	A	10,300	0.32	A	4D	10,400	0.33	A
1223	Birch Street	Mesa Drive to Bristol Street SB		NB	4D	20,400	0.51	A	21,000	0.53	A	4D	21,000	0.53	A
1314	Birch Street	Bristol Street SB to Bristol Street NB		NB	4D	24,200	0.61	B	24,800	0.62	B	4D	24,100	0.60	A
874	Birch Street	East of MacArthur Boulevard		NB	4D	25,800	0.65	B	27,000	0.68	B	4D	26,900	0.67	B
69	Birch Street	West of MacArthur Boulevard		NB	4D	16,500	0.41	A	17,400	0.44	A	4D	17,200	0.43	A
875	Birch Street	East of Von Karman Avenue		NB	4D	25,200	0.63	B	26,800	0.67	B	4D	26,800	0.67	B
1705	Bison Avenue	Jamboree Road to MacArthur Boulevard		NB	6D	9,900	0.17	A	10,100	0.17	A	6D	10,100	0.17	A
1773	Bison Avenue	MacArthur Boulevard to SR-73		NB	4D	16,600	0.42	A	16,700	0.42	A	4D	16,700	0.42	A
920	Bristol Street SB	Red Hill Avenue to Campus Drive*		NB	3D	9,300	0.39	A	9,600	0.40	A	3D	9,400	0.39	A
1310	Bristol Street NB	Campus Drive to Red Hill Avenue*		NB	3D	15,000	0.63	B	16,000	0.67	B	3D	15,500	0.65	B
1303	Bristol Street SB	Campus Drive to Birch Street*		NB	3D	21,100	0.88	D	21,400	0.89	D	3D	20,700	0.86	D
1305	Bristol Street NB	Birch Street to Campus Drive*		NB	3D	18,500	0.77	C	19,200	0.80	C	3D	18,700	0.78	C
1312	Bristol Street SB	West of Jamboree Road*		NB	4D	22,500	0.56	A	23,000	0.58	A	4D	22,600	0.57	A
1580	Bristol Street NB	West of Jamboree Road*		NB	3D	20,000	0.83	D	20,200	0.84	D	3D	20,000	0.83	D
66	Campus Drive	Bristol Street NB to MacArthur Boulevard		NB	6D	31,200	0.54	A	34,400	0.59	A	6D	33,200	0.57	A
1778	Ford Road	Jamboree Road to MacArthur Boulevard		NB	4D	9,100	0.23	A	9,100	0.23	A	4D	9,100	0.23	A
1304	Irvine Avenue	Bristol Street NB to Bristol Street SB		NB	6D	22,900	0.39	A	24,400	0.42	A	6D	23,700	0.41	A
67	Irvine Avenue	Bristol Street SB to Mesa Drive		NB	6D	21,400	0.37	A	24,200	0.42	A	6D	24,200	0.42	A
2768	Irvine Avenue	South of University Drive		NB	4D	22,300	0.56	A	22,500	0.56	A	4D	22,400	0.56	A
156	Jamboree Road	South of MacArthur Boulevard		NB	8D	28,800	0.42	A	31,000	0.46	A	8D	30,100	0.44	A
1856	Jamboree Road	Bristol Street SB to Bristol Street NB		NB	8D	40,300	0.59	A	46,600	0.69	B	8D	46,600	0.69	B
157	Jamboree Road	South of Bristol Street		NB	6D	36,000	0.62	B	37,400	0.64	B	6D	37,500	0.65	B
159	Jamboree Road	University Drive to Bison Avenue		NB	6D	35,100	0.61	B	36,000	0.62	B	6D	36,100	0.62	B
1777	Jamboree Road	Bison Avenue to Ford Road		NB	6D	28,500	0.49	A	29,400	0.51	A	6D	29,500	0.51	A
73	MacArthur Boulevard	Campus Drive to Birch Street		NB	8D	24,100	0.35	A	24,500	0.36	A	8D	24,700	0.36	A
75	MacArthur Boulevard	South of Birch Street		NB	6D	25,500	0.44	A	26,400	0.46	A	6D	26,100	0.45	A
914	MacArthur Boulevard	Von Karman Avenue to Jamboree Road		NB	6D	25,900	0.45	A	27,500	0.47	A	6D	27,700	0.48	A
953	MacArthur Boulevard	University Drive to Bison Avenue		NB	6D	46,400	0.80	C	47,100	0.81	D	6D	47,200	0.81	D
1301	MacArthur Boulevard	Bison Avenue to Ford Road		NB	8D	78,100	1.15	F	78,900	1.16	F	8D	79,000	1.16	F
2767	University Drive	East of Irvine Avenue		NB	2U	1,400	0.14	A	1,400	0.14	A	2U	1,300	0.13	A
1774	University Drive	Jamboree Road to MacArthur Boulevard		NB	5D	19,200	0.40	A	19,300	0.40	A	5D	19,300	0.40	A
112	Von Karman Avenue	South of Campus Drive		NB	4D	11,900	0.30	A	13,000	0.33	A	4D	13,800	0.35	A
113	Von Karman Avenue	South of Birch Street		NB	4D	12,800	0.32	A	14,000	0.35	A	4D	14,800	0.37	A
2795	Dyer Road	Main Street to Halladay Street		SA	6D	30,900	0.55	A	32,000	0.57	A	6D	31,800	0.56	A
2799	Dyer Road	Halladay Street to SR-55 SB		SA	6D	33,500	0.60	A	35,300	0.63	B	6D	30,300	0.54	A
1326	Dyer Road	SR-55 SB to SR-55 NB		SA	6D	46,000	0.82	D	49,100	0.87	D	6D	43,300	0.77	C
734	Dyer Road	SR-55 NB to Pullman Street		SA	6D	32,100	0.57	A	34,500	0.61	B	6D	29,900	0.53	A



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ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Arterial Segment Classification (MPAH Network)	Post-2030 Cumulative With Project (MPAH)		
						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
2764	Grand Avenue	Warner Avenue to Hotel Terrace Drive		SA	6D	23,000	0.41	A	24,200	0.43	A	6D	22,900	0.41	A
2806	Grand Avenue	Hotel Terrace Drive to SR-55 NB		SA	6D	21,500	0.38	A	22,500	0.40	A	6D	21,500	0.38	A
2800	Halladay Street	Dyer Road to Alton Avenue		SA	2U	4,900	0.41	A	5,400	0.45	A	2U	10,100	0.84	D
2822	Halladay Street	Alton Avenue to McGaw Avenue(Columbine)		SA	2U	1,600	0.13	A	1,700	0.14	A	2U	3,300	0.28	A
2805	MacArthur Boulevard	Flower Street to Main Street		SA	6D	35,800	0.64	B	37,700	0.67	B	6D	39,200	0.70	B
1884	MacArthur Boulevard	Main Street to SR-55 SB		SA	6D	51,000	0.91	E	52,800	0.94	E	6D	47,000	0.83	D
2796	Main Street	Segerstrom Avenue to Alton Avenue		SA	6D	25,300	0.45	A	26,000	0.46	A	6D	28,900	0.51	A
2826	Main Street	Alton Avenue to McGaw Avenue(Columbine)		SA	6D	28,500	0.51	A	29,500	0.52	A	6D	28,800	0.51	A
2809	Main Street	McGaw(Columbine) to MacArthur Boulevard		SA	6D	29,800	0.53	A	30,900	0.55	A	6D	29,500	0.52	A
2811	Main Street	MacArthur Boulevard to Sunflower Avenue		SA	6D	31,700	0.56	A	32,900	0.58	A	6D	30,100	0.53	A
2823	McGaw Avenue (Alton)	Main Street to Halladay Street		SA	4D	3,900	0.10	A	3,900	0.10	A	4D	13,900	0.37	A
2736	Segerstrom Avenue	Bristol Street to Flower Street		SA	6D	15,600	0.28	A	16,100	0.29	A	6D	16,300	0.29	A
2771	Segerstrom Avenue	Flower Street to Main Street		SA	6D	23,600	0.42	A	24,300	0.43	A	6D	24,700	0.44	A
2763	Warner Avenue	Grand Avenue to SR-55		SA	6D	34,500	0.61	B	35,600	0.63	B	6D	31,500	0.56	A
2761	Sunflower Avenue	Bristol Street to Flower Street		SA/CM	6D	42,000	0.75	C	43,700	0.78	C	6D	42,800	0.76	C
2759	Sunflower Avenue	Flower Street to Anton Boulevard		SA/CM	6D	19,600	0.35	A	21,400	0.38	A	6D	20,300	0.36	A
2757	Sunflower Avenue	Anton Boulevard to Main Street		SA/CM	6D	21,900	0.39	A	24,400	0.43	A	6D	23,600	0.42	A
1198	Browning Avenue	Walnut Avenue to I-5		Tus	4U	6,200	0.25	A	6,400	0.26	A	4U	6,400	0.26	A
534	Bryan Avenue	Newport Boulevard to Red Hill Avenue		Tus	4U	18,800	0.75	C	19,000	0.76	C	4U	18,900	0.76	C
535	Bryan Avenue	Red Hill Avenue to Browning		Tus	4U	18,600	0.74	C	18,700	0.75	C	4U	18,600	0.74	C
536	Bryan Avenue	Browning Avenue to Tustin Ranch Road		Tus	4D	21,100	0.56	A	21,200	0.57	A	4D	21,000	0.56	A
537	Bryan Avenue	Tustin Ranch Road to Jamboree Road		Tus	4D	21,800	0.58	A	21,900	0.58	A	4D	21,700	0.58	A
44	Edinger Avenue	West of Newport Avenue		Tus	6D	52,300	0.93	E	52,800	0.94	E	6D	50,700	0.90	D
663	Edinger Avenue	Newport Avenue to Red Hill Avenue		Tus	6D	25,900	0.46	A	26,300	0.47	A	6D	25,500	0.45	A
665	Edinger Avenue	Red Hill Avenue and Tustin Ranch Road		Tus	6D	31,300	0.56	A	31,900	0.57	A	6D	30,500	0.54	A
1202	El Camino Real	Newport Avenue to Red Hill Avenue		Tus	4U	14,400	0.58	A	14,700	0.59	A	4U	14,600	0.58	A
938	El Camino Real	Red Hill Avenue to Browning Avenue		Tus	4U	9,000	0.36	A	9,000	0.36	A	4U	9,000	0.36	A
1740	El Camino Real	Browning Avenue to Tustin Ranch Road		Tus	4U	9,800	0.39	A	9,900	0.40	A	4U	9,700	0.39	A
1205	El Camino Real	Tustin Ranch Road to Jamboree Road		Tus	4D	15,900	0.42	A	16,000	0.43	A	4D	15,800	0.42	A
672	Irvine Center Drive (Edinger)	Tustin Ranch Road to Jamboree Road		Tus	6D	27,600	0.49	A	28,200	0.50	A	6D	27,200	0.48	A
674	Irvine Center Drive	Jamboree Road to Harvard Avenue		Tus	6D	18,500	0.33	A	18,800	0.33	A	6D	18,500	0.33	A
2777	Mitchell Avenue	Newport Avenue to Red Hill Avenue		Tus	2U	8,200	0.66	B	8,000	0.64	B	2U	7,900	0.63	B
2775	Mitchell Avenue	Red Hill Avenue to Browning Avenue		Tus	2U	5,800	0.46	A	5,700	0.46	A	2U	5,800	0.46	A



Table 7.8: Post-2030 With Project (MPAH Network) Daily Arterial LOS

ID	Arterial	Segment Limits	PA 36	Jurisdiction	Post-2030 Arterial Segment Classification	Post-2030 No Project			Post-2030 With Vision Plan Project			Post-2030 Arterial Segment Classification (MPAH Network)	Post-2030 Cumulative With Project (MPAH)		
						Volume	V/C	LOS	Volume	V/C	LOS		Volume	V/C	LOS
6	Newport Avenue	El Camino Real to I-5		Tus	6D	37,000	0.66	B	37,500	0.67	B	6D	37,400	0.66	B
7	Newport Avenue	I-5 to Mitchell Avenue		Tus	6D	40,100	0.71	C	40,600	0.72	C	6D	40,400	0.72	C
48	Newport Avenue	Mitchell Avenue to McFadden Avenue		Tus	6D	39,100	0.69	B	39,900	0.71	C	6D	39,600	0.70	B
49	Newport Avenue	North of Sycamore Avenue		Tus	6D	22,800	0.40	A	23,400	0.42	A	6D	23,100	0.41	A
1585	Newport Avenue	Valencia Avenue to Edinger Avenue		Tus	4U	34,600	1.38	F	35,300	1.41	F	4U	34,700	1.39	F
1351	Nisson Road	Newport Avenue to Red Hill Avenue		Tus	2U	6,000	0.48	A	6,000	0.48	A	2U	5,900	0.47	A
939	Nisson Road	Red Hill Avenue to Browning Avenue		Tus	2U	5,200	0.42	A	5,200	0.42	A	2U	5,100	0.41	A
1355	Red Hill Avenue	I-5 NB Ramps to El Camino Real		Tus	6D	43,200	0.77	C	43,200	0.77	C	6D	43,200	0.77	C
1354	Red Hill Avenue	I-5 SB Ramps to I-5 NB Ramps		Tus	6D	39,000	0.69	B	39,000	0.69	B	6D	39,000	0.69	B
21	Red Hill Avenue	Nisson Road to I-5 SB		Tus	6D	38,200	0.68	B	38,200	0.68	B	6D	38,200	0.68	B
1353	Red Hill Avenue	Nisson Road to Mitchell Avenue		Tus	6D	26,700	0.47	A	26,700	0.47	A	6D	26,700	0.47	A
22	Red Hill Avenue	Mitchell Avenue to Walnut Avenue		Tus	6D	26,000	0.46	A	26,500	0.47	A	6D	26,600	0.47	A
23	Red Hill Avenue	Walnut Avenue to Sycamore Avenue		Tus	6D	27,500	0.49	A	27,500	0.49	A	6D	27,500	0.49	A
24	Red Hill Avenue	Sycamore Avenue to Edinger Avenue		Tus	6D	30,000	0.53	A	30,000	0.53	A	6D	30,000	0.53	A
25	Red Hill Avenue	Edinger Avenue to Valencia Avenue		Tus	6D	28,300	0.50	A	29,000	0.52	A	8D	30,800	0.41	A
26	Red Hill Avenue	Valencia Avenue to Warner Avenue		Tus	6D	31,600	0.56	A	33,400	0.59	A	8D	35,900	0.48	A
30	Red Hill Avenue	Warner Avenue to Barranca Parkway/Dyer		Tus	7D	31,800	0.48	A	34,400	0.52	A	8D	36,200	0.48	A
1363	Sycamore Avenue	SR-55 NB to Newport Avenue		Tus	4U	7,400	0.30	A	7,500	0.30	A	4U	7,300	0.29	A
1920	Sycamore Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	8,400	0.34	A	8,500	0.34	A	4U	8,200	0.33	A
85	Tustin Ranch Road	North of I-5		Tus	6D	38,500	0.68	B	38,300	0.68	B	6D	38,300	0.68	B
86	Tustin Ranch Road	I-5 to Walnut Avenue		Tus	6D	36,600	0.65	B	36,900	0.66	B	6D	36,700	0.65	B
2173	Valencia Avenue	Newport Avenue to Red Hill Avenue		Tus	4U	15,900	0.64	B	16,500	0.66	B	4U	15,600	0.62	B
587	Walnut Avenue	East of Newport Avenue		Tus	4U	20,800	0.83	D	21,000	0.84	D	4U	20,400	0.82	D
589	Walnut Avenue	East of Red Hill Avenue		Tus	4D	17,400	0.46	A	17,500	0.47	A	4D	17,300	0.46	A
590	Walnut Avenue	West of Tustin Ranch Road		Tus	4D	22,500	0.60	A	22,700	0.61	B	4D	22,400	0.60	A
1366	Walnut Avenue	Franklin Avenue to Myford Road		Tus	4D	21,000	0.56	A	21,200	0.57	A	4D	20,800	0.55	A
1478	Warner Avenue	SR-55 to Red Hill Avenue		Tus	6D	34,300	0.61	B	35,900	0.64	B	6D	31,100	0.55	A

7.11 Post-2030 With Project (MPAH Network) Peak Hour Link Analysis

Peak hour directional traffic volumes were obtained from forecast peak hour turning movement volumes for intersections upstream and downstream for each deficient arterial segment. **Table 7.9** presents the results of peak hour link analysis, indicating that all arterial segments in Irvine that are deficient under daily conditions operate at an acceptable LOS in both peak hours, performing at LOS D or better, and hence no mitigation measures are recommended.



