# *Appendix D*
# *Updated Traffic Study*

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# HERITAGE FIELDS PROJECT 2012
# GENERAL PLAN AMENDMENT AND ZONE CHANGE

# TRAFFIC IMPACT ANALYSIS

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# HERITAGE FIELDS PROJECT 2012
# GENERAL PLAN AMENDMENT / ZONE CHANGE
# TRAFFIC IMPACT ANALYSIS
# CITY OF IRVINE, CALIFORNIA

## 1.0 EXECUTIVE SUMMARY

This report presents the results of the traffic impact analysis (TIA) for the proposed Heritage Fields Project 2012 General Plan Amendment/Zone Change (the "2012 Modified Project" or "Project"), which modifies the previously approved Heritage Fields/Great Park Neighborhood project (the "2011 Approved Project").

The 2012 Modified Project proposes to amend the General Plan and zoning to combine Planning Areas 30 and 51. The Heritage Fields Development currently zoned 1.1 Agriculture, 3.2 TOD, 4.3 Vehicle Commercial, and 5.4B General Industrial would be rezoned to 8.1 TTOD. Also, City parcels currently zoned 3.2 would be rezoned to 8.1. Combined Planning Area 51 consists of all of existing Planning Areas 30 and 51 plus approximately 11 acres between the current western boundary of Planning Area 51 and SR-133 between Trabuco Road and Irvine Blvd. The 2012 Modified Project includes 9,500 dwelling units within the 8.1 zoning, consisting of 3,625 previously approved dwelling units and 1,269 previously approved density bonus units, plus 3,412 dwelling units and 1,194 density bonus units (35% of 3,412) granted pursuant to state law.

The maximum non-residential intensities for the 2012 Modified Project in 8.1 zoning would be revised to 1,318,200 square feet of Multi-Use (a category which includes previously approved 11,000 square feet of Child Care and 25,000 square feet of Church), 3,364,000 square feet of Medical and Science (R&D), and 220,000 square feet of Community Commercial. The 220,000 square feet of Community Commercial was previously approved and allocated per the master plans for District 1 North and District 4.

The 2012 Modified Project proposes to amend the City of Irvine General Plan Figure B-1 (Master Plan of Arterial Highways) to delete the on-site extension of Rockfield Boulevard from its existing western terminus to Marine Way. The 2012 Modified Project would also amend the General Plan, Objective B-1, Policy (c) regarding LOS "E" consideration as follows: In conjunction with traffic studies for development proposed in Planning Area 51, a LOS "E" standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35, 39 and a portion of 51 south of Marine Way. LOS "E" would be acceptable subject to the following:

1. Preparation, submittal, processing and approval of a traffic study.
2. Level of Service "E" will only be considered acceptable for an intersection that does not contain a residential quadrant, unless the residential development has a net density of 30 dwelling units per acre or greater. No Level of Service "E" will be acceptable along Sand Canyon except at the Sand Canyon/I-5 Interchange Ramps/Intersections.
3. Participation/funding to an upgraded traffic signal system as defined in the Traffic Management Systems Operations Study (TMSOS) and/or an Advance Traffic Management System (ATMS), which may be in place at the time of processing of the individual traffic studies. The City, in conjunction with specific traffic studies, shall determine the level of participation/funding using criteria and a process developed concurrently.

The 2012 Modified Project also includes a 2,600 student high school in District 5, which is included in the 2030 and Post-2030 scenarios. For the purposes of this traffic study, the Great Park Neighborhoods/Heritage Fields tentative tract map land uses in Districts 1 North, 1 South, 4, 7, and 8 are assumed to be as approved for all horizon years with the following exceptions:

> Option 1 - Includes the conversion of Institutional (Education) and Office land uses to Multi-Use (Non-Residential) or Medical and Science (R&D) in District 1 North.
>
> Option 2 – In addition to the Option 1 conversions in District 1 North, this option includes a relocation of Multi-Use and Retail from District 1 North to District 1 South as well as changes in Districts 1 North to accommodate approved residential units displaced from a portion of District 1 South.

The 2012 Modified Project also includes the option to convert up to 535,000 square feet of Multi-Use to up to 889 base units and up to 311 Density Bonus units, granted pursuant to State law. The location, type and number of converted units are unknown at this time. This optional conversion is expressly conditioned to stay within the trip parameters of this study and is subject to further analysis.

Proposed Sports Park and associated improvements shall be designed to generate traffic within the current ADT trip budget and are therefore assumed to have been previously analyzed. At this time detail of the precise improvements including specific site planning, access and parking are unclear. The Sports Park and associated improvements will be subject to site-specific traffic, access and parking analysis as part of any future modification of the OCGP Master Plan to incorporate these

Sports Park and related improvements once the details necessary to perform that analysis are available.

Existing Planning Area (PA) 51 is generally bounded by the SR-133 Tollway to the west, the Borrego Canyon Wash to the east, the Southern California Regional Rail Authority ("SCRRA") rail lines to the south, and segments of Portola Parkway and Irvine Boulevard to the north. Existing PA 30 is generally bounded by I-5 to the south, the SCRRA rail lines to the north, and the Irvine Spectrum to the east and west (Irvine Spectrum 2- PA 35 and Irvine Spectrum 3 - PA 32).

The purpose of this TIA is to evaluate the potential traffic and circulation impacts associated with the 2012 Modified Project on the surrounding roadway system, and recommend improvements to mitigate potential impacts considered significant in comparison to thresholds determined by the City of Irvine. The TIA has been conducted in accordance with the requirements of the Scope of Work for this project (see Appendix 1.1) that was approved on April 5, 2012.

The following traffic conditions are analyzed:

**A. Existing Conditions**

- 2011 and 2012 peak hour intersection counts and 24-hour segment counts

**B. Existing Plus Project Conditions**

- with the 2012 Modified Project, Option 1
- with the 2012 Modified Project, Option 2

**C. Interim Year 2015 Analysis**

- Interim Year 2015 without Project
  (Existing Uses within the Footprint of On-Site Land Uses which Change)
- Interim Year 2015 with Project, Option 1
- Interim Year 2015 with Project, Option 2

**D. Interim Year Long Term 2030 Analysis**

- Long Term Year 2030 without Project (2011 Approved Project - Baseline)
- Long Term Year 2030 with the 2012 Modified Project, Option 1
- Long Term Year 2030 with the 2012 Modified Project, Option 2

**E. General Plan Buildout (Post-2030) Analysis**

- General Plan Buildout (Post 2030) without Project (2011 Approved Project - Baseline)
- General Plan Buildout (Post 2030) with the 2012 Modified Project, Option 1
- General Plan Buildout (Post 2030) with the 2012 Modified Project, Option 2

The Without Project baseline scenarios are based on the 2011 approval plus baseline land use and network updates requested by the City.

Exhibit 1-1 illustrates the basic configuration of Project roadways and on-site intersection analysis locations for interim year (2015) conditions with 2012 Modified Project changes in Districts 1 North and 1 South. The long range future roadway network and on-site intersection analysis locations are shown on Exhibit 1-2 with buildout of the 2012 Modified Project. On-site roadways shown in Districts 5 and 6 (east of "B" Street, south of "LQ" Street and north of Marine Way) are conceptual. The alignments of local streets in Districts 5 and 6 will be determined in future Vesting Tentative Tract Map (VTTM) traffic studies.

The North Irvine Transportation Mitigation (NITM) Program was established in 2003 to identify mitigation and provide a funding mechanism for transportation improvements and mitigation needed in North Irvine. The traffic study boundary for this report is consistent with the study area included in the April 30, 2003 NITM Nexus Study. Exhibit 1-3 shows the NITM program study area boundary and off-site intersection analysis locations.

## 1.1 Project Characteristics

Table 1-1 provides a comparison of project land uses under buildout conditions based on the 2011 Approved Project and the 2012 Modified Project. The land uses in the table are described according to the categories that are applied in this study for traffic analysis purposes. As the table indicates, modifications to the land use categories and quantities are proposed.

EXHIBIT 1-1

# 2015 PROJECT ROADWAY CONFIGURATION

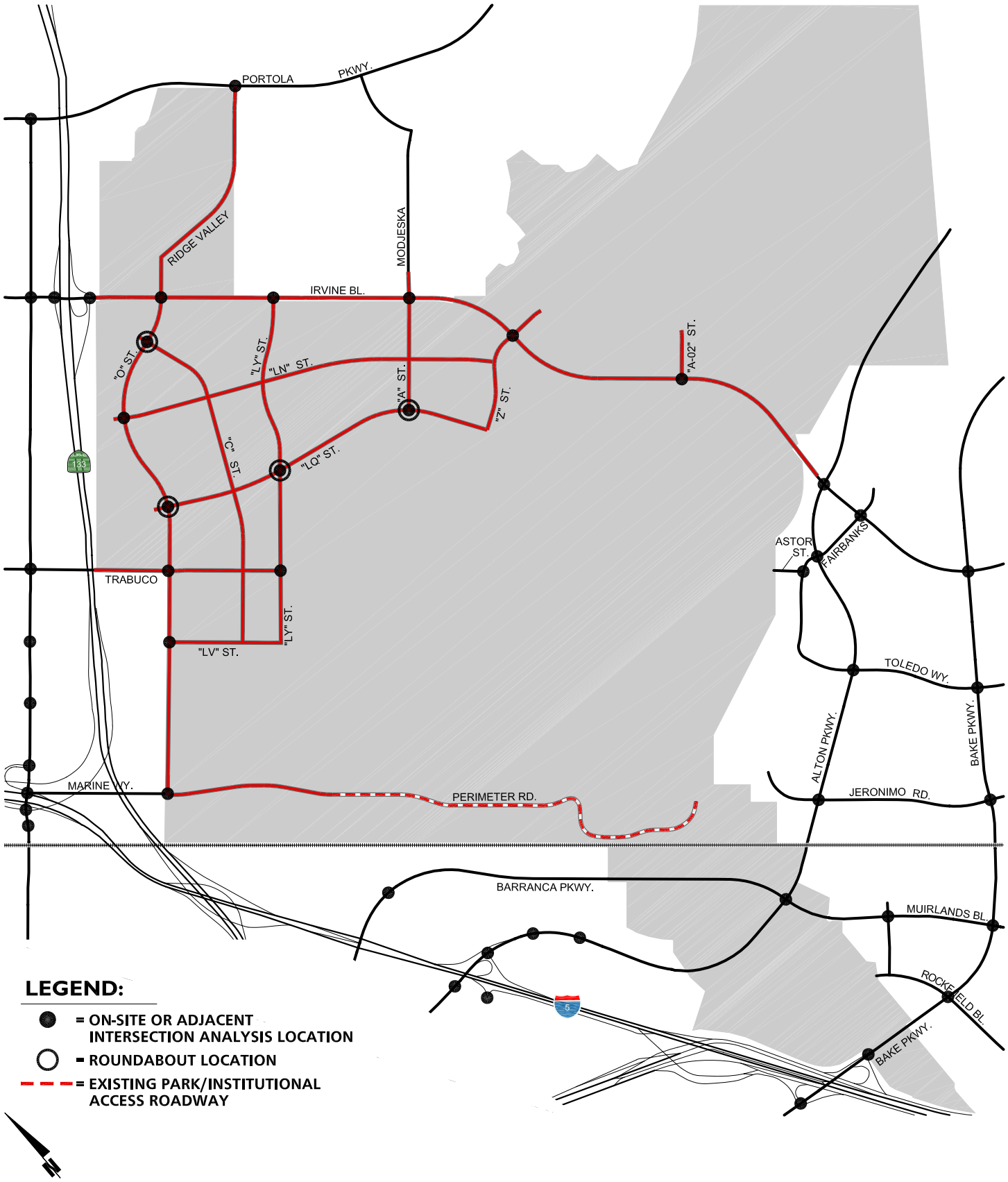


EXHIBIT 1-2

# 2030 AND POST 2030 PROJECT ROADWAY CONFIGURATION

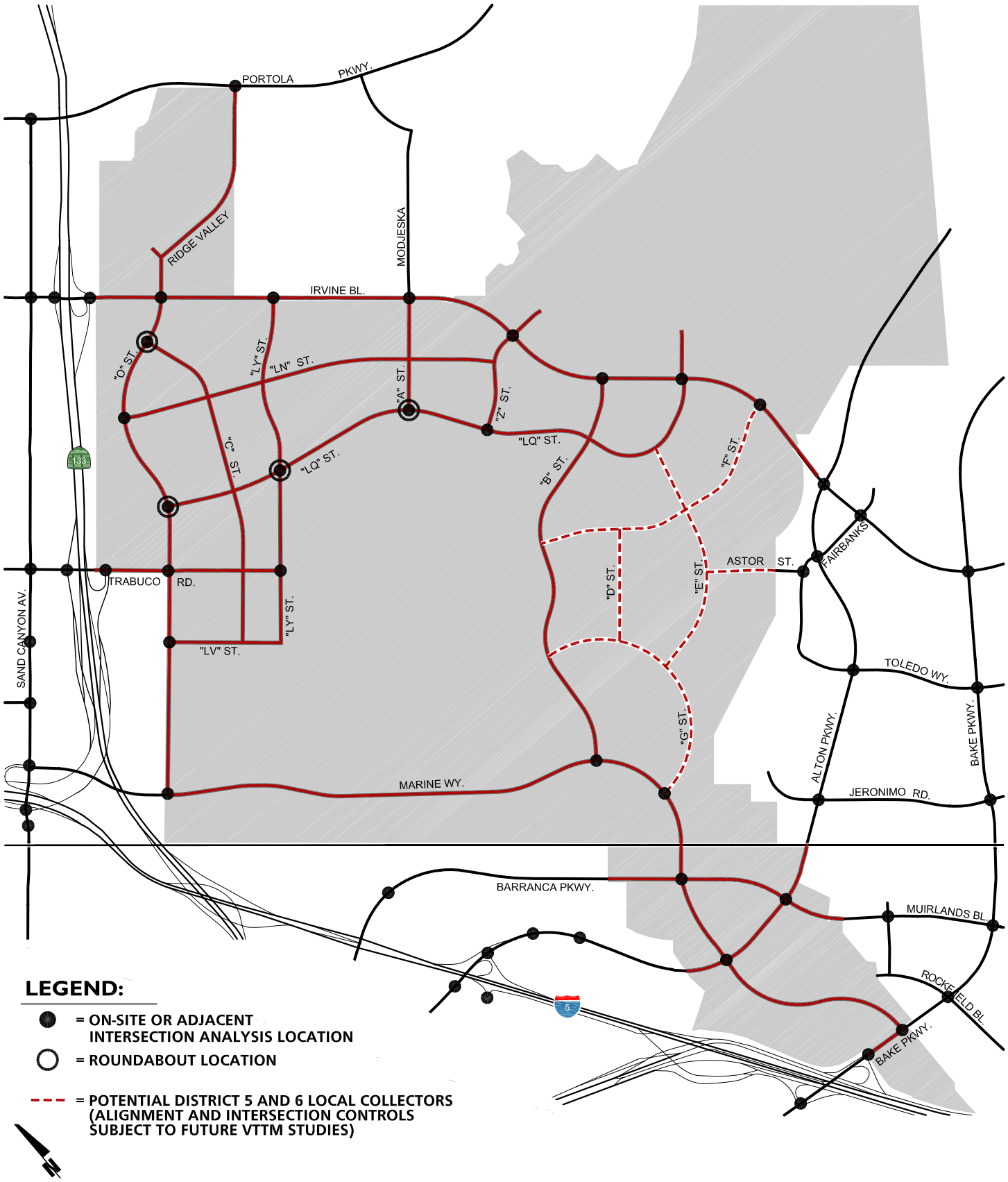


EXHIBIT 1-3

# TRAFFIC ANALYSIS STUDY AREA

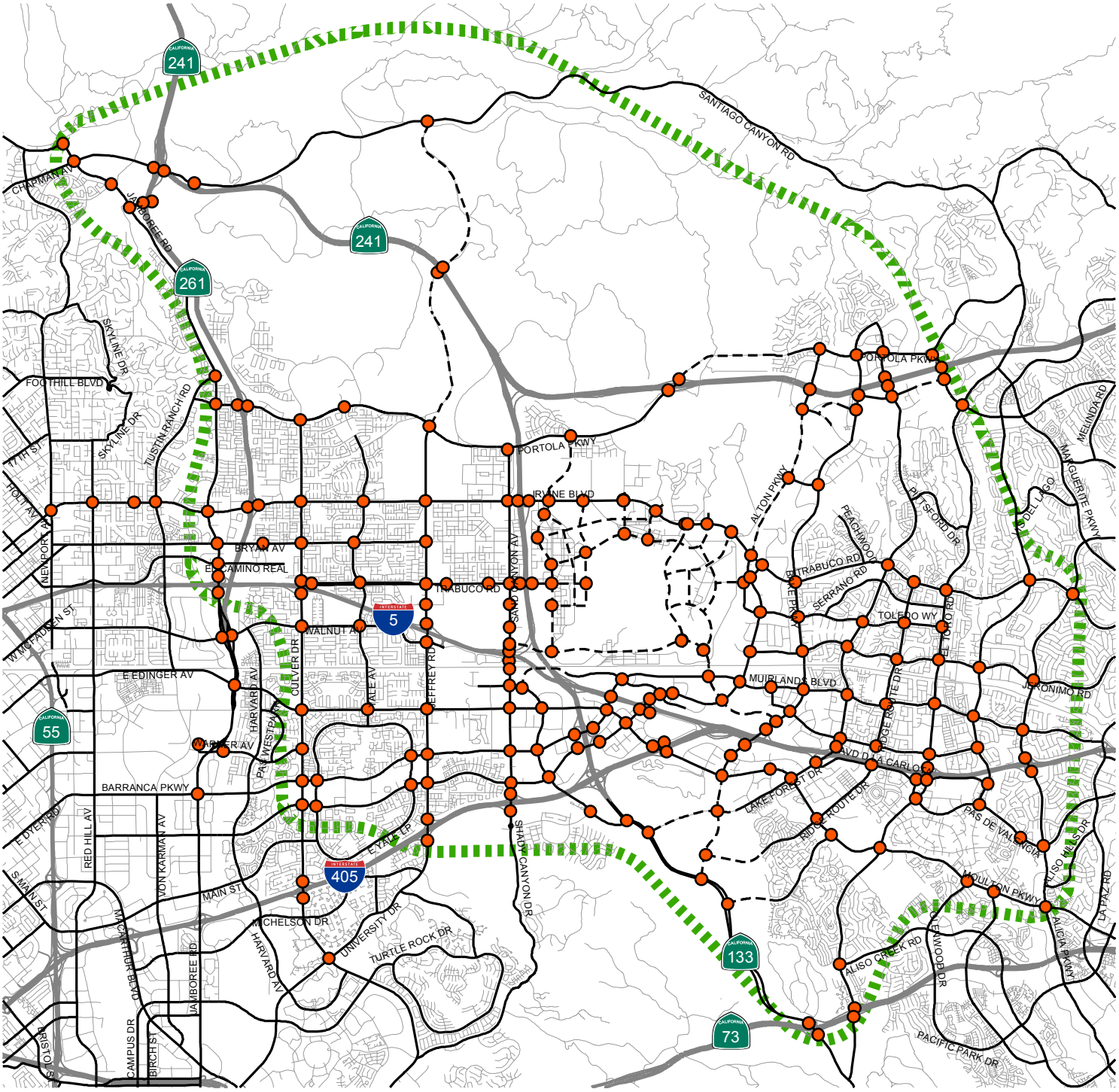


**Table 1-1**

**Land Use Comparison**
**Combined PA 51**
**Buildout Scenarios**

| Great Park Land Use Description | Units | 2011 Approved Project | 2012 Modified Project | Change |
|---|---|---|---|---|
| **HERITAGE FIELDS** | | | | |
| Senior Housing | DU | 182 | 182 | -- |
| Elementary School (K-8) | Students | 650 | 650 | -- |
| Child Care (Multi-Use Non-Residential) | TSF | 11 | 11 | -- |
| Church, Synagogue (Multi-Use Non-Residential) | TSF | 25 | 25 | -- |
| Multi-Use (Non-Residential) | TSF | 0 | 1,282.2 | +1282.2 |
| Multi-Use (Res - Multi Family) | DU | 0 | 3,412 | +3,412 |
| Res. - SFD (New Density Bonus Units) | DU | 0 | 1,194 | +1,194 |
| Retail (Community Commercial) | TSF | 300 | 220 | -80 |
| Auto Center | TSF | 102 | 0 | -102 |
| R&D (Medical and Science) | TSF | 2,600 | 3,364 | +764 |
| Agriculture | Acres | 12.5 | 0 | -12.5 |
| Golf Course | Acres | 150 | 0 | -150 |
| Chapel/Mortuary | TSF | 50 | 0 | -50 |
| Education (Institutional) | Students | 7,741 | 0 | -7,741 |
| Office | TSF | 75 | 0 | -75 |
| Exposition (Commercial Recreation) | TSF | 708 | 0 | -708 |
| Multi Family | DU | 1,971 | 2,548 | +577[1] |
| Single Family Detached Residential | DU | 2,741 | 2,164 | -577[1] |
| **ADDITIONAL PUBLIC USES** | | | | |
| Elementary School (K-8), add'l students | Students | 1,350 | 1,350 | -- |
| High School | Students | 0 | 2,600 | +2,600 |
| Park (Neighborhood) | Acres | 47.6 | 100.0 | +52.4 |
| **CITY / OTHER PROPERTY** | | | | |
| Agriculture | Acres | 90.0 | 90.0 | -- |
| Habitat, Wildlife Corridor & Drainage[2] | Acres | 1,283.42 | 1,180.02 | -103.4[3] |
| Warehousing | TSF | 263 | 263 | -- |
| OCTA Facility / Terminal | TSF | 176 | 176 | -- |
| Transportation Center / Fly-Away Ctr. | Spaces | 1,050 | 1,050 | -- |
| Cultural/Institutional | TSF | 300 | 300 | -- |
| Parking (Great Park) | Spaces | 5,037 | 5,037 | -- |
| Government Facility | TSF | 70.9 | 70.9 | -- |

[1] Consistent with approved VTTMs in Districts 1S and 7, this change is a reclassification of previously approved single family detached units to multi-family units.

[2] Includes Marshburn Basin

[3] The change indicated for Habitat, Wildlife Corridor & Drainage is a correction to the ITAM 8.4-10 dataset (TAZ 325), and is not a result of the proposed Project 2012 GPA/ZC.

The 2012 Modified Project consists of 4,894 already approved dwelling units plus 4,606 additional dwelling units (3,412 multi-family units and 1,194 single-family density bonus units).

Approval of VTTMs in Districts 1 South and 7 resulted in the reclassification of 577 single family detached residential units to multi-family residential units.

The 2012 Modified Project modifies the 2011 Approved Project to designate 1,318,200 square feet of non-residential land uses as Multi-Use (a category which includes previously approved 11,000 Multi-Use Child Care and 15,000 Multi-Use Church).

The Project modifies the 2011 Approved Project non-residential uses to delete 708,000 square feet of Commercial Recreation (Exposition), 1,452,600 square feet of Institutional (1,452,600 square feet of Education – shown as 7,741 students in Table 1-1, and 11,000 square feet of previously approved Multi-Use Child Care), 102,000 square feet of Auto Center, 150 acres of golf course, 50,000 square feet of Chapel/Mortuary, 75,000 square feet of Office, and 12.5 acres of agriculture. The Project changes the 2011 Approved Project to add 764,000 square feet of Medical and Science (R&D), and reduces Community Commercial (Retail) by 80,000 square feet.

## 1.2 Traffic Impact Analysis Summary

The traffic impacts of the 2012 Modified Project with Options 1 and 2 have been identified by analyzing the study area circulation system based on existing traffic conditions and 2015, 2030 and Post-2030 future traffic conditions. In each case, traffic conditions under without project or 2011 Approved Project (Baseline) are compared to the 2012 Modified Project to identify the potential traffic impacts of the Project. The existing conditions setting is based on the existing circulation system in the study area and existing land use development. The three future settings (2015, 2030 and Post-2030) are based on the existing circulation system plus improvements that are planned to be in place in each future time frame and the land use and development growth that is projected in each future time frame.

The circulation system improvements that are programmed to be fully funded by the NITM Program have been included in the year 2015, year 2030 and Post-2030 scenarios analyzed in

this study. Circulation system improvements that are only partially funded by the NITM Program are assumed to be in place only in the Post-2030 scenario when system-wide improvements are assumed.

Existing traffic conditions are based on 2011 and 2012 traffic counts. Future traffic conditions were prepared using the Irvine Transportation Analysis Model, Version 8.4-10 (ITAM 8.4-10). The circulation system performance criteria applied in the analysis are based on level of service (LOS) calculation methodologies and performance standards in accordance with the requirements of the Scope of Work for this project (see Appendix 1.1) that was approved on April 5, 2012. The criteria include components for arterial roadways, intersections, freeway ramps and freeway mainline segments.

### 1.2.1 Existing Plus Project Conditions

The existing-plus-project analysis is purely hypothetical for a project of this scale due to the fact that it assumes development within all project districts occurring instantaneously, and does not portray a realistic analysis of cumulative growth which includes various on-site and off-site infrastructure improvements in conjunction with cumulative growth in the NITM Program Area.

The results of the existing-plus-project analysis, which are summarized in detail in Chapter 5.0 of this report, indicate that although several arterial roadway segments exceed their theoretical daily capacity with or without the Project, they are projected to operate at acceptable levels of service during peak hours.

One intersection is potentially impacted by the hypothetical existing-plus-project scenario (Culver Drive & University Drive). At this intersection, improvements are already identified in the NITM program and the University of California, Irvine Long Range Development Plan. Traffic projections for all future scenarios with these improvements result in acceptable levels of service.

The hypothetical existing-plus-project conditions also exceed adopted impact thresholds at one freeway interchange:

- SR-133 Northbound loop on-ramp at Barranca

The improvement that would address this hypothetical existing-plus-project scenario is to convert the HOV preferential lane to a second metered mixed-flow lane. The SR-133 northbound loop on-ramp at Barranca Parkway is not impacted under future conditions (cumulative 2015, 2030 and Post-2030 scenarios) and the proposed improvement for this ramp is not a NITM Program improvement. In the event that the pending projects evaluated in the traffic impact analysis are approved, this location is identified as a project impact in the 2012 Modified Project Option 2 scenario and will participate in the implementation of the mitigation improvement on a fair share basis.

### 1.2.2 Interim Year 2015 Analysis

**Interim Year 2015 with Project, Option 1**

Although several arterial roadway segments exceed their theoretical daily capacity with or without the 2012 Modified Project with Option 1, they are projected to operate at acceptable levels of service during peak hours.

Year 2015 AM and PM peak hour intersection capacity utilization (ICU) results indicate that none of the intersections are forecast to exceed adopted thresholds with the 2012 Modified Project with Option 1.

Although several mainline freeway segments and freeway ramps are projected to operate at LOS F during peak hours, the Project 2015 development with Option 1 does not cause traffic to exceed adopted thresholds.

**Interim Year 2015 with Project, Option 2**

The 2012 Modified Project with Option 2 does not cause traffic to exceed thresholds on arterial roadway segments, arterial intersections, mainline freeway segments or freeway ramps for 2015 conditions.

### 1.2.3 Long Term 2030 Analysis

**Long Range 2030 with the 2012 Modified Project, Option 1**

Although several arterial roadway segments exceed their theoretical daily capacity with or without the 2012 Modified Project with Option 1, they are projected to operate at acceptable levels of service during peak hours.

Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that the following seven intersections exceed adopted impact thresholds with the 2012 Modified Project with Option 1:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Sand Canyon Ave. & I-5 NB Ramp/Marine Way
- Sand Canyon Ave. & Oak Canyon
- Bake Pkwy. & Rockfield Blvd.
- Los Alisos Blvd. & Rockfield Blvd.

A possible improvement at the intersection of Browning Avenue at Irvine Boulevard is a third westbound through lane (to Brittany Woods Drive). Because existing occupied land uses along Irvine Boulevard at the Browning Avenue intersection constrain the construction of additional east-west through travel lanes which are consistent with the City of Tustin General Plan and County MPAH, the Project mitigation identifies ATMS at this location to optimize signal performance, at the discretion of the City of Tustin.

At the intersection of Culver Drive / Barranca Parkway, the Project is responsible for NITM fair share participation towards the improvement (conversion of the westbound defacto right turn lane to through lane) as mitigation to the Project impact. Planning Area 1/9 GPA/ZC has previously been identified as funding the balance of the fair share NITM Program improvement.

At the intersection of Jeffrey Road / Barranca Parkway, the Project is responsible for advancing the previously identified ATMS mitigation applied in Post-2030.

The project mitigation at Sand Canyon/I-5 NB ramps/Marine is the conversion of the northbound defacto right turn lane to a standard right turn lane with right turn overlap signal operation. An alternative is to designate LOS "E" acceptable at this location and satisfy the requirements through TMSOS/ATMS participation. The level of TMSOS/ATMS participation shall be consistent with that applied in the NITM Program.

The project mitigation at Sand Canyon Avenue / Oak Canyon is fair share responsibility for a previously identified PA40/12 mitigation that converts the westbound shared through/right lane to a single through lane and converts the westbound right-turn lane into a free-right turn lane. If the pending projects are approved, this mitigation improvement is no longer needed.

At the Bake Parkway / Rockfield Boulevard intersection, the Project is responsible for the conversion of a westbound through lane to a 3rd left turn lane.

At the Los Alisos Boulevard / Rockfield Boulevard intersection, Project participation in the NITM improvement (addition of a southbound right turn lane) mitigates the impact.

The 2012 Modified Project with Option 1 exceeds the adopted impact threshold for 2030 conditions at the I-5 Northbound off-ramp to Jamboree Road. The proposed mitigation at this location is participation in the fair share funded NITM improvements to add a second drop lane from the I-5 to the Jamboree Road off-ramp.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose lane at the following three (3) segments mitigates the Project Option 1 contribution to cumulative freeway mainline impacts:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

If pending projects are approved, mitigation is no longer needed for I-5 Northbound north of Jeffrey and I-405 Northbound north of Jeffrey.

**Long Range 2030 with the 2012 Modified Project, Option 2**

The 2012 Modified Project with Option 2 does not cause traffic to exceed thresholds on arterial roadway segments, mainline freeway segments or freeway ramps for 2030 conditions.

Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that six of the eight intersections impacted by the 2012 Modified Project with Option 1 are also impacted with Option 2. At these six locations, the Option 1 mitigation measures (described above) also mitigate Option 2 impacts:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Sand Canyon Ave. & I-5 NB Ramp/Marine Way
- Sand Canyon Ave. & Oak Canyon
- Bake Pkwy. & Rockfield Blvd.

For 2030 conditions with the 2012 Modified Project with Option 2, the following two additional intersections are also impacted:

- Newport Ave. & Irvine Blvd.
- Culver Dr. & Bryan Ave

The mitigation to the Project Option 2 impact at Newport Avenue / Irvine Boulevard is a signal modification – northbound right turn overlap phase. If the pending projects are approved, this mitigation improvement is no longer needed.

The mitigation to the Project Option 2 impact at Culver Drive / Bryan Avenue is the addition of a westbound defacto right-turn lane. If the pending projects are approved, this mitigation improvement is no longer needed.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose lane at the following three (3) segments mitigates the Project Option 2 contribution to cumulative freeway mainline impacts:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

If pending projects are approved, mitigation is no longer needed for I-5 Northbound north of Jeffrey and I-405 Northbound north of Jeffrey.

### 1.2.4 General Plan Buildout (Post-2030) Analysis

**General Plan Buildout (Post-2030) with the 2012 Modified Project, Option 1**

The 2012 Modified Project with Option 1 does not exceed adopted impact thresholds on arterial roadway segments, mainline freeway segments, or freeway ramps for Post-2030 conditions.

Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that three intersections exceed adopted impact thresholds with the 2012 Modified Project with Option 1:

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.
- Laguna Cyn. & Old Laguna Cyn.

At the Jeffrey Road / Roosevelt intersection, the project mitigation is conversion of the eastbound shared through/right lane into a through lane, and addition of a second right turn lane.

At the Jeffrey Road / Alton Parkway Intersection, the project mitigation is provision of an eastbound standard right-turn lane with right-turn overlap phase resulting in an ultimate eastbound lane configuration of 2 left-turn lanes, 2 through lanes and 1 right-turn lane.

The project mitigation at Laguna Canyon / Old Laguna Canyon identifies ATMS at this location, subject to approval by the Director of Public Works. An alternate physical improvement is the addition of a fourth northbound through lane. If it is desired to utilize one of these improvement options as a substitution to an identified NITM improvement at this location, this request would be subject to approval by the Director of Public Works in consultation with the NITM Committee. If pending projects are approved, the mitigation improvement is no longer needed.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose travel lane at one freeway mainline segment (I-405 northbound, north of Jeffrey) mitigates the Project Option 1 contribution to a cumulative impact. If pending projects are approved, mitigation is no longer needed for I-405 Northbound north of Jeffrey.

**General Plan Buildout (Post-2030) with the 2012 Modified Project, Option 2**

The 2012 Modified Project with Option 2 does not exceed adopted impact thresholds on arterial roadway segments, mainline freeway segments, or freeway ramps for Post-2030 conditions.

Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate the same three intersections impacted by the 2012 Modified Project with Option 1 are also impacted with Option 2. At these three locations, the Option 1 mitigation measures (described above) also mitigate Option 2 impacts:

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.
- Laguna Cyn. & Old Laguna Cyn.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose travel lane at one freeway mainline segment (I-405 northbound, north of Jeffrey) mitigates the Project Option 2 contribution to a cumulative impact. If pending projects are approved, mitigation is no longer needed for I-405 Northbound north of Jeffrey.

### 1.2.5 Special Issues

A number of special issues were evaluated as part of the traffic analysis for the 2012 Modified Project, and detailed information pertaining to each of the special issues is provided in Chapter 9.0 of this report.

**Pending Projects Sensitivity Analysis** – Six future "pending" scenarios (2015, 2030, and Post 2030, each with the 2012 Modified Project Options 1 and 2) are analyzed to determine if any additional level of service deficiencies are created within the study area with pending development projects and changes to the Master Plan of Arterial Highways. Pending with Project scenarios are compared against 2011 Approved Project conditions (with the pending projects) so that any deficiencies on the study area circulation system associated with the pending projects in combination with the 2012 Modified Project can be identified.

Although several arterial roadway segments exceed their theoretical daily capacity with or without the pending-plus-project scenario, they are projected to operate at acceptable levels of service during peak hours for all future conditions (2015, 2030, and Post-2030 conditions) included in this sensitivity analysis.

**2015 With Pending Projects, Options 1 and 2**

2015 AM and PM peak hour intersection capacity utilization (ICU) results indicate that none of the intersections are forecast to exceed adopted thresholds with the pending-plus-project scenarios (both Options).

Although several mainline freeway segments are projected to operate at LOS F during peak hours, the pending-plus-project 2015 scenarios (both Options) do not cause traffic to exceed adopted impact thresholds.

If pending projects are approved, Project (Option 2 only) mitigation at the SR-133 northbound loop on-ramp at Barranca Parkway consists of participation (on a NITM methodology fair share basis) in the conversion of the HOV preferential lane at the on-ramp to a second metered mixed-flow lane.

**2030 With Pending Projects, Options 1 and 2**

For 2030 pending-plus project conditions, there are seven intersection impacts for both Options (six are previously identified locations with no additional mitigation for the pending condition), one ramp impact for both Options, (previously identified location with no additional mitigation for the pending condition), and one directional freeway mainline fair share impacts for both Options (previously identified location with no additional mitigation for the pending condition) as shown in Table 9-25.

If pending projects are approved, Project mitigation at the El Toro Road / Portola Parkway intersection consists of fair share participation in the addition of a southbound right turn overlap phase (a fully funded LFTM improvement).

**Post-2030 With Pending Projects, Options 1 and 2**

For pending conditions, there are two intersection impacts for both Options (previously identified locations with no additional mitigation for the pending condition), one ramp impact for both Options (previously identified location with no additional mitigation for the pending condition), and one directional mainline fair share impact (Option 2 only) as shown in Table 9-26.

If pending projects are approved, Project fair share participation in a directional capacity enhancement (equivalent to a single general purpose lane) at one freeway mainline segment (I-405 Northbound, n/o Jeffrey) mitigates the Project Option 2 contribution to a cumulative impact. Fair share will be calculated based on the methodology applied pursuant to the NITM Program (Per NITM, the fair share of improvement cost is calculated based the incremental daily volume change from the 2011 Approved Project to the 2012 Modified Project, divided by all traffic at that improvement location, including existing and future traffic).

**Rockfield Boulevard MPAH Network, Sensitivity Analysis –** Buildout conditions for Options 1 and 2 are analyzed to determine if any level of service deficiencies are created within the study area with the buildout of Rockfield Boulevard as currently included on the Orange County Master Plan of Arterial Highways (MPAH). In the event that the Rockfield MPAH change does not occur and the Rockfield connection to Marine Way is ultimately constructed, no additional traffic impacts occur with the 2012 Modified Project with Option 2 on arterial roadway segments, arterial intersections, mainline freeway segments or freeway ramps for Post-2030 conditions. With Option 1, the SR-133 NB Loop On-Ramp at Barranca Parkway is impacted if the Rockfield MPAH change does not occur and the Rockfield connection to Marine Way is ultimately constructed.

The SR-133 northbound loop on-ramp at Barranca Parkway is impacted under the 2015 pending plus project condition with the 2012 Modified Project Option 2. The proposed mitigation improvement for this ramp is not a NITM Program improvement. In the event that the MPAH change is not approved and the 2012 Modified Project Option 1 is implemented with construction of the Rockfield extension to Marine Way, the Option 1 Project will also participate on a NITM methodology fair share basis in the conversion of the HOV preferential lane at the on-ramp to a second metered mixed-flow lane.

**Access Study –** The proposed access points along Irvine Boulevard are analyzed to assure that there is adequate distance between signals and that traffic operations will not be adversely impacted in a significant manner. Option 2 is used as the basis for this analysis because it includes changes in District 1 which were not analyzed in prior traffic studies. On-site intersections which are potentially affected by project changes for either Option 1 or Option 2 are also reviewed in comparison to prior traffic study findings. Table 9-34 includes recommended storage length requirements for the 2012 Modified Project Option 1 or 2.

**Pedestrian and Bicycle Circulation** – Within the Project area, goals of the City's General Plan for effective non-motorized transportation (Objectives B-3 and B-4) are accomplished through enhanced local street connectivity, an extensive network of walkways and bikeways, and the arrangement of land uses for access by various modes.

**Circulation Phasing Report Intersections –** In this section, the Project's potential impact is addressed for intersections in the study area that are identified as locations

subject to improvements based on the ICU analysis results presented in the 2008 City of Irvine Circulation Phasing Report. Table 6.1 – "Future Interim Year 2013 Intersection Mitigation" of the 2008 City of Irvine Circulation Phasing Report indicates the following six (6) intersections are subject to improvements for interim year conditions:

1. Jeffrey Road at Michelson Drive
2. Harvard Avenue at Michelson Drive
3. Jeffrey Road at Alton Parkway
4. Sand Canyon Avenue at the I-5 Freeway Northbound Ramps
5. Sand Canyon Avenue at Marine Way
6. Sand Canyon Avenue at the I-5 Freeway Southbound Ramps

For Interim Year (2015) conditions, the Project does not create a potential impact for any of the Priority Locations (listed above).

For Long Range (Year 2030) conditions, the Project creates a potential impact at the intersection of Sand Canyon Avenue and the I-5 Freeway Northbound Ramps/Marine Way when Marine Way is relocated to the north. The project mitigation at Sand Canyon/I-5 NB ramps/Marine is the conversion of the northbound defacto right turn lane to a standard right turn lane with right turn overlap signal operation. An alternative is to designate LOS "E" acceptable at this location and satisfy the requirements through TMSOS/ATMS participation. The level of TMSOS/ATMS participation shall be consistent with that applied in the NITM Program.

For General Plan Buildout (Post-2030) conditions, the Project creates a potential impact at the intersection of Jeffrey/Alton. The mitigation is provision of an eastbound standard right-turn lane with right-turn overlap phase resulting in an ultimate eastbound lane configuration of 2 left-turn lanes, 2 through lanes, and 1 right-turn lane. The Project will not create an impact at the remaining Priority Locations (listed above).

**Transit –** In this section, transit services for the Project area are identified at a concept plan level in order to determine potential transit stop locations and ensure that physical site planning for the project districts will accommodate appropriate pedestrian connectivity to the stop locations. The conceptual routes are comparable to the network

presented in the recommended Preferred Alternative and Complementary OCTA Services scenarios evaluated in the citywide Irvine Transit Vision report.

**CMP Checklist –** There are 19 intersection locations within the study area that are monitored as a part of the CMP. These intersections are projected to operate better than LOS "E" standard based upon the analysis of 2015 traffic that is required by the CMP.

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## 2.0 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Heritage Fields Project 2012 General Plan Amendment/Zone Change (the "2012 Modified Project" or "Project"), which modifies the previously approved Heritage Fields/Great Park Neighborhood project (the "2011 Approved Project").

The 2012 Modified Project proposes to amend the General Plan and zoning to combine Planning Areas 30 and 51. The Heritage Fields Development currently zoned 1.1 Agriculture, 3.2 TOD, 4.3 Vehicle Commercial, and 5.4B General Industrial would be rezoned to 8.1 TTOD. Also, City parcels currently zoned 3.2 would be rezoned to 8.1. Combined Planning Area 51 consists of all of existing Planning Areas 30 and 51 plus approximately 11 acres between the current western boundary of Planning Area 51 and SR-133 between Trabuco Road and Irvine Boulevard.

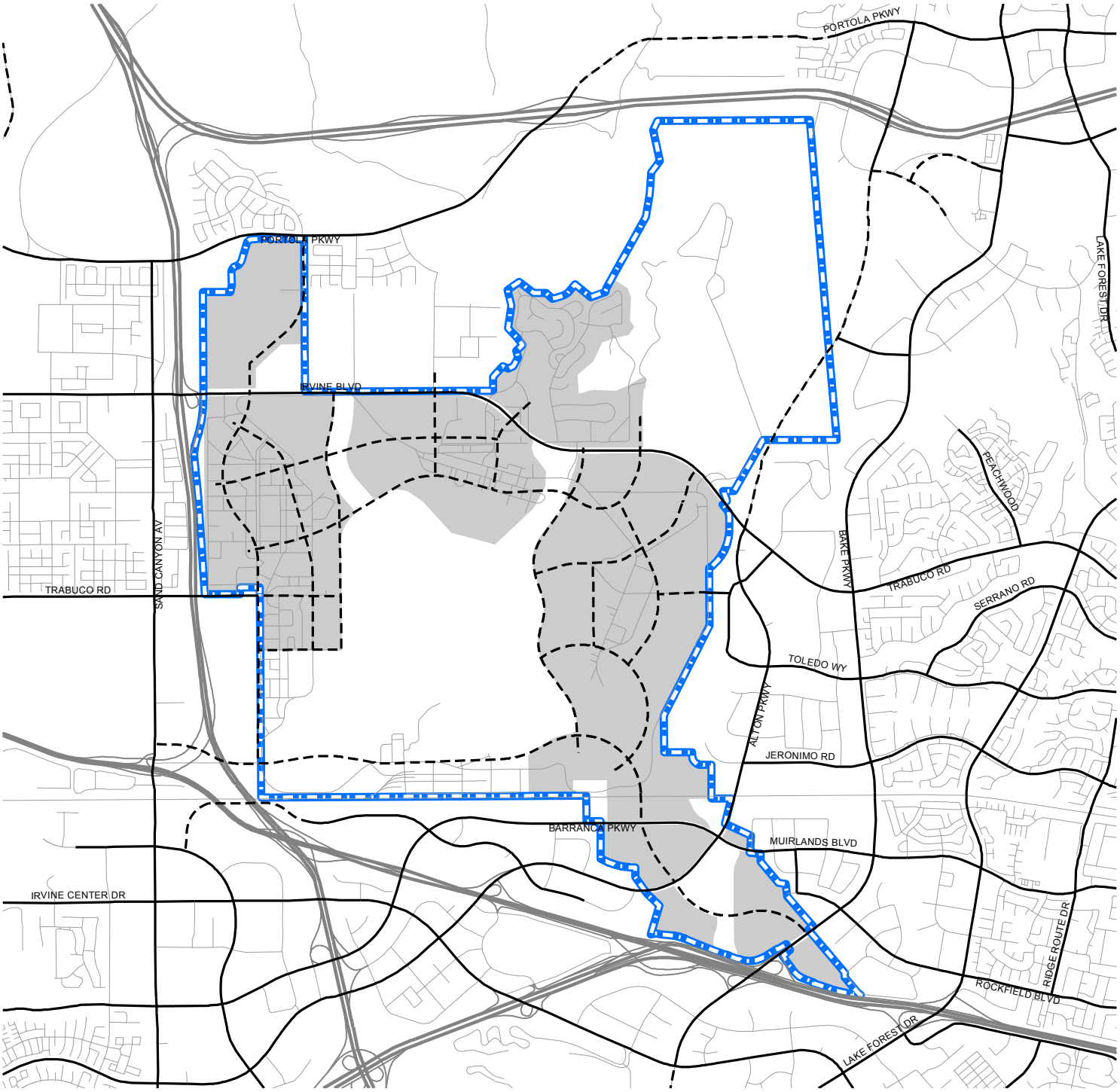
Proposed Sports Park and associated improvements shall be designed to generate traffic within the current ADT trip budget and are therefore assumed to have been previously analyzed. At this time detail of the precise improvements including specific site planning, access and parking are unclear. The Sports Park and associated improvements will be subject to site-specific traffic, access and parking analysis as part of any future modification of the OCGP Master Plan to incorporate these Sports Park and related improvements once the details necessary to perform that analysis are available.

Existing Planning Area (PA) 51 is generally bounded by the SR-133 Tollway to the west, the Borrego Canyon Wash to the east, the Southern California Regional Rail Authority ("SCRRA") rail lines to the south, and segments of Portola Parkway and Irvine Boulevard to the north. Existing PA 30 is generally bounded by I-5 to the south, the SCRRA rail lines to the north, and the Irvine Spectrum to the east and west (Irvine Spectrum 2- PA 35 and Irvine Spectrum 3 - PA 32). Exhibit 2-1 illustrates the Project location and future on-site roadways.

The purpose of this TIA is to evaluate the potential traffic and circulation impacts associated with the 2012 Modified Project on the surrounding roadway system, and recommend improvements to mitigate potential impacts considered significant utilizing thresholds determined by the City of Irvine. The TIA has been conducted in accordance with the requirements of the Scope of Work for this project (see Appendix 1.1) that was approved on April 5, 2012.

EXHIBIT 2-1

# PROJECT LOCATION




**LEGEND:**

- Combined PA 51 Boundary
- Project Area
- Future Roadway

0 1,500 3,000

Feet

## 2.1 Project Description

The 2012 Modified Project includes 9,500 dwelling units within the 8.1 zoning, consisting of 3,625 previously approved dwelling units and 1,269 previously approved density bonus units, plus 3,412 dwelling units and 1,194 density bonus units (35% of 3,412) granted pursuant to state law.

The maximum non-residential intensities for the 2012 Modified Project in 8.1 zoning would be revised to 1,318,200 square feet of Multi-Use (a category which includes previously approved 11,000 square feet of Child Care and 25,000 square feet of Church), 3,364,000 square feet of Medical and Science (R&D), and 220,000 square feet of Community Commercial. The 220,000 square feet of Community Commercial was previously approved and allocated per the master plans for District 1 North and District 4.

The 2012 Modified Project would also amend the General Plan, Objective B-1, Policy (c) regarding LOS "E" consideration as follows: In conjunction with traffic studies for development proposed in Planning Area 51, a LOS "E" standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35, 39 and a portion of 51 south of Marine Way. LOS "E" would be acceptable subject to the following:

1. Preparation, submittal, processing and approval of a traffic study.
2. Level of Service "E" will only be considered acceptable for an intersection that does not contain a residential quadrant, unless the residential development has a net density of 30 dwelling units per acre or greater. No Level of Service "E" will be acceptable along Sand Canyon except at the Sand Canyon/I-5 Interchange Ramps/Intersections.
3. Participation/funding to an upgraded traffic signal system as defined in the Traffic Management Systems Operations Study (TMSOS) and/or an Advance Traffic Management System (ATMS), which may be in place at the time of processing of the individual traffic studies. The City, in conjunction with specific traffic studies, shall determine the level of participation/funding using criteria and a process developed concurrently.

The 2012 Modified Project includes a 2,600 student high school in District 5, which is included in the 2030 and Post-2030 scenarios. For the purposes of this traffic study, the Great Park Neighborhoods/Heritage Fields tentative tract map land uses in Districts 1 North, 1 South, 4, 7, and 8 are assumed to be as approved for all horizon years with the following exceptions:

Option 1 - Includes the conversion of Institutional (Education) and Office land uses to Multi-Use (Non-Residential) or Medical and Science (R&D) in District 1 North.

Option 2 – In addition to the Option 1 conversions in District 1 North, this option includes a relocation of Multi-Use and Retail from District 1 North to District 1 South as well as changes in Districts 1 North to accommodate approved residential units displaced from a portion of District 1 South.

Table 2-1 provides a comparison of project land uses under buildout conditions based on the 2011 Approved Project, the 2012 Modified Project with Option 1, and the 2012 Modified Project with Option 2. Land uses in the table are described according to the categories that are applied in this study for traffic analysis purposes. Approval of VTTMs in Districts 1 South and 7 resulted in the reclassification of 577 single family detached residential units to multi-family residential units.

Exhibit 2-2 illustrates the various land planning districts which encompass the Combined PA 51. The Heritage Fields property consists of Districts 1 North, 1 South, 2, 3, 4, 5, 6, 7, 8 and 9.

As shown in Table 2-2, interim year (2015) development is assumed to include previously approved land uses in Districts 1 North, 1 South, 4, 7 and 8, as well as the 2012 Modified Project changes in District 1 North and 1 South.

For Option 1, within the footprint of those land uses in District 1 North which change to Multi Use or Medical and Science (R&D), the 2015 analysis assumes full development of the proposed land uses. For Option 2, within the footprint of those land uses in District 1 North and 1 South which change, the interim year analysis assumes full development of the proposed land uses for 2015. Outside of the footprint of those land uses which change in District 1 North and 1 South, development assumptions in the current City of Irvine Transportation Analysis Model (ITAM) version 8.4-10 Year 2015 are utilized in the interim year analysis.

**Table 2-1**

**Combined PA 51 Land Use Summary by District**
**2030/Post-2030 Conditions**

| DISTRICT | BUILDOUT LAND USE QUANTITIES | | |
|---|---|---|---|
| | 2011 APPROVED PROJECT | 2012 MODIFIED PROJECT - OPTION 1 | 2012 MODIFIED PROJECT - OPTION 2 |
| 1N | 10 TSF Church | 10 TSF Church | 10 TSF Church |
| | 5 TSF Child Care | 5 TSF Child Care | 5 TSF Child Care |
| | 150 TSF Retail | 150 TSF Retail | 258 Multi-Family (DB) |
| | 494 SFD | 494 SFD | 494 SFD |
| | 650 Student K-8 | 650 Student K-8 | 650 Student K-8 |
| | 759 Multi-Family | 759 Multi-Family | 759 Multi-Family |
| | 362 Multi-Family | 362 Multi-Family | 362 Multi-Family |
| | 182 Senior | 182 Senior | 182 Senior |
| | 48.7 TSF R&D<br>775 TSF Inst(Edu)[1]<br>75 TSF Office | 360 TSF R&D<br>704.3 TSF Multi-Use | 360 TSF R&D<br>449 TSF Multi-Use |
| 1S | 429 SFD (DB) | 429 Multi-Family (DB) | 171 Multi-Family (DB) |
| | | | 150 TSF Retail |
| | | | 255.3 TSF Multi-Use |
| 2 | 1,600 TSF R&D | 1,954 TSF R&D | 1,954 TSF R&D |
| | 102 TSF Auto | | |
| 3[2] | 832.9 TSF R&D | 1,050 TSF R&D | 1,050 TSF R&D |
| 4 | 70 TSF Retail | 70 TSF Retail | 70 TSF Retail |
| | 494 SFD | 494 SFD | 494 SFD |
| | 608 Multi-Family | 608 Multi-Family | 608 Multi-Family |
| 5[2] | 708 TSF Comm Rec (Expo) | 1,194 SFD (DB) | 1,194 SFD (DB) |
| | 80 TSF Retail | 1,690 Multi-Family | 1,690 Multi-Family |
| 6[2] | 50 TSF Mortuary | 1,722 Multi-Family<br>577.9 TSF Multi-Use | 1,722 Multi-Family<br>577.9 TSF Multi-Use |
| | 150 AC Golf | | |
| | 13 AC Agriculture | | |
| | 666.6 TSF Inst(Edu)[3] | | |
| | 118.4 TSF R&D | | |
| 7 | 840 SFD (DB) | 692 SFD (DB) | 692 SFD (DB) |
| | | 148 Multi-Family (DB) | 148 Multi-Family (DB) |
| 8 | 15 TSF Church | 15 TSF Church | 15 TSF Church |
| | 6 TSF Child Care | 6 TSF Child Care | 6 TSF Child Care |
| | 484 SFD | 484 SFD | 484 SFD |
| | 242 Multi-Family | 242 Multi-Family | 242 Multi-Family |
| Additional Public Uses | 350 Student K-8, District 1 North | 350 Student K-8, District 1 North | 350 Student K-8, District 1 North |
| | 1,000 Student K-8, District 5 | 1,000 Student K-8, District 5 | 1,000 Student K-8, District 5 |
| | - | 2,600 Student H.S. | 2,600 Student H.S. |
| | 47.6 Ac Park | 100 Ac Park | 100 Ac Park |
| City/Other Property | 90 Ac Agriculture | 90 Ac Agriculture | 90 Ac Agriculture |
| | 1,283.4 Ac Habitat, WLC & Drainage | 1,180 Ac Habitat, WLC & Drainage[4] | 1,180 Ac Habitat, WLC & Drainage[4] |
| | 263 TSF Warehousing | 263 TSF Warehousing | 263 TSF Warehousing |
| | 176 TSF OCTA Facility/Terminal | 176 TSF OCTA Facility/Terminal | 176 TSF OCTA Facility/Terminal |
| | 1,050 space Trans. Ctr/ Fly-Away | 1,050 space Trans. Ctr/ Fly-Away | 1,050 space Trans. Ctr/ Fly-Away |
| | 300 TSF Cult/Inst | 300 TSF Cult/Inst | 300 TSF Cult/Inst |
| | 70.9 TSF Government Facility | 70.9 TSF Government Facility | 70.9 TSF Government Facility |
| | 5,037 Parking (OCGP) | 5,037 Parking (OCGP) | 5,037 Parking (OCGP) |

[1] 775 TSF Institutional (Education) = 4,161 Students

[2] District 6 has been reconfigured to include the southerly portion of District 5, the northerly portion of District 3, and District 9, as previously depicted. For data summary purposes, approved project land uses are shown in the new District configuration.

[3] 666.6 TSF Institutional (Education) = 3,580 Students

[4] The change indicated for Habitat, Wildlife Corridor & Drainage is a correction to the ITAM 8.4-10 dataset (TAZ 325), and is not a result of the proposed Project 2012 GPA/ZC.

[5] The TOD office trip generation characteristics (ITAM code 272) have been utilized for the Multi-Use.

EXHIBIT 2-2

# PROJECT AREA DISTRICTS

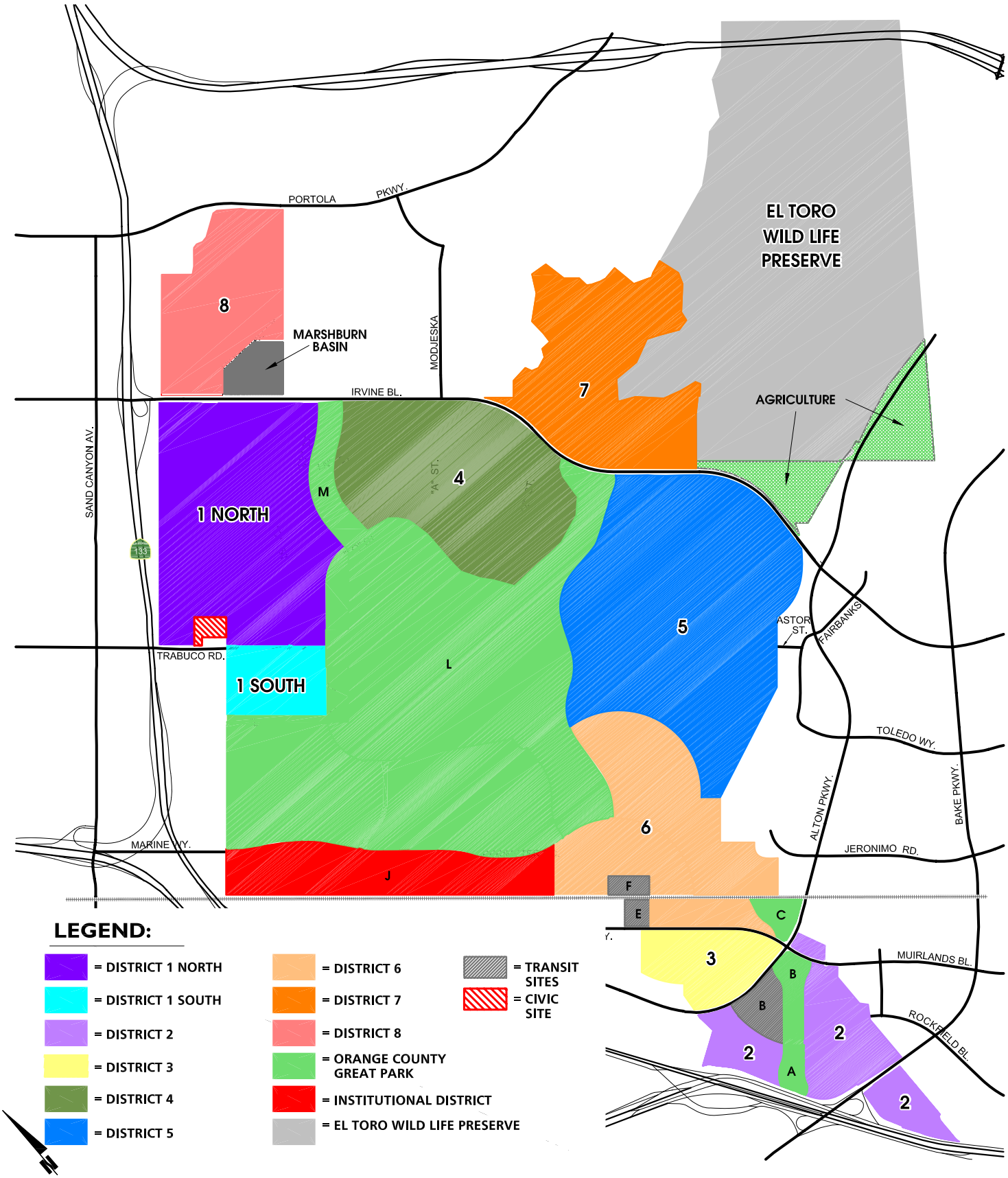


**Table 2-2**

**Combined PA 51 Land Use Summary by District**
**2015 Conditions**

| DISTRICT | 2015 LAND USE QUANTITIES | | |
|---|---|---|---|
| | BASELINE (W/O MODIFIED PROJECT) | MODIFIED PROJECT GPA/ZC - OPTION 1 | MODIFIED PROJECT GPA/ZC - OPTION 2 |
| 1N | 10 TSF Church | 10 TSF Church | 10 TSF Church |
| | 5 TSF Child Care | 5 TSF Child Care | 5 TSF Child Care |
| | - | 150 TSF Retail | 258 Multi-Family (DB) |
| | 494 SFD | 494 SFD | 494 SFD |
| | 650 Student K-8 | 650 Student K-8 | 650 Student K-8 |
| | 759 Multi-Family | 759 Multi-Family | 759 Multi-Family |
| | 362 Multi-Family | 362 Multi-Family | 362 Multi-Family |
| | 182 Senior | 182 Senior | 182 Senior |
| | - | 360 TSF R&D<br>704.3 TSF Multi-Use | 360 TSF R&D<br>449 TSF Multi-Use |
| 1S | - | 429 Multi-Family (DB) | 171 Multi-Family (DB) |
| | | | 150 TSF Retail |
| | | | 255.3 TSF Multi-Use |
| 2 | 149.8 AC Agriculture | 149.8 AC Agriculture | 149.8 AC Agriculture |
| 3[2] | 72.8 AC Agriculture | 72.8 AC Agriculture | 72.8 AC Agriculture |
| 4 | 70.0 TSF Retail | 70.0 TSF Retail | 70.0 TSF Retail |
| | 494 SFD | 494 SFD | 494 SFD |
| | 608 Multi-Family | 608 Multi-Family | 608 Multi-Family |
| 5 | 578.4 Ac Habitat, WLC & Drainage | 578.4 Ac Habitat, WLC & Drainage | 578.4 Ac Habitat, WLC & Drainage |
| 6[2] | 41.1 AC Agriculture | 41.1 AC Agriculture | 41.1 AC Agriculture |
| 7 | 840 SFD (DB) | 692 SFD (DB) | 692 SFD (DB) |
| | | 148 Multi-Family (DB) | 148 Multi-Family (DB) |
| 8 | 15 TSF Church | 15 TSF Church | 15 TSF Church |
| | 6 TSF Child Care | 6 TSF Child Care | 6 TSF Child Care |
| | 484 SFD | 484 SFD | 484 SFD |
| | 242 Multi-Family | 242 Multi-Family | 242 Multi-Family |
| Additional Public Uses | 350 Student K-8, District 1 North | 350 Student K-8, District 1 North | 350 Student K-8, District 1 North |
| | 1,000 Student K-8, District 5 | 1,000 Student K-8, District 5 | 1,000 Student K-8, District 5 |
| | 40.7 Ac Park | 47.6 Ac Park | 47.6 Ac Park |
| City/Other Property | 155.1 Ac Agriculture | 155.1 Ac Agriculture | 155.1 Ac Agriculture |
| | 1,376.7 Ac Habitat, WLC & Drainage | 1,273.3 Ac Habitat, WLC & Drainage[1] | 1,273.3 Ac Habitat, WLC & Drainage[1] |
| | 121.094 TSF Warehousing | 121.094 TSF Warehousing | 121.094 TSF Warehousing |
| | 35 TSF OCTA Facility/Terminal | 35 TSF OCTA Facility/Terminal | 35 TSF OCTA Facility/Terminal |
| | 695 space Trans. Ctr/ Fly-Away | 695 space Trans. Ctr/ Fly-Away | 695 space Trans. Ctr/ Fly-Away |
| | 60 TSF Cult/Inst | 60 TSF Cult/Inst | 60 TSF Cult/Inst |
| | 70.9 TSF Government Facility | 70.9 TSF Government Facility | 70.9 TSF Government Facility |
| | 2,726 trip TVI | 2,726 trip TVI | 2,726 trip TVI |
| | 1,962 Parking (OCGP)[3] | 1,962 Parking (OCGP)[3] | 1,962 Parking (OCGP)[3] |

[1] The change indicated for Habitat, Wildlife Corridor & Drainage is a correction to the ITAM 8.4-10 dataset (TAZ 325), and is not a result of the proposed Project 2012 GPA/ZC.

[2] District 6 has been reconfigured to include the southerly portion of District 5, the northerly portion of District 3, and District 9, as previously depicted. For data summary purposes, approved project land uses are shown in the new District configuration.

[3] This includes an increase of 402 parking spaces over previous Interim Year (2015) ITAM datasets to account for the approved Western Sector Plan.

[4] The TOD office trip generation characteristics (ITAM code 272) have been utilized for the Multi-Use.

## 2.2 Analysis Scope and Methodology

Pursuant to the approved scope of work, the analysis in this report identifies potential impacts of the 2012 Modified Project based on existing traffic conditions and 2015, 2030 and Post-2030 future traffic conditions. Existing traffic conditions are based on 2011 and 2012 intersection peak hour and 24-hour roadway segment traffic counts. Future traffic conditions have been prepared using the Irvine Transportation Analysis Model, Version 8.4-10 (ITAM 8.4-10) and the City of Lake Forest Traffic Analysis Model (LFTAM). For this study, traffic volume changes generated by ITAM 8.4-10 are overlayed on LFTAM datasets within the City of Lake Forest, and the ITAM 8.4-10 is directly utilized for all other locations in the traffic analysis study area.

The three future cumulative growth settings (2015, 2030 and Post-2030) are based on the existing circulation system plus improvements that are planned to be in place in each future time frame and the land use and development growth that is projected in each future time frame.

The North Irvine Transportation Mitigation (NITM) Program was established in 2003 to identify mitigation and provide a funding mechanism for transportation improvements and mitigation needed in North Irvine, including in and around the traffic analysis study area for the Proposed Project. The circulation system improvements that are programmed to be fully funded by the NITM Program have been included in the year 2015, year 2030 and Post-2030 scenarios analyzed in this study. Circulation system improvements that are only partially funded by the NITM Program are assumed to be in place only in the Post-2030 scenario when system-wide improvements are assumed.

For locations where partially funded NITM improvements have been identified and where the 2012 Modified Project exceeds adopted impact thresholds based on this analysis, the partially funded NITM improvements are considered first to determine whether they mitigate the Project impact.

Development projects that have been approved in and around the study area have been included in the future traffic conditions analyzed here along with any circulation system improvements related to those approved projects. Recently approved projects assumed in this analysis include the tract map for Planning Area 40, the IBC Vision Plan, Planning Area 9, and the Western Sector Park Development Plan Project.

### 2.2.1 Traffic Analysis Scenarios

The following traffic conditions are analyzed:

**A. Existing Conditions**

- 2011 and 2012 peak hour intersection counts and 24-hour segment counts

**B. Existing Plus Project Conditions**

- with the 2012 Modified Project, Option 1
- with the 2012 Modified Project, Option 2

**C. Interim Year 2015 Analysis**

- Interim Year 2015 without Project
  (Existing Uses within the Footprint of On-Site Land Uses which Change)
- Interim Year 2015 with Project, Option 1
- Interim Year 2015 with Project, Option 2

**D. Interim Year Long Term 2030 Analysis**

- Long Term Year 2030 without Project
  (2011 Approved Project - Baseline)
- Long Term Year 2030 with the 2012 Modified Project, Option 1
- Long Term Year 2030 with the 2012 Modified Project, Option 2

**E. General Plan Buildout (Post-2030) Analysis**

- General Plan Buildout (Post 2030) without Project
  (2011 Approved Project - Baseline)
- General Plan Buildout (Post 2030) with the 2012 Modified Project, Option 1
- General Plan Buildout (Post 2030) with the 2012 Modified Project, Option 2

The Without Project baseline scenarios are based on the 2011 approval plus baseline land use and network updates requested by the City.

The existing plus project scenario assumes the 2012 Modified Project land uses. This "worst case" approach was applied for the existing-plus-project scenario to assess whether or not any traffic impacts would result from a total of 9,500 on-site residential units and other proposed land use changes described in the project description.

### 2.2.2 Study Area

Exhibit 1-3 (previously presented) illustrates the NITM study area defined in the approved Traffic Study Scope of Work and applied in the analysis that is summarized in this report. The broad study area includes analysis locations in the Cities of Lake Forest, Laguna Hills, Laguna Woods, Mission Viejo, Aliso Viejo, and Tustin. The analysis results verify that the study area encompasses potential traffic impacts associated with the 2012 Modified Project.

### 2.2.3 Special Issues

A number of special issues are evaluated as part of the traffic analysis for the Proposed Project. The special issues, which are discussed in detail in the Special Issues chapter (Chapter 9.0) of this report, deal with the following subject areas:

• **Pending Projects Sensitivity Analysis** – Six future "pending" scenarios (Pending 2015 With Project Option 1, Pending 2015 With Project Option 2, Pending 2030 With Project Option 1, Pending 2030 With Project Option 2, Pending Post-2030 With Project Option 1, and Pending Post-2030 With Project With Option 2) are analyzed to determine if any additional level of service deficiencies are created within the study area with the following pending projects:

- PA 36 IBC Vision Plan-triggered MPAH Amendments for Von Karman Avenue and Alton Parkway
- Removal of Bake Parkway Extension between Laguna Canyon Road and Lake Forest Drive

- Removal of Ridge Route Drive extension between Bake Parkway extension to existing Ridge Route Drive western terminus
- Removal of Santa Maria Avenue extension between Laguna Canyon Road to existing Santa Maria Avenue western terminus
- PA33 GPA/ZC for 1350 apartment dwelling units
- Alton-Milikan project in PA 36
- Montessori project in PA 36

Pending Project scenarios are compared against 2011 Approved Project conditions (with the pending projects) so that any deficiencies on the study area circulation system associated with the pending projects in combination with the 2012 Modified Project can be identified. A determination is then made as to whether any project fair share mitigation is appropriate.

• **Rockfield Boulevard MPAH Network, Sensitivity Analysis –** General Plan Buildout (Post-2030) conditions for Options 1 and 2 are analyzed to determine if any level of service deficiencies are created within the study area with the buildout of Rockfield Boulevard as currently included on the Orange County Master Plan of Arterial Highways (MPAH).

• **Access Study –** The proposed access points along Irvine Boulevard are analyzed to assure that there is adequate distance between signals and that traffic operations will not be adversely impacted in a significant manner. Option 2 is used as the basis for this analysis because it includes changes in District 1 which were not analyzed in prior traffic studies. On-site intersections which are potentially affected by project changes for either Option 1 or Option 2 are also reviewed in comparison to prior traffic study findings. Table 9-34 includes recommended storage length requirements for the 2012 Modified Project Option 1 or 2.

• **Pedestrian and Bicycle Circulation** – The pedestrian and bicycle circulation and corresponding traffic control measures within the Project area are discussed in this section of the report, including a discussion demonstrating how Policies a-c of General Plan Objective B-3, and how Policies a-k of Objective B-4 are met with this project.

• **Circulation Phasing Report Intersections –** Evaluation of whether the 2012 Modified Project adversely impacts any circulation Phasing Report identified intersections within the project study area, with additional analysis if required.

• **Transit –** The transit services and amenities adjacent to the project site are discussed in this section of the report. A figure showing potential transit amenities is included.

• **CMP Checklist –** The Congestion Management Program (CMP) checklist is completed, and necessary analysis determined through the checklist is performed.

• **NITM Fee Reallocation –** Upon review of the List of NITM Improvements resulting from the analysis conducted in the above analysis and by utilizing the current ITAM version and methodology consistent with the April 30, 2003 NITM Program Nexus Study, the NITM Fees will be recalculated and will reflect any fair share allocation modifications based on current analyses.

This analysis will be included under a separate cover to be approved by the Director of Public Works.

### 2.2.4 Traffic Model Background

The ITAM 8.4-10 traffic model is derived from the Orange County Transportation Analysis Model (OCTAM), which is maintained by the OCTA, and has been developed according to the Orange County sub-area traffic modeling guidelines that have been adopted by the OCTA. The OCTA has certified the ITAM as being consistent with the OCTAM regional model. For descriptive purposes, the modeling processes in the ITAM can be divided into the following three general components:

1. Trip Generation
2. Trip Distribution/Mode Choice
3. Traffic Assignment

For trip generation purposes, land use data, which is typically comprised of detailed information by acreage or floor area for non-residential uses and number of dwelling units by density classification for residential uses, is converted to socioeconomic categories such as dwelling units, population and employment. The socioeconomic categories applied in the ITAM are the same categories that are applied in the OCTAM regional

model. Vehicle trip generation estimates for the ITAM are produced using socioeconomic trip generation rates.

In the trip distribution/mode choice component of the ITAM, vehicle trip generation estimates are distributed using regional travel forecast data from the OCTAM model, thereby incorporating regional trip distribution patterns into the ITAM. The regional traffic data is obtained from the OCTAM regional model in the form of vehicle trips, and hence also incorporates mode choice relationships (i.e., vehicle trips, transit trips, etc.) established in the OCTAM regional model. The resulting vehicle trip patterns are converted to actual traffic volumes on the roadway system in the traffic assignment component of the ITAM. The traffic assignment component applies procedures that are sensitive to the capacity of the circulation system network and which are able to forecast peak hour (AM and PM) and average daily traffic (ADT) traffic volumes with reasonable reliability.

## 2.3 Performance Criteria

Traffic operations of roadway facilities are described with the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS “A”, representing completely free-flow conditions, to LOS “F”, representing breakdown in flow resulting in stop-and-go conditions. LOS “E” represents operations at or near capacity, an unstable level, where vehicles are operating with the minimum spacing for maintaining uniform flow. Table 2-3 summarizes the volume/capacity (V/C) ranges for LOS “A” through “F” for arterial roads and freeway/tollway ramps. The V/C ranges listed for arterial roads are designated in the Orange County Congestion Management Program (CMP) as well as the General Plan for the City of Irvine and for the other jurisdictions within the traffic analysis study area. The V/C ranges listed for freeway/tollway segments are based on the V/C and LOS relationships specified in the 2000 Highway Capacity Manual (HCM 2000) for basic freeway sections.

**Table 2-3**

**Volume/Capacity Ratio Level of Service Ranges**

| Level of Service (LOS) | Volume/Capacity (V/C) Ratio Range | |
|---|---|---|
| | Arterial Roads | Freeway Segments |
| A | 0.00 - 0.60 | 0.00 - 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 | Above 1.00 | Above 1.00 |

The overall performance criteria applied in this study are summarized in Table 2-4. The criteria include components for arterial roadways, intersections, freeway/tollway mainline segments and freeway/tollway ramps, and are based on LOS calculation methodologies and performance standards that have been adopted by the governing jurisdictions in the study area and by the OCTA as part of the CMP. When analyzing individual locations on the study area circulation system, the criteria of the jurisdiction in which a given facility is located has been applied in this study. As required in the City's NITM Ordinance, the performance standards applied in this study are consistent with those approved in the 2003 NITM Program Nexus Study.

The arterial roadway criteria involve the use of ADT V/C ratios. The criteria is 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.

The ICU analysis is based on peak hour volumes and use individual turn movements and the corresponding intersection lane geometry to estimate level of service. Use of the ICU methodology is consistent with the City of Irvine's traffic analysis guidelines, and by practice the ICU methodology assumes that intersections are signalized.

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway/tollway ramp intersections at Sand Canyon

**Table 2-4**

**TRAFFIC ANALYSIS PERFORMANCE CRITERIA**

## I. 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 Orange**

| | | |
|---|---|---|
| Major Arterial | 8 lane | 75,000 |
| | 6 lane | 56,300 |
| Primary Arterial | 4 lane | 37,500 |
| Secondary Arterial | 4 lane | 24,000 |
| Commuter | 2 lane | 12,000 |

**County of Orange and Cities of Aliso Viejo, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo and 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 |

### Performance Standard

CMP arterials outside the City of Irvine, PA33 (Spectrum 1/Irvine Center) arterials and PA36 (Irvine Business Complex) arterials: Level of Service E (peak hour V/C less than or equal to 1.00).

All other arterials: Level of Service D (peak hour V/C less than or equal to .90).

### Mitigation Requirement

For V/C greater than the acceptable level of service, mitigation of the project contribution is required to bring link location back to acceptable level of service or to no-project conditions if project contribution is greater than .03 for CMP roadways outside the City of Irvine (the impact threshold specified in the CMP), .01 or greater for locations in the County of Orange, and .02 or greater for all other arterial roadways in the study area.

**Table 2-4 Cont.**

**TRAFFIC ANALYSIS PERFORMANCE CRITERIA**

## II. Intersections

**V/C 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
- Clearance Interval: .05
- Right-Turn-On-Red Utilization Factor*: .00 for County of Orange intersections, .75 for intersections in all other jurisdictions.

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

**Performance Standard**
CMP intersections outside the City of Irvine, Irvine Planning Area 33 (Spectrum 1/Irvine Center) and Planning Area 36 (Irvine Business Complex/IBC) intersections, the Bake Parkway/I-5 ramp intersections, Alton Parkway at Irvine Boulevard, Bake Parkway at Irvine Boulevard, Lake Forest Drive/I-5 southbound ramp – Avenida de la Carlota, and Lake Forest/Irvine Center Drive: Level of Service E (peak hour ICU less than or equal to 1.00).

All other intersections: Level of Service D (peak hour ICU less than or equal to .90).

**Mitigation Requirement**
For ICU greater than the acceptable level of service, mitigation of the project contribution is required to bring intersection back to acceptable level of service or to no project conditions if project contribution is greater than .03 at CMP locations outside the City of Irvine (the impact threshold specified in the CMP), .02 or greater at locations in the Cities of Aliso Viejo, Irvine, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo, Orange and Tustin, and .01 or greater at County of Orange locations (the impact threshold specified in the GMP).

## III. Freeway/Tollway Mainline Segments

**V/C Calculation Methodology**
Level of service to be based on peak hour V/C ratios calculated using the following capacities:

2,000 vehicles per hour per lane (vphpl) for mixed-flow (general purpose) lanes.
1,600 vphpl for a one-lane buffer-separated HOV facility.
1,750 vphpl for a two-lane buffer-separated HOV facility.

**Performance Standard**
Level of Service E (peak hour V/C less than or equal to 1.00)

**Mitigation Requirement**
For V/C greater than the acceptable level of service, mitigation of the project contribution is required to bring freeway/tollway mainline location back to acceptable level of service or to non-project conditions if project contribution is greater than .03 (the impact threshold specified in the CMP).

**Table 2-4 Cont.**

**TRAFFIC ANALYSIS PERFORMANCE CRITERIA**

## IV. Freeway/Tollway Ramps

**V/C Calculation Methodology**
Level of service to be based on peak hour V/C ratios calculated using the following capacities:

Metered On-Ramps

- A maximum capacity of 900 vehicles per hour (vph) for a one-lane metered on-ramp with only one mixed-flow lane at the meter.
- A maximum capacity of 1,080 (20 percent 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 percent 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.
- 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.

Freeway to Freeway and Freeway to Tollway Interchanges

- A maximum capacity of 2000 vph for a 1-lane ramp
- A maximum capacity of 4000 vph for a 2-lane ramp

**Performance Standard**
Level of Service E (peak hour V/C less than or equal to 1.00).

**Mitigation Requirement**
For V/C greater than the acceptable level of service, mitigation of the project contribution is required to bring ramp back to acceptable level of service or no-project conditions if project contribution is greater than .03 for ramps at CMP intersections outside the City of Irvine (the impact threshold specified in the CMP), .02 or greater for ramps at intersections in the Cities of Aliso Viejo, Irvine, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo, Orange and Tustin, and .01 or greater for ramps at County of Orange intersections ( the impact threshold specified in the GMP).

Abbreviations: CMP – Orange County Congestion Management Program
GMP – Growth Management Plan
HOV – High Occupancy Vehicle

Avenue/I-5, Irvine Boulevard/SR-133 interchanges and Trabuco Road/SR-133 interchanges are analyzed in this study using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. In the HCM intersection analysis methodology, the LOS at an intersection location is determined based on the estimated average delay experienced by all traffic using the intersection. The vehicle delay ranges that correspond to LOS "A" through "F" as specified in the HCM area summarized in Table 2-5.

**Table 2-5**

**HCM Intersection Delay Level of Service Ranges**

| Level of Service (LOS) | Average Vehicle Delay Signalized | Average Vehicle Delay Unsignalized |
|---|---|---|
| A | 0 - 10.00 seconds | 0 - 10.00 seconds |
| B | 10.01 - 20.00 seconds | 10.01 - 15.00 seconds |
| C | 20.01 - 35.00 seconds | 15.01 - 25.00 seconds |
| D | 35.01 - 55.00 seconds | 25.01 - 35.00 seconds |
| E | 55.01 - 80.00 seconds | 35.01 - 50.00 seconds |
| F | Above 80.00 seconds | Above 50.00 seconds |

Peak hour traffic volume projections for on-site intersections with the 2012 Modified Project are compared to the 2011 Approved Project analysis to determine the need for geometric changes (see Section 9.7 of this report). Local street configurations and intersection geometrics in Districts 2, 3, 5 and 6 will be determined with subsequent tract maps.

Freeway ramps are analyzed based on AM and PM peak hour ramp volumes taken from intersection volumes at each location in the study area where freeway ramps intersect the arterial system. The peak hour ramp volumes are applied together with the ramp capacities previously summarized in Table 2-4 to calculate AM and PM peak hour ramp V/C ratios and corresponding LOS values. The freeway ramp analysis differs from the peak hour intersection analysis which includes ramp intersections with arterial streets. The ramp analysis involves the peak hour V/C of the ramp itself whereas the intersection analysis involves the performance of the ramp intersection with the arterial street.

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, Irvine Planning Area 33 (Spectrum 1/Irvine Center) and Planning Area 36 (Irvine Business Complex/IBC) intersections, the Bake Parkway/I-5 ramp intersections, Alton Parkway at Irvine Boulevard, Bake Parkway at Irvine Boulevard, Lake Forest Drive/I-5 southbound ramp – Avenida de la Carlota, and Lake Forest/Irvine Center Drive. LOS “D” (V/C not to exceed 0.90) is the performance standard for the remainder of City of Irvine and for the remainder of the arterial roadway system in the study area. Freeway ramps and mainline segments since they are part of the CMP highway network use LOS “E” as being acceptable. This criterion has been used for other impact analyses throughout Orange County.

The 2012 Modified Project would also amend the General Plan, Objective B-1, Policy (c) regarding LOS “E” consideration as follows: In conjunction with traffic studies for development proposed in Planning Area 51, a LOS “E” standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35, 39 and a portion of 51 south of Marine Way. LOS “E” would be acceptable subject to the following:

1. Preparation, submittal, processing and approval of a traffic study.
2. Level of Service “E” will only be considered acceptable for an intersection that does not contain a residential quadrant, unless the residential development has a net density of 30 dwelling units per acre or greater. No Level of Service “E” will be acceptable along Sand Canyon except at the Sand Canyon/I-5 Interchange Ramps/Intersections.
3. Participation/funding to an upgraded traffic signal system as defined in the Traffic Management Systems Operations Study (TMSOS) and/or an Advance Traffic Management System (ATMS), which may be in place at the time of processing of the individual traffic studies. The City, in conjunction with specific traffic studies, shall determine the level of participation/funding using criteria and a process developed concurrently.

For the roadway link V/C and intersection ICU analyses, a significant impact occurs if the roadway link or intersection is deficient without the Project (LOS “F” for CMP intersections or LOS “E” or “F” for all roadway links and all other intersections), and the Project contribution to

the "with project" ICU or V/C is .02 or more. A significant impact also occurs if the intersection is not deficient without the Project (LOS "E" for CMP intersections or LOS "D" or better for all other intersections), and the Project contribution to the "with project" ICU or V/C causes it to become deficient (LOS "F" for CMP intersections or LOS "E" or "F" for all other intersections).