Table 7.9: Post-2030 With Project (MPAH Network) Peak Hour Link Analysis

ID	Arterial	Segment Limits	Facility Type	Peak Hour Volume				AM Peak Hour				PM Peak Hour			
				AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
				NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
770	Alton Parkway	Daimler Street to Red Hill Avenue	4D	1,640	1,650	1,690	1,530	0.51	A	0.41	A	0.53	A	0.38	A
879	Campus Drive	Carlson Avenue to University	4U	1,360	1,600	1,890	1,550	0.43	A	0.40	A	0.59	A	0.39	A
726	Culver Drive	I-5 NB Ramps to I-5 SB Ramps	Maj5D+1 AUX	1,760	2,560	3,040	1,760	0.37	A	0.64	B	0.63	B	0.44	A
213	Culver Drive	I-5 SB Off-Ramp to Scottsdale Drive	6D	1,470	2,560	2,320	2,420	0.31	A	0.53	A	0.48	A	0.50	A
214	Culver Drive	Scottsdale Drive to Walnut Avenue	6D	1,470	2,640	2,490	2,150	0.31	A	0.55	A	0.52	A	0.45	A
219	Culver Drive	Barranca Parkway to Alton Parkway	6D	1,300	2,550	2,580	1,620	0.27	A	0.46	A	0.54	A	0.29	A
220	Culver Drive	Alton Parkway to Main Street	6D	1,410	2,760	2,720	1,950	0.29	A	0.58	A	0.57	A	0.41	A
221	Culver Drive	Main Street to San Leandro	6D	1,370	2,790	2,590	1,880	0.29	A	0.58	A	0.54	A	0.39	A
222	Culver Drive	San Leandro to I-405 NB On-Ramp	6D	1,330	2,130	2,800	1,870	0.28	A	0.44	A	0.58	A	0.39	A
224	Culver Drive	I-405 SB On-Ramp to Michelson Drive	6D	1,410	2,300	2,440	1,760	0.29	A	0.48	A	0.51	A	0.37	A
130	Jamboree Road	El Camino Real to I-5 NB On-Ramp	Maj7D+1 AUX	1,850	2,320	3,620	2,170	0.29	A	0.41	A	0.57	A	0.39	A
958	Jamboree Road	I-5 NB Ramps to I-5 SB Off-Ramp	8D	1,940	2,880	3,220	2,160	0.30	A	0.45	A	0.50	A	0.34	A
133	Jamboree Road	Michelle Drive to Walnut Avenue	5D	1,840	2,040	3,340	1,270	0.38	A	0.64	B	0.70	B	0.40	A
148	Jamboree Road	I-405 On-Ramp to Michelson Drive	Maj8D+2 AUX	2,380	3,840	4,290	3,680	0.33	A	0.53	A	0.60	A	0.51	A
149	Jamboree Road	Michelson Drive to Dupont Drive	7D	1,910	3,250	3,240	2,740	0.30	A	0.68	B	0.51	A	0.57	A
151	Jamboree Road	Campus Drive to Birch Street	6D	1,860	2,660	2,720	2,700	0.39	A	0.55	A	0.57	A	0.56	A

7.12 Post-2030 With Project (MPAH Network) Peak Hour Intersection Analysis

The ICU analysis was performed for every intersection within the study area for the Post-2030 With Project (MPAH Network) scenario. The intersection analysis includes both a reporting of intersection ICU and the corresponding LOS and is displayed in **Table 7.10**, while detailed intersection ICU worksheets are presented in **Appendix B**. For shared jurisdictions, the more conservative methodology was utilized. Deficient intersections are discussed later in the chapter. **Figure 7.12** and **Figure 7.13** graphically present the AM and PM peak hour intersection ICU for deficient intersections for the Post-2030 With Project (MPAH Network) scenario.

When comparing the results of this analysis to that of the IBC Vision Plan buildout, there are five additional intersection deficiencies and five locations where the intersections become acceptable. This indicates that the buildout of the unfunded 1992 IBC EIR improvements does not provide relief to the overall circulation system within the study area. Instead, traffic shifts from one facility to another. Clearly, Von Karman Avenue is attracting a greater share of overall traffic as evidenced by the two additional deficient intersections. Additionally, two locations along Red Hill Avenue deteriorate with this network assumption. It should be noted that most of the deficient locations in Irvine and Santa Ana appear to be the result of increased traffic in the vicinity of Alton Parkway at SR-55. This scenario assumes a network that includes an overcrossing of SR-55 on Alton Parkway with High Occupancy Vehicle (HOV) drop-ramps (an unfunded 1992 IBC Rezone improvements). Based on the Post-2030 With Project (MPAH Network) intersection ICU analysis, the following intersections are forecast to operate at a deficient LOS:

AM Peak Hour:

- o #10: SR-55 Frontage Road Southbound Ramps at Paularino Avenue (Costa Mesa)
- o #12: SR-55 Southbound Frontage Road at Baker Street (Costa Mesa)



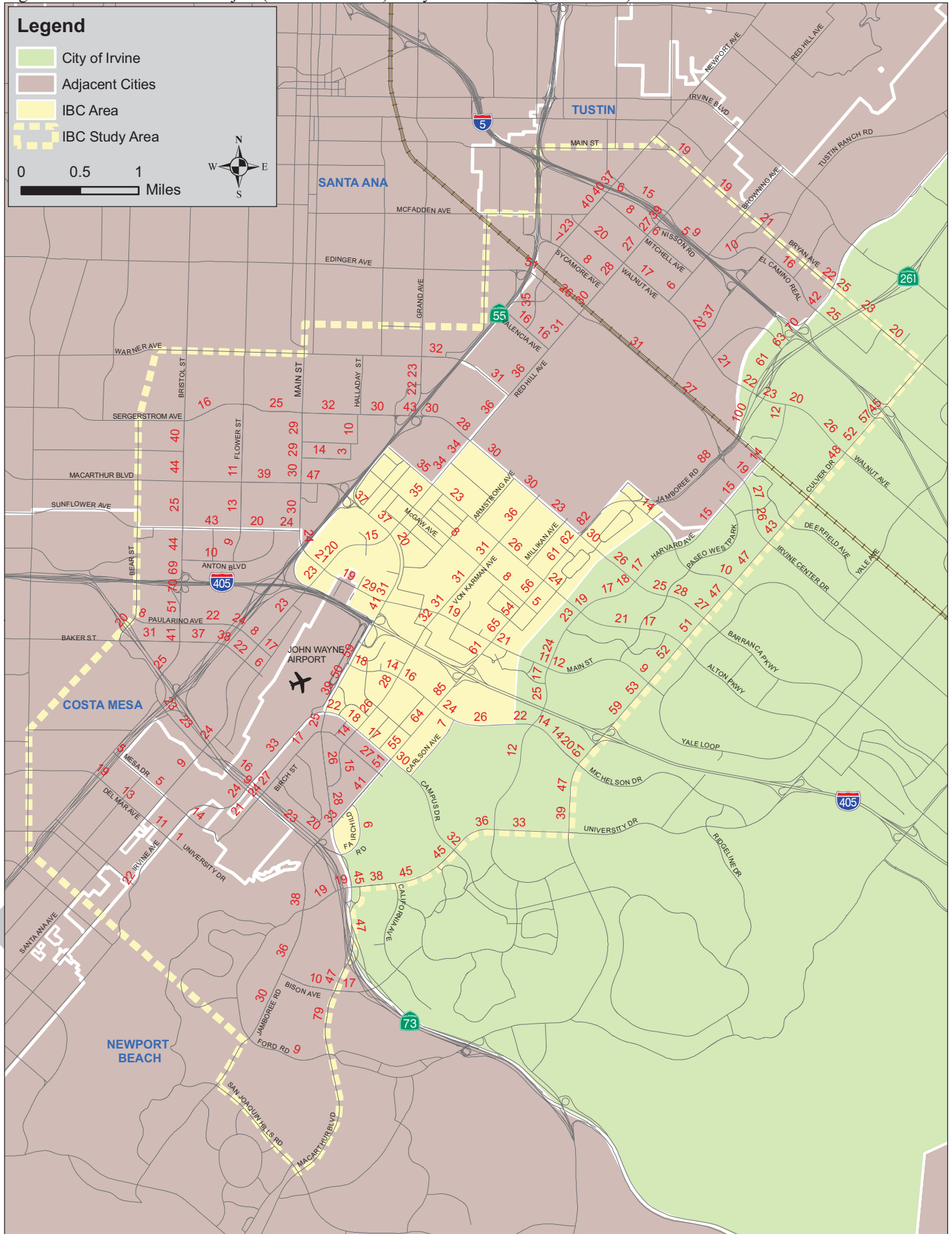
- #13: SR-55 Northbound Frontage Road at Baker Street (Costa Mesa)
- #24: Newport Avenue at Walnut Avenue (Tustin)
- #93: Tustin Ranch Road at El Camino Real (Tustin)

PM Peak Hour:

- #50: Red Hill Avenue at Paularino Avenue (Costa Mesa)*
- #51: Red Hill Avenue at Baker Street (Costa Mesa)*
- #98: Von Karman Avenue at Alton Parkway (Irvine)*
- #102: Von Karman Avenue at Michelson Drive (Irvine)*
- #145: Jamboree Road at Michelson Drive (Irvine)
- #188: Harvard Avenue at Michelson Drive (Irvine)
- #232: Culver Drive at I-405 Northbound Ramps (Irvine)
- #134: Loop Road/Park Avenue at Warner Avenue (Irvine/Tustin)
- #136: Jamboree Road at Barranca Avenue (Irvine/Tustin)
- #85: MacArthur Boulevard at Birch Street (Newport Beach)
- #44: Red Hill Avenue at Alton Parkway (Irvine/Santa Ana)*
- #543: Bristol Street at Segerstrom Avenue (Santa Ana)
- #723: Main Street at Dyer Road (Segerstrom Avenue) (Santa Ana)
- #728: Halladay Street East at Alton Parkway (Santa Ana)*
- #24: Newport Avenue at Walnut Avenue (Tustin)
- #111: Franklin Avenue at Walnut Avenue (Tustin)

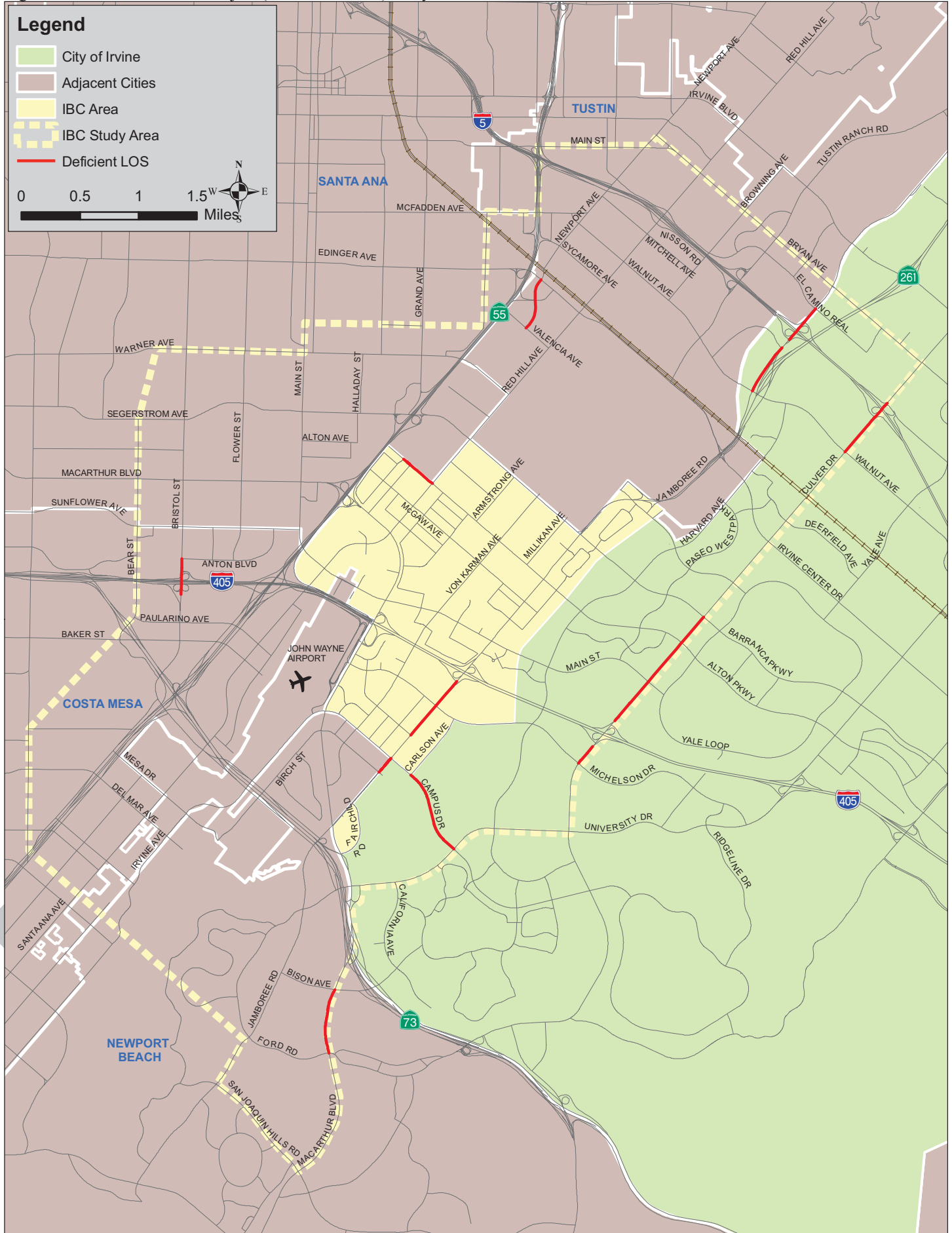
* Note: Only deficient under MPAH Buildout scenario