The freeway mainline and freeway ramp criteria are based on peak hour V/C ratios. The methodology and criteria applied here have been used for various project traffic impact analyses throughout Orange County. The freeway mainline and ramp capacities are based on information contained in the Caltrans Highway Design Manual and the Caltrans Ramp Meter Design Manual. The Project is considered to significantly contribute to new/worsened freeway mainline deficiencies in cases where the peak hour V/C increases by more than 0.03 from 2011 Approved Project to 2012 Modified Project conditions.

## 2.4 Relationship to Other Studies

Several recent studies that have been carried out in this area are of relevance to the traffic analysis presented here. The projects and studies briefly summarized below have all been approved and have been incorporated into the traffic models that are applied in this study.

**Great Park Neighborhoods General Plan Amendment/Zone Change and VTTM 17008 Amendment Traffic Study (Reference 1), and VTTMs 17364, 17283 Amended, 17366, 17368, and 17202 Traffic Study (Reference 2) –** These studies evaluated entitlements that included the following actions: locating 1,100 low- density residential units, previously located on a programmatic basis within Districts 5 and 7, in the locations depicted on the Vesting Tentative Tract Maps ("VTTMs"), changes to the General Plan land use designation and the associated zoning of these units from Low Density (0-5 du/ac) to Multi-Use (0-40 du/ac); locating 1,500 residential units, previously located on a programmatic basis in the portion of the Transit Oriented District ("TOD") located within PA 51, to the locations depicted on the VTTMs; locating the 1,269 density bonus units, which had not previously been located on a programmatic basis, in the locations depicted on the VTTMs; locating the remaining 1,025 residential units on the VTTMs; transferring non-residential development intensities between certain zones; and realigning Ridge Valley and "O" Street at Irvine Boulevard. These changes were achieved and implemented through the approved General Plan Amendment, Zone Change, five VTTMs, VTTM and VTPM amendments and Master Plans pursuant to Zoning Ordinance Section 2-17-2 and 9-

51-6, Parks Plans, Master Landscape and Trails Plan and Master Wall and Fence Plan amendment approved by the City in September 2011.

**Great Park Western Sector Development Plan Traffic Study (Reference 3) -** In 2011, the Great Park Corporation sought approval of a Minor Modification to the approved Orange County Great Park Master Plan and Park Design, which were associated with implementation of the Western Sector Park Development Plan. The Western Sector Park Development Plan consists of minor modifications that would result in: the transfer of non-residential square footage from the northeastern area to the southwestern area of the park; remove the Air Museum and Concessions/Retail, and replace them with the Artist in Residency Facility, the proposed Community Ice Facility, and the proposed Nature Education Garden; and replacement of the existing Air Museum Hangar with Hangar 244. The Western Sector Park Development Plan was approved by the Great Park Board and the Irvine City Council on October 20, 2011. Note that the Minor Modification was approved by the Director of Community Development on October 19, 2011 and the Park Design was approved on October 20, 2011.

**North Irvine Transportation Mitigation (NITM) Program Nexus Study (Reference 5) and North Irvine Transportation Mitigation (NITM) Program Five-Year Review (Reference 6) -** The nexus study summarized in the first report (completed in April 2003) was carried out as part of the NITM Program, which established a funding mechanism for the transportation improvement mitigation measures identified in the Environmental Impact Reports (EIRs) for three future development projects in north Irvine; 1) Spectrum 8/PA40, 2) Irvine Northern Sphere Area (PAs 5B, 6, 8A and 9), and 3) the Orange County Great Park. The second report (completed in June 2010) summarized the results of a comprehensive NITM Program review. The circulation system improvements that are programmed to be fully funded by the NITM Program have been included in the year 2015, year 2030 and Post-2030 scenarios analyzed in this study.

**City of Irvine Planning Area 40 Vesting Tentative Tract Map 17277 Traffic Study (Reference 7) and City of Irvine Planning Area 40/Planning Area 12 (Traveland Site) GPA/ZC and Planning Areas 1 and 9 Density Transfer Traffic Study (Reference 8)** – These reports, which was completed in October 2010 and June 2008, respectively, presented the findings of traffic studies carried out to determine the impacts of a GPA/ZC for City of Irvine Planning Areas 40 and 12 as well as a subsequent VTTM for a major portion of PA40. The land

use and circulation assumptions for PA40 VTTM 17277 and the PA40/PA12 GPA/ZC project are applied in this study as part of the background conditions.

**Bake Parkway – Marine Way Circulation System Amendment Traffic Study (Reference 9)**– This report, which was completed in June 2008, identified potential traffic circulation needs associated with the relocation of the Bake Parkway at Marine Way intersection from its original General Plan location to a location further northeast on Bake Parkway. The Bake Parkway/Marine Way configuration associated with this approved Circulation System Amendment and the related roadway improvements identified in the traffic study are assumed in the background conditions applied in this study.

## 2.5 References


1. "Great Park Neighborhoods General Plan Amendment/Zone Change and VTTM 19008 Amendment Traffic Impact Analysis", Urban Crossroads, Inc., May 2011.
2. "Great Park Neighborhoods Vesting Tentative Tract Maps 17364, 17283 Amended, 17366, 17368, and 17201 Traffic Impact Analysis", Urban Crossroads, Inc., May 2011.
3. "Orange County Great Park Western Sector Park Development Plan Phase 1 Traffic Study", LSA Associates, Inc., August 2011.
4. "City of Irvine Planning Area 6 General Plan Amendment and Zone Change Traffic Study", Austin Foust Associates, Inc., November 2011.
5. "North Irvine Transportation Mitigation (NITM) Program Nexus Study," Austin-Foust Associates, Inc., April 2003.
6. "North Irvine Transportation Mitigation (NITM) Program Five-Year Review," Parsons Brinckerhoff, June 2010.
7. "City of Irvine Planning Area 40 Vesting Tentative Tract Map 17277 Traffic Study," Austin-Foust Associates, Inc., October 2010.
8. "City of Irvine Planning Area 40/Planning Area 12 (Traveland Site) GPA/ZC and Planning Areas 1 and 9 Density Transfer Traffic Study," Austin-Foust Associates, Inc., June 2008.
9. "Bake Parkway – Marine Way Circulation System Amendment Traffic Study," Parsons Brinkerhoff, June 2008.

10. “Vesting Tentative Tract Map 17283 (VTTM 17283) Portion of Life Long Learning District (LLD) Traffic Impact Analysis,” Iteris, November 2008.

11. “Orange County Great Park Access Study”, LSA Associates, Inc., September 2010.

12. “Circulation Phasing Study,” City of Irvine, 2008.

13. “Traffic Impact Analysis Guidelines,” City of Irvine, August 24, 2004.

14. “Trip Generation, Eighth Edition,” Institute of Traffic Engineers, 2008.

15. “Highway Capacity Manual 2000,” Transportation Research Board, National Research Council.

16. “Highway Design Manual 2010”, Transportation Research Board, National Research Council.

17. “Ramp Meter Design Manual,” Caltrans, January 2000.

18. “2011 Orange County Congestion Management Program,” Orange County Transportation Authority, August 2011.

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# 3.0 PROJECT DESCRIPTION

This chapter describes the traffic characteristics of the 2012 Modified Project and the procedures used to develop project traffic forecasts. The results are used to evaluate potential impacts the Project would have on the surrounding roadway system under existing, 2015, 2030 and Post-2030.

The amount of traffic added to the roadway system by the Project are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of traffic which is attracted and produced by a project. The second step estimates directional orientation of traffic to and from the Project. The last step includes the assignment of traffic from the site to the adjoining roadway system. This step is based upon the site's trip generation, trip distribution pattern, and proposed arterial highway and local street systems assumed to be in place by the time of occupancy of each phase of development.

## 3.1 Project Site Land Uses

The 2012 Modified Project includes 9,500 dwelling units within the 8.1 zoning, consisting of 3,625 previously approved dwelling units and 1,269 previously approved density bonus units, plus 3,412 dwelling units and 1,194 density bonus units (35% of 3,412) granted pursuant to state law.

The maximum non-residential intensities for the 2012 Modified Project in 8.1 zoning would be revised to 1,318,200 square feet of Multi-Use (a category which includes previously approved 11,000 square feet of Child Care and 25,000 square feet of Church), 3,364,000 square feet of Medical and Science (R&D), and 220,000 square feet of Community Commercial. The 220,000 square feet of Community Commercial was previously approved and allocated per the master plans for District 1 North and District 4.

The 2012 Modified Project includes a 2,600 student high school in District 5, which is included in the 2030 and Post-2030 scenarios.

For the purposes of this traffic study, the Great Park Neighborhoods/Heritage Fields tentative tract map land uses in Districts 1 North, 1 South, 4, 7, and 8 are assumed to be as approved for all horizon years with the following exceptions:

Option 1 - Includes the conversion of Institutional (Education) and Office land uses to Multi-Use (Non-Residential) or Medical and Science (R&D) in District 1 North.

Option 2 – In addition to the Option 1 conversions in District 1 North, this option includes a relocation of Multi-Use and Retail from District 1 North to District 1 South as well as changes in Districts 1 North to accommodate approved residential units displaced from a portion of District 1 South.

The 2012 Modified Project also includes the option to convert up to 535,000 square feet of Multi-Use to up to 889 base units and up to 311 Density Bonus units, granted pursuant to State law. The location, type and number of converted units are unknown at this time. This optional conversion is expressly conditioned to stay within the trip parameters of this study and is subject to further analysis of the changes in land uses to confirm compliance with this condition.

## 3.2 Project-Related Roadway Improvements

Exhibit 3-1 identifies the 2030/Post-2030 project backbone roadway network for the 2012 Modified Project. On-site roadways shown in Districts 5 and 6 (east of "B" Street, south of "LQ" Street and north of Marine Way) are conceptual. The alignments of local streets in Districts 5 and 6 will be determined in future Vesting Tentative Tract Map (VTTM) traffic studies.

The existing facilities and the proposed roadway classifications of the Project backbone roadways are described below:

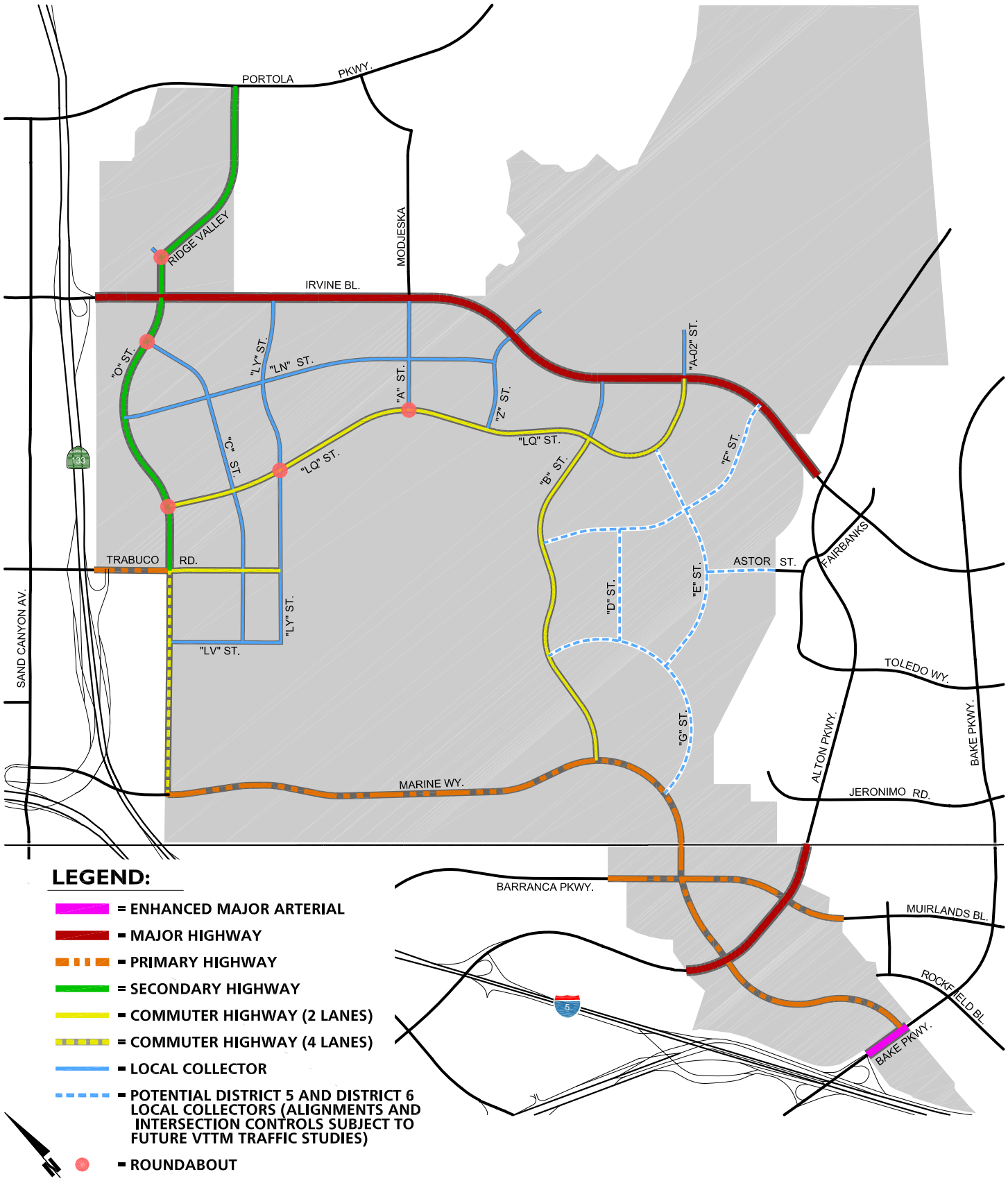
***Ridge Valley/"O" Street*** is currently a two-lane undivided roadway that terminates roughly a quarter of a mile south of Portola Parkway. In the future, Ridge Valley/"O" Street is designated as a continuous north-south Secondary highway between Portola Parkway and Trabuco Road, and a 4-lane Commuter Highway between Trabuco Road and Marine Way. Heritage Fields is responsible for construction of two of these lanes between Trabuco Road and Marine Way.

***"C" Street*** is planned as a north-south roadway from "O" Street to "LV" Street in the Project. It is designated as a Local Collector, with one travel lane in each direction. "C" Street currently exists as a two-lane park access road from Marine Way.

***"LY" Street*** is shown as a north-south roadway from Irvine Boulevard to "LV" Street. It is designated as a Local Collector on the approved Project network, with one travel lane in each direction.

EXHIBIT 3-1

# 2030/POST-2030 PROJECT BACKBONE ROADWAY NETWORK




*Heritage Fields Project 2012 - GPA/ZC Traffic Study*
*City of Irvine, CA (JN - 07151:337.dwg)*

URBAN CROSSROADS

***A" Street*** is the southerly extension of Modjeska from Irvine Boulevard to "LQ" Street. "A" Street is designated as a Local Collector on the Project network, with one travel lane in each direction.

***"Z" Street*** extends from Irvine Boulevard (at the westerly access into District 7) south to "LQ" Street. "Z" Street is designated as a Local Collector on the Project network, with one travel lane in each direction.

***"B" Street*** is a future north-south connection from Irvine Boulevard to Marine Way. "B" Street is designated as a Local Collector between Irvine Boulevard and "LQ" Street and a Commuter between "LQ" Street and Marine Way on the Project network, with one travel lane in each direction.

***"LN" Street*** is a planned east-west roadway from "O" Street to "Z" Street. "LN" Street is designated as a Local Collector on the approved Project network, with one travel lane in each direction.

***"LQ" Street*** runs east-west from "O" Street to Irvine Boulevard. "LQ" Street is designated as a Commuter on the Project network, with one travel lane in each direction.

***Trabuco Road*** is currently the main Project entry as a four-lane roadway west of "O" Street which narrows to a two-lane divided roadway east of "O" Street. The approved roadway network for the Project identifies Trabuco Road as a Primary Arterial west of "O" Street to SR-133; a Commuter east of "O" Street, then a Collector just before "C" Street until it terminates at "LY" Street. A Primary consists of two travel lanes in each direction with limited access, and a Secondary consists of two travel lanes in each direction with a higher frequency of intersecting streets. On the City of Irvine Master Plan of Arterial Highways, Trabuco Road is designated as a Major Highway between Sand Canyon and the future SR-133 interchange. The City of Irvine Operational Characteristics map identifies Trabuco Road as a Parkway.

***"LV" Street*** is a planned east-west roadway from "O" Street to "LY" Street. "LV" Street is designated as a Collector on the approved network Project, with one travel lane in each direction.

***"F" Street*** is a potential Local Collector shown on the 2012 Modified Project network within District 5. It would extend from Irvine Boulevard to "B" Street, providing access to a future K-8 School within District 5. The "F" Street/Irvine Boulevard intersection is proposed to be located approximately 1,640 feet east of "A-02" Street and 1,970 feet west of Alton Parkway. The alignment of "F" Street and intersection controls will be determined with subsequent tract maps.

***"G" Street*** is a potential Local Collector shown on the 2012 Modified Project network along the northeasterly boundary of District 6. The "G" Street/Marine Way intersection is proposed to be located approximately 1,480 feet east of "B" Street. The alignment of "G" Street and intersection controls will be determined with subsequent tract maps.

***Marine Way*** is currently a two-lane undivided roadway between Sand Canyon Avenue and Perimeter Road. In the City of Irvine Master Plan of Arterial Highways, Marine Way is designated as a Primary between Sand Canyon Avenue and Bake Parkway. The City of Irvine Operational Characteristics map identifies Marine Way as a Parkway. The proposed roadway network for the 2012 Modified Project retains the Marine Way designation as a Primary Arterial between Sand Canyon Avenue and Bake Parkway. A Primary consists of two travel lanes in each direction with limited access.

***Barranca Parkway/Muirlands Boulevard*** is currently a four-lane divided roadway in the vicinity of the Project site. On the City of Irvine Master Plan of Arterial Highways, Barranca Parkway/Muirlands Boulevard is designated as a Primary Highway. The City of Irvine Operational Characteristics map identifies Barranca Parkway/Muirlands Boulevard as a Parkway.

***Rockfield Boulevard*** currently terminates approximately a quarter mile west of Bake Parkway on the easterly border of the project site. On the City of Irvine Master Plan of Arterial Highways, Rockfield Boulevard is designated as a Primary Highway.

The 2012 Modified Project proposes to amend the City of Irvine General Plan Figure B-1 (Master Plan of Arterial Highways) to delete the on-site extension of Rockfield Boulevard from its existing western terminus to Marine Way.

Exhibit 1-1 (shown previously in Chapter 1 of this report) illustrates the project network that is assumed in this analysis under 2015 conditions. Access to the first phases of the Project focus on Trabuco Road, Irvine Boulevard and Portola Parkway. Within the project area, interconnected local collectors and commuter facilities provide options for travel to various attractions.

The widening of Irvine Boulevard adjacent to the Project from 4 lanes to 6 lanes is planned to occur in conjunction with development in project districts 1 North, 4, 5, 7 and 8.

## 3.3 Proposed Site Trip Generation

Trip generation rates derived from ITAM 8.4-10 socio-economic conversion factors, production attraction rates, and time of day trip table factors are shown in Table 3-1. ITAM converts production-attraction trip tables to directional origin-destination tables by time period, using Vehicle Trips in Motion factors. Table 3-1 trip rates are responsive to this flow of data processing in ITAM, and they directly account for the resulting travel patterns which are analyzed in the GPA/ZC traffic study. For subsequent tract-level studies, ITE trip rates will be used to evaluate project local design features.

The land use and trip generation for the project site under Year 2015 without Project conditions is summarized in Table 3-2. The project districts 1 North, 2, 3, 5, 8 and 9 include a combined total of 432.3 acres of agricultural uses, of institutional/education uses (capacity of 1,758 students), and 578 acres of open space, habitat wildlife corridor and drainage uses under 2015 without project conditions.

Tables 3-2, 3-3 and 3-4 display the 2015 land uses and trip generation for Without Project, 2012 Modified Project Option 1, and 2012 Modified Project Option 2, respectively.

For interim year conditions, the 2012 Modified Project change in allowable uses and intensities involves District 1 South and portions of District 1 North. Within the footprint of those land uses in District 1 North and 1 South which change in either Option 1 or Option 2, the Without Project scenario assumes existing occupied land uses. Outside of the footprint of those land uses which change in District 1 North and 1 South, development assumptions in the current City of Irvine Transportation Analysis Model (ITAM) version 8.4-10 Year 2015 are utilized in this analysis.

**Table 3-1**

**ITAM Trip Generation Rates by Land Use [1]**

| ITAM LAND USE CODE | ITAM LAND USE DESCRIPTION | UNITS | TRIP RATE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AM PEAK HOUR | | | PM PEAK HOUR | | | |
| | | | IN | OUT | TOTAL | IN | OUT | TOTAL | DAILY |
| 251 | Auto Center | TSF | 1.73 | 0.93 | 2.66 | 1.85 | 2.23 | 4.08 | 42.68 |
| 252 | Education (College/University) | Students | 0.21 | 0.05 | 0.26 | 0.09 | 0.16 | 0.25 | 2.63 |
| 135,136 | School (K-8 & High School) | Students | 0.16 | 0.02 | 0.18 | 0.04 | 0.07 | 0.11 | 1.24 |
| 254 | Retail | TSF | 2.19 | 1.20 | 3.39 | 2.39 | 2.84 | 5.23 | 54.72 |
| 256 | Senior Housing | DU | 0.10 | 0.34 | 0.44 | 0.29 | 0.18 | 0.47 | 5.11 |
| 258 | Research & Development | TSF | 0.72 | 0.20 | 0.92 | 0.36 | 0.65 | 1.01 | 10.42 |
| 259 | Warehousing | TSF | 0.50 | 0.12 | 0.62 | 0.20 | 0.41 | 0.61 | 6.29 |
| 260 | OCTA Facility / Terminal | TSF | 0.54 | 0.13 | 0.67 | 0.21 | 0.44 | 0.65 | 6.70 |
| 261 | Transportation Center / Fly-Away Ctr. | Spaces | 0.20 | 0.05 | 0.25 | 0.08 | 0.16 | 0.24 | 2.50 |
| 262 | Cultural/Institutional | TSF | 1.24 | 0.45 | 1.69 | 0.89 | 1.33 | 2.22 | 23.08 |
| 263 | Agriculture | Acres | 0.16 | 0.04 | 0.20 | 0.06 | 0.13 | 0.19 | 2.01 |
| 264 | Golf Course | Acres | 0.31 | 0.12 | 0.43 | 0.25 | 0.34 | 0.59 | 6.15 |
| 137 | Habitat, Wildlife Corridor & Drainage | Acres | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.17 |
| 268 | Chapel/Mortuary | TSF | 0.54 | 0.16 | 0.70 | 0.28 | 0.51 | 0.79 | 8.14 |
| 272 | Office | TSF | 0.89 | 0.24 | 1.13 | 0.43 | 0.78 | 1.21 | 12.55 |
| 276 | Exposition Center | TSF | 1.29 | 0.46 | 1.75 | 0.92 | 1.37 | 2.29 | 23.77 |
| 235 | Res. - Multi (Condo) | DU | 0.12 | 0.56 | 0.68 | 0.43 | 0.23 | 0.66 | 7.15 |
| 235 | Res. - Multi (Apartment) | DU | 0.12 | 0.56 | 0.68 | 0.43 | 0.23 | 0.66 | 7.15 |
| 101 | Res. - SFD | DU | 0.14 | 0.66 | 0.80 | 0.53 | 0.28 | 0.81 | 8.79 |
| 277[2] | Great Park Parking (TAZs 930, 931, 993-995) | Spaces | 0.16 | 0.08 | 0.24 | 0.16 | 0.20 | 0.36 | 3.74 |
| 277[2] | Great Park Parking (TAZs 932, 933, 991, 992, 996) | Spaces | 0.04 | 0.01 | 0.05 | 0.51 | 0.38 | 0.89 | 3.74 |
| 277[2] | Great Park Parking (TAZs 927-929, 977, 978) | Spaces | 0.18 | 0.04 | 0.22 | 0.14 | 0.22 | 0.36 | 3.74 |
| 139 | Park (Neighborhood) | Acres | 0.21 | 0.07 | 0.28 | 0.13 | 0.22 | 0.35 | 3.59 |
| 142 | Child Care | TSF | 2.42 | 0.79 | 3.21 | 1.56 | 2.48 | 4.04 | 41.93 |
| 130 | Church, Synagogue | TSF | 0.54 | 0.16 | 0.70 | 0.28 | 0.51 | 0.79 | 8.14 |
| 132 | Government Facility | TSF | 1.41 | 0.46 | 1.87 | 0.88 | 1.42 | 2.30 | 23.88 |

[1] Derived from ITAM 8.4-10 socio-economic conversion factors, production attraction rates, and time of day trip table factors. ITAM converts production-attraction trip tables to directional origin-destination tables by time period, using Vehicle Trips in Motion factors. Table 3-1 trip rates are responsive to this flow of data processing in ITAM, and they directly account for the resulting travel patterns which are analyzed in the GPA/ZC traffic study. For subsequent tract-level studies, ITE trip rates are used to evaluate project access points.

[2] Parking spaces are used to allocate trips within the Great Park, not to determine trips for the Great Park. AM and PM peak hour rates have been adjusted based upon assumptions for different uses within the Great Park. The AM, PM and ADT rates for the Great Park are not being approved or established as part of this analysis.

**TABLE 3-2**

**2015 DAILY TRIP END SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED ADT RATES)**

| DISTRICT | LAND USE | ADT RATE | Without Project (Baseline) | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Res - SFD | 8.79 | 4,254 | 4,254 | 4,254 |
| District 8 | Multi Family | 7.15 | 1,730 | 1,730 | 1,730 |
| District 8 | Child Care | 41.93 | 252 | 252 | 252 |
| District 8 | Church, Synagogue | 8.14 | 122 | 122 | 122 |
| **District 8** | **Subtotal** | | **6,358** | **6,358** | **6,358** |
| District 1 North | Medical and Science (R&D) | 10.42 | 0 | 3,751 | 3,751 |
| District 1 North | Retail | 54.72 | 0 | 8,208 | 0 |
| District 1 North | Office | 12.55 | 0 | 0 | 0 |
| District 1 North | Multi Family | 7.15 | 8,015 | 8,015 | 9,860 |
| District 1 North | Res - SFD | 8.79 | 4,342 | 4,342 | 4,342 |
| District 1 North | Res - Senior | 5.11 | 930 | 930 | 930 |
| District 1 North | K-8 School (Elementary & Middle), approved | 1.24 | 806 | 806 | 806 |
| District 1 North | Institutional (Education) | 2.63 | 0 | 0 | 0 |
| District 1 North | Church, Synagogue | 8.14 | 81 | 81 | 81 |
| District 1 North | Child Care | 41.93 | 210 | 210 | 210 |
| District 1 North | Multi-Use (Non-Residential) | 12.55 | 0 | 8,839 | 5,635 |
| **District 1 North** | **Subtotal** | | **14,384** | **35,182** | **25,615** |
| District 1 South | Res - SFD | 8.79 | 0 | 0 | 0 |
| District 1 South | Multi Family | 7.15 | 0 | 3,067 | 1,223 |
| District 1 South | Retail | 54.72 | 0 | 0 | 8,208 |
| District 1 South | Multi-Use (Non-Residential) | 12.55 | 0 | 0 | 3,204 |
| **District 1 South** | **Subtotal** | | **0** | **3,067** | **12,635** |
| District 4 | Retail | 54.72 | 3,830 | 3,830 | 3,830 |
| District 4 | Multi Family | 7.15 | 4,347 | 4,347 | 4,347 |
| District 4 | Res - SFD | 8.79 | 4,342 | 4,342 | 4,342 |
| **District 4** | **Subtotal** | | **12,519** | **12,519** | **12,519** |
| District 7 | Res - SFD | 8.79 | 7,384 | 6,083 | 6,083 |
| District 7 | Multi Family | 7.15 | 0 | 1,058 | 1,058 |
| **District 7** | **Subtotal** | | **7,384** | **7,141** | **7,141** |
| District 5 | Multi Family | 7.15 | 0 | 0 | 0 |
| District 5 | Res - SFD | 8.79 | 0 | 0 | 0 |
| District 5 | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 97 | 97 | 97 |
| District 5 | Retail | 54.72 | 0 | 0 | 0 |
| District 5 | Exposition | 23.77 | 0 | 0 | 0 |
| **District 5** | **Subtotal** | | **97** | **97** | **97** |
| District 6 | Agriculture | 2.01 | 83 | 83 | 83 |
| District 6 | Golf | 6.15 | 0 | 0 | 0 |
| District 6 | Mortuary | 8.14 | 0 | 0 | 0 |
| District 6 | Multi-Use (Res - Multi Family) | 7.15 | 0 | 0 | 0 |
| District 6 | Multi-Use (Non-Residential) | 12.55 | 0 | 0 | 0 |
| District 6 | Institutional (Education) | 2.63 | 0 | 0 | 0 |
| District 6 | Medical and Science (R&D) | 10.42 | 0 | 0 | 0 |
| **District 6** | **Subtotal** | | **83** | **83** | **83** |
| District 3 | Agriculture | 2.01 | 146 | 146 | 146 |
| District 3 | Medical and Science (R&D) | 10.42 | 0 | 0 | 0 |
| **District 3** | **Subtotal** | | **146** | **146** | **146** |
| District 2 | Agriculture | 2.01 | 301 | 301 | 301 |
| District 2 | Medical and Science (R&D) | 10.42 | 0 | 0 | 0 |
| District 2 | Auto Sales, Parking and Storage | 42.68 | 0 | 0 | 0 |
| **District 2** | **Subtotal** | | **301** | **301** | **301** |
| **HERITAGE FIELD** | **SUB TOTAL** | | **41,272** | **64,894** | **64,895** |

**TABLE 3-2 (CONTINUED)**

**2015 DAILY TRIP END SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED ADT RATES)**

| DISTRICT | LAND USE | ADT RATE | Without Project (Baseline) | 2012 Modified Project Option 1 | 2012 Modified Project Option 2 |
|---|---|---|---|---|---|
| District 8 | Park | 3.59 | 24 | 24 | 24 |
| **District 8** | **Subtotal** | | **24** | **24** | **24** |
| District 1 North | K-8 School (Elementary & Middle), add'l students | 1.24 | 434 | 434 | 434 |
| District 1 North | Park | 3.59 | 51 | 51 | 75 |
| **District 1 North** | **Subtotal** | | **485** | **485** | **509** |
| District 1 South | Park | 3.59 | 12 | 37 | 12 |
| **District 1 South** | **Subtotal** | | **12** | **37** | **12** |
| District 4 | Park | 3.59 | 34 | 34 | 34 |
| **District 4** | **Subtotal** | | **34** | **34** | **34** |
| District 7 | Park | 3.59 | 25 | 25 | 25 |
| **District 7** | **Subtotal** | | **25** | **25** | **25** |
| District 5 | K-8 School (Elementary & Middle) | 1.24 | 1,240 | 1,240 | 1,240 |
| District 5 | High School | 1.24 | 0 | 0 | 0 |
| District 5 | Park | 3.59 | 0 | 0 | 0 |
| **District 5** | **Subtotal** | | **1,240** | **1,240** | **1,240** |
| District 6 | Park | 3.59 | 0 | 0 | 0 |
| **District 6** | **Subtotal** | | **0** | **0** | **0** |
| **ADDITIONAL PUBLIC USES** | **SUB TOTAL** | | **1,820** | **1,845** | **1,844** |
| Marshburn Basin | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 5 | 5 | 5 |
| **Marshburn Basin** | **Subtotal** | | **5** | **5** | **5** |
| F | Transportation Center | 2.50 | 500 | 500 | 500 |
| **F** | **Subtotal** | | **500** | **500** | **500** |
| County | Agriculture | 2.01 | 181 | 181 | 181 |
| **County** | **Subtotal** | | **181** | **181** | **181** |
| G / H / L / M | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 62 | 45 | 45 |
| **G / H / L / M** | **Subtotal** | | **62** | **45** | **45** |
| L | Parking (GP) | 3.742 | 7,121 | 7,121 | 7,121 |
| L | TVI | Interim[1] | 2,726 | 2,726 | 2,726 |
| **L** | **Subtotal** | | **9,847** | **9,847** | **9,847** |
| M | Parking (GP) | 3.742 | 221 | 221 | 221 |
| **M** | **Subtotal** | | **221** | **221** | **221** |
| EL TORO WILDLIFE REFUGE | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 163 | 163 | 163 |
| **EL TORO WILDLIFE REFUGE** | **Subtotal** | | **163** | **163** | **163** |
| J | Cultural / Institutional | 23.08 | 1,385 | 1,385 | 1,385 |
| J | OCTA Facility | 6.70 | 235 | 235 | 235 |
| J | Warehousing | 6.29 | 762 | 762 | 762 |
| **J** | **Subtotal** | | **2,382** | **2,382** | **2,382** |
| CIVIC SITE | Government Facility | 23.88 | 1,693 | 1,693 | 1,693 |
| **CIVIC SITE** | **Subtotal** | | **1,693** | **1,693** | **1,693** |
| E | Transportation Center | 2.50 | 1,238 | 1,238 | 1,238 |
| **E** | **Subtotal** | | **1,238** | **1,238** | **1,238** |
| B | Transportation Center | 2.50 | - | - | - |
| B | OCTA Facility | 6.70 | - | - | - |
| B | Agriculture | 2.01 | 39 | 39 | 39 |
| **B** | **Subtotal** | | **39** | **39** | **39** |
| A / B / C / G | Agriculture | 2.01 | 92 | 92 | 92 |
| A / B / C / G | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | - | - | - |
| **A / B / C / G** | **Subtotal** | | **92** | **92** | **92** |
| **CITY / OTHER PROPERTY** | **SUB TOTAL** | | **16,423** | **16,406** | **16,406** |
| **TOTAL** | | | **59,515** | **83,145** | **83,145** |

[1] Interim = Estimated PCE trip generation for Tierra Verde Industries (TVI) Ecocentre.

**TABLE 3-3**

**2015 MORNING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)**

| DISTRICT | LAND USE | AM RATE | Without Project (Baseline) | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Res - SFD | 0.80 | 387 | 387 | 387 |
| District 8 | Multi Family | 0.68 | 165 | 165 | 165 |
| District 8 | Child Care | 3.21 | 19 | 19 | 19 |
| District 8 | Church, Synagogue | 0.70 | 11 | 11 | 11 |
| **District 8** | **Subtotal** | | **582** | **582** | **582** |
| District 1 North | Medical and Science (R&D) | 0.92 | 0 | 331 | 331 |
| District 1 North | Retail | 3.39 | 0 | 509 | 0 |
| District 1 North | Office | 1.13 | 0 | 0 | 0 |
| District 1 North | Multi Family | 0.68 | 762 | 762 | 938 |
| District 1 North | Res - SFD | 0.80 | 395 | 395 | 395 |
| District 1 North | Res - Senior | 0.44 | 80 | 80 | 80 |
| District 1 North | K-8 School (Elementary & Middle), approved | 0.18 | 117 | 117 | 117 |
| District 1 North | Institutional (Education) | 0.26 | 0 | 0 | 0 |
| District 1 North | Church, Synagogue | 0.70 | 7 | 7 | 7 |
| District 1 North | Child Care | 3.21 | 16 | 16 | 16 |
| District 1 North | Multi-Use (Non-Residential) | 1.13 | 0 | 796 | 507 |
| **District 1 North** | **Subtotal** | | **1,377** | **3,013** | **2,391** |
| District 1 South | Res - SFD | 0.80 | 0 | 0 | 0 |
| District 1 South | Multi Family | 0.68 | 0 | 292 | 116 |
| District 1 South | Retail | 3.39 | 0 | 0 | 509 |
| District 1 South | Multi-Use (Non-Residential) | 1.13 | 0 | 0 | 288 |
| **District 1 South** | **Subtotal** | | **0** | **292** | **913** |
| District 4 | Retail | 3.39 | 237 | 237 | 237 |
| District 4 | Multi Family | 0.68 | 413 | 413 | 413 |
| District 4 | Res - SFD | 0.80 | 395 | 395 | 395 |
| **District 4** | **Subtotal** | | **1,045** | **1,045** | **1,045** |
| District 7 | Res - SFD | 0.80 | 672 | 554 | 554 |
| District 7 | Multi Family | 0.68 | 0 | 101 | 101 |
| **District 7** | **Subtotal** | | **672** | **655** | **655** |
| District 5 | Multi Family | 0.68 | 0 | 0 | 0 |
| District 5 | Res - SFD | 0.80 | 0 | 0 | 0 |
| District 5 | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 12 | 12 | 12 |
| District 5 | Retail | 3.39 | 0 | 0 | 0 |
| District 5 | Exposition | 1.75 | 0 | 0 | 0 |
| **District 5** | **Subtotal** | | **12** | **12** | **12** |
| District 6 | Agriculture | 0.20 | 8 | 8 | 8 |
| District 6 | Golf | 0.43 | 0 | 0 | 0 |
| District 6 | Mortuary | 0.70 | 0 | 0 | 0 |
| District 6 | Multi-Use (Res - Multi Family) | 0.68 | 0 | 0 | 0 |
| District 6 | Multi-Use (Non-Residential) | 1.13 | 0 | 0 | 0 |
| District 6 | Institutional (Education) | 0.26 | 0 | 0 | 0 |
| District 6 | Medical and Science (R&D) | 0.92 | 0 | 0 | 0 |
| **District 6** | **Subtotal** | | **8** | **8** | **8** |
| District 3 | Agriculture | 0.20 | 15 | 15 | 15 |
| District 3 | Medical and Science (R&D) | 0.92 | 0 | 0 | 0 |
| **District 3** | **Subtotal** | | **15** | **15** | **15** |
| District 2 | Agriculture | 0.20 | 30 | 30 | 30 |
| District 2 | Medical and Science (R&D) | 0.92 | 0 | 0 | 0 |
| District 2 | Auto Sales, Parking and Storage | 2.66 | 0 | 0 | 0 |
| **District 2** | **Subtotal** | | **30** | **30** | **30** |
| **HERITAGE FIELD** | **SUB TOTAL** | | **3,741** | **5,652** | **5,651** |

**TABLE 3-3 (CONTINUED)**

**2015 MORNING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)**

| DISTRICT | LAND USE | AM RATE | Without Project (Baseline) | 2012 Modified Project Option 1 | 2012 Modified Project Option 2 |
|---|---|---|---|---|---|
| District 8 | Park | 0.28 | 2 | 2 | 2 |
| **District 8** | **Subtotal** | | **2** | **2** | **2** |
| District 1 North | K-8 School (Elementary & Middle), add'l students | 0.18 | 63 | 63 | 63 |
| District 1 North | Park | 0.28 | 4 | 4 | 6 |
| **District 1 North** | **Subtotal** | | **67** | **67** | **69** |
| District 1 South | Park | 0.28 | 1 | 3 | 1 |
| **District 1 South** | **Subtotal** | | **1** | **3** | **1** |
| District 4 | Park | 0.28 | 3 | 3 | 3 |
| **District 4** | **Subtotal** | | **3** | **3** | **3** |
| District 7 | Park | 0.28 | 2 | 2 | 2 |
| **District 7** | **Subtotal** | | **2** | **2** | **2** |
| District 5 | K-8 School (Elementary & Middle) | 0.18 | 180 | 180 | 180 |
| District 5 | High School | 0.18 | 0 | 0 | 0 |
| District 5 | Park | 0.28 | 0 | 0 | 0 |
| **District 5** | **Subtotal** | | **180** | **180** | **180** |
| District 6 | Park | 0.28 | 0 | 0 | 0 |
| **District 6** | **Subtotal** | | **0** | **0** | **0** |
| **ADDITIONAL PUBLIC USES** | **SUB TOTAL** | | **255** | **257** | **257** |
| Marshburn Basin | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 1 | 1 | 1 |
| **Marshburn Basin** | **Subtotal** | | **1** | **1** | **1** |
| F | Transportation Center | 0.25 | 50 | 50 | 50 |
| **F** | **Subtotal** | | **50** | **50** | **50** |
| County | Agriculture | 0.20 | 18 | 18 | 18 |
| **County** | **Subtotal** | | **18** | **18** | **18** |
| G / H / L / M | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 7 | 5 | 5 |
| **G / H / L / M** | **Subtotal** | | **7** | **5** | **5** |
| L | Parking (GP) TAZs 931, 993-995 | 0.240 | 0 | 0 | 0 |
| L | Parking (GP) TAZs 932, 933, 991, 992, 996 | 0.050 | 95 | 95 | 95 |
| L | Parking (GP) TAZs 927-929, 977, 978 | 0.220 | 0 | 0 | 0 |
| L | TVI | Interim[1] | 343 | 343 | 343 |
| **L** | **Subtotal** | | **438** | **438** | **438** |
| M | Parking (GP) | 0.240 | 14 | 14 | 14 |
| **M** | **Subtotal** | | **14** | **14** | **14** |
| EL TORO WILDLIFE REFUGE | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 19 | 19 | 19 |
| **EL TORO WILDLIFE REFUGE** | **Subtotal** | | **19** | **19** | **19** |
| J | Cultural / Institutional | 1.69 | 101 | 101 | 101 |
| J | OCTA Facility | 0.67 | 23 | 23 | 23 |
| J | Warehousing | 0.62 | 75 | 75 | 75 |
| **J** | **Subtotal** | | **199** | **199** | **199** |
| CIVIC SITE | Government Facility | 1.87 | 133 | 133 | 133 |
| **CIVIC SITE** | **Subtotal** | | **133** | **133** | **133** |
| E | Transportation Center | 0.25 | 124 | 124 | 124 |
| **E** | **Subtotal** | | **124** | **124** | **124** |
| B | Transportation Center | 0.25 | - | - | - |
| B | OCTA Facility | 0.67 | - | - | - |
| B | Agriculture | 0.20 | 4 | 4 | 4 |
| **B** | **Subtotal** | | **4** | **4** | **4** |
| A / B / C / G | Agriculture | 0.20 | 9 | 9 | 9 |
| A / B / C / G | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | - | - | - |
| **A / B / C / G** | **Subtotal** | | **9** | **9** | **9** |
| **CITY / OTHER PROPERTY** | **SUB TOTAL** | | **1,016** | **1,014** | **1,014** |
| **TOTAL** | | | **5,012** | **6,923** | **6,922** |

[1] Interim = Estimated PCE trip generation for Tierra Verde Industries (TVI) Ecocentre.

**TABLE 3-4**

**2015 EVENING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)**

| DISTRICT | LAND USE | PM RATE | Without Project (Baseline) | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Res - SFD | 0.81 | 392 | 392 | 392 |
| District 8 | Multi Family | 0.66 | 160 | 160 | 160 |
| District 8 | Child Care | 4.04 | 24 | 24 | 24 |
| District 8 | Church, Synagogue | 0.79 | 12 | 12 | 12 |
| **District 8** | **Subtotal** | | **588** | **588** | **588** |
| District 1 North | Medical and Science (R&D) | 1.01 | 0 | 364 | 364 |
| District 1 North | Retail | 5.23 | 0 | 785 | 0 |
| District 1 North | Office | 1.21 | 0 | 0 | 0 |
| District 1 North | Multi Family | 0.66 | 740 | 740 | 910 |
| District 1 North | Res - SFD | 0.81 | 400 | 400 | 400 |
| District 1 North | Res - Senior | 0.47 | 86 | 86 | 86 |
| District 1 North | K-8 School (Elementary & Middle), approved | 0.11 | 72 | 72 | 72 |
| District 1 North | Institutional (Education) | 0.25 | 0 | 0 | 0 |
| District 1 North | Church, Synagogue | 0.79 | 8 | 8 | 8 |
| District 1 North | Child Care | 4.04 | 20 | 20 | 20 |
| District 1 North | Multi-Use (Non-Residential) | 1.21 | 0 | 852 | 543 |
| **District 1 North** | **Subtotal** | | **1,326** | **3,327** | **2,403** |
| District 1 South | Res - SFD | 0.81 | 0 | 0 | 0 |
| District 1 South | Multi Family | 0.66 | 0 | 283 | 113 |
| District 1 South | Retail | 5.23 | 0 | 0 | 785 |
| District 1 South | Multi-Use (Non-Residential) | 1.21 | 0 | 0 | 309 |
| **District 1 South** | **Subtotal** | | **0** | **283** | **1,207** |
| District 4 | Retail | 5.23 | 366 | 366 | 366 |
| District 4 | Multi Family | 0.66 | 401 | 401 | 401 |
| District 4 | Res - SFD | 0.81 | 400 | 400 | 400 |
| **District 4** | **Subtotal** | | **1,167** | **1,167** | **1,167** |
| District 7 | Res - SFD | 0.81 | 680 | 561 | 561 |
| District 7 | Multi Family | 0.66 | 0 | 98 | 98 |
| **District 7** | **Subtotal** | | **680** | **659** | **659** |
| District 5 | Multi Family | 0.66 | 0 | 0 | 0 |
| District 5 | Res - SFD | 0.81 | 0 | 0 | 0 |
| District 5 | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 12 | 12 | 12 |
| District 5 | Retail | 5.23 | 0 | 0 | 0 |
| District 5 | Exposition | 2.29 | 0 | 0 | 0 |
| **District 5** | **Subtotal** | | **12** | **12** | **12** |
| District 6 | Agriculture | 0.19 | 8 | 8 | 8 |
| District 6 | Golf | 0.59 | 0 | 0 | 0 |
| District 6 | Mortuary | 0.79 | 0 | 0 | 0 |
| District 6 | Multi-Use (Res - Multi Family) | 0.66 | 0 | 0 | 0 |
| District 6 | Multi-Use (Non-Residential) | 1.21 | 0 | 0 | 0 |
| District 6 | Institutional (Education) | 0.25 | 0 | 0 | 0 |
| District 6 | Medical and Science (R&D) | 1.01 | 0 | 0 | 0 |
| **District 6** | **Subtotal** | | **8** | **8** | **8** |
| District 3 | Agriculture | 0.19 | 14 | 14 | 14 |
| District 3 | Medical and Science (R&D) | 1.01 | 0 | 0 | 0 |
| **District 3** | **Subtotal** | | **14** | **14** | **14** |
| District 2 | Agriculture | 0.19 | 28 | 28 | 28 |
| District 2 | Medical and Science (R&D) | 1.01 | 0 | 0 | 0 |
| District 2 | Auto Sales, Parking and Storage | 4.08 | 0 | 0 | 0 |
| **District 2** | **Subtotal** | | **28** | **28** | **28** |
| **HERITAGE FIELD** | **SUB TOTAL** | | **3,823** | **6,086** | **6,086** |

**TABLE 3-4 (CONTINUED)**

**2015 EVENING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)**

| DISTRICT | LAND USE | PM RATE | Without Project (Baseline) | 2012 Modified | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Park | 0.35 | 2 | 2 | 2 |
| **District 8** | **Subtotal** | | **2** | **2** | **2** |
| District 1 North | K-8 School (Elementary & Middle), add'l students | 0.11 | 39 | 39 | 39 |
| District 1 North | Park | 0.35 | 5 | 5 | 7 |
| **District 1 North** | **Subtotal** | | **44** | **44** | **46** |
| District 1 South | Park | 0.35 | 1 | 4 | 1 |
| **District 1 South** | **Subtotal** | | **1** | **4** | **1** |
| District 4 | Park | 0.35 | 3 | 3 | 3 |
| **District 4** | **Subtotal** | | **3** | **3** | **3** |
| District 7 | Park | 0.35 | 2 | 2 | 2 |
| **District 7** | **Subtotal** | | **2** | **2** | **2** |
| District 5 | K-8 School (Elementary & Middle) | 0.11 | 110 | 110 | 110 |
| District 5 | High School | 0.11 | 0 | 0 | 0 |
| District 5 | Park | 0.35 | 0 | 0 | 0 |
| **District 5** | **Subtotal** | | **110** | **110** | **110** |
| District 6 | Park | 0.35 | 0 | 0 | 0 |
| **District 6** | **Subtotal** | | **0** | **0** | **0** |
| **ADDITIONAL PUBLIC USES** | **SUB TOTAL** | | **162** | **165** | **164** |
| Marshburn Basin | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 1 | 1 | 1 |
| **Marshburn Basin** | **Subtotal** | | **1** | **1** | **1** |
| F | Transportation Center | 0.24 | 48 | 48 | 48 |
| **F** | **Subtotal** | | **48** | **48** | **48** |
| County | Agriculture | 0.19 | 17 | 17 | 17 |
| **County** | **Subtotal** | | **17** | **17** | **17** |
| G / H / L / M | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 7 | 5 | 5 |
| **G / H / L / M** | **Subtotal** | | **7** | **5** | **5** |
| L | Parking (GP) TAZs 931, 993-995 | 0.360 | 0 | 0 | 0 |
| L | Parking (GP) TAZs 932, 933, 991, 992, 996 | 0.890 | 1,694 | 1,694 | 1,694 |
| L | Parking (GP) TAZs 927-929, 977, 978 | 0.360 | 0 | 0 | 0 |
| L | TVI | Interim[1] | 206 | 206 | 206 |
| **L** | **Subtotal** | | **1,900** | **1,900** | **1,900** |
| M | Parking (GP) | 0.360 | 21 | 21 | 21 |
| **M** | **Subtotal** | | **21** | **21** | **21** |
| EL TORO WILDLIFE REFUGE | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 19 | 19 | 19 |
| **EL TORO WILDLIFE REFUGE** | **Subtotal** | | **19** | **19** | **19** |
| J | Cultural / Institutional | 2.22 | 133 | 133 | 133 |
| J | OCTA Facility | 0.65 | 23 | 23 | 23 |
| J | Warehousing | 0.61 | 74 | 74 | 74 |
| **J** | **Subtotal** | | **230** | **230** | **230** |
| CIVIC SITE | Government Facility | 2.30 | 163 | 163 | 163 |
| **CIVIC SITE** | **Subtotal** | | **163** | **163** | **163** |
| E | Transportation Center | 0.24 | 119 | 119 | 119 |
| **E** | **Subtotal** | | **119** | **119** | **119** |
| B | Transportation Center | 0.24 | - | - | - |
| B | OCTA Facility | 0.65 | - | - | - |
| B | Agriculture | 0.19 | 4 | 4 | 4 |
| **B** | **Subtotal** | | **4** | **4** | **4** |
| A / B / C / G | Agriculture | 0.19 | 9 | 9 | 9 |
| A / B / C / G | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | - | - | - |
| **A / B / C / G** | **Subtotal** | | **9** | **9** | **9** |
| **CITY / OTHER PROPERTY** | **SUB TOTAL** | | **2,538** | **2,536** | **2,536** |
| **TOTAL** | | | **6,523** | **8,787** | **8,786** |

[1] Interim = Estimated PCE trip generation for Tierra Verde Industries (TVI) Ecocentre.

The land use and trip generation for the Combined PA 51 under Year 2030/Post-2030 conditions with 2011 Approved Project (baseline), 2012 Modified Project Option 1, and 2012 Modified Project Option 2 are summarized in Tables 3-5, 3-6 and 3-7.

The 2012 Modified Project consists of 4,894 already approved dwelling units plus 4,606 additional dwelling units (3,412 multi-family units and 1,194 single-family density bonus units). Approval of VTTMs in Districts 1 South and 7 resulted in the reclassification of 577 single family detached residential units to multi-family residential units.

The 2012 Modified Project modifies the 2011 Approved Project to designate 1,318,200 square feet of non-residential land uses as Multi-Use (with a net increase in the Multi-Use category of 1,282,200 square feet after accounting for approved Child Care and Church uses which are included in the Multi-Use category).

The 2012 Modified Project changes the 2011 Approved Project non-residential uses to delete 708,000 square feet of Commercial Recreation (Exposition), 1,452,600 square feet of Institutional (1,452,600 square feet of Education – shown as 7,741 students in Table 1-1, and 11,000 square feet of previously approved Multi-Use Child Care), 102,000 square feet of Auto Center, 150 acres of golf course, 50,000 square feet of Chapel/Mortuary, 75,000 square feet of Office, and 12.5 acres of agriculture. The Project changes the 2011 Approved Project to add 764,000 square feet of Medical and Science (R&D), and reduces Community Commercial (Retail) by 80,000 square feet.

The peak hour and average daily trip generation based on the land use trip rates is summarized in Table 3-8 for “without Project” and “with Project” conditions under interim year (2015) and project buildout (2030/Post-2030) timeframes.

Under 2015 conditions, the 2012 Modified Project - Heritage Fields property is forecast to generate 1,911 more AM peak hour trips, 2,263 more PM peak hour trips and 23,623 more daily trips compared to Without Project conditions.

Under 2030/Post-2030 conditions, the 2012 Modified Project - Heritage Fields property with Option 1 or Option 2 is forecast to generate 1,377 more AM peak hour trips, 846 more PM peak hour trips and 9,784 more daily trips compared to 2011 Approved Project (baseline) conditions. The 2012 Modified Project - Additional Public Uses are forecast to generate 483 more AM peak hour trips, 304 more PM peak hour trips, and 3,411 more daily trips compared to 2011 Approved Project (baseline) conditions.

**TABLE 3-5**

**2030 / POST-2030 DAILY TRIP END SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED ADT RATES)**

| DISTRICT | LAND USE | ADT RATE | 2011 Approved Project | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Res - SFD | 8.79 | 4,254 | 4,254 | 4,254 |
| District 8 | Multi Family | 7.15 | 1,730 | 1,730 | 1,730 |
| District 8 | Child Care | 41.93 | 252 | 252 | 252 |
| District 8 | Church, Synagogue | 8.14 | 122 | 122 | 122 |
| **District 8** | **Subtotal** | | **6,358** | **6,358** | **6,358** |
| District 1 North | Medical and Science (R&D) | 10.42 | 507 | 3,751 | 3,751 |
| District 1 North | Retail | 54.72 | 8,208 | 8,208 | 0 |
| District 1 North | Office | 12.55 | 941 | 0 | 0 |
| District 1 North | Multi Family | 7.15 | 8,015 | 8,015 | 9,860 |
| District 1 North | Res - SFD | 8.79 | 4,342 | 4,342 | 4,342 |
| District 1 North | Res - Senior | 5.11 | 930 | 930 | 930 |
| District 1 North | K-8 School (Elementary & Middle), approved | 1.24 | 806 | 806 | 806 |
| District 1 North | Institutional (Education) | 2.63 | 10,943 | 0 | 0 |
| District 1 North | Church, Synagogue | 8.14 | 81 | 81 | 81 |
| District 1 North | Child Care | 41.93 | 210 | 210 | 210 |
| District 1 North | Multi-Use (Non-Residential) | 12.55 | 0 | 8,839 | 5,635 |
| **District 1 North** | **Subtotal** | | **34,983** | **35,182** | **25,615** |
| District 1 South | Res - SFD | 8.79 | 3,771 | 0 | 0 |
| District 1 South | Multi Family | 7.15 | 0 | 3,067 | 1,223 |
| District 1 South | Retail | 54.72 | 0 | 0 | 8,208 |
| District 1 South | Multi-Use (Non-Residential) | 12.55 | 0 | 0 | 3,204 |
| **District 1 South** | **Subtotal** | | **3,771** | **3,067** | **12,635** |
| District 4 | Retail | 54.72 | 3,830 | 3,830 | 3,830 |
| District 4 | Multi Family | 7.15 | 4,347 | 4,347 | 4,347 |
| District 4 | Res - SFD | 8.79 | 4,342 | 4,342 | 4,342 |
| **District 4** | **Subtotal** | | **12,519** | **12,519** | **12,519** |
| District 7 | Res - SFD | 8.79 | 7,384 | 6,083 | 6,083 |
| District 7 | Multi Family | 7.15 | 0 | 1,058 | 1,058 |
| **District 7** | **Subtotal** | | **7,384** | **7,141** | **7,141** |
| District 5 | Multi Family | 7.15 | 0 | 12,084 | 12,084 |
| District 5 | Res - SFD | 8.79 | 0 | 10,495 | 10,495 |
| District 5 | Retail | 54.72 | 4,378 | 0 | 0 |
| District 5 | Exposition | 23.77 | 16,829 | 0 | 0 |
| **District 5** | **Subtotal** | | **21,207** | **22,579** | **22,579** |
| District 6[2] | Agriculture | 2.01 | 25 | 0 | 0 |
| District 6[2] | Golf | 6.15 | 923 | 0 | 0 |
| District 6[2] | Mortuary | 8.14 | 407 | 0 | 0 |
| District 6[2] | Multi-Use (Res - Multi Family) | 7.15 | 0 | 12,312 | 12,312 |
| District 6[2] | Multi-Use (Non-Residential) | 12.55 | 0 | 7,253 | 7,253 |
| District 6[2] | Institutional (Education) | 2.63 | 9,415 | 0 | 0 |
| District 6[2] | Medical and Science (R&D) | 10.42 | 1,234 | 0 | 0 |
| **District 6** | **Subtotal** | | **12,004** | **19,565** | **19,565** |
| District 3 | Agriculture | 2.01 | 0 | 0 | 0 |
| District 3 | Medical and Science (R&D) | 10.42 | 8,679 | 10,941 | 10,941 |
| **District 3** | **Subtotal** | | **8,679** | **10,941** | **10,941** |
| District 2 | Agriculture | 2.01 | 0 | 0 | 0 |
| District 2 | Medical and Science (R&D) | 10.42 | 16,672 | 20,361 | 20,361 |
| District 2 | Auto Sales, Parking and Storage | 42.68 | 4,353 | 0 | 0 |
| **District 2** | **Subtotal** | | **21,025** | **20,361** | **20,361** |
| **HERITAGE FIELD** | **SUB TOTAL** | | **127,930** | **137,713** | **137,714** |

**TABLE 3-5 (CONTINUED)**

**2030 / POST-2030 DAILY TRIP END SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED ADT RATES)**

| DISTRICT | LAND USE | ADT RATE | 2011 Approved Project | 2012 Modified Project Option 1 | 2012 Modified Project Option 2 |
|---|---|---|---|---|---|
| District 8 | Park | 3.59 | 24 | 24 | 24 |
| **District 8** | **Subtotal** | | **24** | **24** | **24** |
| District 1 North | K-8 School (Elementary & Middle), add'l students | 1.24 | 434 | 434 | 434 |
| District 1 North | Park | 3.59 | 51 | 51 | 75 |
| **District 1 North** | **Subtotal** | | **485** | **485** | **509** |
| District 1 South | Park | 3.59 | 37 | 37 | 12 |
| **District 1 South** | **Subtotal** | | **37** | **37** | **12** |
| District 4 | Park | 3.59 | 34 | 34 | 34 |
| **District 4** | **Subtotal** | | **34** | **34** | **34** |
| District 7 | Park | 3.59 | 25 | 25 | 25 |
| **District 7** | **Subtotal** | | **25** | **25** | **25** |
| District 5 | K-8 School (Elementary & Middle) | 1.24 | 1,240 | 1,240 | 1,240 |
| District 5 | High School | 1.24 | 0 | 3,224 | 3,224 |
| District 5 | Park | 3.59 | 0 | 98 | 98 |
| **District 5** | **Subtotal** | | **1,240** | **4,562** | **4,562** |
| District 6 | Park | 3.59 | 0 | 90 | 90 |
| **District 6** | **Subtotal** | | **0** | **90** | **90** |
| **ADDITIONAL PUBLIC USES** | **SUB TOTAL** | | **1,845** | **5,257** | **5,256** |
| Marshburn Basin | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 5 | 5 | 5 |
| **Marshburn Basin** | **Subtotal** | | **5** | **5** | **5** |
| F | Transportation Center | 2.50 | 938 | 938 | 938 |
| **F** | **Subtotal** | | **938** | **938** | **938** |
| County | Agriculture | 2.01 | 181 | 181 | 181 |
| **County** | **Subtotal** | | **181** | **181** | **181** |
| G / H / L / M | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 39 | 22 | 22 |
| **G / H / L / M** | **Subtotal** | | **39** | **22** | **22** |
| L | Parking (GP) | 3.742 | 18,628 | 18,628 | 18,628 |
| L | TVI | 1.00 | 0 | - | - |
| **L** | **Subtotal** | | **18,628** | **18,628** | **18,628** |
| M | Parking (GP) | 3.742 | 221 | 221 | 221 |
| **M** | **Subtotal** | | **221** | **221** | **221** |
| EL TORO WILDLIFE REFUGE | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 163 | 163 | 163 |
| **EL TORO WILDLIFE REFUGE** | **Subtotal** | | **163** | **163** | **163** |
| J | Cultural / Institutional | 23.08 | 6,924 | 6,924 | 6,924 |
| J | OCTA Facility | 6.70 | 821 | 821 | 821 |
| J | Warehousing | 6.29 | 1,654 | 1,654 | 1,654 |
| **J** | **Subtotal** | | **9,399** | **9,399** | **9,399** |
| CIVIC SITE | Government Facility | 23.88 | 1,693 | 1,693 | 1,693 |
| **CIVIC SITE** | **Subtotal** | | **1,693** | **1,693** | **1,693** |
| E | Transportation Center | 2.50 | 1,238 | 1,238 | 1,238 |
| **E** | **Subtotal** | | **1,238** | **1,238** | **1,238** |
| B | Transportation Center | 2.50 | 450 | 450 | 450 |
| B | OCTA Facility | 6.70 | 358 | 358 | 358 |
| B | Agriculture | 2.01 | - | - | 0 |
| **B** | **Subtotal** | | **808** | **808** | **808** |
| A / B / C / G | Agriculture | 2.01 | - | - | - |
| A / B / C / G | OS, Habitat, Wildlife Corridor & Drainage | 0.1675 | 8 | 8 | 8 |
| **A / B / C / G** | **Subtotal** | | **8** | **8** | **8** |
| **CITY / OTHER PROPERTY** | **SUB TOTAL** | | **33,321** | **33,304** | **33,304** |
| **TOTAL** | | | **163,096** | **176,274** | **176,274** |

**TABLE 3-6**

2030/POST-2030 MORNING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)

| DISTRICT | LAND USE | AM RATE | 2011 Approved Project (Baseline) | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Res - SFD | 0.80 | 387 | 387 | 387 |
| District 8 | Multi Family | 0.68 | 165 | 165 | 165 |
| District 8 | Child Care | 3.21 | 19 | 19 | 19 |
| District 8 | Church, Synagogue | 0.70 | 11 | 11 | 11 |
| **District 8** | **Subtotal** | | **582** | **582** | **582** |
| District 1 North | Medical and Science (R&D) | 0.92 | 45 | 331 | 331 |
| District 1 North | Retail | 3.39 | 509 | 509 | 0 |
| District 1 North | Office | 1.13 | 85 | 0 | 0 |
| District 1 North | Multi Family | 0.68 | 762 | 762 | 938 |
| District 1 North | Res - SFD | 0.80 | 395 | 395 | 395 |
| District 1 North | Res - Senior | 0.44 | 80 | 80 | 80 |
| District 1 North | K-8 School (Elementary & Middle), approved | 0.18 | 117 | 117 | 117 |
| District 1 North | Institutional (Education) | 0.26 | 1,082 | 0 | 0 |
| District 1 North | Church, Synagogue | 0.70 | 7 | 7 | 7 |
| District 1 North | Child Care | 3.21 | 16 | 16 | 16 |
| District 1 North | Multi-Use (Non-Residential) | 1.13 | 0 | 796 | 507 |
| **District 1 North** | **Subtotal** | | **3,098** | **3,013** | **2,391** |
| District 1 South | Res - SFD | 0.80 | 343 | 0 | 0 |
| District 1 South | Multi Family | 0.68 | 0 | 292 | 116 |
| District 1 South | Retail | 3.39 | 0 | 0 | 509 |
| District 1 South | Multi-Use (Non-Residential) | 1.13 | 0 | 0 | 288 |
| **District 1 South** | **Subtotal** | | **343** | **292** | **913** |
| District 4 | Retail | 3.39 | 237 | 237 | 237 |
| District 4 | Multi Family | 0.68 | 413 | 413 | 413 |
| District 4 | Res - SFD | 0.80 | 395 | 395 | 395 |
| **District 4** | **Subtotal** | | **1,045** | **1,045** | **1,045** |
| District 7 | Res - SFD | 0.80 | 672 | 554 | 554 |
| District 7 | Multi Family | 0.68 | 0 | 101 | 101 |
| **District 7** | **Subtotal** | | **672** | **655** | **655** |
| District 5 | Multi Family | 0.68 | 0 | 1,149 | 1,149 |
| District 5 | Res - SFD | 0.80 | 0 | 955 | 955 |
| District 5 | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 0 | 0 | 0 |
| District 5 | Retail | 3.39 | 271 | 0 | 0 |
| District 5 | Exposition | 1.75 | 1,239 | 0 | 0 |
| **District 5** | **Subtotal** | | **1,510** | **2,104** | **2,104** |
| District 6 | Agriculture | 0.20 | 3 | 0 | 0 |
| District 6 | Golf | 0.43 | 65 | 0 | 0 |
| District 6 | Mortuary | 0.70 | 35 | 0 | 0 |
| District 6 | Multi-Use (Res - Multi Family) | 0.68 | 0 | 1,171 | 1,171 |
| District 6 | Multi-Use (Non-Residential) | 1.13 | 0 | 653 | 653 |
| District 6 | Institutional (Education) | 0.26 | 931 | 0 | 0 |
| District 6 | Medical and Science (R&D) | 0.92 | 109 | 0 | 0 |
| **District 6** | **Subtotal** | | **1,143** | **1,824** | **1,824** |
| District 3 | Agriculture | 0.20 | 0 | 0 | 0 |
| District 3 | Medical and Science (R&D) | 0.92 | 766 | 966 | 966 |
| **District 3** | **Subtotal** | | **766** | **966** | **966** |
| District 2 | Agriculture | 0.20 | 0 | 0 | 0 |
| District 2 | Medical and Science (R&D) | 0.92 | 1,472 | 1,798 | 1,798 |
| District 2 | Auto Sales, Parking and Storage | 2.66 | 271 | 0 | 0 |
| **District 2** | **Subtotal** | | **1,743** | **1,798** | **1,798** |
| **HERITAGE FIELD** | **SUB TOTAL** | | **10,902** | **12,279** | **12,278** |

**TABLE 3-6 (CONTINUED)**
**2030/POST-2030 MORNING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)**

| DISTRICT | LAND USE | AM RATE | 2011 Approved Project (Baseline) | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Park | 0.28 | 2 | 2 | 2 |
| **District 8** | **Subtotal** | | **2** | **2** | **2** |
| District 1 North | K-8 School (Elementary & Middle), add'l students | 0.18 | 63 | 63 | 63 |
| District 1 North | Park | 0.28 | 4 | 4 | 6 |
| **District 1 North** | **Subtotal** | | **67** | **67** | **69** |
| District 1 South | Park | 0.28 | 3 | 3 | 1 |
| **District 1 South** | **Subtotal** | | **3** | **3** | **1** |
| District 4 | Park | 0.28 | 3 | 3 | 3 |
| **District 4** | **Subtotal** | | **3** | **3** | **3** |
| District 7 | Park | 0.28 | 2 | 2 | 2 |
| **District 7** | **Subtotal** | | **2** | **2** | **2** |
| District 5 | K-8 School (Elementary & Middle) | 0.18 | 180 | 180 | 180 |
| District 5 | High School | 0.18 | 0 | 468 | 468 |
| District 5 | Park | 0.28 | 0 | 8 | 8 |
| **District 5** | **Subtotal** | | **180** | **656** | **656** |
| District 6 | Park | 0.28 | 0 | 7 | 7 |
| **District 6** | **Subtotal** | | **0** | **7** | **7** |
| **ADDITIONAL PUBLIC USES** | **SUB TOTAL** | | **257** | **740** | **740** |
| Marshburn Basin | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 1 | 1 | 1 |
| **Marshburn Basin** | **Subtotal** | | **1** | **1** | **1** |
| F | Transportation Center | 0.25 | 94 | 94 | 94 |
| **F** | **Subtotal** | | **94** | **94** | **94** |
| County | Agriculture | 0.20 | 18 | 18 | 18 |
| **County** | **Subtotal** | | **18** | **18** | **18** |
| G / H / L / M | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 5 | 3 | 3 |
| **G / H / L / M** | **Subtotal** | | **5** | **3** | **3** |
| L | Parking (GP) TAZs 931, 993-995 | 0.240 | 85 | 85 | 85 |
| L | Parking (GP) TAZs 932, 933, 991, 992, 996 | 0.050 | 107 | 107 | 107 |
| L | Parking (GP) TAZs 927-929, 977, 978 | 0.220 | 546 | 546 | 546 |
| L | TVI | 0.08 | 0 | 0 | 0 |
| **L** | **Subtotal** | | **738** | **738** | **738** |
| M | Parking (GP) | 0.240 | 14 | 14 | 14 |
| **M** | **Subtotal** | | **14** | **14** | **14** |
| EL TORO WILDLIFE REFUGE | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 19 | 19 | 19 |
| **EL TORO WILDLIFE REFUGE** | **Subtotal** | | **19** | **19** | **19** |
| J | Cultural / Institutional | 1.69 | 507 | 507 | 507 |
| J | OCTA Facility | 0.67 | 82 | 82 | 82 |
| J | Warehousing | 0.62 | 163 | 163 | 163 |
| **J** | **Subtotal** | | **752** | **752** | **752** |
| CIVIC SITE | Government Facility | 1.87 | 133 | 133 | 133 |
| **CIVIC SITE** | **Subtotal** | | **133** | **133** | **133** |
| E | Transportation Center | 0.25 | 124 | 124 | 124 |
| **E** | **Subtotal** | | **124** | **124** | **124** |
| B | Transportation Center | 0.25 | 45 | 45 | 45 |
| B | OCTA Facility | 0.67 | 36 | 36 | 36 |
| B | Agriculture | 0.20 | - | - | - |
| **B** | **Subtotal** | | **81** | **81** | **81** |
| A / B / C / G | Agriculture | 0.20 | - | - | - |
| A / B / C / G | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 1 | 1 | 1 |
| **A / B / C / G** | **Subtotal** | | **1** | **1** | **1** |
| **CITY / OTHER PROPERTY** | **SUB TOTAL** | | **1,980** | **1,978** | **1,978** |
| **TOTAL** | | | **13,139** | **14,997** | **14,996** |

**TABLE 3-7**
**2030/POST-2030 EVENING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)**

| DISTRICT | LAND USE | PM RATE | 2011 Approved Project (Baseline) | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Res - SFD | 0.81 | 392 | 392 | 392 |
| District 8 | Multi Family | 0.66 | 160 | 160 | 160 |
| District 8 | Child Care | 4.04 | 24 | 24 | 24 |
| District 8 | Church, Synagogue | 0.79 | 12 | 12 | 12 |
| **District 8** | **Subtotal** | | **588** | **588** | **588** |
| District 1 North | Medical and Science (R&D) | 1.01 | 49 | 364 | 364 |
| District 1 North | Retail | 5.23 | 785 | 785 | 0 |
| District 1 North | Office | 1.21 | 91 | 0 | 0 |
| District 1 North | Multi Family | 0.66 | 740 | 740 | 910 |
| District 1 North | Res - SFD | 0.81 | 400 | 400 | 400 |
| District 1 North | Res - Senior | 0.47 | 86 | 86 | 86 |
| District 1 North | K-8 School (Elementary & Middle), approved | 0.11 | 72 | 72 | 72 |
| District 1 North | Institutional (Education) | 0.25 | 1,040 | 0 | 0 |
| District 1 North | Church, Synagogue | 0.79 | 8 | 8 | 8 |
| District 1 North | Child Care | 4.04 | 20 | 20 | 20 |
| District 1 North | Multi-Use (Non-Residential) | 1.21 | 0 | 852 | 543 |
| **District 1 North** | **Subtotal** | | **3,291** | **3,327** | **2,403** |
| District 1 South | Res - SFD | 0.81 | 347 | 0 | 0 |
| District 1 South | Multi Family | 0.66 | 0 | 283 | 113 |
| District 1 South | Retail | 5.23 | 0 | 0 | 785 |
| District 1 South | Multi-Use (Non-Residential) | 1.21 | 0 | 0 | 309 |
| **District 1 South** | **Subtotal** | | **347** | **283** | **1,207** |
| District 4 | Retail | 5.23 | 366 | 366 | 366 |
| District 4 | Multi Family | 0.66 | 401 | 401 | 401 |
| District 4 | Res - SFD | 0.81 | 400 | 400 | 400 |
| **District 4** | **Subtotal** | | **1,167** | **1,167** | **1,167** |
| District 7 | Res - SFD | 0.81 | 680 | 561 | 561 |
| District 7 | Multi Family | 0.66 | 0 | 98 | 98 |
| **District 7** | **Subtotal** | | **680** | **659** | **659** |
| District 5 | Multi Family | 0.66 | 0 | 1,115 | 1,115 |
| District 5 | Res - SFD | 0.81 | 0 | 967 | 967 |
| District 5 | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 0 | 0 | 0 |
| District 5 | Retail | 5.23 | 418 | 0 | 0 |
| District 5 | Exposition | 2.29 | 1,621 | 0 | 0 |
| **District 5** | **Subtotal** | | **2,039** | **2,082** | **2,082** |
| District 6 | Agriculture | 0.19 | 2 | 0 | 0 |
| District 6 | Golf | 0.59 | 89 | 0 | 0 |
| District 6 | Mortuary | 0.79 | 40 | 0 | 0 |
| District 6 | Multi-Use (Res - Multi Family) | 0.66 | 0 | 1,137 | 1,137 |
| District 6 | Multi-Use (Non-Residential) | 1.21 | 0 | 699 | 699 |
| District 6 | Institutional (Education) | 0.25 | 895 | 0 | 0 |
| District 6 | Medical and Science (R&D) | 1.01 | 120 | 0 | 0 |
| **District 6** | **Subtotal** | | **1,146** | **1,836** | **1,836** |
| District 3 | Agriculture | 0.19 | 0 | 0 | 0 |
| District 3 | Medical and Science (R&D) | 1.01 | 841 | 1,061 | 1,061 |
| **District 3** | **Subtotal** | | **841** | **1,061** | **1,061** |
| District 2 | Agriculture | 0.19 | 0 | 0 | 0 |
| District 2 | Medical and Science (R&D) | 1.01 | 1,616 | 1,974 | 1,974 |
| District 2 | Auto Sales, Parking and Storage | 4.08 | 416 | 0 | 0 |
| **District 2** | **Subtotal** | | **2,032** | **1,974** | **1,974** |
| **HERITAGE FIELD** | **SUB TOTAL** | | **12,131** | **12,977** | **12,977** |

**TABLE 3-7 (CONTINUED)**
**2030/POST-2030 EVENING PEAK HOUR TRIP GENERATION SUMMARY BY DISTRICT (ITAM 8.4-10 DERIVED TRIP GENERATION)**

| DISTRICT | LAND USE | PM RATE | 2011 Approved Project (Baseline) | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | | | Option 1 | Option 2 |
| District 8 | Park | 0.35 | 2 | 2 | 2 |
| **District 8** | **Subtotal** | | **2** | **2** | **2** |
| District 1 North | K-8 School (Elementary & Middle), add'l students | 0.11 | 39 | 39 | 39 |
| District 1 North | Park | 0.35 | 5 | 5 | 7 |
| **District 1 North** | **Subtotal** | | **44** | **44** | **46** |
| District 1 South | Park | 0.35 | 4 | 4 | 1 |
| **District 1 South** | **Subtotal** | | **4** | **4** | **1** |
| District 4 | Park | 0.35 | 3 | 3 | 3 |
| **District 4** | **Subtotal** | | **3** | **3** | **3** |
| District 7 | Park | 0.35 | 2 | 2 | 2 |
| **District 7** | **Subtotal** | | **2** | **2** | **2** |
| District 5 | K-8 School (Elementary & Middle) | 0.11 | 110 | 110 | 110 |
| District 5 | High School | 0.11 | 0 | 286 | 286 |
| District 5 | Park | 0.35 | 0 | 10 | 10 |
| **District 5** | **Subtotal** | | **110** | **406** | **406** |
| District 6 | Park | 0.35 | 0 | 9 | 9 |
| **District 6** | **Subtotal** | | **0** | **9** | **9** |
| **ADDITIONAL PUBLIC USES** | **SUB TOTAL** | | **165** | **470** | **469** |
| Marshburn Basin | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 1 | 1 | 1 |
| **Marshburn Basin** | **Subtotal** | | **1** | **1** | **1** |
| F | Transportation Center | 0.24 | 90 | 90 | 90 |
| **F** | **Subtotal** | | **90** | **90** | **90** |
| County | Agriculture | 0.19 | 17 | 17 | 17 |
| **County** | **Subtotal** | | **17** | **17** | **17** |
| G / H / L / M | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 5 | 3 | 3 |
| **G / H / L / M** | **Subtotal** | | **5** | **3** | **3** |
| L | Parking (GP) TAZs 931, 993-995 | 0.360 | 128 | 128 | 128 |
| L | Parking (GP) TAZs 932, 933, 991, 992, 996 | 0.890 | 1,906 | 1,906 | 1,906 |
| L | Parking (GP) TAZs 927-929, 977, 978 | 0.360 | 893 | 893 | 893 |
| L | TVI | 0.02 | 0 | 0 | 0 |
| **L** | **Subtotal** | | **2,927** | **2,927** | **2,927** |
| M | Parking (GP) | 0.360 | 21 | 21 | 21 |
| **M** | **Subtotal** | | **21** | **21** | **21** |
| EL TORO WILDLIFE REFUGE | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 19 | 19 | 19 |
| **EL TORO WILDLIFE REFUGE** | **Subtotal** | | **19** | **19** | **19** |
| J | Cultural / Institutional | 2.22 | 666 | 666 | 666 |
| J | OCTA Facility | 0.65 | 80 | 80 | 80 |
| J | Warehousing | 0.61 | 160 | 160 | 160 |
| **J** | **Subtotal** | | **906** | **906** | **906** |
| CIVIC SITE | Government Facility | 2.30 | 163 | 163 | 163 |
| **CIVIC SITE** | **Subtotal** | | **163** | **163** | **163** |
| E | Transportation Center | 0.24 | 119 | 119 | 119 |
| **E** | **Subtotal** | | **119** | **119** | **119** |
| B | Transportation Center | 0.24 | 43 | 43 | 43 |
| B | OCTA Facility | 0.65 | 35 | 35 | 35 |
| B | Agriculture | 0.19 | - | - | - |
| **B** | **Subtotal** | | **78** | **78** | **78** |
| A / B / C / G | Agriculture | 0.19 | - | - | - |
| A / B / C / G | OS, Habitat, Wildlife Corridor & Drainage | 0.0200 | 1 | 1 | 1 |
| **A / B / C / G** | **Subtotal** | | **1** | **1** | **1** |
| **CITY / OTHER PROPERTY** | **SUB TOTAL** | | **4,347** | **4,345** | **4,345** |
| **TOTAL** | | | **16,643** | **17,792** | **17,791** |

**Table 3-8**

**ITAM Trip Generation Comparison**
**between Without Project (2015) or 2011 Approved Project**
**(Baseline, 2030 & Post-2030) and the 2012 Modified Project[1]**

| Timeframe/Scenario | AM Peak Hour Trips | PM Peak Hour Trips | Average Daily Trips |
|---|---|---|---|
| **Heritage Fields** | | | |
| **Year 2015** | | | |
| Without Project | 3,741 | 3,823 | 41,272 |
| 2012 Modified Project | 5,652 | 6,086 | 64,895 |
| *Difference* | *1,911* | *2,263* | *23,623* |
| **Year 2030/Post-2030** | | | |
| 2011 Approved Project Baseline | 10,902 | 12,131 | 127,930 |
| 2012 Modified Project | 12,279 | 12,977 | 137,714 |
| *Difference* | *1,377* | *846* | *9,784* |
| **Additional Public Uses** | | | |
| **Year 2015** | | | |
| Without Project | 255 | 162 | 1,820 |
| 2012 Modified Project | 257 | 164 | 1,844 |
| *Difference* | *2* | *2* | *24* |
| **Year 2030/Post-2030** | | | |
| 2011 Approved Project Baseline | 257 | 165 | 1,845 |
| 2012 Modified Project | 740 | 469 | 5,256 |
| *Difference* | *483* | *304* | *3,411* |

[1] Trip Generation summaries include trips generated by Density Bonus units and additional public uses which are not subject to the ADT limitations in the zoning code.

## 3.4 Project Trip Distribution

Trip distribution patterns for the Proposed Project were developed using the ITAM traffic model and are presented here for each of the future timeframes that were analyzed (2015, 2030 and Post-2030). The 2015, 2030 and Post-2030 trip distribution patterns for the Proposed Project with Option 1 are shown in Exhibits 3-2 through 3-4, and the Option 2 trip distribution patterns are depicted in Exhibits 3-5 through 3-7 . The trip distribution patterns for each time frame were derived from ITAM and are based on the ITAM model's distribution of daily project traffic. These percentages differ slightly in the peak hours, and the traffic model uses the individual peak hour distribution patterns to assign peak hour trips.