Figure 7.10: Post-2030 With Project (MPAH Network) Daily Arterial ADT (in thousands)



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Figure 7.11: Post-2030 With Project (MPAH Network) Daily Arterial Deficiencies



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Table 7.10: Post-2030 With Project (MPAH Network) Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 With Project MPAH & Adjacent Cities' General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
10	SR-55 Frontage Road SB Ramps at Paularino			CM	1.02	F	0.66	B	1.02	F	0.67	B	1.01	F	0.66	B
11	SR-55 Frontage Road NB Ramps at Paularino			CM	0.78	C	0.83	D	0.79	C	0.85	D	0.76	C	0.80	C
12	SR-55 SB Frontage Road at Baker Street			CM	1.18	F	0.76	C	1.19	F	0.78	C	1.17	F	0.77	C
13	SR-55 NB Frontage Road at Baker Street			CM	1.01	F	0.82	D	1.02	F	0.86	D	1.01	F	0.83	D
50	Red Hill Avenue at Paularino Avenue			CM	0.70	B	0.84	D	0.71	C	0.88	D	0.73	C	0.91	E
51	Red Hill Avenue at Baker Street			CM	0.67	B	0.86	D	0.68	B	0.90	D	0.69	B	0.92	E
52	Red Hill Avenue at Bristol Street			CM	0.73	C	0.53	A	0.76	C	0.55	A	0.76	C	0.53	A
541	Bear Street at Baker Street			CM	0.76	C	0.68	B	0.78	C	0.70	B	0.77	C	0.70	B
542	Bear Street at Paularino Avenue			CM	0.45	A	0.65	B	0.45	A	0.67	B	0.45	A	0.64	B
545	Bristol Street at Sunflower Avenue			CM	0.67	B	0.79	C	0.68	B	0.79	C	0.66	B	0.79	C
546	Bristol Street at Anton Boulevard			CM	0.43	A	0.71	C	0.44	A	0.72	C	0.43	A	0.71	C
547	Bristol Street and Paularino Avenue			CM	0.64	B	0.85	D	0.65	B	0.86	D	0.64	B	0.83	D
548	Bristol Street at Baker Street			CM	0.60	A	0.73	C	0.61	B	0.75	C	0.62	B	0.73	C
549	Newport Boulevard SB at Bristol Street			CM	0.25	A	0.50	A	0.25	A	0.52	A	0.24	A	0.52	A
550	Newport Boulevard NB at Bristol Street			CM	0.32	A	0.40	A	0.32	A	0.42	A	0.32	A	0.40	A
715	Bristol Street at I-405 NB Off Ramps			CM	0.49	A	0.68	B	0.49	A	0.70	B	0.48	A	0.68	B
716	Bristol Street at I-405 SB Off Ramps			CM	0.71	C	0.69	B	0.70	B	0.70	B	0.69	B	0.69	B
717	Bear Street at SR-73 SB Ramps			CM	0.56	A	0.88	D	0.58	A	0.89	D	0.56	A	0.89	D
718	Bear Street at SR-73 NB Ramps			CM	0.40	A	0.66	B	0.42	A	0.68	B	0.41	A	0.67	B
721	Flower Street at Sunflower Avenue			CM	0.42	A	0.54	A	0.43	A	0.57	A	0.42	A	0.54	A
722	Anton Boulevard at Sunflower Avenue			CM	0.39	A	0.35	A	0.40	A	0.40	A	0.41	A	0.41	A
726	Main Street at Sunflower Avenue			CM	0.59	A	0.75	C	0.66	B	0.80	C	0.55	A	0.78	C
735	Newport Boulevard NB at Del Mar Avenue			CM	0.66	B	0.50	A	0.67	B	0.50	A	0.67	B	0.51	A
736	Newport Boulevard SB at Fair Drive/Del Mar Avenue			CM	0.41	A	0.52	A	0.42	A	0.53	A	0.41	A	0.53	A
737	Newport Boulevard NB at Mesa Road			CM	0.29	A	0.32	A	0.28	A	0.33	A	0.28	A	0.33	A
738	Newport Boulevard SB at Mesa Road			CM	0.22	A	0.60	A	0.22	A	0.61	B	0.22	A	0.60	A
45	Red Hill Avenue at McGaw Avenue	a		Irv	0.57	A	0.69	B	0.65	B	0.76	C	0.60	A	0.70	B
47	Red Hill Avenue at MacArthur Avenue	a		Irv	0.74	C	0.82	D	0.83	D	0.91	E	0.67	B	0.80	C
48	Red Hill Avenue at Sky Park North	a		Irv	0.41	A	0.58	A	0.45	A	0.63	B	0.39	A	0.59	A
49	Red Hill Avenue at Main Street	a		Irv	0.73	C	0.82	D	0.79	C	0.86	D	0.65	B	0.76	C
70	Gillette Avenue at Main Street	a		Irv	0.38	A	0.73	C	0.47	A	0.77	C	0.41	A	0.78	C
77	MacArthur Boulevard at Sky Park East	a		Irv	0.30	A	0.41	A	0.32	A	0.43	A	0.33	A	0.39	A
78	MacArthur Boulevard at Main Street	a		Irv	0.60	A	0.80	C	0.69	B	0.91	E	0.63	B	0.84	D
79	MacArthur Boulevard at I-405 NB Ramps	a		Irv	0.70	B	0.70	B	0.80	C	0.75	C	0.74	C	0.75	C



Table 7.10: Post-2030 With Project (MPAH Network) Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 With Project MPAH & Adjacent Cities' General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
80	MacArthur Boulevard at I-405 SB Ramps	a		Irv	0.60	A	0.74	C	0.66	B	0.83	D	0.65	B	0.80	C
82	MacArthur Boulevard at Michelson Drive	a		Irv	0.65	B	0.85	D	0.70	B	0.95	E	0.61	B	0.89	D
83	MacArthur Boulevard at Douglas Avenue	a		Irv	0.39	A	0.43	A	0.47	A	0.55	A	0.49	A	0.57	A
87	Dupont Drive at Michelson Drive	a		Irv	0.39	A	0.43	A	0.50	A	0.56	A	0.44	A	0.51	A
98	Von Karman Avenue at Alton Parkway	a		Irv	0.69	B	0.89	D	0.77	C	0.95	E	0.94	E	1.03	F
99	Von Karman Avenue at McGaw Avenue	a		Irv	0.62	B	0.81	D	0.72	C	0.91	E	0.74	C	0.87	D
100	Von Karman Avenue at Main Street	a		Irv	0.71	C	0.80	C	0.84	D	0.88	D	0.76	C	0.87	D
101	Von Karman Avenue at Morse Avenue	a		Irv	0.48	A	0.60	A	0.58	A	0.68	B	0.52	A	0.68	B
102	Von Karman Avenue at Michelson Drive	a		Irv	0.61	B	0.83	D	0.72	C	0.94	E	0.95	E	1.08	F
103	Von Karman Avenue at Dupont Drive	a		Irv	0.46	A	0.57	A	0.61	B	0.72	C	0.68	B	0.73	C
104	Von Karman Avenue at Martin	a		Irv	0.38	A	0.60	A	0.47	A	0.69	B	0.52	A	0.70	B
115	Millikan Avenue at Alton Parkway	a		Irv	0.42	A	0.44	A	0.46	A	0.48	A	0.58	A	0.53	A
116	Cartwright Road at Main Street	a		Irv	0.36	A	0.57	A	0.46	A	0.69	B	0.40	A	0.60	A
119	Teller Avenue at Michelson Drive	a		Irv	0.49	A	0.57	A	0.62	B	0.71	C	0.64	B	0.74	C
128	Jamboree Road at I-5 NB Ramps	b		Irv	0.67	B	0.73	C	0.65	B	0.72	C	0.66	B	0.73	C
129	Jamboree Road at I-5 SB Ramps	b		Irv	0.68	B	0.63	B	0.65	B	0.62	B	0.66	B	0.62	B
130	Jamboree Road at Michelle Drive			Irv	0.76	C	0.71	C	0.80	C	0.70	B	0.80	C	0.70	B
131	Jamboree Road SB at Walnut Avenue			Irv	0.47	A	0.55	A	0.48	A	0.57	A	0.47	A	0.58	A
132	Jamboree Road NB at Walnut Avenue			Irv	0.57	A	0.72	C	0.58	A	0.73	C	0.58	A	0.74	C
137	Jamboree Road at Beckman Avenue	a		Irv	0.69	B	0.75	C	0.73	C	0.78	C	0.67	B	0.70	B
138	Jamboree Road at Alton Parkway	a		Irv	0.78	C	0.80	C	0.82	D	0.83	D	0.94	E	0.95	E
139	Jamboree Road at McGaw Avenue	a		Irv	0.62	B	0.70	B	0.70	B	0.74	C	0.63	B	0.74	C
140	Jamboree Road at Kelvin Avenue	a		Irv	0.64	B	0.64	B	0.84	D	0.74	C	0.80	C	0.70	B
141	Jamboree Road at Main Street	a		Irv	0.82	D	0.92	E	0.92	E	1.02	F	0.89	D	0.97	E
143	Jamboree Road at I-405 NB Ramps	a,b		Irv	0.65	B	0.84	D	0.71	C	0.95	E	0.63	B	0.73	C
144	Jamboree Road at I-405 SB Ramps	a,b		Irv	0.80	C	0.88	D	0.91	E	0.97	E	0.85	D	0.89	D
145	Jamboree Road at Michelson Drive	a		Irv	0.74	C	1.05	F	0.81	D	1.26	F	0.83	D	1.17	F
146	Jamboree Road at Dupont Road	a		Irv	0.69	B	0.73	C	0.74	C	0.85	D	0.74	C	0.87	D
164	Construction Circle South at Barranca Parkway	a		Irv	0.44	A	0.61	B	0.45	A	0.68	B	0.46	A	0.66	B
168	Murphy Avenue at Alton Parkway	a		Irv	0.43	A	0.71	C	0.48	A	0.79	C	0.56	A	0.80	C
170	Union at Main Street	a		Irv	0.37	A	0.56	A	0.41	A	0.62	B	0.37	A	0.60	A
171	Veneto at Main Street			Irv	0.37	A	0.52	A	0.39	A	0.55	A	0.37	A	0.51	A
174	Carlson Avenue at Michelson Drive	a		Irv	0.49	A	0.61	B	0.69	B	0.79	C	0.69	B	0.79	C
175	Carlson Avenue at Campus Drive	a		Irv	0.69	B	0.74	C	0.74	C	0.85	D	0.73	C	0.86	D
180	Harvard Avenue at Walnut Avenue			Irv	0.54	A	0.53	A	0.54	A	0.54	A	0.54	A	0.55	A
183	Harvard Avenue at Warner Avenue			Irv	0.68	B	0.71	C	0.69	B	0.73	C	0.66	B	0.71	C
184	Harvard Avenue at Barranca Parkway			Irv	0.61	B	0.68	B	0.63	B	0.70	B	0.60	A	0.69	B
185	Harvard Avenue at Alton Parkway			Irv	0.63	B	0.74	C	0.65	B	0.75	C	0.71	C	0.75	C



Table 7.10: Post-2030 With Project (MPAH Network) Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 With Project MPAH & Adjacent Cities' General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
186	Harvard Avenue at Main Street			Irv	0.55	A	0.74	C	0.60	A	0.79	C	0.58	A	0.70	B
187	Harvard Avenue at Coronado			Irv	0.53	A	0.57	A	0.58	A	0.58	A	0.56	A	0.57	A
188	Harvard Avenue at Michelson Drive			Irv	0.64	B	0.91	E	0.71	C	0.91	E	0.67	B	0.92	E
189	Harvard Avenue at University Drive			Irv	0.82	D	0.80	C	0.86	D	0.85	D	0.85	D	0.84	D
190	University Drive at Campus Drive		√	Irv	0.77	C	0.79	C	0.79	C	0.84	D	0.78	C	0.83	D
191	Mesa Road at University Drive			Irv	0.48	A	0.79	C	0.49	A	0.81	D	0.49	A	0.81	D
192	California Avenue at University Drive			Irv	0.83	D	0.85	D	0.83	D	0.90	D	0.84	D	0.89	D
193	MacArthur Boulevard NB at University Drive			Irv	0.66	B	0.70	B	0.67	B	0.73	C	0.67	B	0.73	C
196	Hearthstone Boulevard at Irvine Center Drive			Irv	0.67	B	0.66	B	0.67	B	0.67	B	0.67	B	0.67	B
198	Paseo Westpark at Warner Avenue			Irv	0.58	A	0.48	A	0.58	A	0.48	A	0.58	A	0.49	A
199	Paseo Westpark at Barranca Parkway			Irv	0.54	A	0.60	A	0.52	A	0.61	B	0.53	A	0.61	B
200	Paseo Westpark at Alton Parkway			Irv	0.55	A	0.59	A	0.57	A	0.63	B	0.58	A	0.62	B
201	Paseo Westpark at Main Street			Irv	0.61	B	0.52	A	0.62	B	0.53	A	0.61	B	0.54	A
221	Culver Drive at Bryan Avenue			Irv	0.89	D	0.74	C	0.89	D	0.76	C	0.89	D	0.75	C
222	Culver Drive at Trabuco Road			Irv	0.78	C	0.77	C	0.78	C	0.77	C	0.76	C	0.77	C
223	Culver Drive at I-5 SB Ramps			Irv	0.60	A	0.65	B	0.60	A	0.65	B	0.60	A	0.65	B
224	Culver Drive at Walnut Avenue		√	Irv	0.76	C	0.83	D	0.76	C	0.83	D	0.76	C	0.83	D
225	Culver Drive at Deerfield Drive			Irv	0.80	C	0.84	D	0.81	D	0.85	D	0.80	C	0.85	D
226	Culver Drive at Irvine Center Drive		√	Irv	0.72	C	0.66	B	0.73	C	0.66	B	0.72	C	0.66	B
227	Culver Drive at Warner Avenue			Irv	0.80	C	0.63	B	0.82	D	0.66	B	0.80	C	0.65	B
228	Culver Drive at Barranca Parkway		√	Irv	0.83	D	0.73	C	0.85	D	0.75	C	0.84	D	0.76	C
229	Culver Drive at Alton Parkway		√	Irv	0.76	C	0.80	C	0.77	C	0.83	D	0.79	C	0.83	D
230	Culver Drive at Main Street			Irv	0.72	C	0.71	C	0.72	C	0.73	C	0.70	B	0.71	C
231	Culver Drive at San Leandro			Irv	0.79	C	0.59	A	0.81	D	0.61	B	0.78	C	0.58	A
232	Culver Drive at I-405 NB Ramps			Irv	0.56	A	0.92	E	0.56	A	0.95	E	0.55	A	0.92	E
233	Culver Drive at I-405 SB Ramps			Irv	0.55	A	0.62	B	0.58	A	0.65	B	0.57	A	0.61	B
234	Culver Drive at Michelson Drive			Irv	0.60	A	0.77	C	0.64	B	0.80	C	0.62	B	0.81	D
235	Culver Drive at University Drive		√	Irv	0.55	A	0.70	B	0.55	A	0.72	C	0.55	A	0.72	C
337	Von Karman Avenue at Quartz	a		Irv	0.57	A	0.73	C	0.62	B	0.77	C	0.92	E	0.90	D
439	Bixby at Michelson Drive			Irv	0.28	A	0.45	A	0.43	A	0.56	A	0.35	A	0.47	A
440	Siglo at Main Street			Irv	0.37	A	0.51	A	0.50	A	0.60	A	0.45	A	0.53	A
472	Obsidian at Michelson Drive	a		Irv	0.45	A	0.34	A	0.54	A	0.46	A	0.57	A	0.50	A
84	MacArthur Boulevard at Campus Drive	a		Irv/NB	0.62	B	0.68	B	0.66	B	0.73	C	0.65	B	0.70	B
105	Von Karman Avenue at Campus Drive	a		Irv/NB	0.56	A	0.87	D	0.62	B	0.90	D	0.72	C	0.92	E
121	Teller Avenue at Campus Drive	a		Irv/NB	0.39	A	0.50	A	0.47	A	0.56	A	0.49	A	0.56	A
147	Jamboree Road at Campus Drive	a		Irv/NB	0.77	C	0.73	C	0.87	D	0.76	C	0.87	D	0.79	C
149	Jamboree Road at Fairchild Road	a		Irv/NB	0.71	C	0.74	C	0.81	D	0.82	D	0.79	C	0.82	D
150	Jamboree Road at MacArthur Boulevard	a,b		Irv/NB	0.82	D	0.76	C	0.88	D	0.83	D	0.86	D	0.81	D
176	Fairchild Avenue at MacArthur Boulevard	a		Irv/NB	0.85	D	0.74	C	0.88	D	0.79	C	0.89	D	0.78	C
43	Red Hill Avenue at Deere Avenue	a		Irv/SA	0.48	A	0.72	C	0.54	A	0.78	C	0.43	A	0.68	B
44	Red Hill Avenue at Alton Parkway	a		Irv/SA	0.54	A	0.89	D	0.60	A	0.92	E	0.89	D	1.10	F
9	SR-55 NB Ramps at MacArthur Boulevard	a		Irv/SA	0.83	D	0.60	A	0.86	D	0.63	B	0.72	C	0.59	A