EXHIBIT 3-2 (1 OF 2)

# 2015 PROJECT TRIP DISTRIBUTION, OPTION 1, WEST STUDY AREA

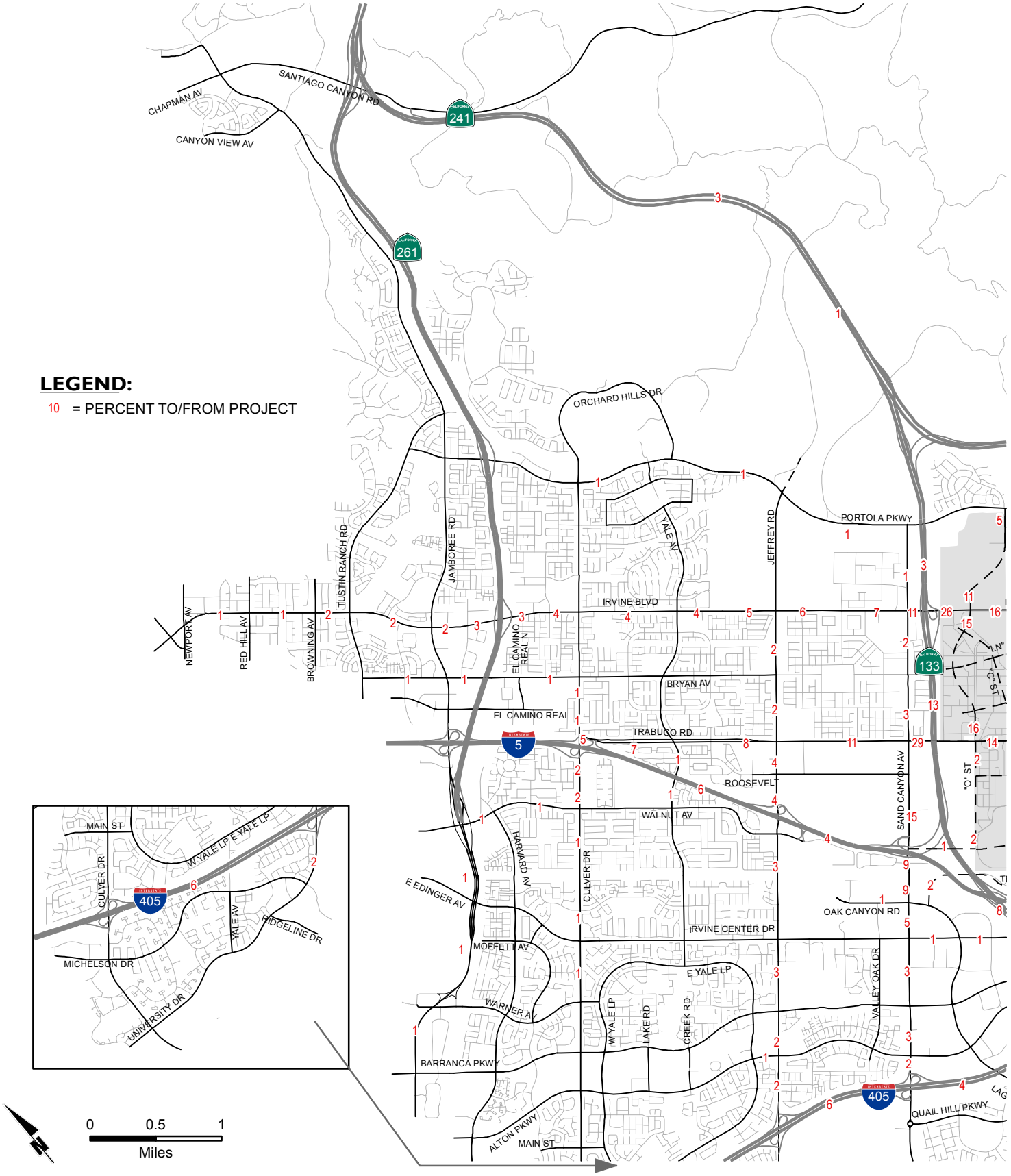
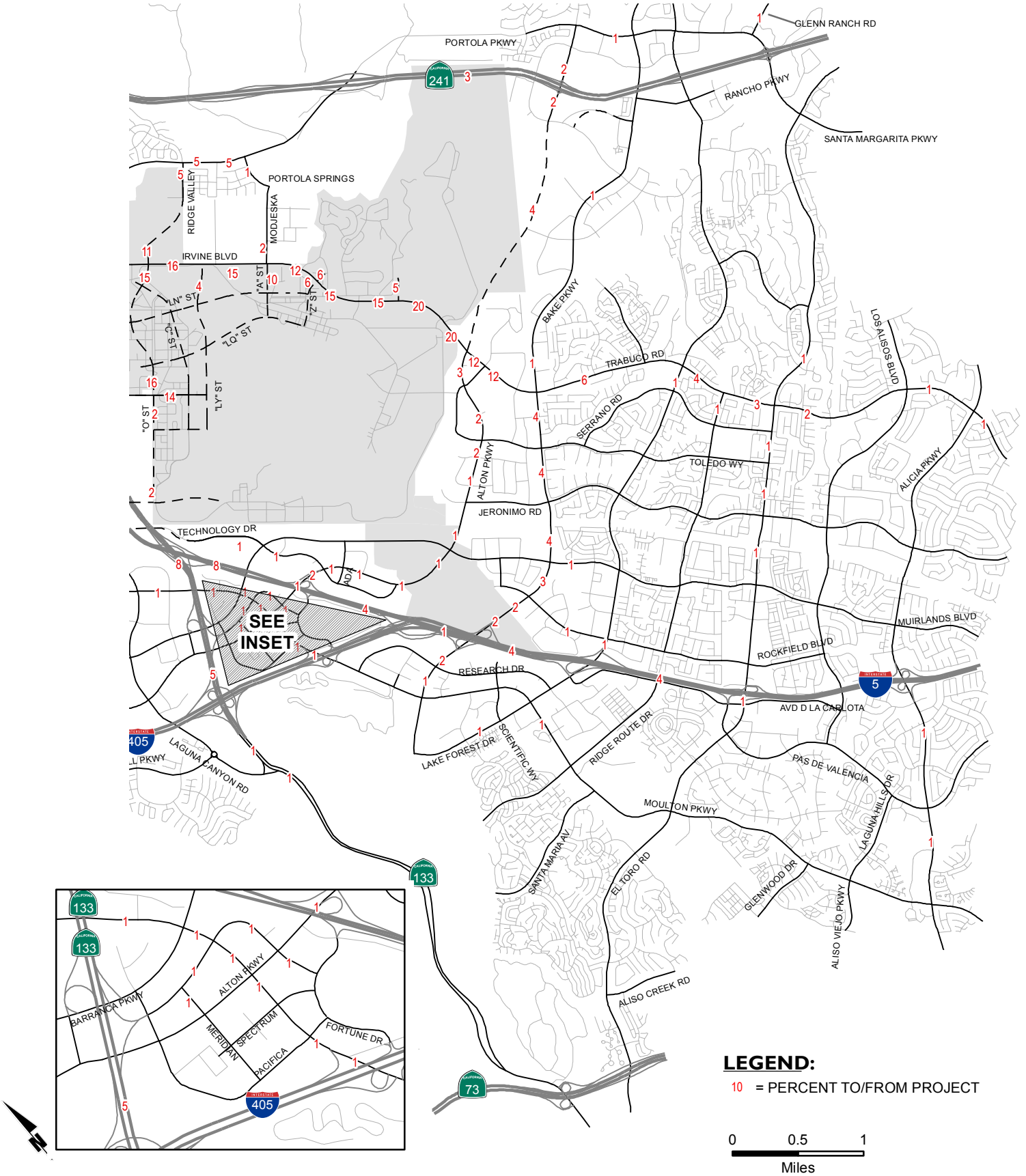


EXHIBIT 3-2 (2 OF 2)

# 2015 PROJECT TRIP DISTRIBUTION, OPTION 1, EAST STUDY AREA




**LEGEND:**

10 = PERCENT TO/FROM PROJECT

0 0.5 1

Miles

EXHIBIT 3-3 (1 OF 2)

# 2030 PROJECT TRIP DISTRIBUTION, OPTION 1, WEST STUDY AREA

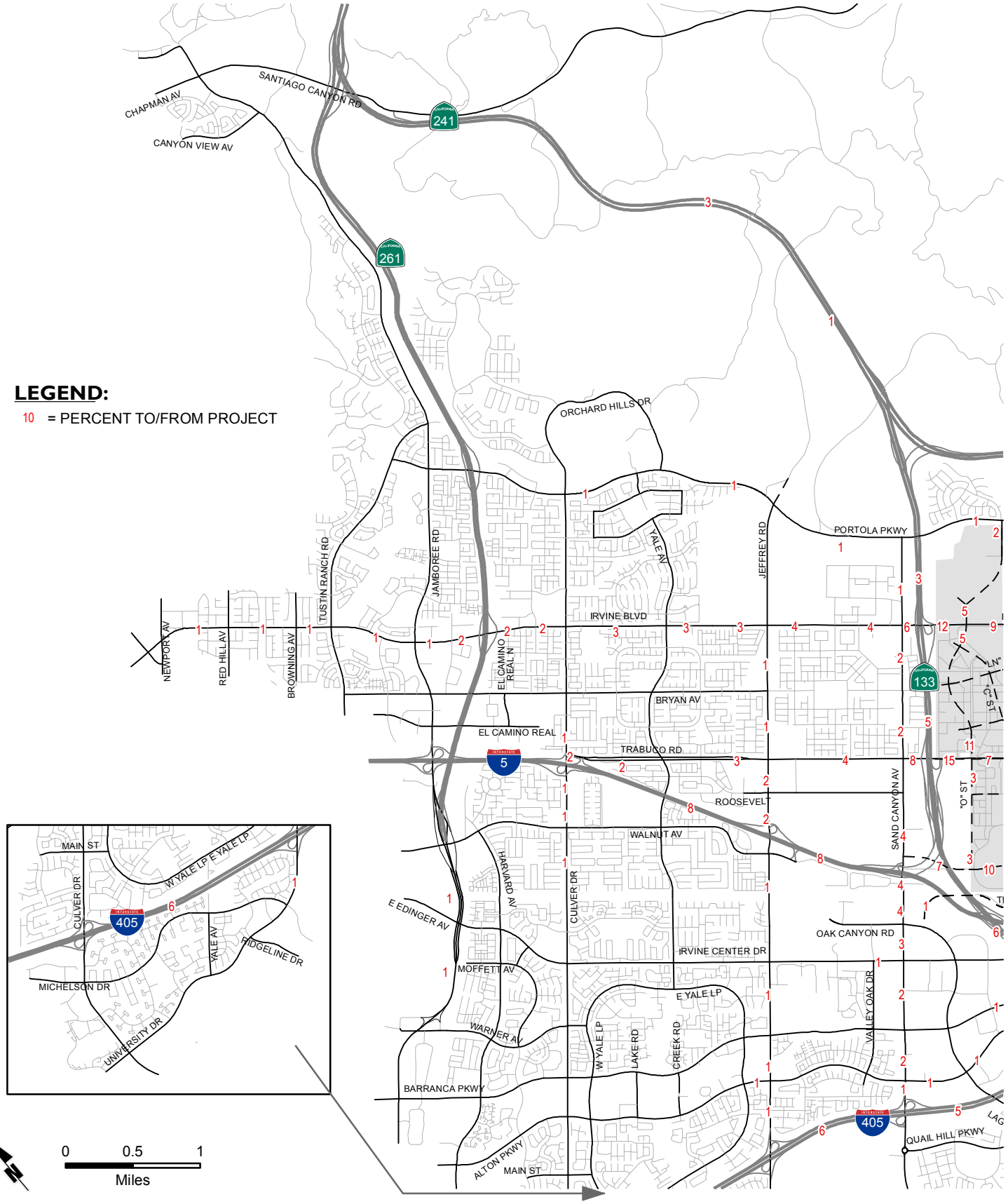
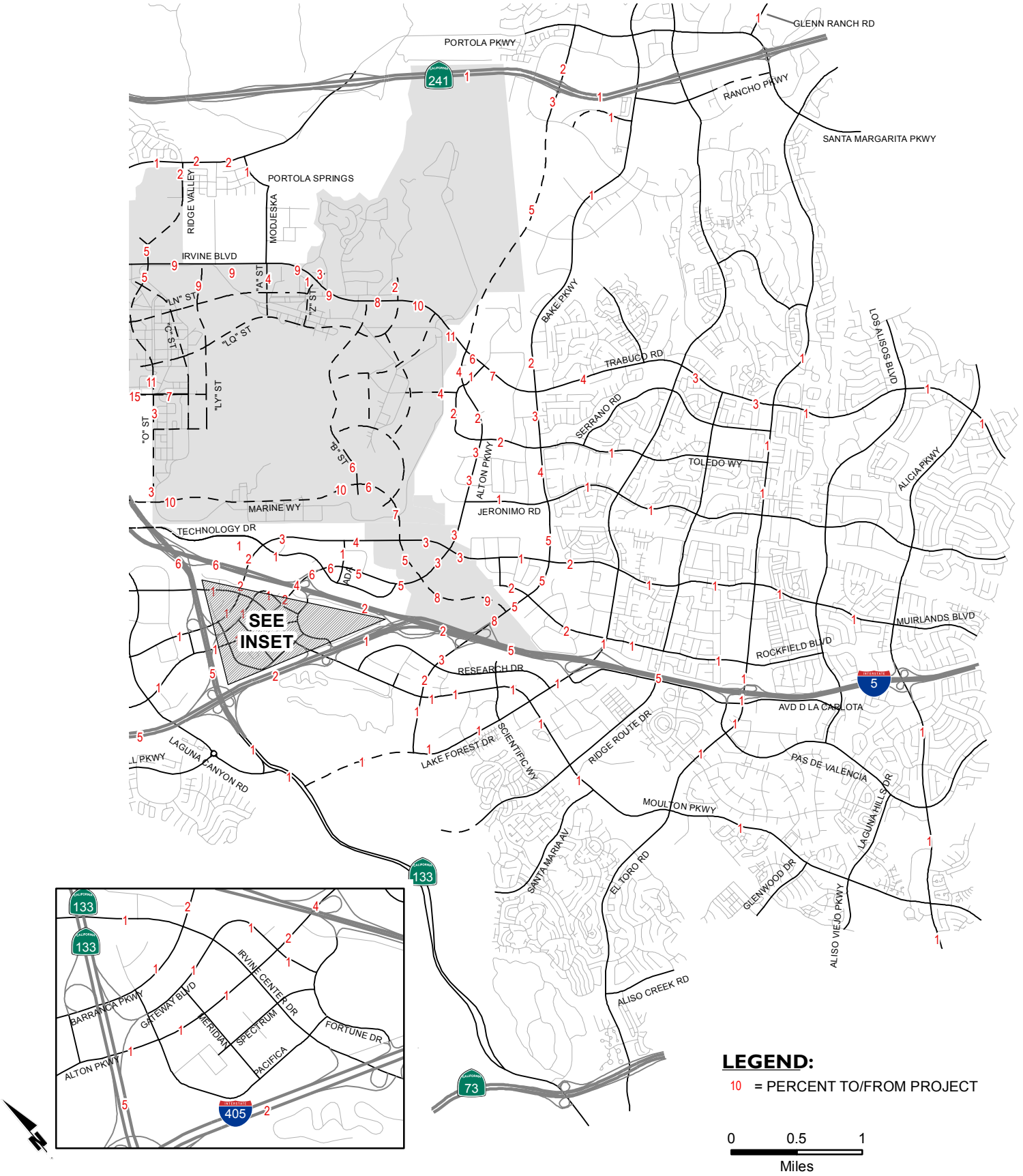


EXHIBIT 3-3 (2 OF 2)

# 2030 PROJECT TRIP DISTRIBUTION, OPTION 1, EAST STUDY AREA



# GENERAL PLAN BUILDOUT (POST-2030) TRIP DISTRIBUTION, OPTION 1, WEST STUDY AREA

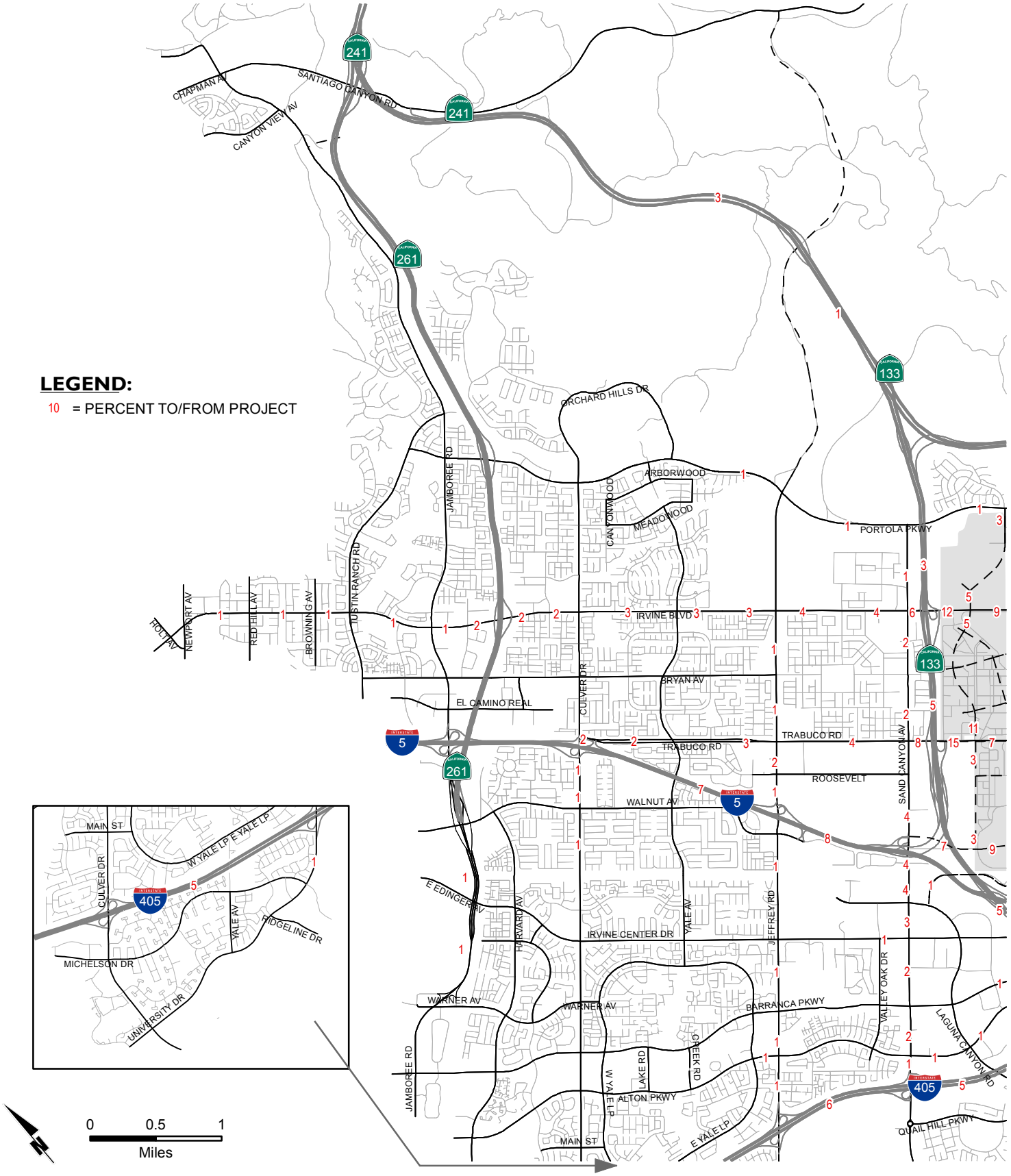


EXHIBIT 3-4 (2 OF 2)

# GENERAL PLAN BUILDOUT (POST-2030) TRIP DISTRIBUTION, OPTION 1, EAST STUDY AREA

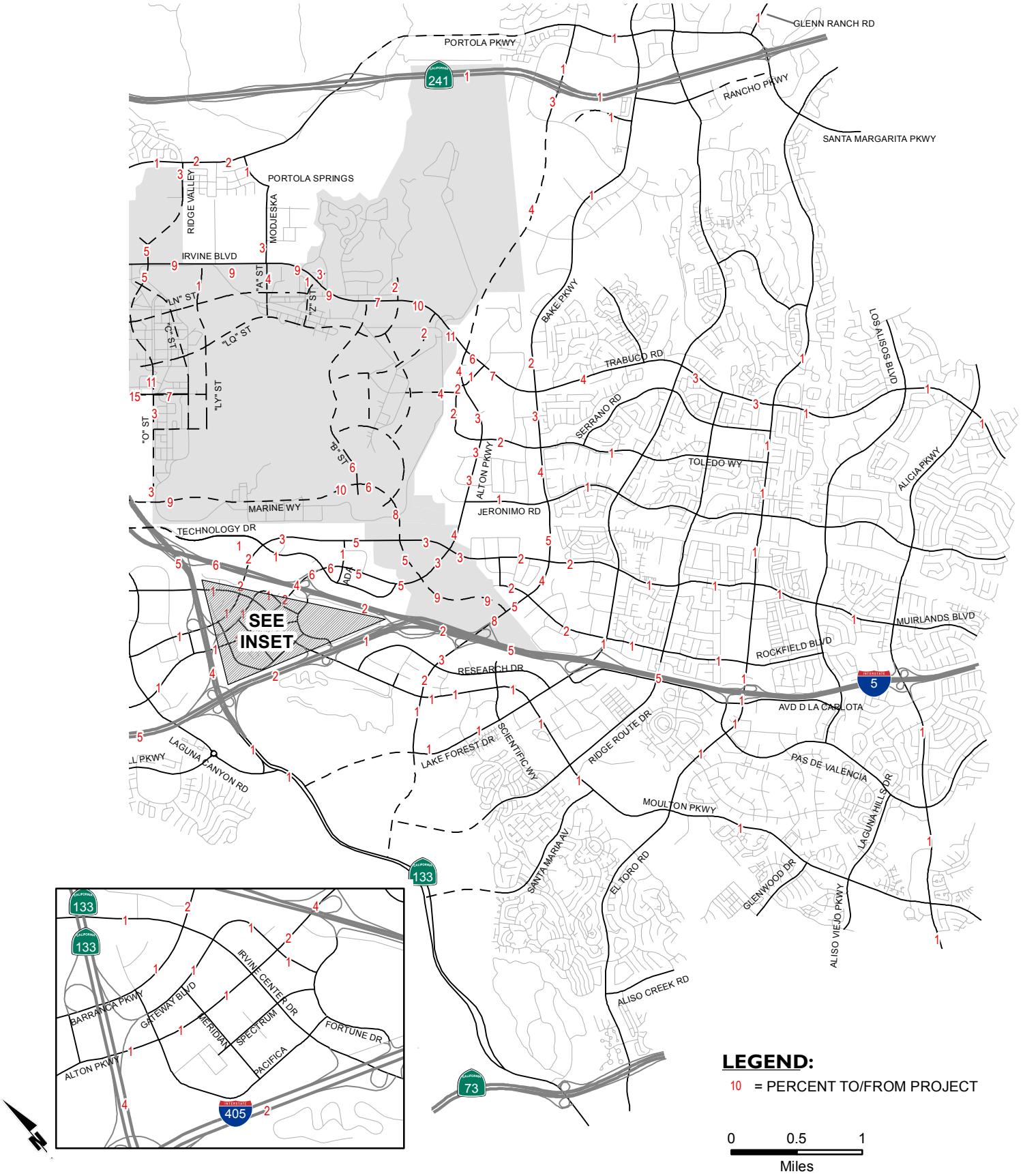


EXHIBIT 3-5 (1 OF 2)

# 2015 PROJECT TRIP DISTRIBUTION, OPTION 2, WEST STUDY AREA

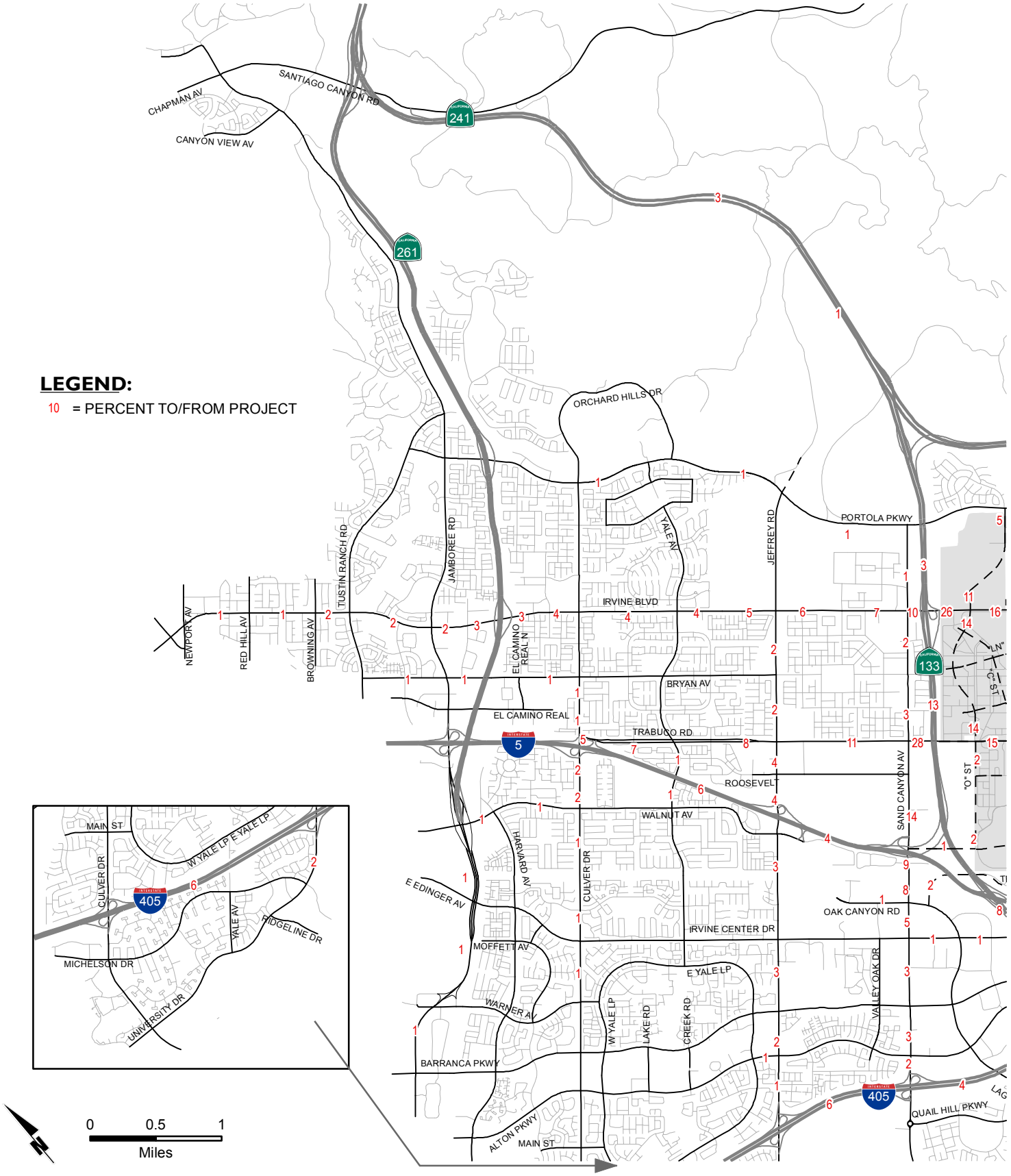
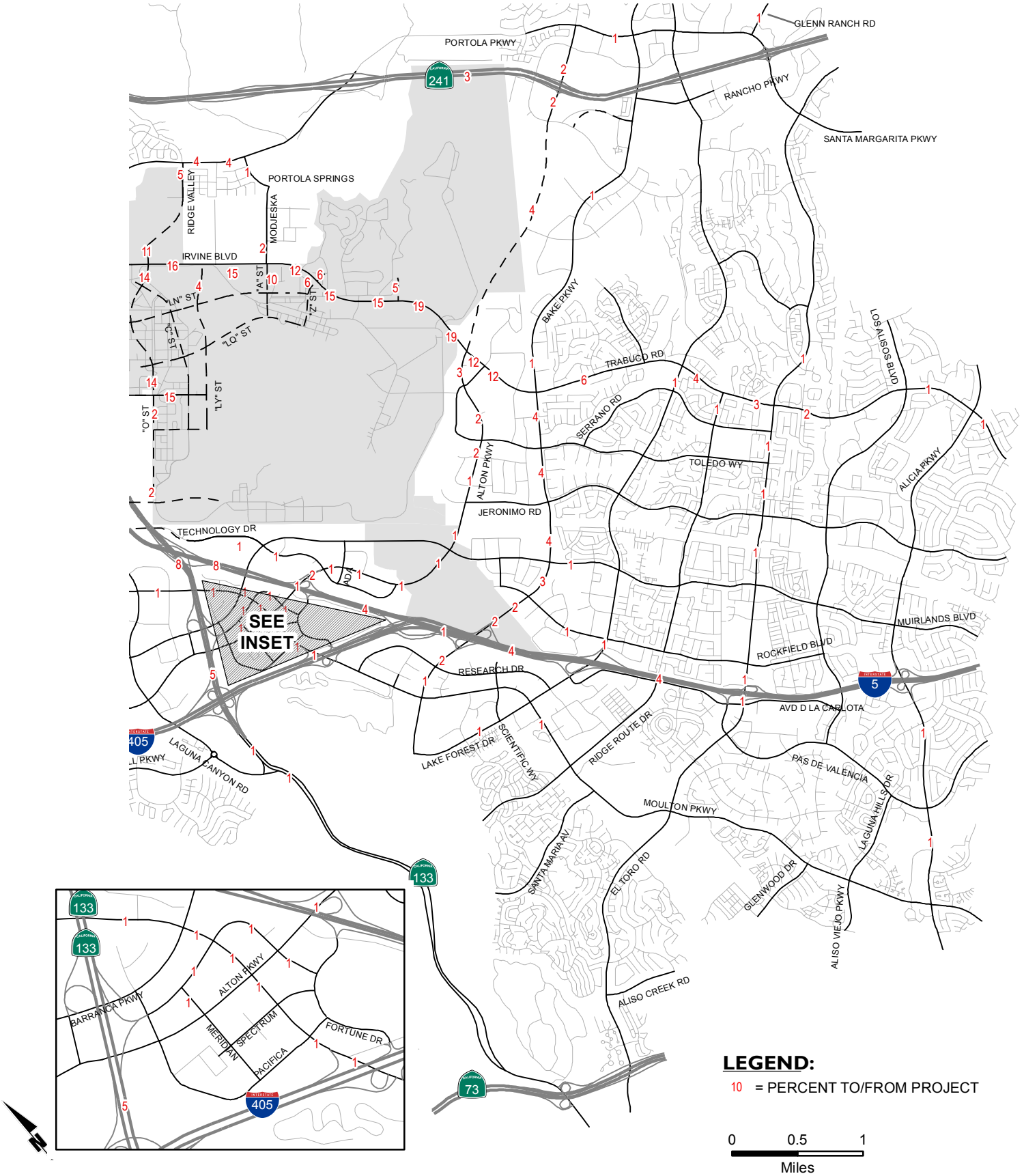


EXHIBIT 3-5 (2 OF 2)

# 2015 PROJECT TRIP DISTRIBUTION, OPTION 2, EAST STUDY AREA




**LEGEND:**

10 = PERCENT TO/FROM PROJECT

0 0.5 1

Miles

EXHIBIT 3-6 (1 OF 2)

# 2030 PROJECT TRIP DISTRIBUTION, OPTION 2, WEST STUDY AREA

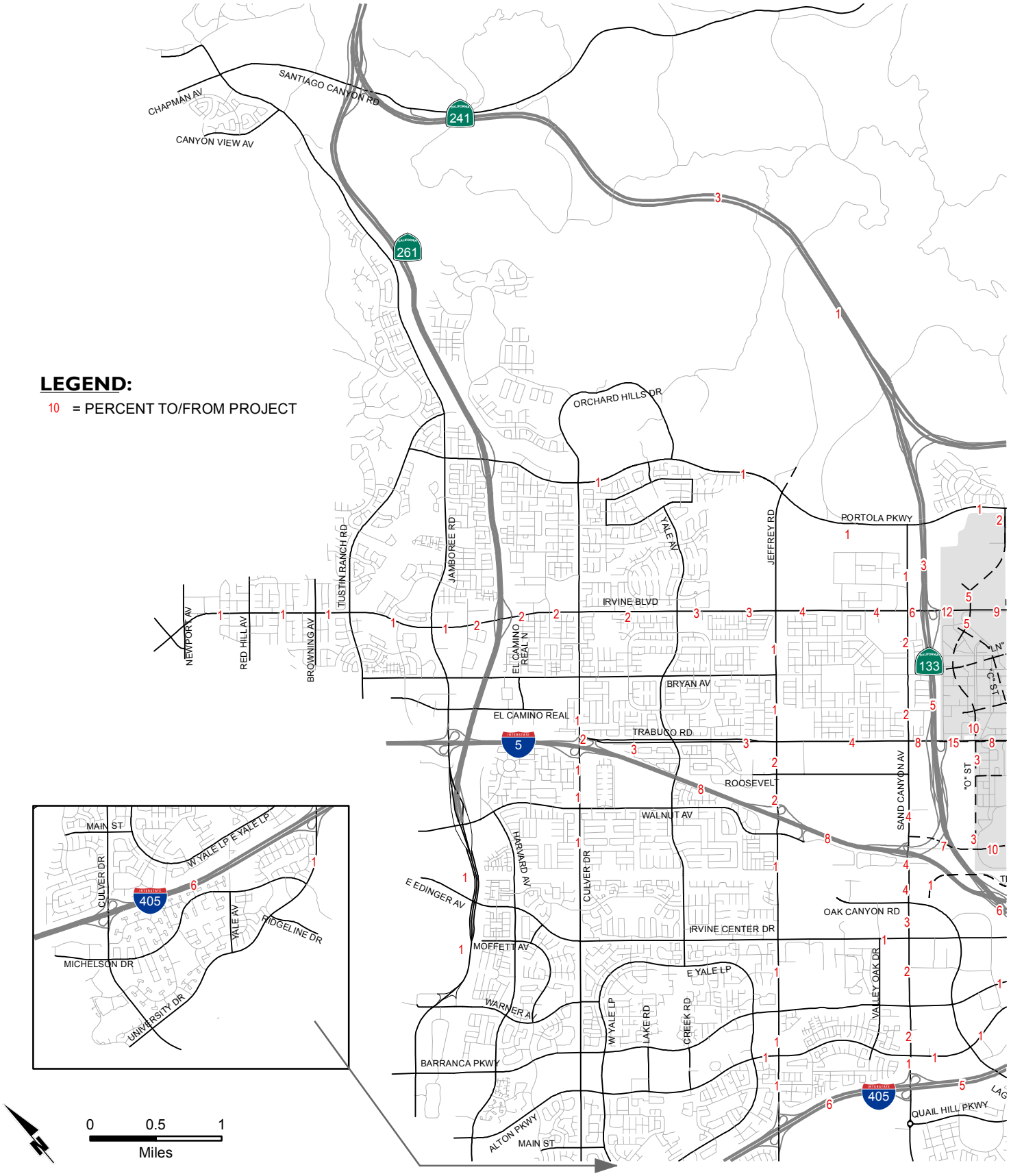
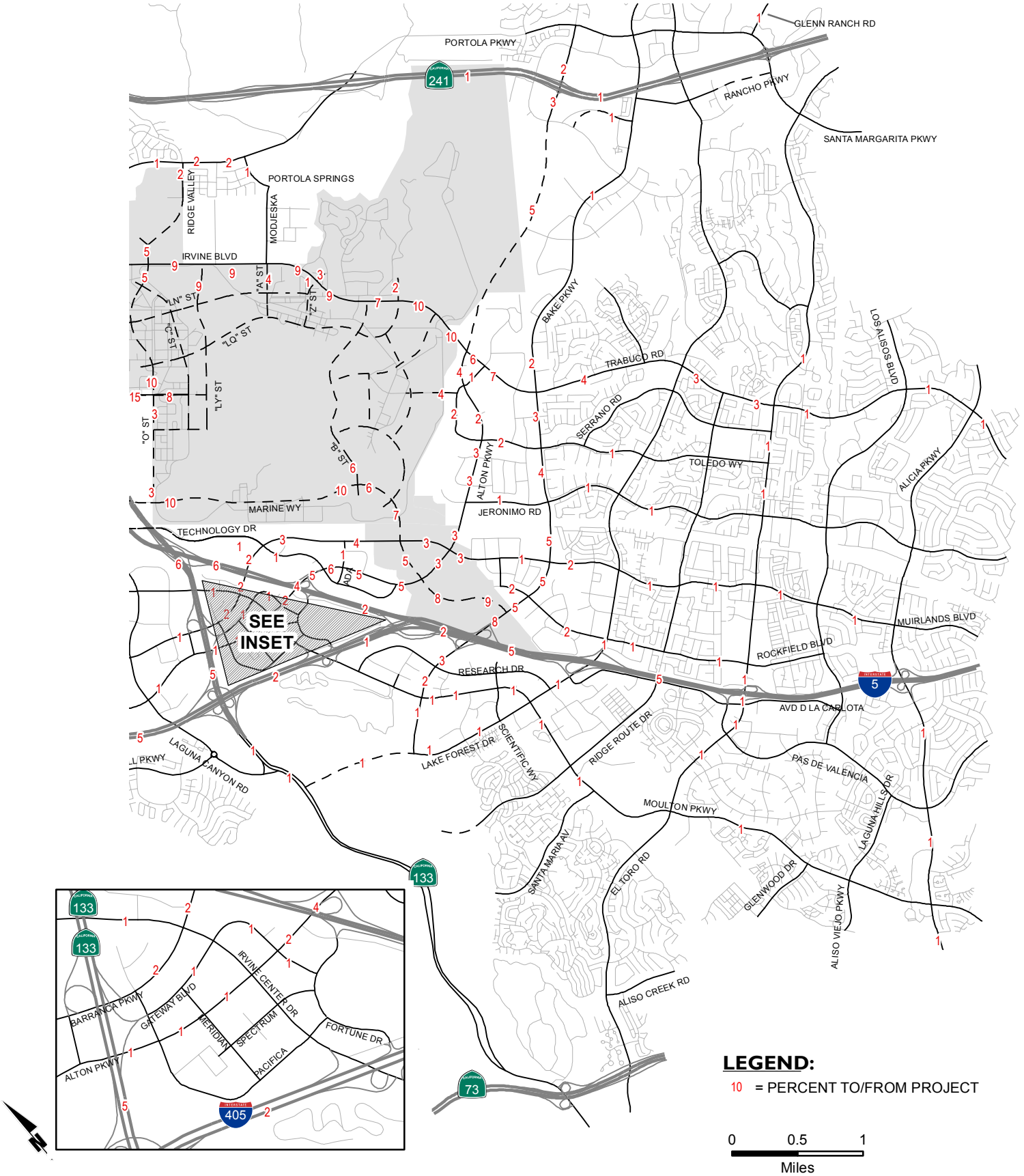


EXHIBIT 3-6 (2 OF 2)

# 2030 PROJECT TRIP DISTRIBUTION, OPTION 2, EAST STUDY AREA




**LEGEND:**

10 = PERCENT TO/FROM PROJECT

0 0.5 1

Miles

# GENERAL PLAN BUILDOUT (POST-2030) TRIP DISTRIBUTION, OPTION 2, WEST STUDY AREA

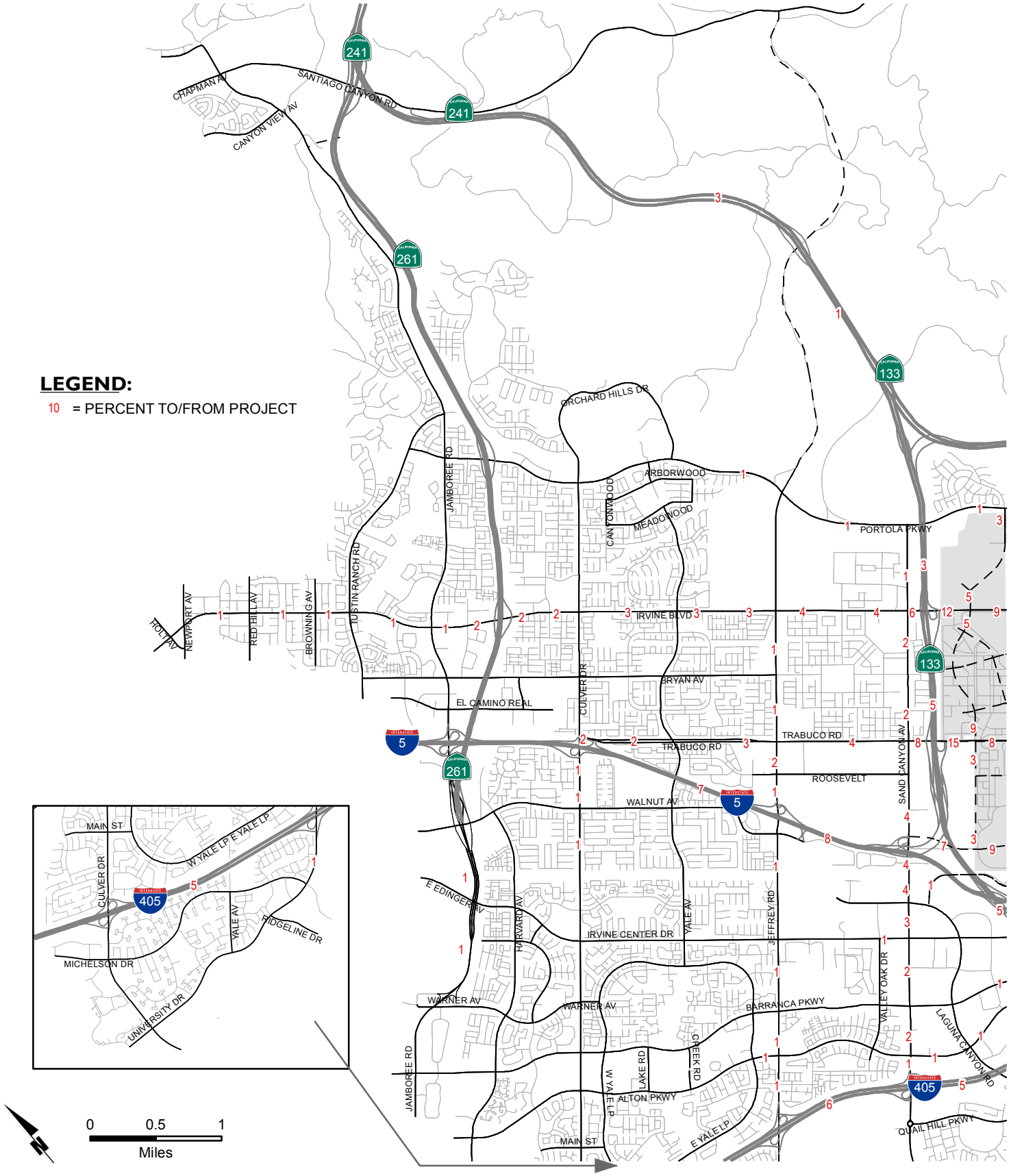
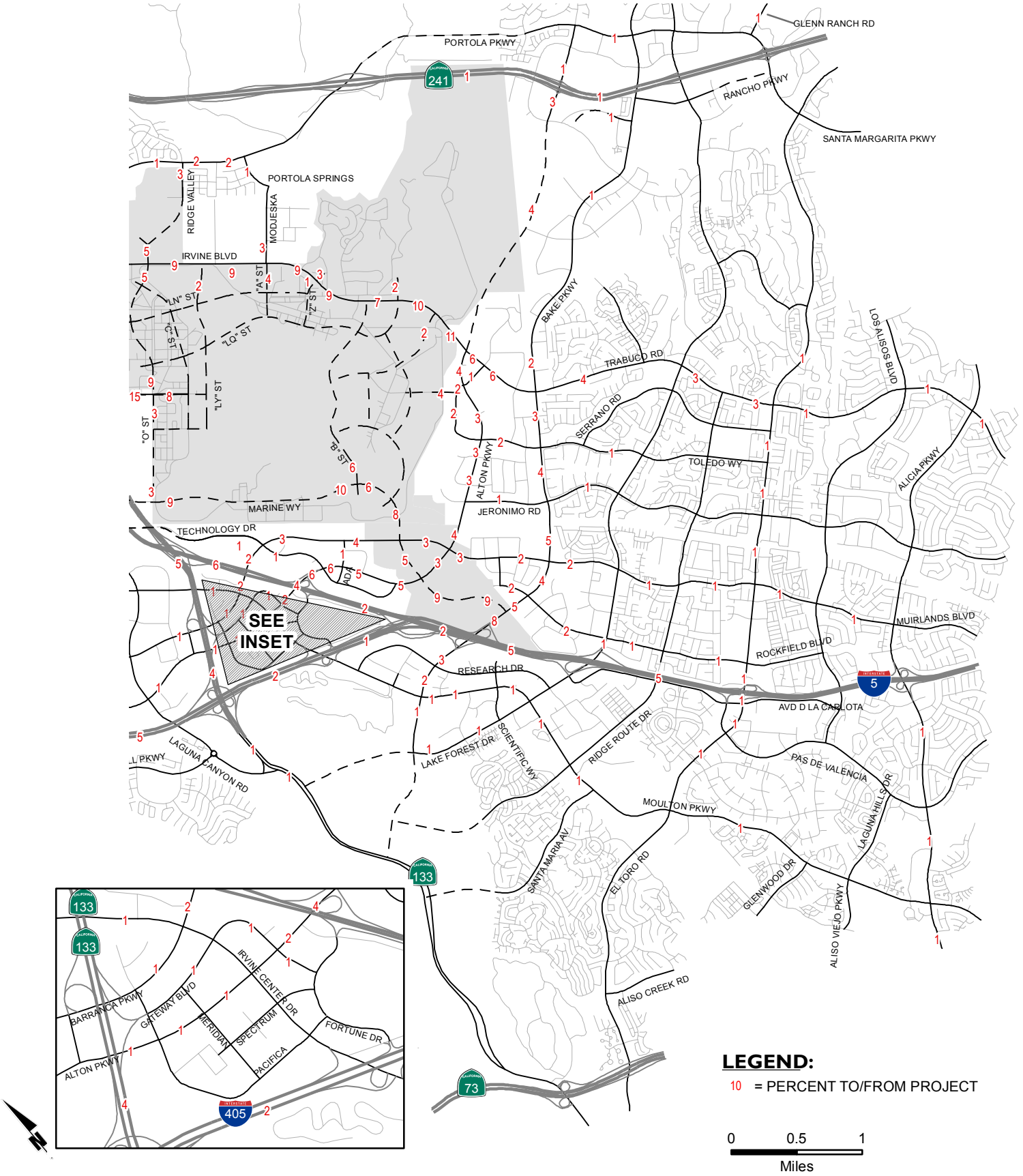


EXHIBIT 3-7 (2 OF 2)

# GENERAL PLAN BUILDOUT (POST-2030) TRIP DISTRIBUTION, OPTION 2, EAST STUDY AREA



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# 4.0 TRANSPORTATION SETTING

This chapter describes the transportation setting for the 2012 Modified Project. Existing traffic conditions in the traffic analysis study area are summarized, and the future circulation systems planned for 2015, 2030 and Post-2030 within the study area are described. At the end of this chapter, a summary of the status of the List of North Irvine Traffic Mitigation (NITM) Improvements (the circulation system improvements identified in the NITM Program) is provided.

## 4.1 Existing Conditions

Exhibit 4-1 identifies the existing circulation system in the study area together with existing midblock lanes on arterial roadways and the number of existing travel lanes on freeway/tollway mainline segments. Current average daily traffic (ADT) counts for midblock arterial roadway segments and AM and PM peak hour turn movement counts at intersection locations in the study area were conducted in 2011 and 2012. ADT midblock and peak hour intersection traffic count worksheets for each location that was analyzed on arterial roadway system in the study area are included in Appendix 4.1. Existing freeway mainline count data is consistent with the City of Irvine Planning Area 6 Traffic Study (AFA, 2011) and PA 33 (Lots 105 and 107/108) Traffic Study (Stantac, 2012), which were taken from the Caltrans Performance Management System (PeMS). Data was extracted for a typical five-day workweek and counts were then averaged.

### 4.1.1 Average Daily Traffic Volumes and Levels of Service

Current ADT volumes and corresponding volume/capacity (V/C) ratios on the arterial roadway system and the freeway/tollway system in the study area are illustrated on Exhibits 4-2 and 4-3. Based on the ADT V/C level of service (LOS) performance criteria outlined in Chapter 2.0, arterials in the study area generally appear to operate at acceptable levels of service with the exception of the following locations:

- Alicia Pkwy (south of Jeronimo Rd)
- Alicia Pkwy (north of Muirlands Bl)
- Alicia Pkwy (I-5 NB Ramps to Muirlands Bl)
- Alicia Pkwy (south of I-5 SB Ramps)
- Avenida Carlota (Paseo de Valencia to El Toro Rd)

EXHIBIT 4-1 (1 OF 2)

# EXISTING CIRCULATION SYSTEM, WEST STUDY AREA

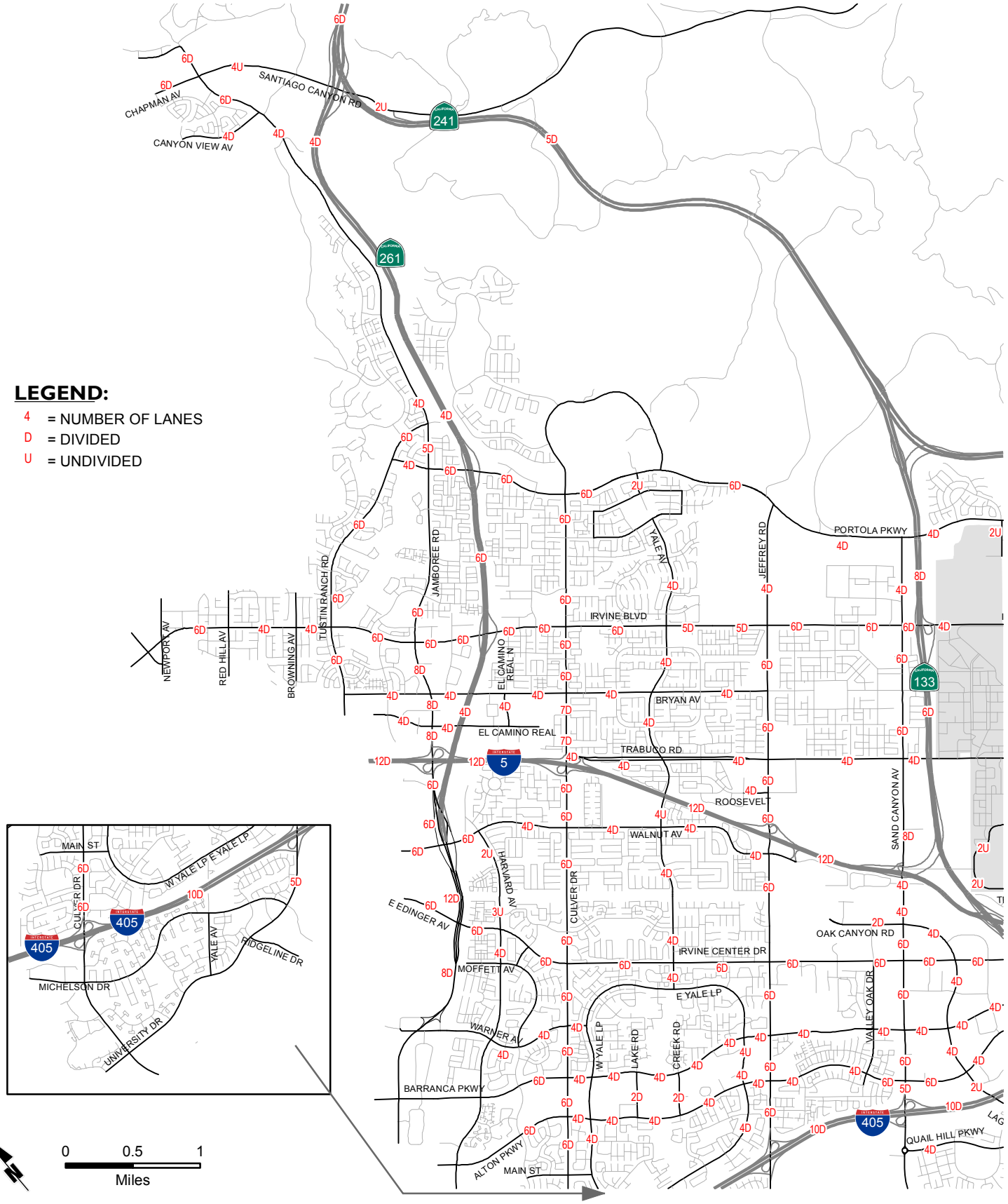
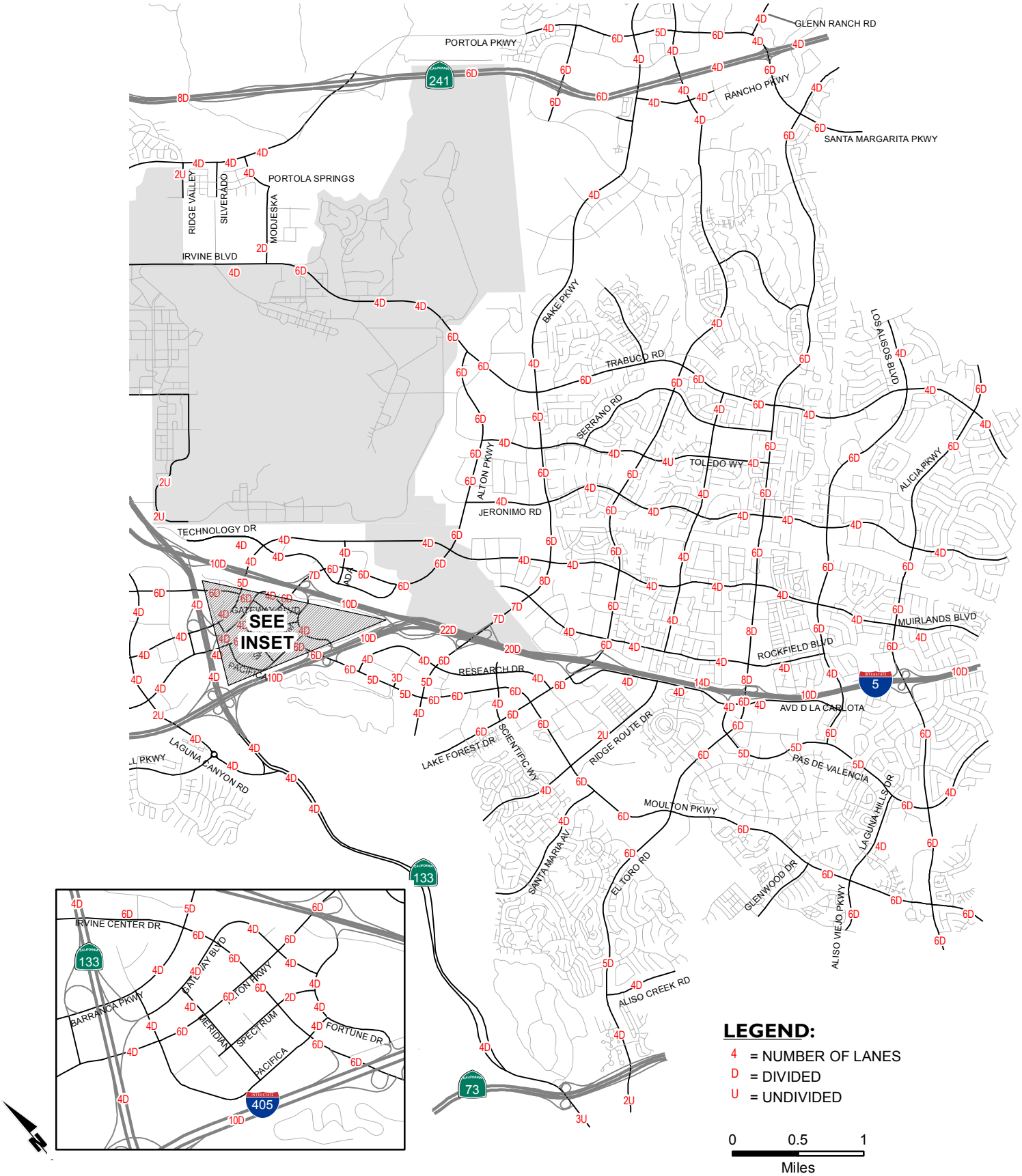


EXHIBIT 4-1 (2 OF 2)

# EXISTING CIRCULATION SYSTEM, EAST STUDY AREA




**LEGEND:**

4 = NUMBER OF LANES
D = DIVIDED
U = UNDIVIDED

0 0.5 1
Miles

EXHIBIT 4-2 (1 OF 2)

# EXISTING ADT VOLUMES, WEST STUDY AREA

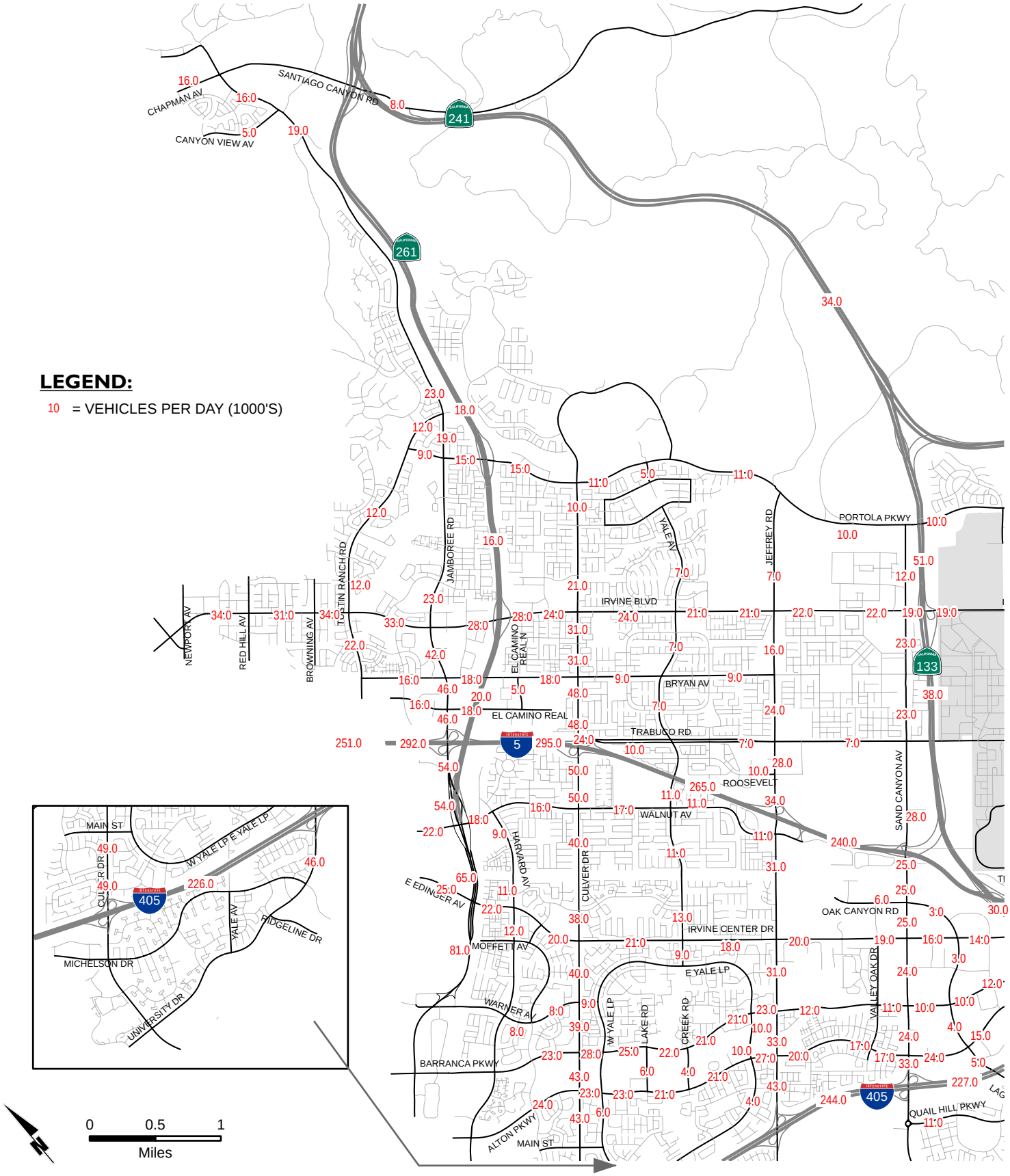


EXHIBIT 4-2 (2 OF 2)

# EXISTING ADT VOLUMES, EAST STUDY AREA

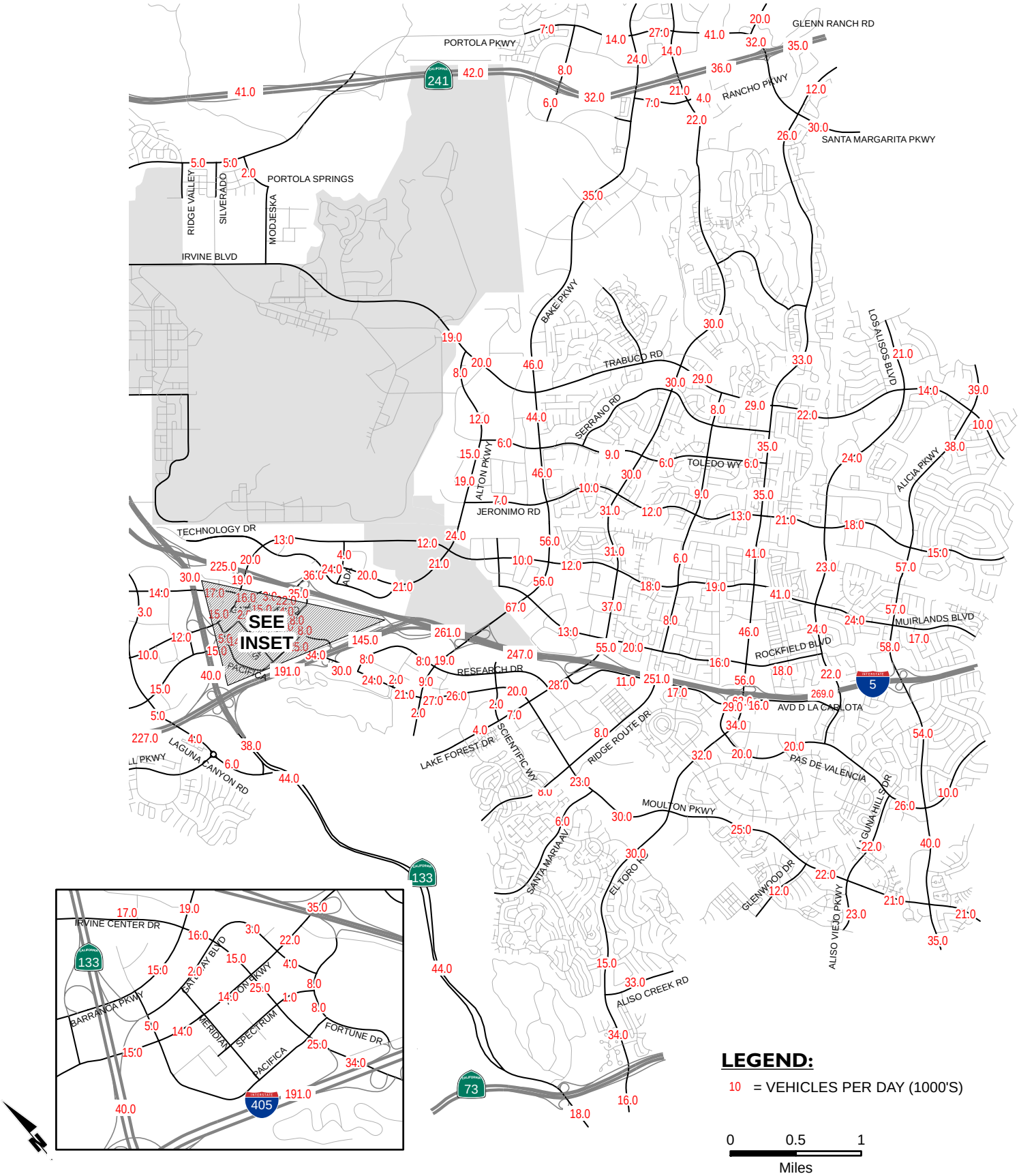


EXHIBIT 4-3 (1 OF 2)

# EXISTING ADT V/C RATIOS, WEST STUDY AREA

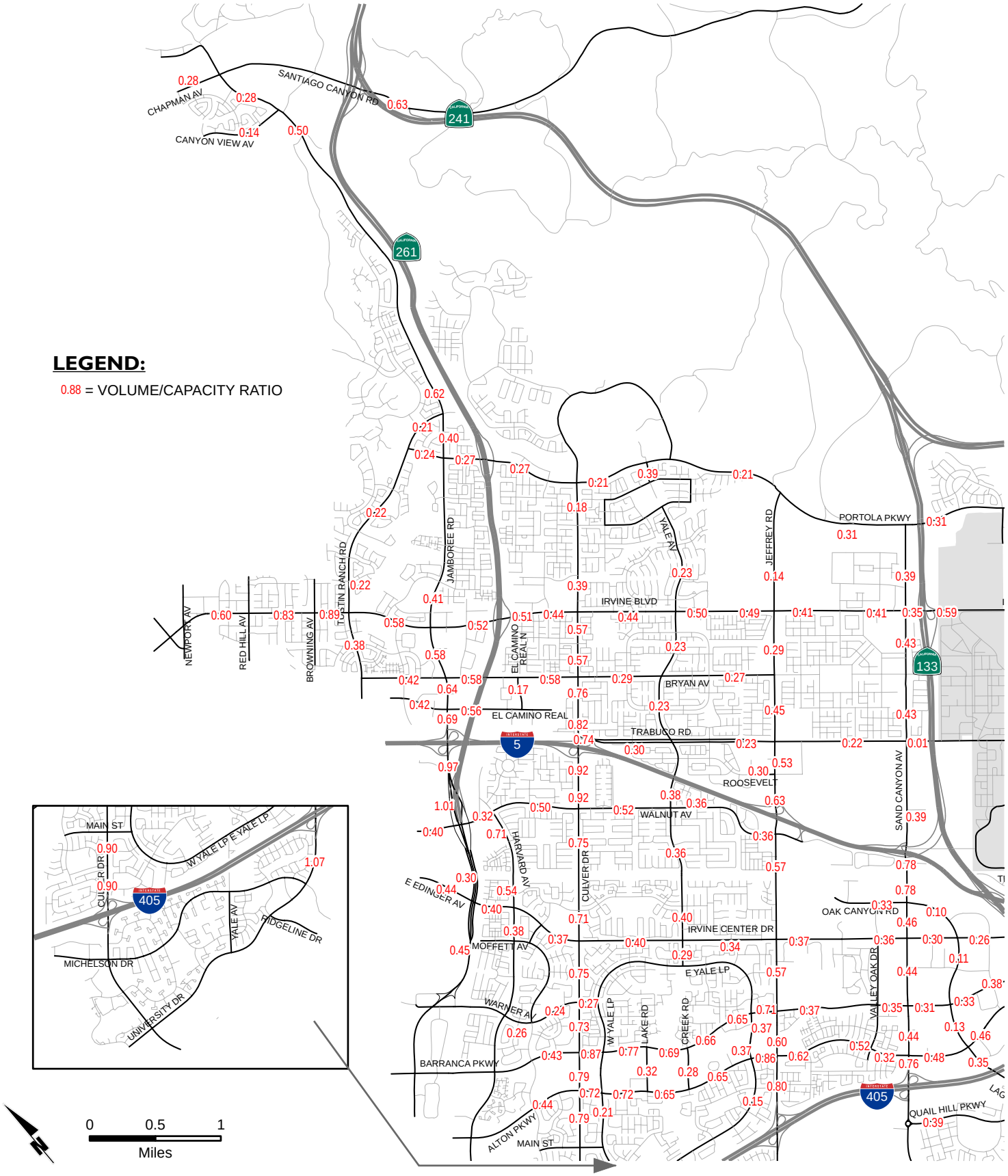
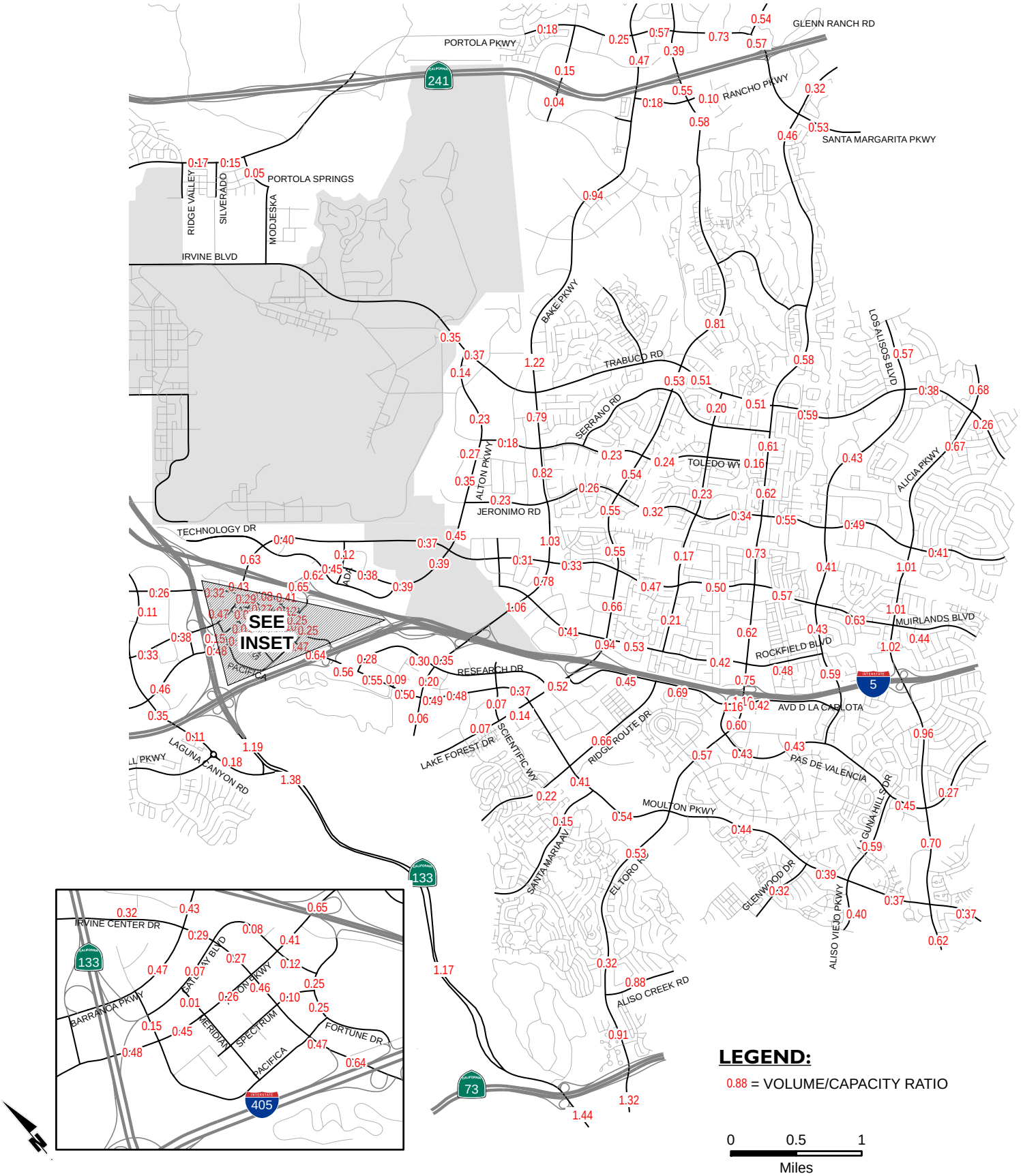


EXHIBIT 4-3 (2 OF 2)

# EXISTING ADT V/C RATIOS, EAST STUDY AREA



- Bake Pkwy (north of Commercentre Dr)
- Bake Pkwy (north of Irvine Bl)
- Bake Pkwy (north of Muirlands Bl)
- Bake Pkwy (south of Rockfield Bl)
- Culver Dr (Walnut to I-5)
- El Toro (I-5 SB Ramps to Avenida Carlota)
- El Toro (north of SR-73)
- El Toro (south of SR-73)
- Jamboree Rd (north of Michelle Dr)
- Jamboree Rd (south of Michelle Dr)
- Laguna Canyon Rd/SR-133 (north of SR-73 NB Ramps)
- Lake Forest (south of Rockfield)
- Santa Margarita (south of SR-241)
- University Dr (I-405 SB Ramps to Michelson Dr)

### 4.1.2 Peak Hour Intersection Levels of Service

Existing intersection capacity utilization (ICU) values were calculated for the intersections illustrated in Exhibit 4-4 using peak hour traffic count data in combination with the existing lane configuration of each location. Existing AM and PM peak hour ICU values are summarized in Table 4-1 (actual turn volumes and ICU calculation worksheets are included in Appendix 4.2). Use of the ICU methodology is consistent with the traffic analysis guidelines of the City of Irvine and the Orange County Transportation Authority (OCTA) Congestion Management Program (CMP), and by practice the ICU methodology assumes that intersections are signalized. Based on the intersection LOS performance criteria outlined in Chapter 2.0, study area intersections generally appear to operate at acceptable levels of service during the peak hours with the exception of the following intersections:

- El Toro Road at Aliso Creek Road
- El Toro Road at Avenida Carlota

EXHIBIT 4-4 (1 OF 2)

# EXISTING INTERSECTION LOCATION MAP
# WEST STUDY AREA

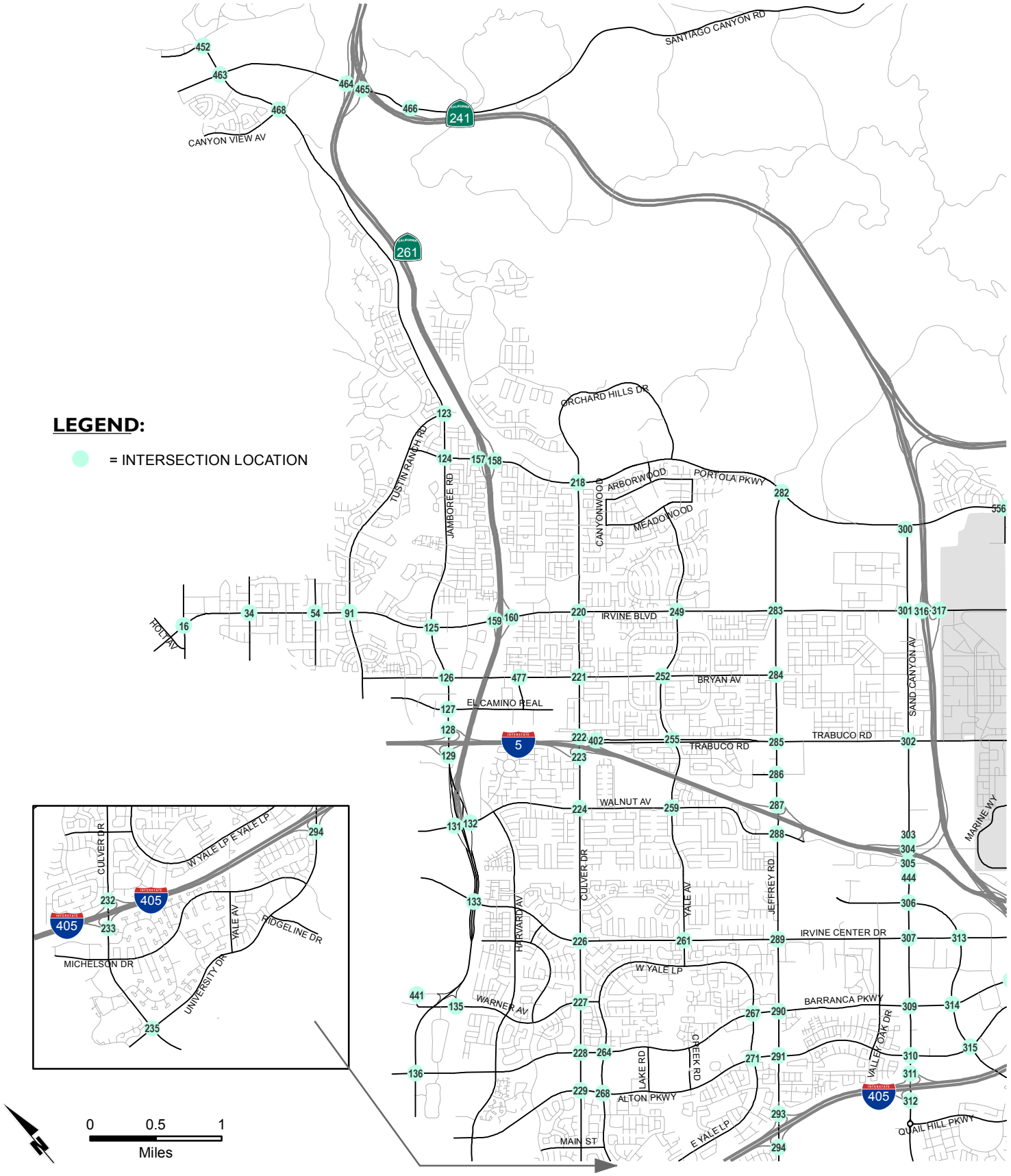
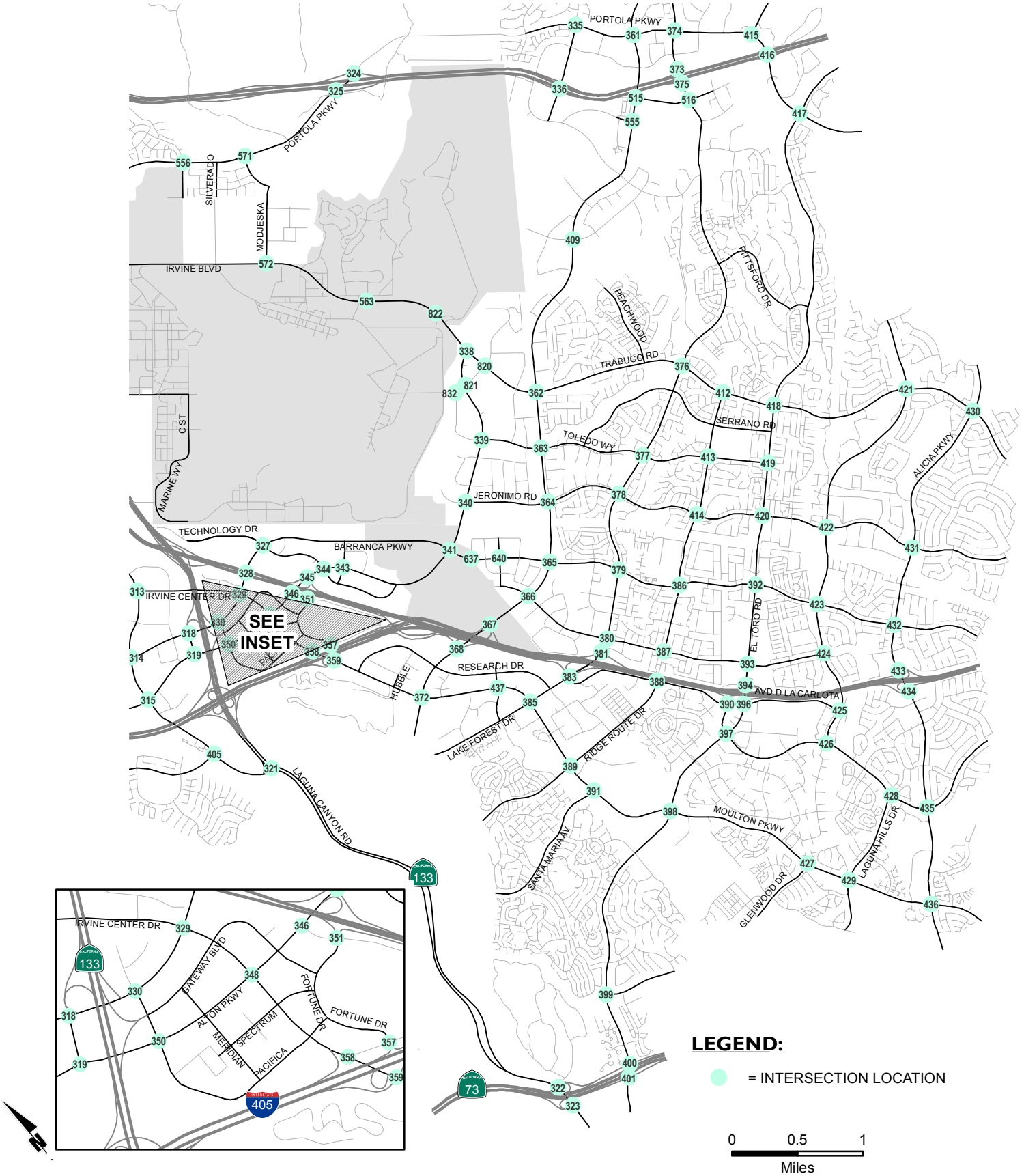


EXHIBIT 4-4 (2 OF 2)

# EXISTING INTERSECTION LOCATION MAP
# EAST STUDY AREA



## Table 4-1

## Existing Intersection LOS Summary (ICU Methodology)

| | | | | Existing Conditions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | | | 0.63 | B | 0.58 | A |
| 34 | Red Hill Av at Irvine Bl | **F** | | 0.64 | B | 0.69 | B |
| 54 | Browning Av at Irvine Bl | | | 0.75 | C | 0.70 | B |
| 91 | Tustin Ranch Rd at Irvine Bl | **F** | | 0.83 | D | 0.79 | C |
| 123 | Jamboree Rd at Tustin Ranch Rd | **P** | | 0.49 | A | 0.59 | A |
| 124 | Jamboree Rd at Portola Pw | | | 0.56 | A | 0.74 | C |
| 125 | Jamboree Rd at Irvine Bl | **F** | Yes | 0.78 | C | 0.70 | B |
| 126 | Jamboree Rd at Bryan Av | | | 0.64 | B | 0.66 | B |
| 127 | Jamboree Rd at El Camino Real | | | 0.59 | A | 0.66 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | | | 0.78 | C | 0.86 | D |
| 129 | Jamboree Rd at I-5 SB Ramps | | | 0.79 | C | 0.73 | C |
| 131 | Jamboree Rd SB at Walnut Av | | | 0.77 | C | 0.53 | A |
| 132 | Jamboree Rd NB at Walnut Av | | | 0.32 | A | 0.49 | A |
| 133 | Jamboree Rd at Edinger Av | | Yes | 0.56 | A | 0.55 | A |
| 135 | Jamboree Rd NB at Warner Av | | | 0.31 | A | 0.81 | D |
| 136 | Jamboree Rd at Barranca Pw | | Yes | 0.75 | C | 0.90 | D |
| 157 | SR-261 SB Ramps at Portola Pw | | | 0.31 | A | 0.35 | A |
| 158 | SR-261 NB Ramps at Portola Pw | | | 0.27 | A | 0.37 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | | | 0.44 | A | 0.48 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | | | 0.43 | A | 0.53 | A |
| 218 | Culver Dr at Portola Pk | | | 0.39 | A | 0.40 | A |
| 220 | Culver Dr at Irvine Bl | | | 0.61 | B | 0.64 | B |
| 221 | Culver Dr at Bryan Av | | | 0.66 | B | 0.58 | A |
| 222 | Culver Dr at Trabuco Rd | **F** | | 0.59 | A | 0.65 | B |
| 223 | Culver Dr at I-5 SB Ramps | **F** | | 0.60 | A | 0.74 | C |
| 224 | Culver Dr at Walnut Av | **F** | | 0.68 | B | 0.76 | C |
| 226 | Culver Dr at ICD | | | 0.61 | B | 0.62 | B |
| 227 | Culver Dr at Warner Av | | | 0.62 | B | 0.62 | B |
| 228 | Culver Dr at Barranca Pw | **P** | | 0.72 | C | 0.77 | C |
| 229 | Culver Dr at Alton Pkwy | | | 0.75 | C | 0.82 | D |
| 232 | Culver Dr at I-405 NB Ramps | | | 0.51 | A | 0.73 | C |
| 233 | Culver Dr at I-405 SB Ramps | | | 0.54 | A | 0.70 | B |
| 235 | Culver Dr at University | **F** | | 0.70 | B | 0.90 | D |
| 249 | Yale Av at Irvine Bl | **F** | | 0.59 | A | 0.74 | C |
| 252 | Yale Av at Bryan Av | | | 0.31 | A | 0.39 | A |
| 255 | Yale Av at Trabuco Rd | | | 0.37 | A | 0.39 | A |
| 259 | Yale Av at Walnut Av | | | 0.40 | A | 0.63 | B |
| 261 | Yale Av at ICD | | | 0.51 | A | 0.55 | A |
| 264 | W Yale Lp at Barranca Pw | | | 0.54 | A | 0.52 | A |
| 267 | E Yale Lp at Barranca Pw | | | 0.58 | A | 0.52 | A |
| 268 | W Yale Loop at Alton Pw | | | 0.49 | A | 0.64 | B |
| 271 | E Yale Lp at Alton Pw | | | 0.65 | B | 0.62 | B |