Table 7.10: Post-2030 With Project (MPAH Network) Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 With Project MPAH & Adjacent Cities' General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
42	Red Hill Avenue at Barranca Parkway/Dyer Road	a		Irv/SA/Tus	0.65	B	0.75	C	0.70	B	0.75	C	0.68	B	0.82	D
71	Armstrong Avenue at Barranca Avenue	a		Irv/Tus	0.44	A	0.49	A	0.50	A	0.53	A	0.47	A	0.53	A
97	Von Karman Avenue/Tustin Ranch Road at Barranca Parkway	a		Irv/Tus	0.55	A	0.73	C	0.57	A	0.79	C	0.69	B	0.67	B
112	Myford Road at Michelle Drive			Irv/Tus	0.31	A	0.44	A	0.29	A	0.42	A	0.30	A	0.42	A
113	Myford Road at Walnut Avenue			Irv/Tus	0.48	A	0.53	A	0.48	A	0.53	A	0.47	A	0.53	A
114	Millikan Avenue/District Way at Barranca Parkway	a		Irv/Tus	0.37	A	0.72	C	0.46	A	0.76	C	0.40	A	0.68	B
126	Jamboree Road at Bryan Avenue			Irv/Tus	0.72	C	0.64	B	0.72	C	0.63	B	0.72	C	0.64	B
127	Jamboree Road at El Camino Real			Irv/Tus	0.70	B	0.72	C	0.70	B	0.70	B	0.71	C	0.71	C
134	Loop Road/Park Avenue at Warner Avenue			Irv/Tus	0.43	A	1.05	F	0.48	A	1.07	F	0.48	A	1.05	F
136	Jamboree Road at Barranca Avenue	a		Irv/Tus	0.86	D	1.03	F	0.87	D	1.04	F	0.89	D	1.08	F
181	Harvard Avenue at Edinger Avenue-Irvine Center Drive			Irv/Tus	0.63	B	0.64	B	0.62	B	0.63	B	0.63	B	0.64	B
182	Harvard Avenue at Paseo Westpark/Moffett Drive			Irv/Tus	0.51	A	0.48	A	0.54	A	0.51	A	0.51	A	0.49	A
441	Loop Road at Jamboree Road SB Ramps			Irv/Tus	0.28	A	0.19	A	0.27	A	0.19	A	0.27	A	0.18	A
61	Campus Drive at Airport Way			NB	0.41	A	0.70	B	0.47	A	0.71	C	0.40	A	0.70	B
62	Campus Drive at Bristol Street NB			NB	0.72	C	0.92	E	0.76	C	0.95	E	0.70	B	0.90	D
63	Campus Drive at Bristol Street SB			NB	0.83	D	0.57	A	0.87	D	0.59	A	0.81	D	0.58	A
64	Birch Street at Bristol Street NB			NB	0.72	C	0.70	B	0.74	C	0.75	C	0.71	C	0.72	C
65	Birch Street at Bristol Street SB			NB	0.50	A	0.59	A	0.51	A	0.59	A	0.49	A	0.59	A
85	MacArthur Boulevard at Birch Street			NB	0.73	C	0.92	E	0.73	C	0.97	E	0.76	C	0.96	E
106	Von Karman Avenue at Birch Street			NB	0.48	A	0.62	B	0.48	A	0.68	B	0.52	A	0.69	B
107	Von Karman Avenue at MacArthur Boulevard			NB	0.35	A	0.53	A	0.37	A	0.56	A	0.40	A	0.56	A
148	Jamboree Road at Birch Street			NB	0.47	A	0.56	A	0.50	A	0.66	B	0.49	A	0.66	B
151	Jamboree Road at Bristol Street NB			NB	0.41	A	0.53	A	0.39	A	0.54	A	0.40	A	0.54	A
153	Jamboree Road at Bristol Street SB			NB	0.45	A	0.51	A	0.48	A	0.53	A	0.47	A	0.54	A
154	Jamboree Road at Eastbluff Drive			NB	0.61	B	0.60	A	0.62	B	0.61	B	0.62	B	0.61	B
155	Jamboree Road at Bison Avenue			NB	0.45	A	0.52	A	0.46	A	0.52	A	0.46	A	0.52	A
156	Jamboree Road at Ford Road			NB	0.63	B	0.74	C	0.63	B	0.75	C	0.63	B	0.75	C
178	MacArthur Boulevard at Bison Avenue			NB	0.62	B	0.71	C	0.62	B	0.72	C	0.63	B	0.72	C
179	MacArthur Boulevard at Ford Road			NB	0.69	B	0.71	C	0.67	B	0.70	B	0.67	B	0.70	B
194	MacArthur Boulevard SB at University Drive			NB	0.72	C	0.65	B	0.75	C	0.72	C	0.76	C	0.70	B
195	SR-73 SB Ramps at University Drive			NB	0.76	C	0.58	A	0.77	C	0.61	B	0.77	C	0.59	A
733	Irvine Avenue at Mesa Drive			NB/OC	0.51	A	0.71	C	0.51	A	0.73	C	0.53	A	0.72	C
734	Irvine Avenue at University Drive/Del Mar Avenue			NB/OC	0.47	A	0.58	A	0.49	A	0.60	A	0.48	A	0.59	A
741	Jamboree Road at San Joaquin Hills Road			NB	0.56	A	0.56	A	0.56	A	0.56	A	0.56	A	0.56	A
742	MacArthur Boulevard at San Joaquin Hills Road			NB	0.63	B	0.63	B	0.62	B	0.63	B	0.62	B	0.63	B



Table 7.10: Post-2030 With Project (MPAH Network) Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 With Project MPAH & Adjacent Cities' General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
4	SR-55 SB Ramps at Edinger Avenue	b		SA	0.74	C	0.73	C	0.75	C	0.76	C	0.72	C	0.71	C
5	Hotel Terrace Drive at Dyer Road			SA	0.59	A	0.66	B	0.61	B	0.69	B	0.53	A	0.61	B
6	Grand Avenue at Dyer Road			SA	0.56	A	0.64	B	0.57	A	0.69	B	0.48	A	0.62	B
7	SR-55 NB Ramps at Dyer Road			SA	0.85	D	0.86	D	0.88	D	0.89	D	0.76	C	0.53	A
8	SR-55 SB Ramps at MacArthur Boulevard	c		SA	0.76	C	0.61	B	0.79	C	0.62	B	0.68	B	0.59	A
29	Pullman Street at Barranca Parkway			SA	0.53	A	0.82	D	0.57	A	0.85	D	0.49	A	0.66	B
543	Bristol Street at Segerstrom Avenue			SA	0.85	D	0.95	E	0.90	D	0.97	E	0.88	D	0.98	E
544	Bristol Street at MacArthur Boulevard			SA	0.67	B	0.83	D	0.67	B	0.84	D	0.67	B	0.83	D
719	Flower Street at Segerstrom Avenue			SA	0.87	D	0.86	D	0.89	D	0.88	D	0.90	D	0.89	D
720	Flower Street at MacArthur Boulevard			SA	0.63	B	0.82	D	0.68	B	0.85	D	0.67	B	0.83	D
723	Main Street at Dyer Road (Segerstrom Avenue)			SA	0.81	D	0.89	D	0.86	D	0.91	E	0.90	D	0.98	E
724	Main Street at Alton Avenue			SA	0.36	A	0.49	A	0.38	A	0.52	A	0.55	A	0.71	C
725	Main Street and MacArthur Boulevard (w/o SR-55)	c		SA	0.61	B	0.60	A	0.64	B	0.62	B	0.62	B	0.61	B
727	Halladay Street at Dyer Road			SA	0.58	A	0.68	B	0.65	B	0.74	C	0.79	C	0.76	C
728	Halladay Street East at Alton Parkway			SA	0.21	A	0.31	A	0.27	A	0.37	A	1.01	F	0.94	E
729	Halladay Street West at Alton Parkway			SA	0.20	A	0.25	A	0.26	A	0.28	A	0.82	D	0.82	D
730	Grand Avenue at Warner Avenue			SA	0.79	C	0.92	E	0.83	D	0.96	E	0.76	C	0.88	D
731	Grand Avenue at SR-55 SB Ramps			SA	0.57	A	0.45	A	0.61	B	0.48	A	0.57	A	0.47	A
3	Newport Avenue at Edinger Avenue			Tus	0.92	E	0.78	C	0.92	E	0.80	C	0.86	D	0.75	C
14	Walnut Avenue to McFadden Avenue			Tus	0.51	A	0.56	A	0.51	A	0.57	A	0.49	A	0.56	A
18	Newport Avenue at Bryan Avenue			Tus	0.58	A	0.65	B	0.59	A	0.66	B	0.59	A	0.66	B
19	Newport Avenue at Main Street			Tus	0.59	A	0.75	C	0.60	A	0.76	C	0.60	A	0.76	C
20	Newport Avenue at El Camino Real			Tus	0.78	C	0.74	C	0.79	C	0.74	C	0.79	C	0.74	C
21	Newport Avenue at I-5 NB Ramps			Tus	0.66	B	0.58	A	0.67	B	0.59	A	0.66	B	0.59	A
22	Newport Avenue at I-5 SB Ramps			Tus	0.53	A	0.74	C	0.55	A	0.75	C	0.54	A	0.75	C
23	Newport Avenue at McFadden Avenue			Tus	0.68	B	0.54	A	0.69	B	0.55	A	0.69	B	0.54	A
24	Newport Avenue at Walnut Avenue			Tus	0.91	E	0.93	E	0.91	E	0.95	E	0.89	D	0.91	E
25	Newport Avenue at Sycamore Avenue			Tus	0.63	B	0.64	B	0.63	B	0.66	B	0.61	B	0.65	B
27	Del Amo Avenue at Edinger Avenue			Tus	0.49	A	0.42	A	0.50	A	0.43	A	0.47	A	0.41	A
35	Red Hill Avenue at Bryan Avenue			Tus	0.60	A	0.61	B	0.60	A	0.62	B	0.60	A	0.61	B
36	Red Hill Avenue at El Camino Real			Tus	0.62	B	0.83	D	0.63	B	0.84	D	0.62	B	0.83	D
37	Red Hill Avenue at Nisson Road			Tus	0.64	B	0.69	B	0.64	B	0.69	B	0.65	B	0.68	B
38	Red Hill Avenue at Walnut Avenue			Tus	0.76	C	0.84	D	0.75	C	0.85	D	0.75	C	0.83	D
39	Red Hill Avenue at Sycamore Avenue			Tus	0.63	B	0.60	A	0.62	B	0.63	B	0.62	B	0.60	A
40	Red Hill Avenue at Edinger Avenue			Tus	0.73	C	0.78	C	0.74	C	0.77	C	0.72	C	0.74	C
55	Browning Avenue at Bryan Avenue			Tus	0.56	A	0.67	B	0.56	A	0.67	B	0.54	A	0.66	B