## Table 4-1 Cont.

## Existing Intersection LOS Summary (ICU Methodology)

| | | | | Existing Conditions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS |
| 282 | Jeffrey Rd at Portola Pw | | | 0.34 | A | 0.35 | A |
| 283 | Jeffrey Rd at Irvine Bl | | | 0.47 | A | 0.55 | A |
| 284 | Jeffrey Rd at Bryan Av | | | 0.45 | A | 0.37 | A |
| 285 | Jeffrey Rd at Trabuco Rd | | | 0.45 | A | 0.42 | A |
| 286 | Jeffrey Rd at Roosevelt | | | 0.56 | A | 0.57 | A |
| 287 | Jeffrey Rd at I-5 NB Ramps | | | 0.52 | A | 0.59 | A |
| 288 | Jeffrey Rd at Walnut Av | **F** | | 0.67 | B | 0.66 | B |
| 289 | Jeffrey Rd at ICD | **F** | | 0.51 | A | 0.82 | D |
| 290 | Jeffrey Rd at Barranca Pw | **P** | | 0.68 | B | 0.69 | B |
| 291 | Jeffrey Rd at Alton Pw | **F** | | 0.86 | D | 0.78 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | **P** | | 0.71 | C | 0.68 | B |
| 294 | University Dr at I-405 SB Ramps | | | 0.61 | B | 0.54 | A |
| 300 | Sand Canyon Av at Portola Pw | | | 0.27 | A | 0.29 | A |
| 301 | Sand Canyon Av at Irvine Bl | | | 0.50 | A | 0.49 | A |
| 302 | Sand Canyon Av at Trabuco Pw | **F** | | 0.39 | A | 0.37 | A |
| 303 | Sand Canyon Av at I-5 NB Ramps | **F** | | 0.67 | B | 0.50 | A |
| 304 | Sand Canyon Av at Marine Wy | | | 0.59 | A | 0.60 | A |
| 305 | Sand Canyon Av at I-5 SB Ramps | **F** | | 0.67 | B | 0.61 | B |
| 306 | Sand Canyon Av at Oak Canyon | **F** | | 0.50 | A | 0.51 | A |
| 307 | Sand Canyon Av at ICD | | | 0.42 | A | 0.43 | A |
| 309 | Sand Canyon Av at Barranca Pw | | | 0.43 | A | 0.44 | A |
| 310 | Sand Canyon Av at Alto | **F** | | 0.54 | A | 0.63 | B |
| 311 | Sand Canyon Av at I-405 NB Ramps | **F** | | 0.56 | A | 0.41 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | | | 0.74 | C | 0.51 | A |
| 313 | Laguna Canyon Rd at ICD | | | 0.20 | A | 0.27 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | | | 0.27 | A | 0.26 | A |
| 315 | Laguna Canyon Rd at Alton Pw | | | 0.41 | A | 0.37 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | | | 0.39 | A | 0.43 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | | | 0.46 | A | 0.48 | A |
| 318 | Banting at Barranca Pkwy | | | 0.58 | A | 0.41 | A |
| 319 | Banting at Alton Pw | | | 0.54 | A | 0.41 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | **F** | | 0.90 | D | 0.89 | D |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | | Yes | 1.00 | E | 0.83 | D |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | | Yes | 0.32 | A | 0.38 | A |
| 324 | Portola Pw at SR-241 NB Ramps | | | 0.16 | A | 0.10 | A |
| 325 | Portola Pw at SR-241 SB Ramps | | | 0.15 | A | 0.20 | A |
| 327 | Barranca Pw at Technology | **P** | | 0.47 | A | 0.62 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | | Yes | 0.46 | A | 0.35 | A |
| 329 | Barranca Pw at ICD | | Yes | 0.48 | A | 0.55 | A |
| 330 | Barranca Pw at Pacifica | | Yes | 0.52 | A | 0.61 | B |
| 333 | Pacifica at Gateway | | Yes | 0.51 | A | 0.55 | A |
| 335 | Alton Pw at Portola Pw | | | 0.40 | A | 0.23 | A |

## Table 4-1 Cont.

## Existing Intersection LOS Summary (ICU Methodology)

| | | | | Existing Conditions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS |
| 336 | Alton Pw at SR-241 Ramps | | | 0.18 | A | 0.21 | A |
| 338 | Alton Pw at Irvine Bl | **F** | Yes | 0.45 | A | 0.49 | A |
| 339 | Alton Pw at Toledo Wy | | | 0.38 | A | 0.36 | A |
| 340 | Alton Pw at Jeronimo Rd | | | 0.35 | A | 0.77 | C |
| 341 | Alton Pw at Barranca Pw | | | 0.45 | A | 0.58 | A |
| 343 | Alton Pw at Ada | | | 0.29 | A | 0.42 | A |
| 344 | Alton Pw at Technology | **P** | | 0.39 | A | 0.55 | A |
| 345 | Alton Pw at I-5 NB Ramps | **F** | Yes | 0.65 | B | 0.38 | A |
| 346 | Alton Pw at Enterprise | | Yes | 0.60 | A | 0.54 | A |
| 348 | Alton Pw at ICD | **P** | Yes | 0.54 | A | 0.45 | A |
| 350 | Alton Pw at Pacifica | | Yes | 0.53 | A | 0.33 | A |
| 351 | Fortune Dr /I-5 SB Ramps | | Yes | 0.27 | A | 0.52 | A |
| 357 | Enterprise Dr at Fortune Dr | | Yes | 0.40 | A | 0.70 | B |
| 358 | ICD at Enterprise Dr | **P** | Yes | 0.59 | A | 0.54 | A |
| 359 | ICD at I-405 SB Ramps | **P** | Yes | 0.59 | A | 0.55 | A |
| 361 | Bake Pw at Portola Pw | | | 0.71 | C | 0.58 | A |
| 362 | Bake Pw at Irvine Bl | **F** | Yes | 0.73 | C | 0.72 | C |
| 363 | Bake Pw at Toledo Wy | | | 0.68 | B | 0.61 | B |
| 364 | Bake Pw at Jeronimo Rd | **F** | | 0.81 | D | 0.76 | C |
| 365 | Bake Pw at Muirlands Bl | | | 0.58 | A | 0.64 | B |
| 366 | Bake Pw at Rockfield Bl | | | 0.54 | A | 0.63 | B |
| 367 | Bake Pw at I-5 NB Ramps | | Yes | 0.82 | D | 0.58 | A |
| 368 | Bake Pw at I-5 SB Ramps | **F** | Yes | 0.67 | B | 0.72 | C |
| 371 | Bake Pw at Research Dr | | | 0.36 | A | 0.46 | A |
| 372 | Bake Pw at ICD | | | 0.34 | A | 0.39 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | | | 0.29 | A | 0.35 | A |
| 374 | Lake Forest Dr at Portola Pw | | | 0.46 | A | 0.69 | B |
| 375 | Lake Forest Dr at SR-241 SB Ramp | | | 0.38 | A | 0.40 | A |
| 376 | Lake Forest Dr at Trabuco Rd | | | 0.55 | A | 0.59 | A |
| 377 | Lake Forest Dr at Toledo Wy | | | 0.52 | A | 0.52 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | **P** | | 0.69 | B | 0.67 | B |
| 379 | Lake Forest Dr at Muirlands Bl | **F** | | 0.54 | A | 0.72 | C |
| 380 | Lake Forest Dr at Rockfield Bl | **P** | | 0.54 | A | 0.68 | B |
| 381 | Lake Forest Dr at I-5 NB Ramps | | | 0.44 | A | 0.66 | B |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | **F** | Yes | 0.70 | B | 0.70 | B |
| 385 | Lake Forest Dr at ICD | | Yes | 0.41 | A | 0.51 | A |
| 386 | Ridge Route Dr at Muirlands Bl | | | 0.48 | A | 0.60 | A |
| 387 | Ridge Route Dr at Rockfield Bl | **P** | | 0.38 | A | 0.47 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | | | 0.30 | A | 0.63 | B |
| 389 | Ridge Route at Moulton Pw | | | 0.44 | A | 0.60 | A |
| 390 | Paseo de Valencia at Ave | **P** | | 0.47 | A | 0.58 | A |
| 391 | Santa Maria Av at Moulton Pw | | | 0.42 | A | 0.65 | B |

## Table 4-1 Cont.

## Existing Intersection LOS Summary (ICU Methodology)

| | | | | Existing Conditions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS |
| 392 | El Toro Rd at Muirlands Bl | | | 0.62 | B | 0.74 | C |
| 393 | El Toro Rd at Rockfield Bl | | | 0.52 | A | 0.55 | A |
| 394 | El Toro Rd at I-5 NB Ramps | | Yes | 0.61 | B | 0.82 | D |
| 396 | El Toro Rd at Avenida Carlota | **P** | Yes | **1.03** | **F** | **1.26** | **F** |
| 397 | El Toro Rd at Paseo de Valencia | | | 0.47 | A | 0.58 | A |
| 398 | El Toro Rd at Moulton Pw | | Yes | 0.59 | A | 0.53 | A |
| 399 | El Toro Rd at Aliso Creek Rd | | | 0.71 | C | **0.93** | **E** |
| 400 | El Toro Rd at SR-73 NB Ramps | | Yes | 0.69 | B | 0.68 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | | Yes | 0.45 | A | 0.66 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | | | 0.49 | A | 0.54 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | | | 0.24 | A | 0.28 | A |
| 409 | Bake Pw at Commercentre Dr | | | 0.56 | A | 0.56 | A |
| 412 | Ridge Route Dr at Trabuco Rd | | | 0.49 | A | 0.59 | A |
| 413 | Ridge Route Dr at Toledo Wy | | | 0.33 | A | 0.30 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | | | 0.45 | A | 0.46 | A |
| 415 | Glenn Ranch Rd at Portola Pw | | | 0.57 | A | 0.55 | A |
| 416 | Portola Pw East at SR-241 Ramps | | | 0.43 | A | 0.59 | A |
| 417 | El Toro Rd at Portola Pw | | | 0.64 | B | 0.61 | B |
| 418 | El Toro Rd at Trabuco Rd | | Yes | 0.68 | B | 0.56 | A |
| 419 | El Toro Rd at Toledo Wy | | | 0.54 | A | 0.46 | A |
| 420 | El Toro Rd at Jeronimo Rd | **P** | | 0.65 | B | 0.77 | C |
| 421 | Los Alisos Bl at Trabuco Rd | | | 0.66 | B | 0.68 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | **P** | | 0.67 | B | 0.74 | C |
| 423 | Muirlands Bl at Los Alisos Bl | **P** | | 0.64 | B | 0.69 | B |
| 424 | Los Alisos Bl at Rockfield Bl | **P** | | 0.61 | B | 0.50 | A |
| 425 | Los Alisos Bl at Avenido Carlota | | | 0.41 | A | 0.46 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | | | 0.44 | A | 0.53 | A |
| 427 | Moulton Pw at Glenwood/Indian Creek | | | 0.46 | A | 0.53 | A |
| 428 | Laguna Hills Dr at Paseo de Valencia | | | 0.59 | A | 0.70 | B |
| 429 | Moulton Pw at Laguna Hills Dr | | | 0.53 | A | 0.61 | B |
| 430 | Trabuco Rd at Alicia Pw | | | 0.70 | B | 0.64 | B |
| 431 | Jeronimo Rd at Alicia Pw | | | 0.72 | C | 0.72 | C |
| 432 | Alicia Pw at Muirlands Bl | **P** | | 0.68 | B | 0.82 | D |
| 433 | I-5 NB Ramps at Alicia Pw | | | 0.55 | A | 0.59 | A |
| 434 | I-5 SB Ramps at Alicia Pw | | | 0.75 | C | 0.82 | D |
| 435 | Alicia Pw at Paseo de Valencia | | | 0.59 | A | 0.61 | B |
| 436 | Moulton Pw at Alicia Pw | | | 0.58 | A | 0.67 | B |
| 437 | Scientific Wy at ICD | | | 0.49 | A | 0.64 | B |
| 441 | Loop Rd at Jamboree Rd | | | 0.41 | A | 0.28 | A |
| 444 | Sand Canyon Av at Burt Rd | | | 0.65 | B | 0.55 | A |
| 452 | Jamboree Rd at Santiago Canyon Rd | | | 0.52 | A | 0.57 | A |
| 463 | Jamboree Rd at Chapman Av | | | 0.44 | A | 0.76 | C |

## Table 4-1 Cont.

### Existing Intersection LOS Summary (ICU Methodology)

| | | | | Existing Conditions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | | | 0.34 | A | 0.45 | A |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | | | 0.37 | A | 0.60 | A |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | | | 0.28 | A | 0.35 | A |
| 468 | Jamboree Rd at Canyon View | | | 0.61 | B | 0.33 | A |
| 477 | El Camino Real N at Bryan Av | | | 0.37 | A | 0.39 | A |
| 515 | Bake Pw N at Rancho Pw North | | | 0.58 | A | 0.73 | C |
| 516 | Lake Forest Dr at Rancho Pw North | | | 0.36 | A | 0.45 | A |
| 555 | Bake Pw at Rancho Pkw | | | 0.69 | B | 0.65 | B |
| 556 | Ridge Valley at Portola Pw | | | 0.26 | A | 0.16 | A |
| 571 | Portola Springs at Portola Pw | | | 0.17 | A | 0.15 | A |
| 572 | Modjeska / A St at Irvine Bl | | | 0.44 | A | 0.43 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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### 4.1.3 Existing Freeway Ramp Levels of Service

Existing AM and PM peak hour ramp volumes were taken from intersection counts at each location in the study area where freeway ramps intersect the arterial system. The observed peak hour ramp volumes were applied together with the ramp capacities described in Chapter 2.0 to calculate existing AM and PM peak hour ramp V/C ratios and corresponding LOS values. The freeway ramp analysis presented here differs from the previous peak hour intersection analysis which included ramp intersections with arterial streets. The ramp analysis involves the peak hour V/C of the ramp itself whereas the intersection analysis involves the ICU value of the ramp intersection with the arterial street.

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting existing conditions peak hour levels of service based on the HCM methodology are summarized in Table 4-2 (HCM intersection LOS calculation worksheets are included in Appendix 4.4). As the summary table indicates, each of the ramp intersections are forecast to operate at an acceptable LOS (i.e., LOS D or better)

Exhibit 4-5 illustrates the interchange locations where freeway ramps were analyzed, and Table 4-3 summarizes existing peak hour V/C ratios for freeway ramps in the study area. Freeway ramps are part of the CMP highway network and the threshold in the CMP is LOS E. As shown in Table 4-3, the freeway ramps generally operate at acceptable service levels during the peak hours under existing traffic conditions, with the exception of the following ramp:

- I-5 Southbound Off-Ramp to Bake Parkway

**Table 4-2**

**Existing Caltrans Ramp Intersection LOS Summary (HCM Methodology)**

| Intersection | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | 20.8 | C | 24.6 | C |
| 304. Sand Canyon & Marine Way | 4.6 | A | 7.1 | A |
| 305. Sand Canyon & I-5 SB Ramps | 23.8 | C | 27.5 | C |
| 316. SR-133 SB Ramps & Irvine Boulevard | 13.2 | B | 7 | A |
| 317. SR-133 NB Ramps & Irvine Boulevard | 6.7 | A | 9.1 | A |

EXHIBIT 4-5 (1 OF 2)

# EXISTING FREEWAY INTERCHANGE LOCATIONS
# WEST STUDY AREA

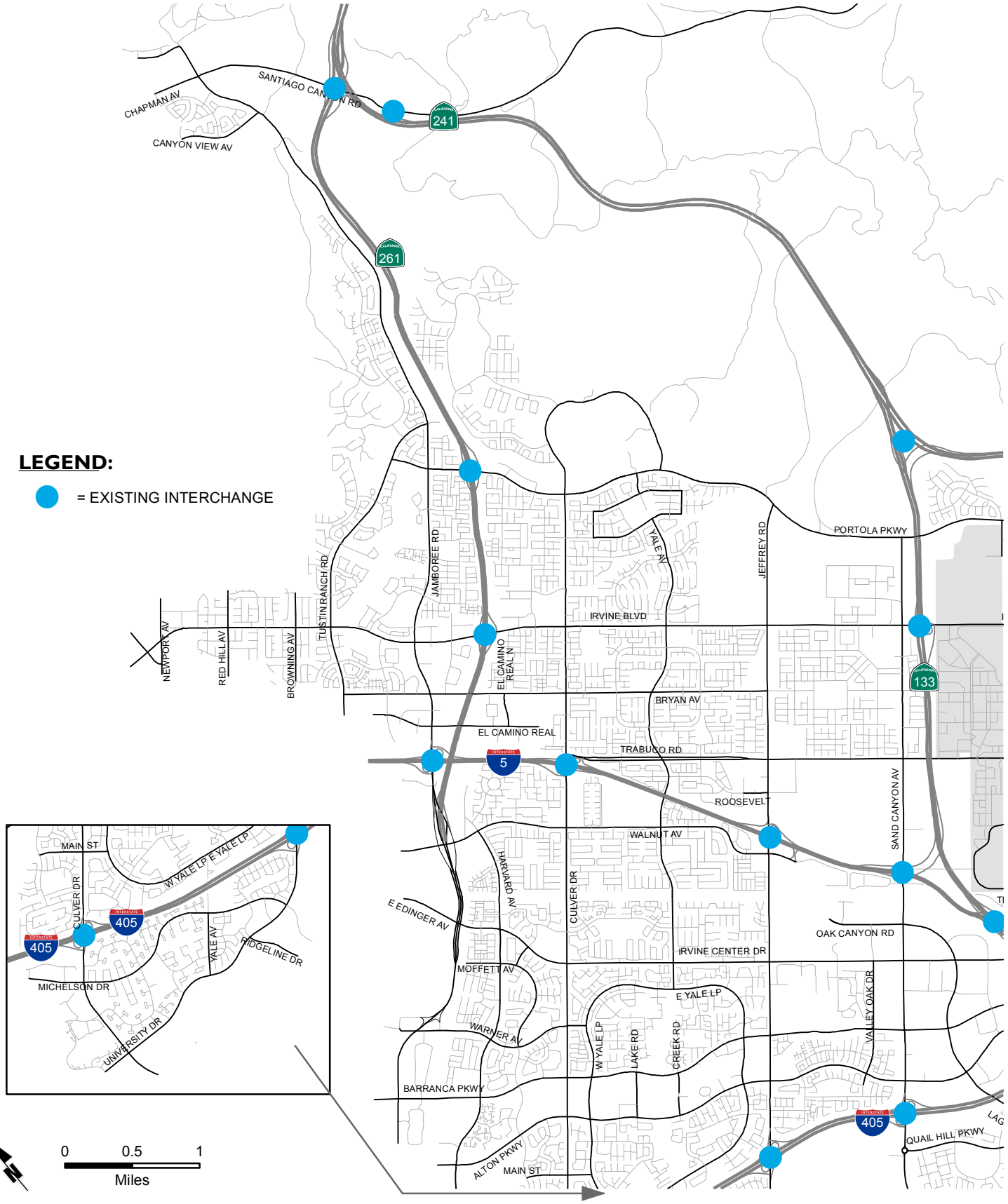
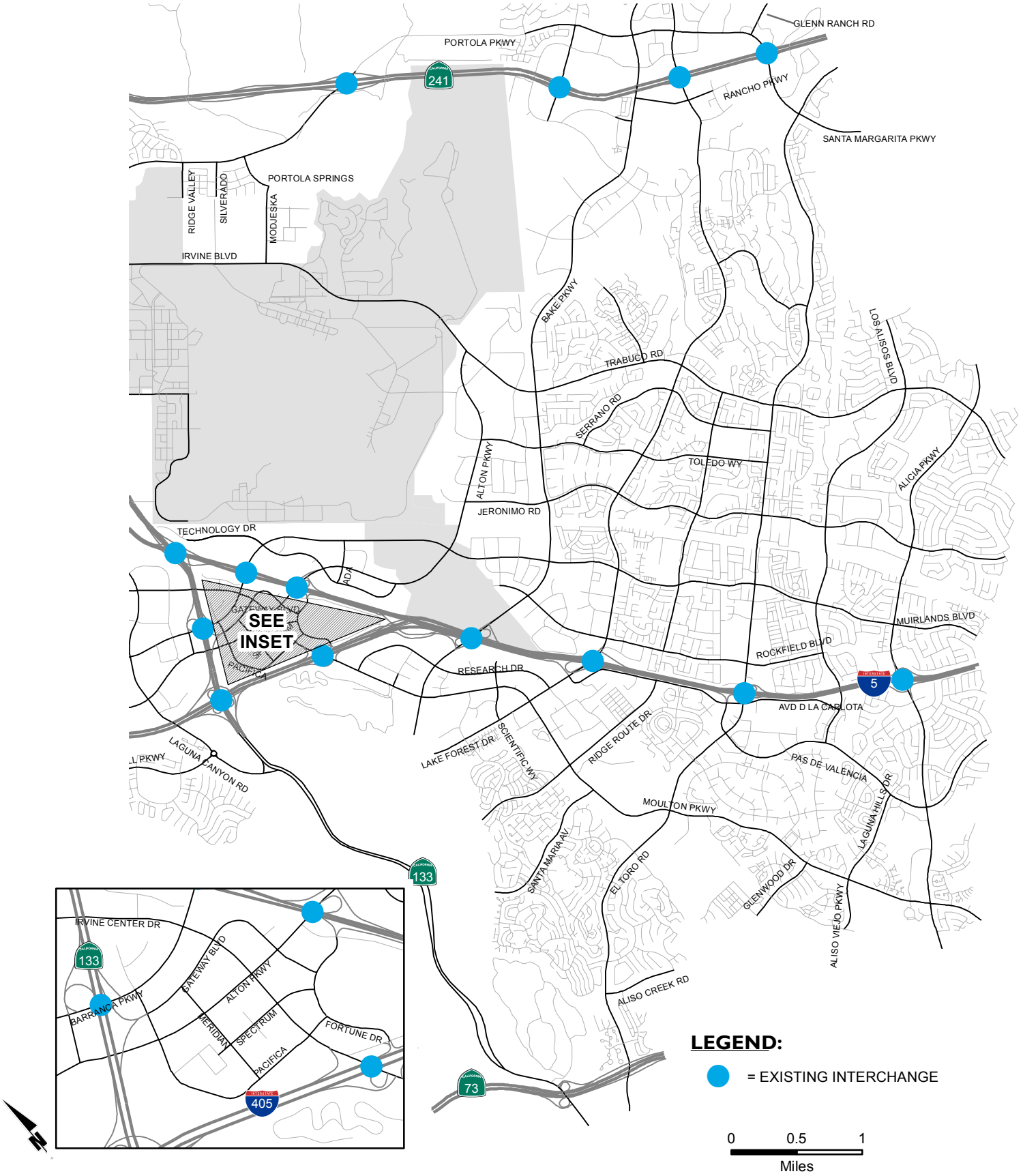


EXHIBIT 4-5 (2 OF 2)

# EXISTING FREEWAY INTERCHANGE LOCATIONS
# EAST STUDY AREA



## Table 4-3

### Existing Freeway/Tollway Ramp LOS Summary

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | EXISTING | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 302 | 0.20 | A | 908 | 0.61 | B |
| | SB Loop On | 1 | 1,080 | 838 | 0.78 | C | 510 | 0.47 | A |
| | NB Direct On | 1 | 1,080 | 596 | 0.55 | A | 483 | 0.45 | A |
| | NB Loop On | 1 | 1,080 | 586 | 0.54 | A | 537 | 0.50 | A |
| | SB Off | 1 | 1,500 | 1,359 | 0.91 | E | 1,318 | 0.88 | D |
| | NB Off | 1 | 1,500 | 1,277 | 0.85 | D | 1,402 | 0.93 | E |
| I-5 at Culver | SB Direct On | 1 | 900 | 281 | 0.31 | A | 302 | 0.34 | A |
| | SB Loop On | 1 | 900 | 616 | 0.68 | B | 290 | 0.32 | A |
| | NB Direct On | 1 | 900 | 560 | 0.62 | B | 202 | 0.22 | A |
| | NB Loop On | 1 | 1,500 | 866 | 0.58 | A | 517 | 0.34 | A |
| | SB Off | 2 | 2,250 | 912 | 0.41 | A | 1,754 | 0.78 | C |
| | NB Off | 1 | 1,500 | 326 | 0.22 | A | 658 | 0.44 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 709 | 0.66 | B | 659 | 0.61 | B |
| | NB Direct On | 1 | 1,080 | 290 | 0.27 | A | 256 | 0.24 | A |
| | NB Loop On | 1 | 1,500 | 211 | 0.14 | A | 293 | 0.20 | A |
| | SB Off | 1 | 1,500 | 548 | 0.37 | A | 935 | 0.62 | B |
| | NB Off | 2 | 2,250 | 949 | 0.42 | A | 1,133 | 0.50 | A |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 525 | 0.35 | A | 479 | 0.32 | A |
| | NB On | 1 | 1,500 | 463 | 0.31 | A | 756 | 0.50 | A |
| | SB Off | 1 | 1,500 | 1,058 | 0.71 | C | 688 | 0.46 | A |
| | NB Off | 2 | 2,250 | 470 | 0.21 | A | 552 | 0.25 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 20 | 0.01 | A | 116 | 0.08 | A |
| | SB Off | 1 | 1,500 | 112 | 0.07 | A | 73 | 0.05 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 106 | 0.07 | A | 434 | 0.29 | A |
| | NB Direct On | 2 | 1,800 | 176 | 0.10 | A | 881 | 0.49 | A |
| | NB Loop On | 1 | 1,500 | 508 | 0.34 | A | 131 | 0.09 | A |
| | SB Off | 2 | 2,250 | 1,638 | 0.73 | C | 623 | 0.28 | A |
| | NB Off | 2 | 2,250 | 978 | 0.43 | A | 285 | 0.13 | A |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 18 | 0.01 | A | 96 | 0.06 | A |
| | SB Loop On | 1 | 1,080 | 186 | 0.17 | A | 496 | 0.46 | A |
| | NB Direct On | 2 | 3,400 | 1,800 | 0.53 | A | 2,584 | 0.76 | C |
| | NB Loop On | 1 | 1,500 | 306 | 0.20 | A | 1,017 | 0.68 | B |
| | SB Off | 2 | 3,000 | 3,179 | **1.06** | **F** | 2,264 | 0.75 | C |
| | NB Off | 2 | 3,000 | 845 | 0.28 | A | 273 | 0.09 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 397 | 0.26 | A | 967 | 0.64 | B |
| | SB Loop On | 1 | 1,080 | 486 | 0.45 | A | 509 | 0.47 | A |
| | NB On | 2 | 1,800 | 1,021 | 0.57 | A | 849 | 0.47 | A |
| | SB Off | 2 | 3,000 | 1,689 | 0.56 | A | 2,559 | 0.85 | D |
| | NB Off | 1 | 1,500 | 976 | 0.65 | B | 639 | 0.43 | A |

## Table 4-3 Cont.

### Existing Freeway/Tollway Ramp LOS Summary

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | EXISTING | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 278 | 0.26 | A | 714 | 0.66 | B |
| | SB Loop On | 1 | 1,500 | 498 | 0.33 | A | 526 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 960 | 0.64 | B | 601 | 0.40 | A |
| | NB Loop On | 1 | 1,500 | 739 | 0.49 | A | 829 | 0.55 | A |
| | SB Off | 2 | 2,250 | 1,460 | 0.65 | B | 1,158 | 0.51 | A |
| | NB Off | 1 | 1,500 | 756 | 0.50 | A | 1,212 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 234 | 0.22 | A | 287 | 0.27 | A |
| | SB Loop On | 1 | 1,500 | 733 | 0.49 | A | 556 | 0.37 | A |
| | NB Direct On | 1 | 1,500 | 1,349 | 0.90 | D | 1,073 | 0.72 | C |
| | NB Loop On | 1 | 1,500 | 1,157 | 0.77 | C | 1,066 | 0.71 | C |
| | SB Off | 2 | 3,000 | 1,768 | 0.59 | A | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 498 | 0.33 | A | 720 | 0.48 | A |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 325 | 0.22 | A | 725 | 0.48 | A |
| | SB Loop On | 1 | 900 | 380 | 0.42 | A | 342 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 1,057 | 0.70 | B | 509 | 0.34 | A |
| | NB Loop On | 1 | 1,500 | 787 | 0.52 | A | 324 | 0.22 | A |
| | SB Off | 2 | 3,000 | 822 | 0.27 | A | 1,672 | 0.56 | A |
| | NB Off | 1 | 1,500 | 652 | 0.43 | A | 763 | 0.51 | A |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 977 | 0.65 | B | 1,279 | 0.85 | D |
| | SB Loop On | 1 | 900 | 279 | 0.31 | A | 183 | 0.20 | A |
| | NB Direct On | 1 | 1,500 | 1,285 | 0.86 | D | 417 | 0.28 | A |
| | NB Loop On | 1 | 900 | 272 | 0.30 | A | 113 | 0.13 | A |
| | SB Off | 1 | 1,500 | 368 | 0.25 | A | 453 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,381 | 0.61 | B | 1,351 | 0.60 | A |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 379 | 0.25 | A | 522 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 855 | 0.57 | A | 1,031 | 0.69 | B |
| | NB Loop On | 1 | 1,500 | 651 | 0.43 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 1,311 | 0.87 | D | 701 | 0.47 | A |
| | NB Off | 1 | 1,500 | 328 | 0.22 | A | 451 | 0.30 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 15 | 0.02 | A | 51 | 0.06 | A |
| | SB Loop On | 1 | 900 | 118 | 0.13 | A | 401 | 0.45 | A |
| | NB Direct On | 1 | 1,500 | 101 | 0.07 | A | 551 | 0.37 | A |
| | NB Loop On | 1 | 1,500 | 258 | 0.17 | A | 331 | 0.22 | A |
| | SB Off | 2 | 2,250 | 2,036 | 0.90 | D | 1,182 | 0.53 | A |
| | NB Off | 2 | 3,000 | 43 | 0.01 | A | 262 | 0.09 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 272 | 0.18 | A | 116 | 0.08 | A |
| | NB Direct On | 1 | 1,500 | 35 | 0.02 | A | 198 | 0.13 | A |
| | NB Loop On | 1 | 1,500 | 106 | 0.07 | A | 191 | 0.13 | A |
| | SB Off | 2 | 2,250 | 519 | 0.23 | A | 167 | 0.07 | A |
| | NB Off | 1 | 1,500 | 110 | 0.07 | A | 181 | 0.12 | A |

## Table 4-3 Cont.

### Existing Freeway/Tollway Ramp LOS Summary

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | EXISTING | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 91 | 0.08 | A | 985 | 0.91 | E |
| | NB Direct On | 1 | 1,080 | 65 | 0.06 | A | 417 | 0.39 | A |
| | NB Loop On | 1 | 1,080 | 113 | 0.10 | A | 1,005 | 0.93 | E |
| | SB Off | 2 | 3,000 | 2,047 | 0.68 | B | 336 | 0.11 | A |
| | NB Off | 2 | 2,250 | 1,070 | 0.48 | A | 164 | 0.07 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 438 | 0.24 | A | 224 | 0.12 | A |
| | NB On | 1 | 1,500 | 189 | 0.13 | A | 352 | 0.23 | A |
| | SB Off | 1 | 1,500 | 369 | 0.25 | A | 165 | 0.11 | A |
| | NB Off | 1 | 1,500 | 287 | 0.19 | A | 529 | 0.35 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 106 | 0.07 | A | 256 | 0.17 | A |
| | NB On | 1 | 1,500 | 6 | 0.00 | A | 18 | 0.01 | A |
| | SB Off | 1 | 1,500 | 3 | 0.00 | A | 10 | 0.01 | A |
| | NB Off | 1 | 1,500 | 367 | 0.24 | A | 142 | 0.09 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 141 | 0.09 | A | 118 | 0.08 | A |
| | NB On | 1 | 1,500 | 370 | 0.25 | A | 222 | 0.15 | A |
| | SB Off | 1 | 1,500 | 211 | 0.14 | A | 363 | 0.24 | A |
| | NB Off | 2 | 2,250 | 125 | 0.06 | A | 93 | 0.04 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 172 | 0.08 | A | 308 | 0.14 | A |
| | SB Off | 1 | 1,500 | 379 | 0.25 | A | 211 | 0.14 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 156 | 0.10 | A | 559 | 0.37 | A |
| | NB On | 2 | 2,250 | 568 | 0.25 | A | 126 | 0.06 | A |
| | SB Off | 1 | 1,500 | 228 | 0.15 | A | 519 | 0.35 | A |
| | NB Off | 2 | 2,250 | 477 | 0.21 | A | 149 | 0.07 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 433 | 0.29 | A | 49 | 0.03 | A |
| | NB Off | 1 | 1,500 | 21 | 0.01 | A | 374 | 0.25 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 190 | 0.13 | A | 51 | 0.03 | A |
| | NB On | 1 | 1,500 | 131 | 0.09 | A | 63 | 0.04 | A |
| | SB Off | 1 | 1,500 | 77 | 0.05 | A | 90 | 0.06 | A |
| | NB Off | 1 | 1,500 | 38 | 0.03 | A | 201 | 0.13 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 501 | 0.33 | A | 91 | 0.06 | A |
| | NB On | 1 | 1,500 | 98 | 0.07 | A | 113 | 0.08 | A |
| | SB Off | 1 | 1,500 | 199 | 0.13 | A | 103 | 0.07 | A |
| | NB Off | 1 | 1,500 | 46 | 0.03 | A | 656 | 0.44 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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### 4.1.4 Existing Freeway Mainline Levels of Service

To determine existing peak hour operating conditions for mainline freeway segments, peak hour traffic count data was compiled for the freeway system in the traffic analysis study area. Existing freeway mainline count data is consistent with the City of Irvine Planning Area 6 Traffic Study (AFA, 2011) and PA 33 (Lots 105 and 107/108) Traffic Study (Stantac, 2012), which were taken from the Caltrans Performance Management System (PeMS). Data was extracted for a typical five-day workweek and counts were then averaged.

The AM and PM peak hour freeway mainline volumes were applied together with the capacities described in Chapter 2.0 for mixed-flow (general purpose) lanes and high-occupancy vehicle (HOV) lanes to calculate existing peak hour V/C ratios, by direction, for freeway mainline segments in the study area. When evaluating existing freeway conditions (i.e., based on traffic count data), the V/C and LOS criteria are applicable only in situations where the observed traffic volume occurs in stable flow. When the peak hour V/C ratio on a freeway mainline segment nears 1.0, unstable conditions can occur which may result in a breakdown in traffic flow. This breakdown in flow causes a reduction in capacity (vehicle speeds drop below the speed at which maximum capacity is available), and hence the V/C increases, causing a further reduction in speed. At the same time, the reduction in capacity and increase in V/C causes queue build-up and the stop-and-go conditions can extend for a considerable distance upstream of the problem freeway segment. Furthermore, this occurrence, and its severity (i.e., length of queue), can vary from day to day even when day-to-day fluctuations in traffic volumes are relatively small.

Table 4-4 summarizes existing AM and PM peak hour V/C ratios for freeway mainline segments in the study area. The freeway mainline segments operate at acceptable service levels (LOS “E” or better) during the peak hours under existing traffic conditions, with the exception of the following location:

- I-5 Southbound South of Alicia Pkwy

## Table 4-4

### Existing Freeway/Tollway Mainline LOS Summary

| | Location | Direction | Lanes | Capacity | Existing Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Tustin Ranch | NB | 5+1H | 11,600 | 8,590 | 0.74 | C | 7,710 | 0.66 | B |
| | | SB | 5+1H | 11,600 | 7,410 | 0.64 | B | 9,560 | 0.82 | D |
| | n/o Jamboree | NB | 5+1H | 11,600 | 9,780 | 0.84 | D | 7,670 | 0.66 | B |
| | | SB | 5+1H | 11,600 | 8,570 | 0.74 | C | 11,040 | 0.95 | E |
| | n/o Culver | NB | 5+1H | 11,600 | 11,040 | 0.95 | E | 8,150 | 0.70 | B |
| | | SB | 5+1H | 11,600 | 8,370 | 0.72 | C | 10,080 | 0.87 | D |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 9,510 | 0.82 | D | 7,380 | 0.64 | B |
| | | SB | 5+1H | 11,600 | 7,220 | 0.62 | B | 8,960 | 0.77 | C |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 7,940 | 0.68 | B | 8,420 | 0.73 | C |
| | | SB | 5+1H | 11,600 | 7,080 | 0.61 | B | 7,570 | 0.65 | B |
| | n/o Alton | NB | 4+1H | 9,600 | 6,620 | 0.69 | B | 7,130 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 7,410 | 0.77 | C | 7,320 | 0.76 | C |
| | n/o Bake | NB | 9+2H | 21,500 | 7,940 | 0.37 | A | 8,420 | 0.39 | A |
| | | SB | 9+2H | 21,500 | 9,790 | 0.46 | A | 8,970 | 0.42 | A |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 7,920 | 0.41 | A | 7,470 | 0.38 | A |
| | | SB | 8+2H | 19,500 | 9,060 | 0.46 | A | 8,940 | 0.46 | A |
| | n/o El Toro | NB | 5+2H | 13,500 | 8,770 | 0.65 | B | 7,610 | 0.56 | A |
| | | SB | 5+2H | 13,500 | 8,610 | 0.64 | B | 8,540 | 0.63 | B |
| | n/o Alicia | NB | 5+1H | 11,600 | 8,700 | 0.75 | C | 7,200 | 0.62 | B |
| | | SB | 4+1H | 9,600 | 7,530 | 0.78 | C | 9,640 | 1.00 | E |
| | s/o Alicia | NB | 4+1H | 9,600 | 9,420 | 0.98 | E | 7,260 | 0.76 | C |
| | | SB | 4+1H | 9,600 | 8,090 | 0.84 | D | 10,100 | **1.05** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 8,620 | 0.90 | D | 6,760 | 0.70 | B |
| | | SB | 4+1H | 9,600 | 7,980 | 0.83 | D | 7,390 | 0.77 | C |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 7,970 | 0.83 | D | 7,120 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 8,510 | 0.89 | D | 8,140 | 0.85 | D |
| | n/o SR-133 | NB | 4+1H | 9,600 | 9,220 | 0.96 | E | 7,750 | 0.81 | C |
| | | SB | 4+1H | 9,600 | 7,450 | 0.78 | C | 7,330 | 0.76 | C |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 6,110 | 0.64 | B | 6,400 | 0.67 | B |
| | | SB | 4+1H | 9,600 | 6,540 | 0.68 | B | 3,440 | 0.36 | A |
| | n/o I-5 | NB | 4+1H | 9,600 | 3,850 | 0.40 | A | 3,050 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 5,460 | 0.57 | A | 6,320 | 0.66 | B |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 1,130 | 0.14 | A | 3,320 | 0.42 | A |
| | | SB | 4 | 8,000 | 4,330 | 0.54 | A | 1,270 | 0.16 | A |
| | n/o I-5 | NB | 3 | 6,000 | 530 | 0.09 | A | 1,420 | 0.24 | A |
| | | SB | 3 | 6,000 | 1,600 | 0.27 | A | 570 | 0.10 | A |
| | s/o I-5 | NB | 3 | 6,000 | 1,370 | 0.23 | A | 1,710 | 0.29 | A |
| | | SB | 3 | 6,000 | 2,740 | 0.46 | A | 1,500 | 0.25 | A |
| | n/o I-405 | NB | 3 | 6,000 | 1,430 | 0.24 | A | 2,350 | 0.39 | A |
| | | SB | 3 | 6,000 | 3,940 | 0.66 | B | 1,310 | 0.22 | A |

**Table 4-4 Cont.**

## Existing Freeway/Tollway Mainline LOS Summary

| | Location | Direction | Lanes | Capacity | Existing Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-241 | n/o Santiago Canyon | NB | 3 | 6,000 | 1,270 | 0.21 | A | 1,840 | 0.31 | A |
| | | SB | 3 | 6,000 | 2,240 | 0.37 | A | 1,120 | 0.19 | A |
| | n/o SR-133 | NB | 3 | 6,000 | 1,270 | 0.21 | A | 1,840 | 0.31 | A |
| | | SB | 3 | 6,000 | 2,240 | 0.37 | A | 1,120 | 0.19 | A |
| | n/o Portola (West) | NB | 4 | 8,000 | 3,270 | 0.41 | A | 1,160 | 0.15 | A |
| | | SB | 4 | 8,000 | 1,200 | 0.15 | A | 2,620 | 0.33 | A |
| | n/o Alton | NB | 3 | 6,000 | 3,440 | 0.57 | A | 1,520 | 0.25 | A |
| | | SB | 3 | 6,000 | 1,180 | 0.20 | A | 1,980 | 0.33 | A |
| | n/o Lake Forest | NB | 3 | 6,000 | 2,420 | 0.40 | A | 1,090 | 0.18 | A |
| | | SB | 3 | 6,000 | 650 | 0.11 | A | 2,015 | 0.34 | A |
| SR-261 | n/o Portola | NB | 2 | 4,000 | 350 | 0.09 | A | 1,260 | 0.32 | A |
| | | SB | 2 | 4,000 | 2,260 | 0.57 | A | 380 | 0.10 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 190 | 0.03 | A | 1,250 | 0.21 | A |
| | | SB | 3 | 6,000 | 2,190 | 0.37 | A | 270 | 0.05 | A |
| | s/o Irvine Blvd | NB | 2 | 4,000 | 230 | 0.06 | A | 1,730 | 0.43 | A |
| | | SB | 2 | 4,000 | 2,570 | 0.64 | B | 360 | 0.09 | A |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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The LOS results based on V/C indicate measures of demand and are used as a basis for future mainline segment analysis in this report. Note that future traffic volumes presented in this report represent "demand" and no attempt is made to estimate operating conditions such as discussed here (i.e., only the V/C LOS based on the future demand traffic volume is reported).