Table 7.10: Post-2030 With Project (MPAH Network) Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 With Project MPAH & Adjacent Cities' General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
56	Browning Avenue at El Camino Real			Tus	0.33	A	0.43	A	0.34	A	0.44	A	0.33	A	0.43	A
58	Browning Avenue at Walnut Avenue			Tus	0.45	A	0.62	B	0.47	A	0.61	B	0.47	A	0.61	B
92	Tustin Ranch Road at Bryan Avenue			Tus	0.81	D	0.86	D	0.80	C	0.87	D	0.80	C	0.86	D
93	Tustin Ranch Road at El Camino Real			Tus	1.02	F	0.84	D	1.03	F	0.84	D	1.01	F	0.84	D
94	Tustin Ranch Road at I-5 NB Ramps			Tus	0.73	C	0.52	A	0.72	C	0.53	A	0.71	C	0.53	A
95	Tustin Ranch Road at I-5 SB Ramps			Tus	0.85	D	0.57	A	0.85	D	0.57	A	0.85	D	0.57	A
96	Tustin Ranch Road at Walnut Avenue			Tus	0.79	C	0.68	B	0.79	C	0.68	B	0.77	C	0.68	B
109	Myford Road at Bryan Avenue			Tus	0.55	A	0.55	A	0.54	A	0.57	A	0.53	A	0.57	A
110	Myford Road at El Camino Real			Tus	0.38	A	0.61	B	0.38	A	0.61	B	0.37	A	0.61	B
111	Franklin Avenue at Walnut Avenue			Tus	0.56	A	0.97	E	0.57	A	0.97	E	0.55	A	0.96	E
133	Jamboree Road at Edinger Avenue	b		Tus	0.51	A	0.68	B	0.52	A	0.69	B	0.52	A	0.69	B
445	Tustin Ranch Road at Warner Avenue North			Tus	0.49	A	0.56	A	0.52	A	0.60	A	0.49	A	0.56	A
446	Tustin Ranch Road at Warner Avenue South			Tus	0.65	B	0.55	A	0.65	B	0.58	A	0.62	B	0.54	A
447	Armstrong Avenue/Severyns Road at Valencia Avenue			Tus	0.54	A	0.43	A	0.54	A	0.43	A	0.52	A	0.43	A
448	Armstrong Avenue at Warner Avenue			Tus	0.40	A	0.49	A	0.43	A	0.51	A	0.38	A	0.46	A
453	Red Hill Avenue at Valencia Avenue			Tus	0.66	B	0.77	C	0.67	B	0.77	C	0.56	A	0.65	B
454	Tustin Ranch Road at Valencia Avenue			Tus	0.54	A	0.54	A	0.57	A	0.55	A	0.55	A	0.54	A
455	East Connector-Jamboree Plaza at Edinger Avenue			Tus	0.34	A	0.33	A	0.33	A	0.34	A	0.31	A	0.30	A
456	North Loop Road at Valencia Avenue			Tus	0.25	A	0.24	A	0.25	A	0.25	A	0.25	A	0.25	A
457	North Loop Road at Moffett Drive			Tus	0.13	A	0.16	A	0.13	A	0.16	A	0.13	A	0.15	A
478	Red Hill Avenue at I-5 NB Ramps			Tus	0.83	D	0.63	B	0.82	D	0.64	B	0.81	D	0.63	B
479	Red Hill Avenue at I-5 SB Ramps			Tus	0.82	D	0.82	D	0.85	D	0.84	D	0.83	D	0.82	D
480	Tustin Ranch Road Connector at Edinger Avenue			Tus	0.19	A	0.23	A	0.20	A	0.24	A	0.17	A	0.22	A
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue			Tus	0.61	B	0.89	D	0.61	B	0.90	D	0.60	A	0.87	D
739	Newport Avenue at Mitchell Avenue			Tus	0.67	B	0.70	B	0.68	B	0.71	C	0.67	B	0.71	C
740	Red Hill Avenue at Mitchell Avenue			Tus	0.62	B	0.64	B	0.64	B	0.64	B	0.62	B	0.63	B
743	Newport Avenue at Valencia Avenue			Tus	0.59	A	0.73	C	0.59	A	0.75	C	0.57	A	0.71	C
745	Tustin Ranch Road at Park Avenue			Tus	0.57	A	0.51	A	0.58	A	0.53	A	0.56	A	0.54	A
746	Kensington Park Drive at Edinger Avenue			Tus	0.58	A	0.62	B	0.59	A	0.63	B	0.58	A	0.62	B
747	Kensington Park Drive at Valencia Avenue			Tus	0.32	A	0.33	A	0.32	A	0.33	A	0.31	A	0.32	A
748	Armstrong Avenue at A Street			Tus	0.50	A	0.58	A	0.53	A	0.60	A	0.52	A	0.54	A
749	Park Avenue at A Street			Tus	0.67	B	0.52	A	0.67	B	0.52	A	0.67	B	0.52	A
750	Legacy Road at Warner Avenue			Tus	0.44	A	0.50	A	0.43	A	0.49	A	0.43	A	0.50	A
751	Tustin Ranch Road at Legacy Road			Tus	0.46	A	0.44	A	0.48	A	0.45	A	0.45	A	0.45	A



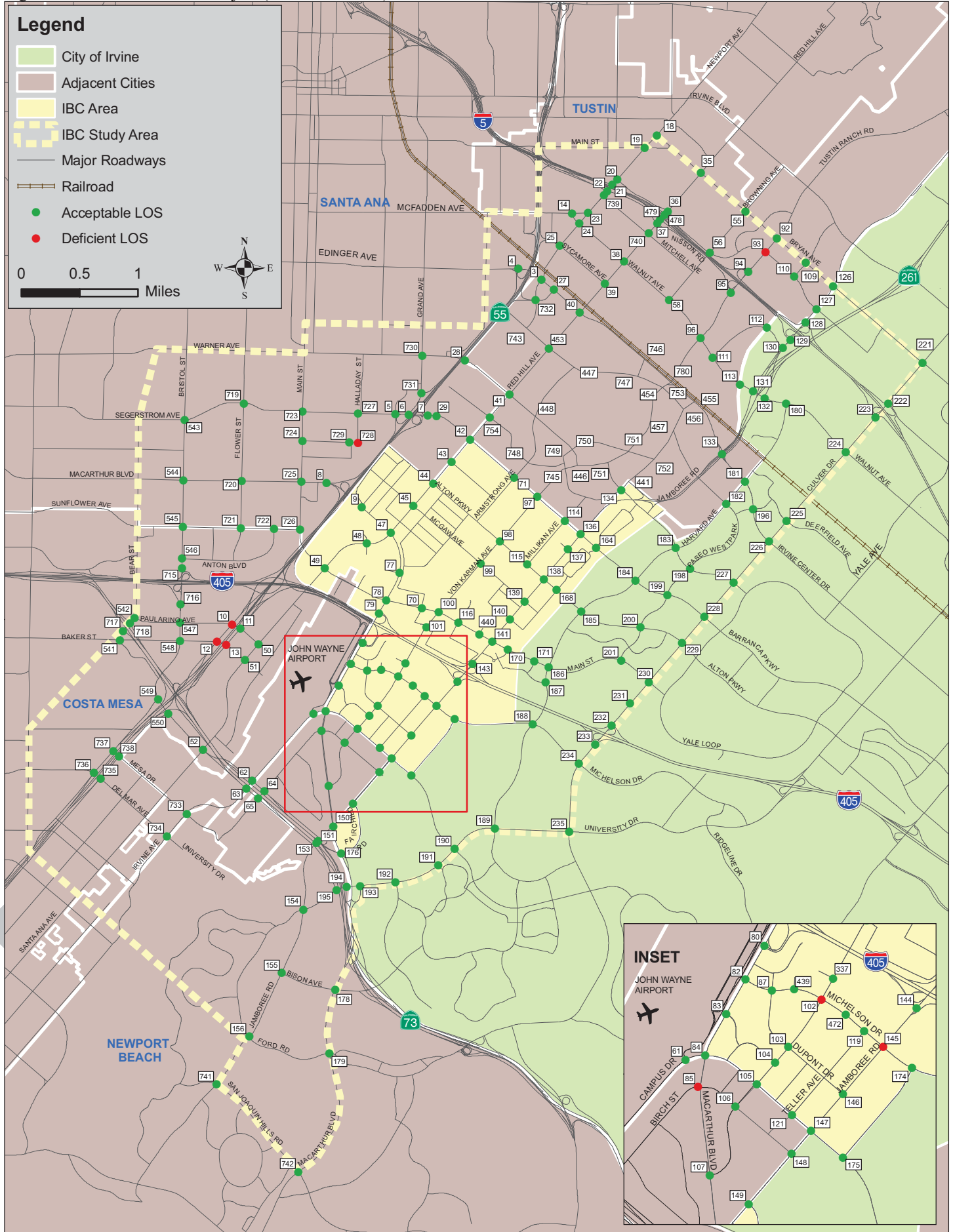
Table 7.10: Post-2030 With Project (MPAH Network) Peak Hour Intersection LOS

ID	Intersection	PA 36/CMP Intersection	ATMS Locations (Post-2030)	Jurisdiction	Post-2030 No Project				Post-2030 With Vision Plan Project				Post-2030 With Project MPAH & Adjacent Cities' General Plan			
					AM		PM		AM		PM		AM		PM	
					ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
752	Legacy Road at North Loop Road			Tus	0.21	A	0.17	A	0.20	A	0.17	A	0.20	A	0.17	A
753	Tustin Ranch Road at Edinger Avenue Connector			Tus	0.51	A	0.49	A	0.53	A	0.50	A	0.51	A	0.49	A
28	Pullman Street at Warner Avenue			Tus/SA	0.57	A	0.64	B	0.58	A	0.67	B	0.53	A	0.62	B
41	Red Hill Avenue at Warner Avenue			Tus/SA	0.85	D	0.82	D	0.90	D	0.86	D	0.84	D	0.82	D
754	Red Hill Avenue at Carnegie Avenue/A Street			Tus/SA	0.61	B	0.93	E	0.62	B	0.95	E	0.56	A	0.75	C

- Denotes intersection operating at a deficient LOS
- a Intersection within Irvine Planning Area 36--LOS E acceptable
- b Orange County Congestion Management Program (CMP) locations
- c Intersections within City of Santa Ana--LOS E acceptable
- √ ATMS credit-Reduction of 0.05 applied to ICU

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Figure 7.12: Post-2030 With Project (MPAH Network) AM Peak Hour Intersection Deficiencies



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7.13 Post-2030 With Project (MPAH Network) Peak Hour Freeway Mainline Analysis

The freeway mainline volumes were forecast using the ITAM 8.4 model. The volumes, densities, and levels of service reflect the Post-2030 freeway segment performance. The peak hour volumes for Post-2030 With Project (MPAH Network) conditions are shown in **Table 7.11** and **Appendix C** presents detailed HCS worksheets for freeway mainline analysis.

When compared to the IBC Vision Plan With Project (Constrained Network) scenario, there is one freeway segments that improves when utilizing the MPAH network, and one segment that deteriorates. Overall, the freeway system seems to operate at a slightly better V/C ratio and LOS with the MPAH network. This is likely due to traffic distribution to improved arterial facilities that were not improved in the constrained network. The deficient segments for this scenario include the following:

AM Peak Hour:

- I-5 Northbound between Culver Drive and Jamboree Road
- I-5 Northbound between Jamboree Road and Tustin Ranch Road
- I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Northbound between Red Hill Avenue and Newport Avenue
- I-5 Southbound between Red Hill Avenue and Newport Avenue
- I-5 Northbound between Newport Avenue and SR-55
- I-5 Southbound between Newport Avenue and SR-55
- I-5 Northbound North of SR-55
- I-5 Southbound North of SR-55
- I-405 Northbound between Culver Drive and Jamboree Road
- I-405 Southbound between Culver Drive and Jamboree Road
- I-405 Northbound between Jamboree Road and MacArthur Boulevard
- SR-55 Northbound between Fair Drive and SR-73
- SR-55 Northbound between I-405 and MacArthur Boulevard
- SR-55 Southbound between I-405 and MacArthur Boulevard
- SR-55 Southbound between MacArthur Boulevard and Dyer Road
- SR-55 Southbound between Dyer Road and Edinger Avenue
- SR-55 Southbound between Edinger Avenue and McFadden Street/Sycamore Avenue
- SR-55 Southbound North of I-5
- SR-73 Northbound between MacArthur Boulevard and University Drive
- SR-73 Northbound between University Drive and Jamboree Road
- SR-73 Northbound between Jamboree Road and Birch Street
- SR-73 Northbound between Birch Street and Campus Drive
- SR-73 Northbound between Campus Drive and SR-55
- SR-73 Southbound between Campus Drive and SR-55

PM Peak Hour:

- I-5 Northbound between Culver Drive and Jamboree Road
- I-5 Southbound between Culver Drive and Jamboree Road
- I-5 Northbound between Jamboree Road and Tustin Ranch Road
- I-5 Northbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Southbound between Tustin Ranch Road and Red Hill Avenue
- I-5 Northbound between Red Hill Avenue and Newport Avenue
- I-5 Southbound between Red Hill Avenue and Newport Avenue
- I-5 Northbound between Newport Avenue and SR-55
- I-5 Southbound between Newport Avenue and SR-55
- I-5 Northbound North of SR-55
- I-5 Southbound North of SR-55
- I-405 Southbound between Culver Drive and Jamboree Road
- I-405 Northbound between Jamboree Road and MacArthur Boulevard
- I-405 Southbound between Jamboree Road and MacArthur Boulevard



-
- SR-55 Northbound between I-405 and MacArthur Boulevard
- SR-55 Southbound between I-405 and MacArthur Boulevard
- SR-55 Northbound between MacArthur Boulevard and Dyer Road
- SR-55 Northbound between Dyer Road and Edinger Avenue
- SR-73 Southbound between MacArthur Boulevard and University Drive
- SR-73 Southbound between Jamboree Road and Birch Street
- SR-73 Southbound between Birch Street and Campus Drive
- SR-73 Southbound between Campus Drive and SR-55



Table 7.11: Post-2030 With Project (MPAH Network) Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Post-2030 With Project						Post-2030 With Project (MPAH Network)										
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour							
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS		
1-5	Culver Drive to Jamboree Road	NB	5	10,000	12,287	1.23	F		9,820	0.98	E		12,198	1.22	F		9,744	0.97	E	
		SB	5	10,000	8,635	0.86	D		9,155	0.92	E		8,196	0.82	D		9,063	0.91	E	
	Jamboree Road to Tusfin Ranch Road	NB	5	10,000	11,857	1.19	F		9,660	0.97	E		11,738	1.17	F		9,554	0.96	E	
		SB	5	10,000	9,075	0.91	E		9,085	0.91	E		8,636	0.86	D		8,883	0.89	D	
	Tustin Ranch Road to Red Hill Avenue	NB	5	10,000	11,677	1.17	F		10,190	1.02	F		11,568	1.16	F		10,094	1.01	F	
		SB	5	10,000	9,905	0.99	E		9,615	0.96	E		9,466	0.95	E		9,413	0.94	E	
	Red Hill Avenue to Newport Avenue	NB	5	10,000	11,847	1.18	F		10,010	1.00	E		11,768	1.18	F		9,934	0.99	E	
		SB	5	10,000	9,485	0.95	E		9,405	0.94	E		9,086	0.91	E		9,233	0.92	E	
	Newport Avenue to SR-55	NB	5	10,000	12,597	1.26	F		10,820	1.08	F		12,508	1.25	F		10,744	1.07	F	
		SB	5	10,000	10,255	1.03	F		10,405	1.04	F		9,856	0.99	E		10,233	1.02	F	
North of SR-55	NB	5	10,000	10,766	1.08	F		9,845	0.98	E		10,742	1.07	F		9,820	0.98	E		
	SB	5	10,000	10,559	1.06	F		9,919	0.99	E		10,262	1.03	F		9,966	1.00	E		
Culver Drive to Jamboree Road	NB	5	10,000	11,541	1.15	F		8,550	0.85	D		11,432	1.14	F		8,347	0.83	D		
	SB	4	8,000	6,770	0.85	D		8,398	1.05	F		7,435	0.93	E		8,735	1.09	F	42.8	
Jamboree Road to MacArthur Boulevard	NB	5	10,000	11,561	1.16	F		9,790	0.98	E		11,322	1.13	F		9,367	0.94	E		
	SB	5	10,000	8,560	0.86	D		9,288	0.93	E		8,855	0.89	D		9,295	0.93	E		
MacArthur Boulevard to SR-55	NB	6	12,000	10,281	0.86	D		10,460	0.87	D		10,142	0.85	D		10,007	0.83	D		
	SB	6	12,000	10,100	0.84	D		10,148	0.85	D		10,395	0.87	D		10,115	0.84	D		
SR-55 to Bristol Street	NB	5	10,000	6,234	0.62	C		6,316	0.63	C		6,188	0.62	C		6,312	0.63	C		
	SB	5	10,000	7,866	0.79	D		6,974	0.70	C		7,984	0.80	D		6,871	0.69	C		
Bristol Street to SR-73	NB	5	10,000	5,799	0.58	C		5,678	0.57	C		5,773	0.58	C		5,728	0.57	C		
	SB	5	10,000	8,066	0.81	D		6,204	0.62	C		8,204	0.82	D		6,171	0.62	C		



Table 7.11: Post-2030 With Project (MPAH Network) Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Post-2030 With Project						Post-2030 With Project (MPAH Network)									
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour						
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	
South of Victoria Street	NB	4	8,000	4,904	0.61	C		4,083	0.51	C		4,872	0.61	C		4,090	0.51	C	
	SB	3	6,000	3,879	0.65	C		4,351	0.73	D		3,907	0.65	C		4,381	0.73	D	
Victoria Street to Fair Drive	NB	4	8,000	6,054	0.76	D		4,800	0.60	C		6,096	0.76	D		4,815	0.60	C	
	SB	4	8,000	4,555	0.57	C		5,315	0.66	C		4,565	0.57	C		5,336	0.67	C	
Fair Drive to SR-73	NB	4	8,000	7,421	0.93	E		6,048	0.76	D		7,452	0.93	E		6,050	0.76	D	
	SB	4	8,000	5,579	0.70	C		6,310	0.79	D		5,583	0.70	C		6,333	0.79	D	
SR-73 to Baker Street	NB	4	8,000	5,729	0.72	D		4,370	0.55	C		5,765	0.72	D		4,366	0.55	C	
	SB	4	8,000	5,498	0.69	C		6,651	0.83	D		5,388	0.67	C		6,151	0.77	D	
Baker Street to I-405	NB	4	8,000	4,279	0.53	C		3,020	0.38	B		4,365	0.55	C		3,056	0.38	B	
	SB	4	8,000	6,188	0.77	D		6,541	0.82	D		6,068	0.76	D		6,485	0.81	D	
I-405 to MacArthur Boulevard	NB	4	8,000	8,688	1.09	F		8,586	1.07	F		8,287	1.04	F		8,055	1.01	F	
	SB	4	8,000	9,134	1.14	F		8,732	1.09	F		9,421	1.18	F		8,650	1.08	F	
MacArthur Boulevard to Dyer Road	NB	5	10,000	7,858	0.79	D		9,666	0.97	E		7,497	0.75	D		9,095	0.91	E	
	SB	5	10,000	10,284	1.03	F		7,912	0.79	D		10,341	1.03	F		7,860	0.79	D	
Dyer Road to Edinger Avenue	NB	6	12,000	7,128	0.59	C		11,696	0.97	E		6,947	0.58	C		11,085	0.92	E	
	SB	6	12,000	10,682	0.89	D		7,440	0.62	C		10,746	0.90	E		7,462	0.62	C	
Edinger Avenue to McFadden Street/Sycamore Avenue	NB	7	14,000	7,066	0.50	B		12,011	0.86	D		6,910	0.49	B		11,413	0.82	D	
	SB	7	14,000	10,872	0.78	D		7,130	0.51	C		10,946	0.78	D		7,212	0.52	C	
McFadden Street/Sycamore Avenue to I-5	NB	5	10,000	7,680	0.55	C		12,426	0.89	D		7,514	0.54	C		11,859	0.85	D	
	SB	5	10,000	10,924	0.78	D		7,498	0.54	C		11,017	0.79	D		7,607	0.54	C	
North of I-5	NB	5	10,000	7,481	0.75	D		8,517	0.85	D		7,398	0.74	D		8,543	0.85	D	
	SB	5	10,000	9,748	0.97	E		7,275	0.73	D		9,812	0.98	E		7,334	0.73	D	
																		23.0	C

SR-55



Table 7.11: Post-2030 With Project (MPAH Network) Peak Hour Freeway Mainline LOS

Location	Freeway Lanes			Post-2030 With Project						Post-2030 With Project (MPAH Network)										
	Direction	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour							
				Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS	Volume	V/C	LOS	HCM Density	LOS		
SR-73	MacArthur Boulevard to University Drive	NB	4	8,000	8,737	1.09	F		4,979	0.62	C		8,700	1.09	F		4,986	0.62	C	
		SB	4	8,000	4,647	0.58	C		7,243	0.91	E		4,619	0.58	C		7,220	0.90	E	
	University Drive to Jamboree Road	NB	4	8,000	8,737	1.09	F		4,979	0.62	C		8,700	1.09	F		4,986	0.62	C	
		SB	4	8,000	4,183	0.52	C		5,924	0.74	D		4,208	0.53	C		5,917	0.74	D	
	Jamboree Road to Birch Street	NB	4	8,000	9,871	1.23	F		6,276	0.78	D		9,835	1.23	F		6,205	0.78	D	
		SB	4	8,000	6,485	0.81	D		8,082	1.01	F		6,405	0.80	D		8,031	1.00	E	
	Birch Street to Campus Drive	NB	4	8,000	7,721	0.97	E		5,119	0.64	C		7,674	0.96	E		5,051	0.63	C	
		SB	4	8,000	6,485	0.81	D		8,082	1.01	F		6,405	0.80	D		8,031	1.00	E	
	Campus Drive to SR-55	NB	4	8,000	8,539	1.07	F		7,230	0.90	E		8,429	1.05	F		6,976	0.87	D	
		SB	4	8,000	8,291	1.04	F		9,120	1.14	F		8,074	1.01	F		9,002	1.13	F	
	SR-55 to Bear Street	NB	4	8,000	6,593	0.82	D		5,489	0.69	C		6,549	0.82	D		5,321	0.67	C	
		SB	4	8,000	5,473	0.68	C		5,769	0.72	D		5,336	0.67	C		5,747	0.72	D	
Bear Street to I-405	NB	4	8,000	5,853	0.73	D		4,569	0.57	C		5,829	0.73	D		4,431	0.55	C		
	SB	4	8,000	4,823	0.60	C		4,809	0.60	C		4,706	0.59	C		4,787	0.60	C		
SR-261 south of El Camino Real	NB	3	6,000	983	0.16	A		3,128	0.52	C		966	0.16	A		3,143	0.52	C		
	SB	3	6,000	3,722	0.62	C		1,310	0.22	A		3,705	0.62	C		1,333	0.22	A		

7.14 Post-2030 With Project (MPAH Network) Peak Hour Freeway Ramp Analysis

The methodology for determining the deficiencies on freeway ramps is consistent with that used for previous alternatives. For the Post-2030 With Project scenario, freeway ramp deficiencies are identified in **Table 7.12**, while **Appendix D** presents detailed HCS worksheets for freeway ramp analysis.

When this scenario is compared to the Post-2030 With Project (Constrained Network) scenario, there are two ramps that improve as a result of the assumption of the MPAH Network: I-405 Northbound Off-Ramp to Culver Drive and SR-55 Northbound Direct On-Ramp from Dyer Road. These locations are not deficient under the Post-2030 With Project (MPAH Network) scenario. Additionally, one ramp deteriorates as a result of the assumption of the MPAH Network, Northbound SR-55 Direct On-Ramp from Victoria Street. The freeway ramp facilities generally operate at a similar LOS as with the constrained network, although there are some minor improvements. The deficient ramps include:

AM Peak Hour:

- o Northbound I-5 Off-Ramp to Jamboree Road
- o Southbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 Off-Ramp to MacArthur Boulevard
- o Northbound SR-55 On-Ramp from Victoria Street
- o Northbound SR-55 Direct On-Ramp from Fair Drive
- o Northbound SR-55 Off-Ramp to Baker Street
- o Southbound SR-55 Off-Ramp to Paularino Avenue
- o Southbound SR-55 Off-Ramp to MacArthur Boulevard
- o Northbound SR-55 Off-Ramp to Dyer Road
- o Southbound SR-73 Off-Ramp to Jamboree Road
- o Northbound SR-73 Off-Ramp to Birch Street
- o Southbound SR-261 On-Ramp from Jamboree Road

PM Peak Hour:

- o Northbound I-5 Off-Ramp to Jamboree Road
- o Southbound I-405 Off-Ramp to Jamboree Road
- o Northbound I-405 On-Ramp from MacArthur Boulevard
- o Southbound I-405 Loop On-Ramp from Bristol Street
- o Northbound I-405 Off-Ramp to Bristol Street
- o Northbound SR-55 Direct On-Ramp from Fair Drive
- o Southbound SR-55 On-Ramp from Baker Street
- o Northbound SR-55 On-Ramp from Paularino Avenue
- o Southbound SR-55 Loop On-Ramp from MacArthur Boulevard
- o Southbound SR-55 Direct On-Ramp from MacArthur Boulevard
- o Northbound SR-55 Loop On-Ramp from Dyer Road
- o Northbound SR-73 On-Ramp from MacArthur Boulevard
- o Southbound SR-73 Off-Ramp to Jamboree Road
- o Northbound SR-73 On-Ramp from Campus Drive
- o Southbound SR-73 On-Ramp from Bear Street
- o Northbound SR-73 Off-Ramp to Bear Street
- o Northbound SR-261 Northbound Off-Ramp to Jamboree Road

Figure 7.14 and **Figure 7.15** graphically depict the Post-2030 With Project (MPAH Network) freeway and ramp deficiencies.



Table 7.12: Post-2030 With Project (MPAH Network) Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 With Project (MPAH Network)					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Culver Drive	SB On Direct	1	1,000	141	0.16	A	177	0.20	A	140	0.16	A	181	0.20	A
	SB On Loop	1	1,000	371	0.41	B	214	0.24	A	371	0.41	B	215	0.24	A
	SB Off	2	500	814	0.27	A	1,496	0.50	B	776	0.26	A	1,473	0.49	B
	NB On Loop	1	1,000	1,030	0.69	C	680	0.45	B	1,070	0.71	C	660	0.44	B
	NB On Direct	1	1,000	1,268	0.85	D	814	0.54	C	1,211	0.81	D	824	0.55	C
	NB Off	1	500	330	0.22	A	480	0.32	B	330	0.22	A	480	0.32	B
Jamboree Road	SB On Direct	1	1,000	380	0.25	A	1,070	0.71	C	390	0.26	A	1,090	0.73	D
	SB On Loop	1	1,000	610	0.56	C	510	0.47	B	600	0.56	C	510	0.47	B
	SB Off	2	500	1,430	0.48	B	1,510	0.50	B	1,430	0.48	B	1,420	0.47	B
	NB On Loop	1	1,000	680	0.63	C	710	0.66	C	670	0.62	C	680	0.63	C
	NB On Direct	1	1,000	470	0.44	B	480	0.44	B	470	0.44	B	480	0.44	B
	NB Off	1	500	1,580	1.05	F	1,350	0.90	E	1,600	1.07	F	1,350	0.90	E
Tustin Ranch Road	SB On	1	1,000	730	0.49	B	550	0.37	B	730	0.49	B	550	0.37	B
	NB On	2	1,000	370	0.21	A	1,120	0.62	C	370	0.21	A	1,120	0.62	C
	NB Off	1	500	550	0.37	B	590	0.39	B	540	0.36	B	580	0.39	B
	SB Off	2	500	1,560	0.69	C	1,080	0.48	B	1,560	0.69	C	1,080	0.48	B
	SB On	1	1,000	1,100	0.73	D	920	0.61	C	1,060	0.71	C	890	0.59	C
	NB On	1	1,000	1,030	0.69	C	770	0.51	C	1,030	0.69	C	770	0.51	C
Red Hill Avenue	NB Off	1	500	860	0.57	C	950	0.63	C	830	0.55	C	930	0.62	C
	SB Off	1	500	680	0.45	B	710	0.47	B	680	0.45	B	710	0.47	B
	SB Off	1	500	770	0.51	C	1,000	0.67	C	770	0.51	C	1,000	0.67	C
	NB On	1	1,000	750	0.50	B	810	0.54	C	740	0.49	B	810	0.54	C



Table 7.12: Post-2030 With Project (MPAH Network) Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 With Project (MPAH Network)					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Culver Drive	SB On Direct	1	1,000	270	0.18	A	730	0.49	B	270	0.18	A	740	0.49	B
	SB On Loop	1	1,000	250	0.28	A	340	0.38	B	250	0.28	A	340	0.38	B
	SB Off	2	500	830	0.28	A	1,460	0.49	B	830	0.28	A	1,380	0.46	B
	NB On Loop	1	1,000	560	0.37	B	400	0.27	A	560	0.37	B	400	0.27	A
	NB On Direct	1	1,000	930	0.62	C	690	0.46	B	930	0.62	C	660	0.44	B
	NB Off	1	500	1,360	0.91	E	1,270	0.85	D	1,320	0.88	D	1,300	0.87	D
Jamboree Road	SB On Direct	2	1,000	650	0.36	B	1,120	0.62	C	650	0.35	B	1,070	0.59	C
	SB On Loop	1	1,000	290	0.19	A	680	0.45	B	290	0.19	A	640	0.43	B
	SB Off	2	500	2,730	1.21	F	2,690	1.20	F	2,340	1.04	F	2,270	1.01	F
	NB On Loop	1	1,000	620	0.41	B	1,110	0.74	D	490	0.33	B	900	0.60	C
	NB On Direct	2	1,000	1,800	0.82	D	1,170	0.53	C	1,710	0.78	D	1,140	0.52	C
	NB Off	1	500	2,400	1.07	F	1,040	0.46	B	2,310	1.03	F	1,020	0.45	B
MacArthur Boulevard	SB Direct On	2	1,000	860	0.29	A	750	0.25	A	860	0.29	A	750	0.25	A
	SB Off	2	500	2,400	0.80	D	1,610	0.54	C	2,400	0.80	D	1,570	0.52	C
	NB On	1	1,000	490	0.33	B	1,590	1.06	F	440	0.29	A	1,530	1.02	F
	NB Off	1	500	1,770	1.18	F	920	0.61	C	1,620	1.08	F	890	0.59	C
	SB Loop On	1	1,000	1,110	0.74	D	1,610	1.07	F	1,080	0.72	D	1,540	1.03	F
	SB Off	2	500	1,310	0.58	C	840	0.37	B	1,300	0.58	C	840	0.37	B
Bristol Street	NB On Loop	1	1,000	226	0.25	A	382	0.42	B	225	0.25	A	396	0.44	B
	NB On Direct	1	1,000	100	0.07	A	370	0.25	A	100	0.07	A	380	0.25	A
	NB Off	1	500	760	0.51	C	1,390	0.93	E	740	0.49	B	1,360	0.91	E

I-405



Table 7.12: Post-2030 With Project (MPAH Network) Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 With Project (MPAH Network)					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Victoria Street	SB Direct On	1	1,000	389	0.26	A	401	0.27	A	388	0.26	A	395	0.26	A
	SB Off	2	500	1,065	0.47	B	1,365	0.61	C	1,046	0.47	B	1,350	0.60	C
	NB Direct On	2	1,000	1,556	0.86	D	1,161	0.64	C	1,627	0.90	E	1,162	0.65	C
	NB Off	1	500	406	0.27	A	444	0.30	A	403	0.27	A	437	0.29	A
Fair Drive	SB Direct On	1	1,000	199	0.22	A	302	0.34	B	200	0.22	A	298	0.33	B
	SB Off	2	500	1,223	0.54	C	1,296	0.58	C	1,219	0.54	C	1,295	0.58	C
	NB Direct On	1	1,000	1,583	1.06	F	1,424	0.95	E	1,577	1.05	F	1,418	0.95	E
	NB Off	1	500	216	0.14	A	176	0.12	A	220	0.15	A	183	0.12	A
Baker Street	SB On	1	1,000	510	0.57	C	1,290	1.43	F	520	0.58	C	806	0.90	E
	SB Off	1	500	1,200	0.80	D	1,180	0.79	D	1,200	0.80	D	1,140	0.76	D
	NB On	1	500	1,450	0.97	E	1,350	0.90	E	1,400	0.93	E	1,310	0.87	D
	SB Off	1	500	1,950	1.30	F	1,200	0.80	D	1,890	1.26	F	1,140	0.76	D
Paularino Avenue	NB On	1	1,000	610	0.68	C	1,085	1.21	F	600	0.67	C	1,015	1.13	F
	SB On Direct	1	1,000	760	0.84	D	1,060	1.18	F	720	0.80	D	1,020	1.13	F
	SB On Loop	1	1,000	200	0.22	A	870	0.97	E	190	0.21	A	830	0.92	E
	SB Off	1	500	2,110	1.41	F	1,110	0.74	D	1,830	1.22	F	1,060	0.71	C
MacArthur Boulevard	NB On Loop	1	1,000	650	0.72	D	800	0.89	D	610	0.68	C	750	0.83	D
	NB On Direct	1	1,000	300	0.20	A	1,280	0.85	D	280	0.19	A	1,210	0.81	D
	NB Off	2	500	1,780	0.79	D	1,000	0.44	B	1,680	0.75	D	920	0.41	B

SR-55



Table 7.12: Post-2030 With Project (MPAH Network) Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 With Project (MPAH Network)					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Dyer Road	SB On	1	1,000	862	0.57	C	1,214	0.81	D	814	0.54	C	1,093	0.73	D
	SB Off Loop	1	500	628	0.42	B	444	0.30	A	628	0.42	B	437	0.29	A
	SB Off to Grand	1	500	633	0.42	B	298	0.20	A	591	0.39	B	258	0.17	A
	NB On Direct	1	1,000	390	0.26	A	1,400	0.93	E	390	0.26	A	1,280	0.85	D
	NB On Loop	1	1,000	550	0.61	C	1,020	1.13	F	550	0.61	C	1,020	1.13	F
	NB Off	1	500	1,670	1.11	F	390	0.26	A	1,490	0.99	E	310	0.21	A
Edinger Avenue	SB On	1	1,000	760	0.51	C	880	0.59	C	710	0.47	B	820	0.55	C
	SB Off	1	500	950	0.63	C	570	0.38	B	910	0.61	C	570	0.38	B
	NB On	1	1,000	902	0.60	C	1,247	0.83	D	865	0.58	C	1,169	0.78	D
	NB Off	1	500	964	0.64	C	932	0.62	C	901	0.60	C	841	0.56	C
	SB On	1	1,000	540	0.36	B	403	0.27	A	496	0.33	B	348	0.23	A
	SB Off	2	500	592	0.26	A	771	0.34	B	566	0.25	A	743	0.33	B
McFadden Avenue	NB On	1	1,000	1,213	0.81	D	1,017	0.68	C	1,183	0.79	D	995	0.66	C
	NB Off	1	500	598	0.40	B	602	0.40	B	579	0.39	B	549	0.37	B

SR-55 Continued

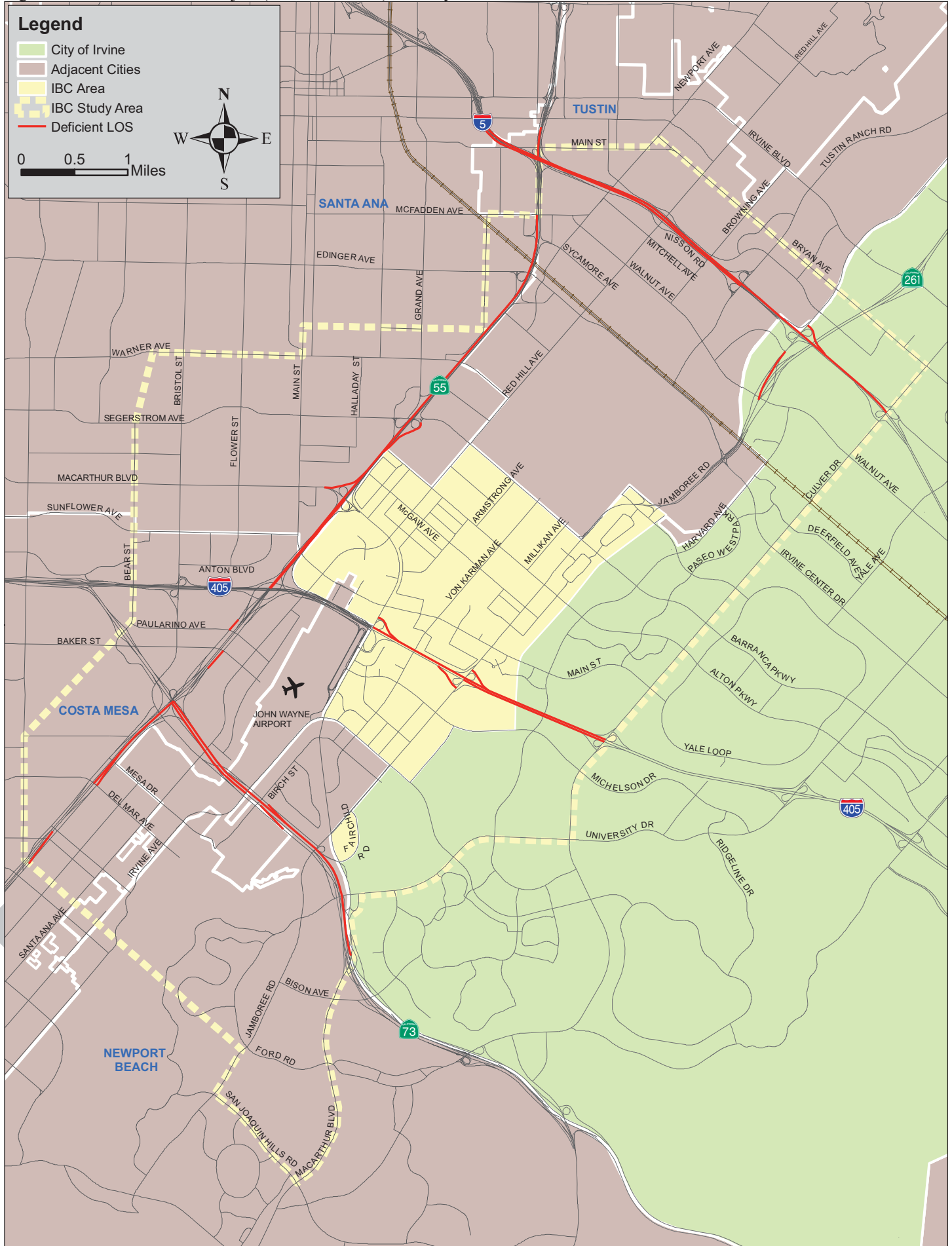


Table 7.12: Post-2030 With Project (MPAH Network) Freeway Peak Hour Freeway Ramp LOS

Interchange	Ramp Type	Ramp Capacity		Post-2030 With Vision Plan Project						Post-2030 With Project (MPAH Network)					
		Number of Lanes	Ramp Length	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
MacArthur Boulevard	SB On	1	1,000	125	0.08	A	1,019	0.68	C	121	0.08	A	986	0.66	C
	SB Off	2	500	1,203	0.40	B	1,014	0.34	B	1,190	0.40	B	1,000	0.33	B
	NB On	1	1,000	774	0.86	D	855	0.95	E	759	0.84	D	847	0.94	E
	SB Off	1	500	1,070	0.71	C	940	0.63	C	1,060	0.71	C	920	0.61	C
	NB On	1	1,000	159	0.11	A	226	0.15	A	156	0.10	A	227	0.15	A
	SB On	1	1,000	160	0.11	A	410	0.27	A	160	0.11	A	410	0.27	A
Bison Avenue	SB Off	1	500	1,130	0.75	D	540	0.36	B	1,120	0.75	D	540	0.36	B
	NB On	1	1,000	480	0.32	B	910	0.61	C	470	0.31	B	900	0.60	C
	SB On	1	1,000	426	0.28	A	779	0.52	C	430	0.29	A	781	0.52	C
	SB Off	2	500	2,727	1.21	F	2,938	1.31	F	2,627	1.17	F	2,895	1.29	F
Jamboree Road	NB On	1	1,000	1,134	0.76	D	1,296	0.86	D	1,136	0.76	D	1,219	0.81	D
	NB Off	1	500	2,150	1.43	F	1,156	0.77	D	2,162	1.44	F	1,154	0.77	D
Campus Drive	SB Off	2	500	1,806	0.80	D	1,038	0.46	B	1,669	0.74	D	971	0.43	B
	NB On	1	1,000	818	0.55	C	2,111	1.41	F	755	0.50	B	1,926	1.28	F
SR-73 at Bear	SB On	1	1,000	1,170	0.78	D	1,410	0.94	E	1,160	0.77	D	1,410	0.94	E
	SB Off	1	500	520	0.35	B	450	0.30	A	530	0.35	B	450	0.30	A
	NB Off	1	500	970	0.65	C	1,540	1.03	F	950	0.63	C	1,510	1.01	F
	NB On	1	1,000	230	0.15	A	620	0.41	B	230	0.15	A	620	0.41	B
Jamboree Road	SB On	1	1,000	1,371	0.91	E	1,064	0.71	C	1,361	0.91	E	1,040	0.69	C
	NB Off	1	250	828	0.55	C	1,507	1.00	E	840	0.56	C	1,495	1.00	E
Walnut Avenue	NB On	1	1,000	391	0.26	A	961	0.64	C	390	0.26	A	925	0.62	C
	SB Off	1	500	1,060	0.71	C	390	0.26	A	1,068	0.71	C	391	0.26	A

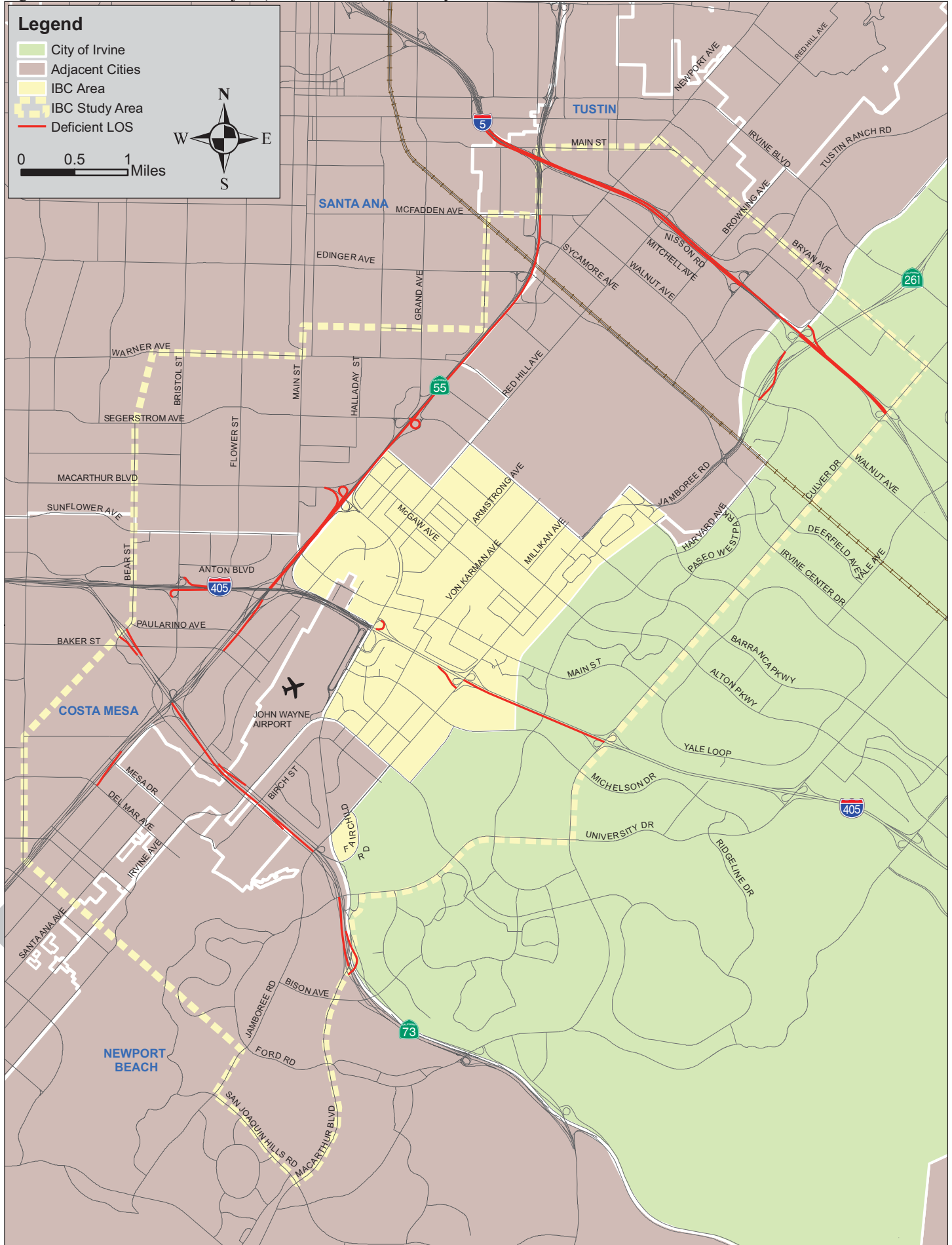
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Figure 7.14: Post-2030 With Project (MPAH Network) Freeway AM Peak Hour Deficiencies



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Figure 7.15: Post-2030 With Project (MPAH Network) Freeway PM Peak Hour Deficiencies



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8.0 Conclusions

The IBC Vision Plan Traffic Study's main objective is to identify traffic impacts associated with the shifts in land use to accommodate additional residential units and supporting uses through the reduction of over two million square feet of office equivalency space within the IBC. The General Plan Amendment and Zoning Code to establish a cap of 15,000 dwelling units within the IBC area (excluding density bonus units) will redistribute trips within the IBC but may potentially contribute to traffic growth throughout the IBC. The intention of the IBC Vision Plan is to optimize land uses within existing IBC vehicle trip allocations.

To assess the impact of the land use changes from the implementation of the General Plan Amendment (GPA) for the IBC Vision Plan, a total of 8 alternatives were analyzed:

- Existing Conditions
 - Current ground counts
 - With Proposed Project
- 2015 Scenarios
 - Cumulative
 - Baseline Without Proposed Project (existing land uses on the ground within the IBC area)
 - With Proposed Project
- Post-2030 Scenarios
 - Cumulative
 - Baseline Without Proposed Project (existing land uses on the ground within the IBC area)
 - With Proposed Project
 - Existing General Plan Buildout Alternative
 - With Proposed Project (MPAH Network) Alternative

The Existing Conditions With Proposed Project assessment is a requirement under the California Environmental Quality Act (CEQA).

8.1 Project Related Traffic Impacts

Roadway System Deficiencies

Individual arterial segments that operate at a deficient LOS under daily conditions within the City of Irvine are candidates for peak hour analysis to determine performance during the AM and PM peak hour. The peak hour analysis conducted for each of the forecast future scenarios revealed no arterial segments operating at a deficient level in either peak hour within the City of Irvine. Hence, no further analysis or mitigation is required. For arterial segments within the Cities of Newport Beach, Costa Mesa, and Tustin, daily arterial segment LOS analysis is valuable for long-range planning purposes but the Cities do not assess segment deficiencies under daily conditions. Deficiencies are assessed at intersections at either end of the arterial segment. Intersection deficiencies for the IBC Vision have been assessed and conclusions discussed in the next section. Hence, there are no deficiencies or project related impacts expected in future forecast scenarios for arterial segments within Newport Beach, Costa Mesa, and Tustin. For the City of Santa Ana, daily arterial volume-to-capacity ratio (V/C) analysis is used to assess deficiencies in the arterial network. An increase of 0.01 or more of the daily V/C ratio constitutes a project impact when compared with the no project conditions.

For arterial segments within the City of Santa Ana, daily arterial LOS analysis showed that the segment of MacArthur Boulevard, from Main Street to SR-55 has a significant project related impact under the Post-2030 future forecast scenario and will require mitigation.

MacArthur Boulevard between Main Street and SR-55 cannot be mitigated to below a level of significance without changing the MPAH road classification from a Major Arterial (six lanes) to a Principal Arterial (eight lanes). Reclassification would provide one additional lane in each direction and potentially would require an amendment to the City of Santa Ana General Plan. This forecast deficiency constitutes a project related significant impact



according to the City of Santa Ana’s performance criteria. The City of Irvine is responsible for a fair-share for this improvement for the Post-2030 future scenario.

Intersection Deficiencies

Analysis of the intersections was conducted for all intersections within the defined IBC Vision study area, with additional intersections added to the previously analyzed 1992 IBC Vision Plan study area at the request of adjacent jurisdictions. For each jurisdiction, the established and published criteria for evaluating significant impacts have been employed in this study. Project impacts are identified for the study area using the methodology for each respective jurisdiction.

For intersections with a project related significant impact, the Project would be responsible for its fair-share to improve the intersection back to an acceptable LOS (or existing conditions if the intersection is currently deficient). Cumulative deficiencies (where the intersection is deficient under future conditions with no project related impact) are also evaluated but the project is not responsible for a fair-share of the cost of the improvement.

Table 8.1: Intersection/Arterial Segment Project Impacts/Cumulative Deficiencies

ID	Intersection	Jurisdiction	IBC Vision With Project (2015)		IBC Vision With Project (P-2030)		Fair-share		
			Cumulative Deficiency	Project Impact	Cumulative Deficiency	Project Impact	2015 With Project	Post-2030 With Project	Expected Share (Vision Plan)
10	SR-55 Frontage Road SB Ramps at Paularino	CM			X				No Share
12	SR-55 SB Frontage Road at Baker Street	CM				X		8.0%	8.0%
13	SR-55 NB Frontage Road at Baker Street	CM				X		8.7%	8.7%
62	Campus Drive at Bristol Street NB	NB		X		X	29.8%	30.2%	30.2%
85	MacArthur Boulevard at Birch Street	NB				X		19.6%	19.6%
543	Bristol Street at Segerstrom Avenue	SA				X		12.7%	12.7%
723	Main Street at Dyer Road (Segerstrom Avenue)	SA				X		21.0%	21.0%
730	Grand Avenue at Warner Avenue	SA				X		15.8%	15.8%
3	Newport Avenue at Edinger Avenue	Tus			X				No Share
24	Newport Avenue at Walnut Avenue	Tus				X		6.3%	6.3%
36	Red Hill Avenue at El Camino Real	Tus	X						No Share
93	Tustin Ranch Road at El Camino Real	Tus		X		X	2.1%	0.1%	2.1%
111	Franklin Avenue at Walnut Avenue	Tus	X		X				No Share
134	Loop Road/Park Avenue at Warner Avenue	Tus		X		X	2.5%	11.6%	11.6%
732	SR-55 NB Ramps/Del Amo Avenue at Newport Avenue	Tus	X			X			No Share
754	Red Hill Avenue at Carnegie Avenue/A Street	Tus				X		7.3%	7.3%
136	Jamboree Road at Barranca Avenue	Irv				X		100.0%	100.0%
141	Jamboree Road at Main Street	Irv				X		100.0%	100.0%



Table 8.1: Intersection/Arterial Segment Project Impacts/Cumulative Deficiencies

ID	Intersection	Jurisdiction	IBC Vision With Project (2015)		IBC Vision With Project (P-2030)		Fair-share		
			Cumulative Deficiency	Project Impact	Cumulative Deficiency	Project Impact	2015 With Project	Post-2030 With Project	Expected Share (Vision Plan)
145	Jamboree Road at Michelson Drive	Irv		X		X	100.0%	100.0%	100.0%
188	Harvard Avenue at Michelson Drive	Irv			X			100.0%	100.0%
232	Culver Drive at I-405 NB Ramps	Irv				X		100.0%	100.0%
ID	Arterial Segment	Jurisdiction	IBC Vision With Project (2015)		IBC Vision With Project (P-2030)		Fair-share		
			Cumulative Deficiency	Project Impact	Cumulative Deficiency	Project Impact	2015 With Project	Post-2030 With Project	Expected Share (Vision Plan)
1884	MacArthur between Main Street and SR-55 SB	SA				X		31.1%	31.1%

Mitigation for all impacted intersections were proposed based on consideration of feasibility through visual inspection of aerial photography, previously recommended improvements, and ease of implementation. Although every effort was made to determine feasibility there may be some improvements that require further analysis to adequately assess operational feasibility.

8.2 Freeway/Tollway Mainline and Ramp Improvements

The significant impact threshold methodology used to identify significant impacts on Caltrans facilities has demonstrated a number of freeway mainline and ramp project related significant impacts. Since the City has no jurisdiction to implement the improvements on the Caltrans facilities and the required improvements are largely the result of background regional traffic, coordination between the City of Irvine and Caltrans is necessary to reach consensus on potential operational improvement measures. Any improvements identified would require a statement of overriding considerations. Irvine is committed to coordinating with Caltrans in the development of alternative feasible improvements such as Intelligent Transportation Strategies (ITS) that reduce congestion and improve operations on freeway mainlines and ramps.

8.3 Alternative Buildout Scenarios

The analysis comparing the buildout of the IBC Vision Plan against the buildout of the Existing General Plan shows that the proposed Vision Plan improves the circulation system in the study area. There are several intersections that operate at an acceptable LOS with the Vision Plan that become deficient when the buildout of the City’s Existing General Plan is analyzed. Similar results are revealed when applied to arterial segments. There are, however, some freeway segments and ramps that deteriorate slightly when comparing the buildout of the proposed Vision Plan to the buildout the Existing General Plan. This is likely the result of otherwise regional trips staying within the study area as jobs and housing become more balanced within the IBC leading to trips being captured within the IBC.

When comparing the impacts that results from the analysis of the IBC Vision Plan network (with specific unfunded 1992 IBC Rezone EIR improvements removed from the network) versus the MPAH network (with specific unfunded 1992 IBC Rezone EIR improvements assumed in the circulation network) there are some interesting differences. There are several intersections that become deficient under the MPAH network scenario as a result of increased arterial segment traffic volumes. When the arterial segments are upgraded, more traffic is forecast to use the wider facilities which may impact the facility intersections. It is recommended that certain elements of the MPAH network be removed from the General Plan and the following facilities downgraded as they are unnecessary improvements based on the expected buildout of the IBC Vision Plan. The ancillary intersection improvements will not be necessary as a result. The freeway facility deficiencies are similar between the constrained Vision Plan network and the MPAH network. There are slight differences in overall volumes on most freeway segments and ramps and a few locations where the V/C and LOS deteriorates and a few locations where it improves. The



difference is negligible. Following the certification of the IBC Vision Plan EIR, the City of Irvine is expected to move forward with a General Plan amendment process to downgrade the facilities discussed in the next section.

8.4 MPAH and General Plan Amendment

The City of Irvine General Plan Circulation Element identifies certain roadway configurations that are no longer needed as determined in the IBC Vision Plan; therefore a General Plan Amendment subsequent to the approval of the IBC Vision EIR will downgrade arterial roadways as needed. The City of Irvine intends to downgrade the following arterial segments as a General Plan Amendment to the Circulation Element:

- Barranca Parkway between Red Hill Avenue and Jamboree Road (downgrade from 8-lane divided roadway to 7-lane divided roadway)
- Jamboree Road between Barranca Parkway and McGaw Avenue (downgrade from a 10-lane divided roadway to a 8-lane divided roadway)
- Main Street between Red Hill and Harvard (downgrade from 6-lane divided arterial with 2 auxiliary lanes to 6-lane divided roadway)
- MacArthur Boulevard between Fitch and Main Street (downgrade from 8-lane divided roadway to 7-lane divided roadway)
- Red Hill Avenue between Barranca Parkway and Main Street (downgrade from an 8-lane divided roadway to a 6-lane roadway)
- Alton Avenue between Red Hill Avenue and Jamboree Road (downgrade from a 6-lane divided roadway to 4-lane divided roadway)*
- Von Karman Avenue between Barranca Parkway and Michelson (downgrade from 6-lane roadway to 4-lane roadway)*

The arterial segment of Alton Parkway between Red Hill Avenue and Jamboree Road as well as the segment of Von Karman Avenue between Barranca Parkway and Michelson Drive as identified with an asterisk in the list above, are programmed into both the City of Irvine's General Plan and the Orange County Master Plan of Arterial Highways (MPAH). Both roadways are currently 4-lane roadways and expected to remain as 4-lane roadways in the future. Both the City's General Plan and the Orange County MPAH currently have these two segments programmed as 6-lane divided arterials in the buildout condition. The IBC Vision Plan traffic study has determined that 6 lanes are unnecessary for both of these roadway segments under buildout conditions. Thus, the City of Irvine will initiate an MPAH Amendment by entering into a cooperative study with the Orange County Transportation Authority (OCTA) to determine the feasibility of downgrading both Alton Parkway and Von Karman Avenue. Once this study is complete, both agencies can move forward with amendments to the General Plan and MPAH to downgrade both Alton Parkway between Red Hill Avenue and Jamboree Road as well as Von Karman Avenue between Barranca Parkway and Michelson Drive.

Additionally, the City of Irvine intends to remove the following interchange improvements:

- Alton Avenue Overcrossing at the SR-55 freeway with High Occupancy Vehicle (HOV) drop ramps
- Von Karman Avenue at the I-405 freeway HOV drop ramps

These interchange improvements are programmed in the Orange County MPAH as buildout improvements. However, the IBC Vision Plan traffic study has determined that these interchanges are unnecessary under build-out conditions. The City of Irvine will initiate an MPAH Amendment by entering into a cooperative study with OCTA and the affected local agencies to determine the feasibility of removing these interchange improvements from the MPAH.



9.0 References

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10.0 Glossary of Transportation Terms

COMMON ABBREVIATIONS

ADT	Average Daily Traffic
ATAM	Anaheim Traffic Analysis Model
Caltrans	The California Department of Transportation
DU	Dwelling Unit
HCM	Highway Capacity Manual
HCS	Highway Capacity Software (Software package utilizing the formulae in the Highway Capacity Manual)
HOV	High Occupancy Vehicle lane
ICU	Intersection Capacity Utilization
LOS	Level of Service
OCTA	Orange County Transportation Authority
OCTAM	Orange County Transportation Analysis Model
TSF	Thousands of Square Feet
V/C	Volume/Capacity Ratio
VMT	Vehicle Miles Traveled

TERMS

ANAHEIM TRAFFIC ANALYSIS MODEL (ATAM): The subarea modeling tool developed for the City of Anaheim that has been determined to be consistent with the Orange County Transportation Analysis Model (OCTAM) for the purposes of forecasting future traffic activity throughout the City for land use and circulation system scenarios.

AUXILIARY LANE: A non-capacity enhancing lane that provides operational benefits to the freeway mainline. Typically an auxiliary lane extends between an on-ramp and off-ramp to facilitate the weave movement between the interchange without detrimental effects to the mainline through lanes.

AVERAGE DAILY TRAFFIC: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

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

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

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

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

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



COMMUNITY FACILITIES DISTRICT (CFD): For Platinum Triangle the District is authorized to incur bonded indebtedness and levy a special tax in accordance with a rate and method of apportionment in order to finance certain public facilities within the Platinum Triangle. The District is expect to contribute funds towards many of the intersection improvements identified in this study.

CRITICAL MOVEMENT: Conflicting intersection turning movements that are found to have the highest ICU for opposing movements; i.e. each of the approaches at a four-legged intersection will contain a critical movement that conflicts with an opposing movement.

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

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

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

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

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

DIVERGE AREA (HCM): the two right shoulder lanes plus the auxiliary lane for 1500 feet downstream from the ramp gore point (location where the ramp intersects with the freeway mainline).

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

FORCED FLOW: Opposite of free flow.

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

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

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

HIGH OCCUPANCY VEHICLE (HOV) LANE: A lane restricted for use by vehicles with 2 or more persons.

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

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

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

MERGE AREA (HCM): the two right shoulder lanes plus the auxiliary lane for 1500 feet downstream from the ramp gore point (location where the ramp intersects with the freeway mainline).



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

MIXED USE DEVELOPMENT: The practice of allowing more than one type of land use in a building or set of buildings. In planning terms, this can mean some combination of residential, commercial, industrial, office, institutional, or other land uses.

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

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

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

ORANGE COUNTY TRANSPORTATION ANALYSIS MODEL (OCTAM): The regional model developed and maintained by OCTA that is the parent model to the City of Anaheim subarea model, ATAM.

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

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

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

PEAK HOUR FACTOR: the period during which peak hour traffic volume is at its highest. Peak Hour factor is determined by calculating the hourly volume divided by the peak rate of flow within the hour, which is the highest 15 minute interval multiplied by four.

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

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

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

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

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

SIGNIFICANT IMPACT (CEQA): Projects can cause significant impacts by direct physical changes to the environment or by triggering reasonably foreseeable indirect physical changes. Physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. You must determine whether the cumulative impact is significant, as well as whether an individual effect is “cumulatively considerable.” This means



“the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects” (CEQA Guidelines Section 15064(h)(1)).

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

SYNCHRO: A complete software package for modeling, optimizing, managing and simulating traffic systems. Synchro implements the HCM methodologies for intersection analysis and is applied for State Highway System ramp termini intersections.

TRANSIT ORIENTED DEVELOPMENT: A mixed-use residential or commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership.

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

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

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

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

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

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

WEAVING AREA: The area of a freeway where there is cross traffic from either a on or off-ramp or transition to another freeway. Typically weaving segments are formed when merge areas are followed closely by diverge areas (within 2,500 feet) and the two are joined by an auxiliary lane requiring the crossing of two or more traffic streams traveling in the same general direction along a significant length of highway without the aid of traffic control devices.