## 4.2 Planned Circulation System

The circulation system that is planned in the traffic analysis study area under 2015 conditions is illustrated on Exhibit 4-6. On-site roadways within project districts 1 North, 1 South, 4, 7 and 8 are planned to be constructed for 2011 Approved Project conditions as well as 2012 Modified Project conditions with Option 1 or Option 2.

Midblock travel lanes on individual segments of the 2030 roadway network are shown on Exhibit 4-7. The 2015 and 2030 circulation systems only assume improvements that are committed for construction (i.e., public agency capital improvement programs, state transportation improvement program, etc.) or would be constructed as part of previously entitled development by 2015 or 2030. On-site roadways shown in Districts 5 and 6 (east of "B" Street, south of "LQ" Street and north of Marine Way) are conceptual. The alignments of local streets in Districts 5 and 6 will be determined in future Vesting Tentative Tract Map (VTTM) traffic studies.

The Post-2030 highway network is depicted on Exhibit 4-8. The Post-2030 scenario assumes full buildout of the General Plan Circulation Elements for the City of Irvine and its neighboring Cities as well as the Orange County Master Plan of Arterial Highways (MPAH). This includes a number of unfunded, and therefore non-committed, planned circulation system improvements.

Table 4-5 presents the committed roadway improvements for years 2010-2015. Table 4-6 lists the improvements that are committed to be in place by 2030, and Table 4-7 lists the improvements assumed for Post-2030. Tables 4-8 through 4-10 present the intersection committed projects for 2015, 2030 and Post-2030 which represent the background circulation assumptions for each year.

Current plans for the extension of Alton Parkway from Irvine Boulevard to Commercentre Drive include extensive improvements to the intersection of Alton Parkway at Irvine Boulevard. On the

EXHIBIT 4-6 (1 OF 2)

# 2015 CIRCULATION SYSTEM, WEST STUDY AREA

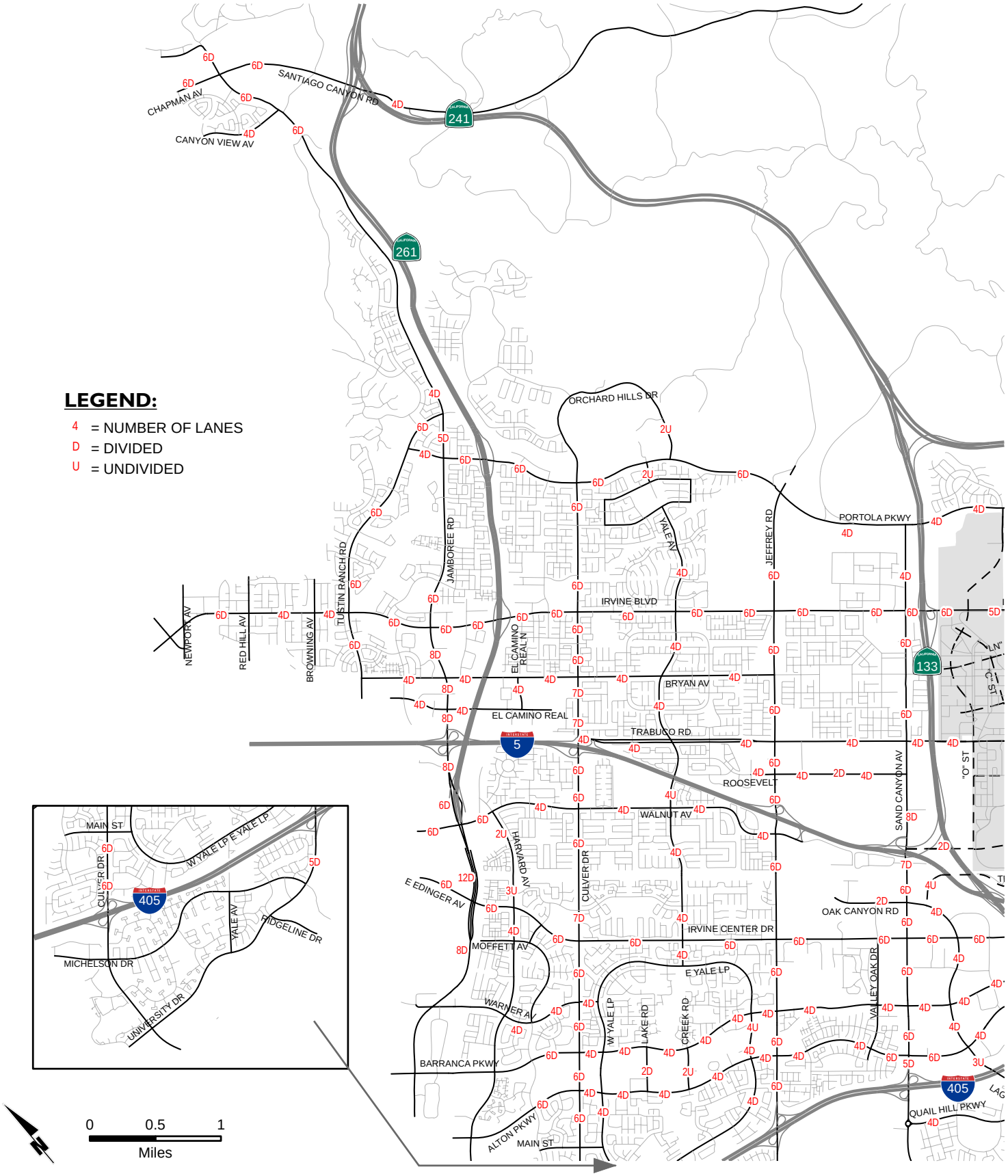


EXHIBIT 4-6 (2 OF 2)

# 2015 CIRCULATION SYSTEM, EAST STUDY AREA

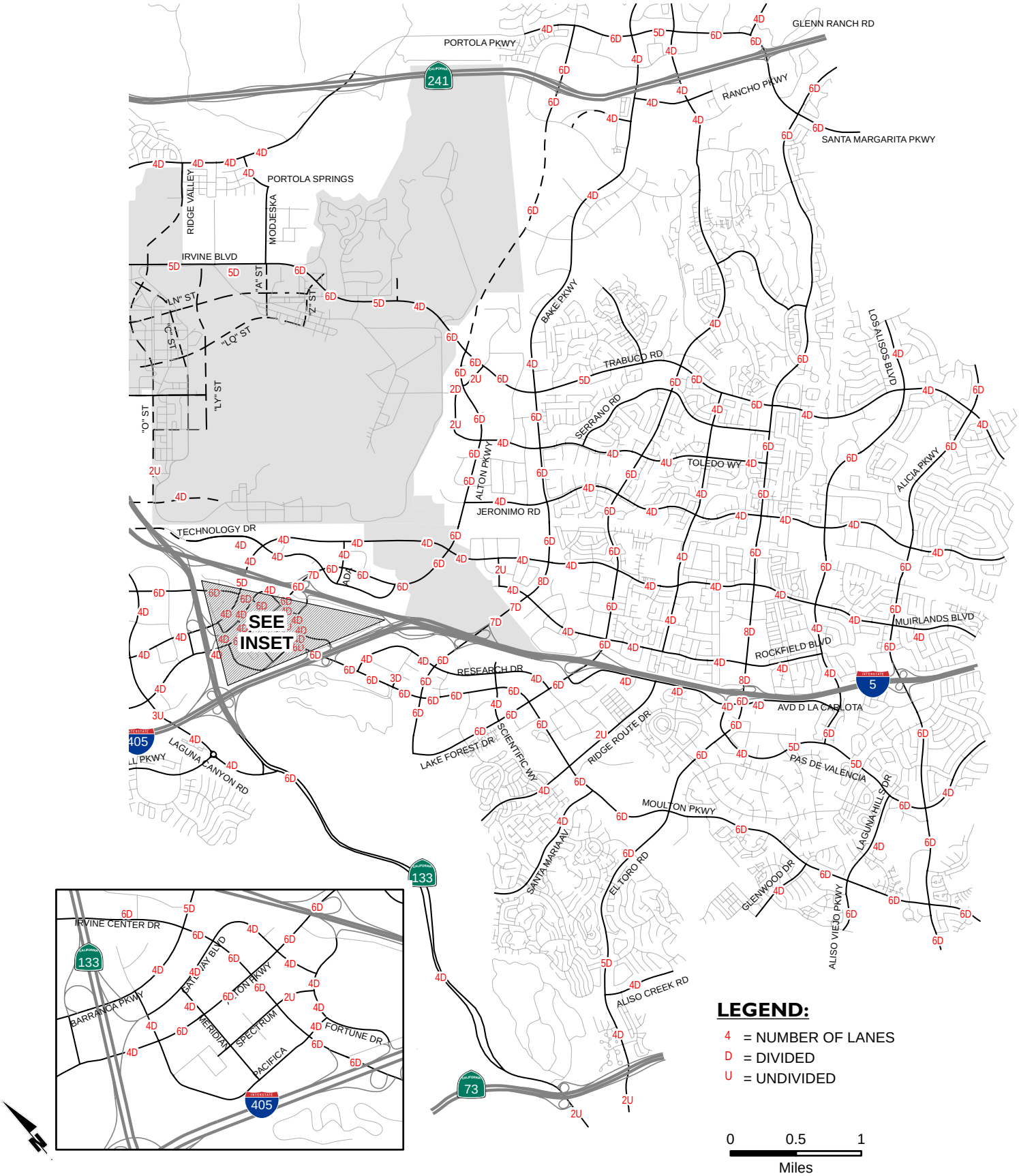


EXHIBIT 4-7 (1 OF 2)

# 2030 CIRCULATION SYSTEM, WEST STUDY AREA

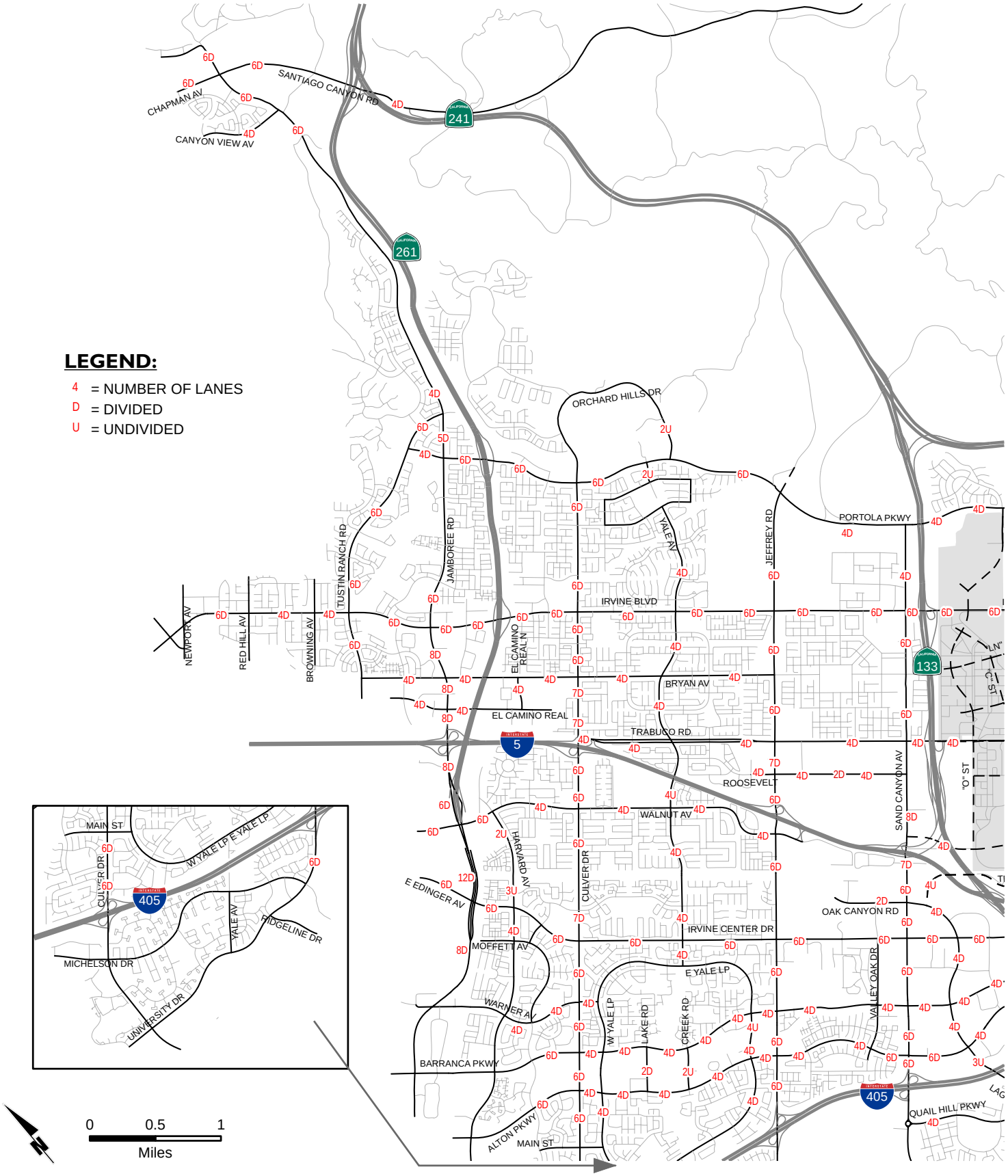
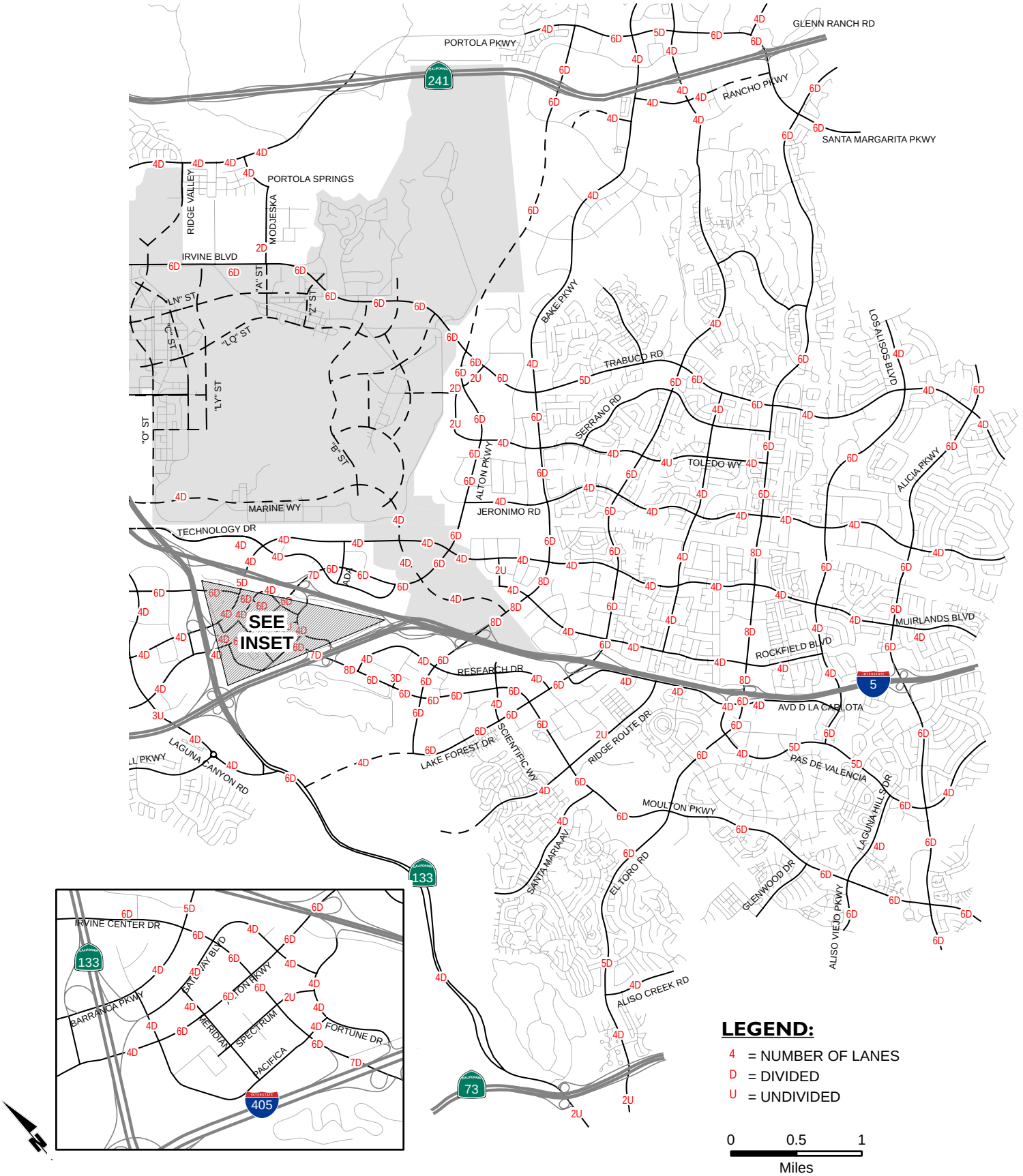


EXHIBIT 4-7 (2 OF 2)

# 2030 CIRCULATION SYSTEM, EAST STUDY AREA




**LEGEND:**

4 = NUMBER OF LANES
D = DIVIDED
U = UNDIVIDED

0 0.5 1
Miles

EXHIBIT 4-8 (1 OF 2)

# GENERAL PLAN BUILDOUT (POST-2030) CIRCULATION SYSTEM, WEST STUDY AREA

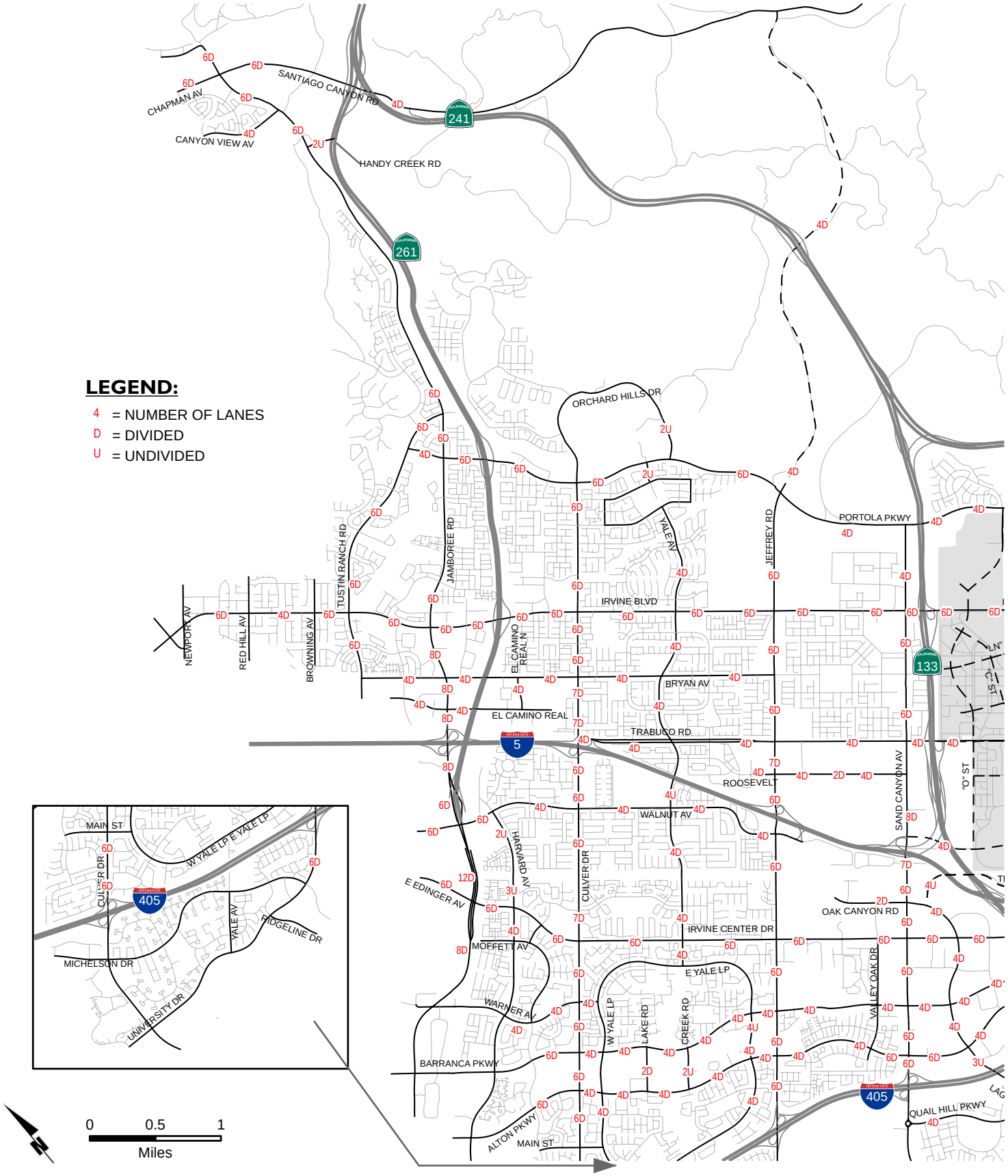


EXHIBIT 4-8 (2 OF 2)

# GENERAL PLAN BUILDOUT (POST-2030) CIRCULATION SYSTEM, EAST STUDY AREA

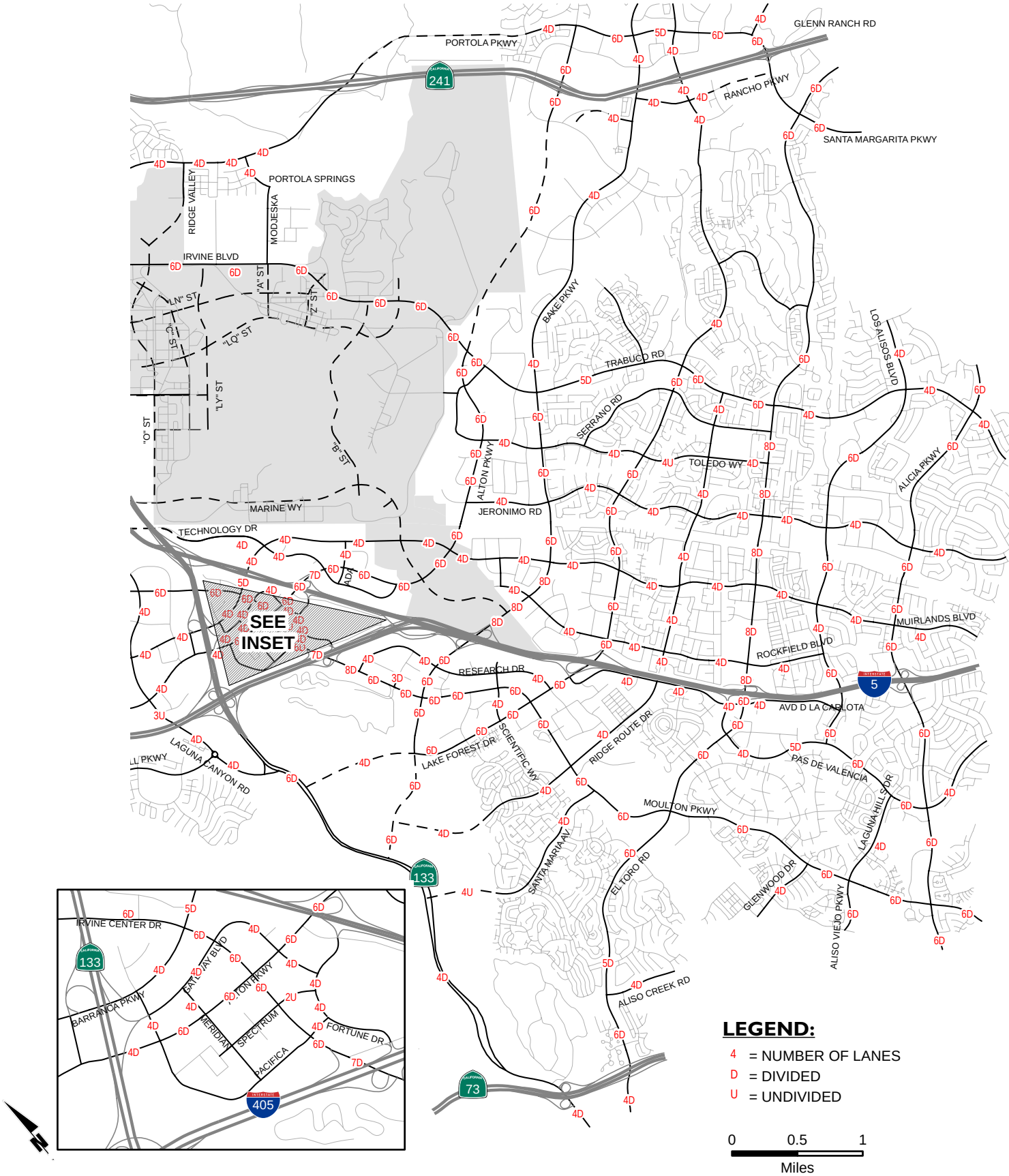


**TABLE 4-5**

**2010-2015 Committed Roadway Improvements[1]**

| Roadway | Limits | Jurisdiction | Lanes | | Source |
|---|---|---|---|---|---|
| | | | 2010 | 2015 | |
| "A" St | Irvine Blvd to "LQ" St | Irvine | 0 | 2U | O.C. Great Park |
| Alton Pkwy | Irvine Blvd to Dimension/Towne Centre Dr | Irvine/ Lake Forest | 0 | 6D | Foothill Circulation Phasing Program |
| Chapman Ave | Jamboree Rd to SR-241/SR-261 | Orange | 4U | 6D | Santiago Hills II |
| I-5 at Jamboree Rd | Southbound I-5 off-ramp | Caltrans | 1R | 2R[2] | OCTA/Caltrans/City of Irvine CIP |
| Irvine Center Dr | I-405 to Bake Pkwy | Irvine | 5D | 6D | PA39 |
| Jamboree Rd | Michelle Dr to I-5 NB Ramps | Irvine | 6D | 8D | City of Irvine CIP |
| Jamboree Rd | Canyon View Ave to Tustin city limits | Orange | 4D | 6D | Santiago Hills II |
| Jeffrey Rd | Portola Pkwy to Irvine Blvd | Irvine | 4D | 6D | PA9B |
| Jeffrey Rd | Irvine Center Dr to Walnut Ave | Irvine | 4D | 6D | PA12/City of Irvine CIP |
| Lake Forest Dr | Laguna Canyon Rd to PA18 Access Rd | Irvine | 0 | 4D | PA18 |
| "LY" St | Irvine Blvd to Trabuco | Irvine | 0 | 2U | O.C. Great Park |
| "O" St | North of Irvine Blvd to Trabuco Rd | Irvine | 0 | 4D | O.C. Great Park |
| "O" St | Trabuco Rd to Marine Way | Irvine | 0 | 2U | O.C. Great Park |
| Roosevelt | Jeffrey Rd to "A" St | Irvine | 0 | 4D | PA40 Map PDF |
| Roosevelt | "A" St to "C" St | Irvine | 0 | 2U | PA40 Map PDF |
| Roosevelt | "C" St to Sand Canyon Ave | Irvine | 0 | 4D | PA40 Map PDF |
| Sand Canyon Av | I-5 southbound ramps to I-5 northbound ramps | Irvine | 4D | 7D | NITM/City of Irvine CIP/Sand Canyon Grade Separation |
| Sand Canyon Av | I-5 southbound ramps to Burt Rd | Irvine | 4D | 7D (3 SB/ 4 NB) | NITM/City of Irvine CIP/Sand Canyon Grade Separation |
| Sand Canyon Av | Burt Rd to Oak Canyon/Laguna Canyon Rd | Irvine | 4D | 6D | NITM/City of Irvine CIP/Sand Canyon Grade Separation |
| Santiago Canyon Rd | SR-241 to eastern boundary of East Orange PC Area 1 | Orange (Sphere) | 2U | 4D | East Orange PC |
| SR-73 | SR-133 to south of El Toro Rd | Caltrans/TCA | 6T | 7D (3 SB/ 4 NB) | TCA CIP |
| SR-133 | I-405 to Lake Forest Dr | Irvine | 4D | 6D | PA18 |
| SR-241 | SR-133 to SR-261 | Caltrans/TCA | 5T | 6T | TCA CIP |
| SR-241 | Lake Forest Dr to Oso Pkwy | Caltrans/TCA | 4T | 6T | TCA CIP |
| St A | Jamboree Rd to Chapman Ave | Orange | 0 | 2U | Santiago Hills II |
| St B | Jamboree Rd to St A | Orange | 0 | 2U | Santiago Hills II |
| St D | Chapman Ave to west of SR-241 | Orange | 0 | 4D | Santiago Hills II |

**TABLE 4-5 (CONT.)**

**2010-2015 Committed Roadway Improvements[1]**

| Roadway | Limits | Jurisdiction | Lanes | | Source |
|---|---|---|---|---|---|
| | | | 2010 | 2015 | |
| St D | West of SR-241 to Santiago Canyon Rd | Orange | 0 | 2U | East Orange PC |
| Technology Dr | I-5/SR-133 undercrossing | Irvine | 0 | 2U | PA31 |
| Technology Dr | I-5/SR-133 to Old Laguna Canyon Rd | Irvine | 0 | 4U | PA31 |
| Bake Pkwy | Lake Forest Dr to Irvine Center Dr | Irvine | 0 | 6D | PA34 |
| Trabuco Rd | SR-133 to “O” St | Irvine | 4U | 4D | O.C. Great Park |
| Trabuco Rd | “O” St to "LY” St | Irvine | 0 | 2D | O.C. Great Park |
| Marine Way | "O" St to Great Park Blvd West | Irvine | 0 | 4D | O.C. Great Park |
| Irvine Blvd | SR-133 NB Ramp to "O" St | Irvine | 4D | 6D | GPN VTTMs Districts 1N and 8 |
| Irvine Blvd | "O" St to "A" St/Modjeska | Irvine | 4D | 5D | GPN VTTMs Districts 1N and 4 |
| Irvine Blvd | West of "A-02" St | Irvine | 4D | 5D | GPN VTTM District 7 |
| "C" St | "O" St to "LV" St | Irvine | 0 | 2U | GPN VTTMs Districts 1N and 1S |
| "LN" St | "O" St to "Z" St | Irvine | 0 | 2U | GPN VTTMs Districts 1N and 4 |
| "LQ" St | "O" St to "Z" St | Irvine | 0 | 2U | GPN VTTMs Districts 1N and 4 |
| "Z" St | Irvine Blvd to "LQ" St | Irvine | 0 | 2U | GPN VTTM District 4 |

[1] Lane abbreviations: D = Divided Roadway Lane
R = Ramp Lane
T = Toll Road Lane
U = Undivided Roadway Lane

Other abbreviations: CIP - Capital Improvement Program
NITM - North Irvine Transportation Mitigation Program
OCTA -Orange County Transportation Authority
PA - City of Irvine Planning Area
PC - Planned Communities
PDF - Project Design Feature
TCA - Transportation Corridor Agencies
GPN - Great Park Neighborhoods
VTTM - Vesting Tentative Tract Maps

[2] This ramp improvement is associated with Caltrans' planned improvement to add a second southbound auxiliary lane on I-5 between Tustin Ranch Rd and Jamboree Rd). The Caltrans improvement is to be coordinated with the City of Irvine CIP improvements to Jamboree Rd at I-5.

**Table 4-6**

**2015-2030 Committed Roadway Improvements[1]**

| Roadway | Limits | Jurisdiction | Lanes | | Source |
|---|---|---|---|---|---|
| | | | 2015 | 2030 | |
| Irvine Boulevard | Yale Avenue to Jeffrey Road | Irvine | 5D | 6D | Northern Sphere |
| Irvine Boulevard | SR-133 to Alton Parkway | Irvine | Varies | 6D | OC Great Park |
| Irvine Center Drive | Enterprise to I-405 SB Ramps | Irvine | 6D | 8D | PA18/39 |
| Irvine Center Drive | I-405 SB Ramps to Research | Irvine | 6D | 8D | PA 18/39 |
| Lake Forest Drive | Irvine Center Drive to Tesla | Irvine | 5D | 6D | PA 34 |
| Lake Forest Drive | Tesla to Bake Parkway | Irvine | 0 | 6D | PA 34 |
| Lake Forest Drive | Bake Parkway to Laguna Canyon Road | Irvine | 0 | 4D | PA18/39 |
| Marine Way | Sand Canyon Avenue to O Street | Irvine | 2U | 4D[2] | OC Great Park |
| Marine Way | Great Park Boulevard West to Alton Parkway | Irvine | 0 | 4D | OC Great Park |
| Marine Way | Alton Parkway to Bake Parkway | Irvine | 0 | 4D | OC Great Park |
| Bake Parkway | I-5 NB Ramps to Rockfield Boulevard | Irvine | 7D | 8D | OC Great Park |
| Old Laguna Canyon Road | crossing of I-405 | Irvine | 2U | 4D | City of Irvine CIP |
| Rancho Parkway | Lake Forest to Portola Parkway | Lake Forest | 0 | 4D | Baker Ranch |
| Rockfield Boulevard[3] | Marine Way to Thomas | Irvine | 0 | 4D | OC Great Park |
| Sand Canyon Avenue | I-405 to Alton Parkway | Irvine | 5D | 6D | Kaiser/TIC/City of Irvine |
| Sand Canyon Avenue | I-5 NB Ramps to I-5 SB Ramps | Irvine | 7D | 8D | NITM/City of Irvine CIP/Sand Canyon Grade Separtation |
| Santiago Canyon Road | SR-261 ramps to SR-241 ramps | Orange (Sphere) | 4D | 6D | East Orange PC |
| Santiago Canyon Road | Eastern boundary of East Orange PC Area 1 to East Orange PC Street E | Orange (Sphere) | 2U | 4D | East Orange PC |
| SR-73 | North of SR-133 | Caltrans/TCA | 7T | 9T | TCA CIP |
| SR-73 | SR-133 to El Toro Road | Caltrans/TCA | 6T | 8T | TCA CIP |
| SR-73 | South of El Toro Road | Caltrans/TCA | 7T | 8T | TCA CIP |
| SR-133 | Interchange at Trabuco Road | TCA | 0 | I/C | NITM Program |
| SR-241 | Portola Parkway (W) to Santa Margarita Parkway | Caltrans/TCA | 6T | 8T | TCA CIP |
| SR-241 at Chapman Avenue | Southbound SR-241 on-ramp | Caltrans/TCA | 2R | 2R[4] | East Orange PC |
| SR-241 (FTC-S) | Oso Parkway to Ortega Highway | Caltrans/TCA | 0 | 6T | TCA CIP |
| SR-241 (FTC-S) | Ortega Highway to I-5 | Caltrans/TCA | 0 | 4T | TCA CIP |
| SR-261 | Walnut Avenue to Irvine Boulevard | Caltrans/TCA | 4T | 6T | TCA CIP |
| SR-261 | Portola Parkway to SR-241 | Caltrans/TCA | 5T | 7T | TCA CIP |
| Street E | Santiago Canyon Road to north of Street F | Orange (Sphere) | 0 | 2U | East Orange PC |

**Table 4-6 Cont.**

## 2015-2030 Committed Roadway Improvements[1]

| Roadway | Limits | Jurisdiction | Lanes | | Source |
|---|---|---|---|---|---|
| | | | 2015 | 2030 | |
| Street F | Street E to south of Santiago Canyon Road | Orange (Sphere) | 0 | 2U | East Orange PC |
| University Drive | I-405 to Michelson Drive | Irvine | 5D | 6D | City of Irvine CIP |
| "O" Street | Marine Way to Trabuco | Irvine | 2U | 4D | PA 40 |
| "B" Street | Irvine Boulevard to Marine Way | Irvine | 0 | 2U | OC Great Park |

[1] Lane abbreviations: D = Divided Roadway Lane
R = Ramp Lane
T = Toll Road Lane
U = Undivided Roadway Lane

Other abbreviations: CIP - Capital Improvement Program
NITM - North Irvine Transportation Mitigation Program
OCTA -Orange County Transportation Authority
PA - City of Irvine Planning Area
PC - Planned Communities
PDF - Project Design Feature
TCA - Transportation Corridor Agencies

[2] Includes the realignment of Marine Way on Sand Canyon Avenue opposite the northbound I-5

[3] The deletion of Rockfield Boulevard from Marine Way to Thomas is part of the proposed project, requiring an MPAH amendment which will be subject to review and approval by OCTA.

[4] Relocate the ramp southeast to the location where the existing northbound SR-241 off-ramp intersects Santiago Canyon Rd.

**Table 4-7**

**2030-Post-2030 Roadway Improvements[1]**

| Roadway | Limits | Jurisdiction | Lanes | |
|---|---|---|---|---|
| | | | 2030 | P-2030 |
| Bake Parkway | Lake Forest Drive to Laguna Canyon Road | Irvine | 0 | 6D |
| Browning Avenue | Crossing of I-5 | Tustin | 0 | 4U |
| El Toro Road | Trabuco Road to Muirlands Boulevard | Lake Forest | 6D | 8D |
| El Toro Road | Aliso Creek Road to SR-73 | Laguna Beach/County | 4D | 6D |
| El Toro Road | SR-73 to Laguna Canyon Road | Laguna Beach/County | 2U | 4D |
| Handy Creek | Jamboree Road to SR-261 | County | 0 | 2U |
| Irvine Boulevard | Red Hill Avenue to Tustin Ranch | Tustin/County | 4D | 6D |
| Jamboree Road | Portola Parkway to Tustin Ranch Road | Tustin | 5D | 6D |
| Jamboree Road | Tustin Ranch Road to Tustin City limits north of Tustin Ranch Road | Tustin | 4D | 6D |
| Jeffrey Road | Portola Parkway to SR-241 | Irvine | 0 | 4D |
| Jeffrey Road | SR-241 to Santiago Canyon Road | County | 0 | 4D |
| Los Alisos Boulevard | Rockfield Boulevard to Paseo de Valencia | Lake Forest | 4D | 6D |
| Myford Road | crossing of I-5 | Tustin | 0 | 4U |
| Paseo de Valencia | Los Alisos Boulevard to Laguna Hills Drive | Laguna Hills/Laguna Woods | 5D | 6D |
| Portola Parkway | Alton Parkway to SR-241 | County | 0 | 4D |
| Ridge Route Drive | Rockfield Boulevard to Avenida de la Carlota | Lake Forest/Laguna Hills | 0 | 4U |
| Ridge Route Drive | Avenida de la Carlota to Moulton Parkway | Laguna Hills/Laguna Woods | 2U | 4D |
| Ridge Route Drive | extension to Bake Parkway | Irvine | 0 | 4D |
| Santa Maria Avenue | extension to Laguna Canyon Road | County | 0 | 4U |
| Santiago Canyon | El Toro Road to St E | County | 2D | 4D |
| Shady Canyon Drive | I-405 to Quail Hill Parkway | Irvine | 4D | 6D |
| SR-73 | North of SR-133 | Caltrans/TCA | 9T | 9T+2H |
| SR-73 | SR-133 to El Toro Road | Caltrans/TCA | 8T | 8T + 2H |
| SR-73 | South of El Toro Road | Caltrans/TCA | 8T | 8T+2H |
| SR-133 (Laguna Canyon Road) | SR-73 to El Toro Road | County | 2U | 4D |
| SR-133 | I-5 to Irvine Boulevard | Caltrans/TCA | 6T | 6T+2H |

**Table 4-7 Cont.**

**2030-Post-2030 Roadway Improvements[1]**

| Roadway | Limits | Jurisdiction | Lanes | |
|---|---|---|---|---|
| | | | 2030 | P-2030 |
| SR-133 | Irvine Boulevard to SR-241 | Caltrans/TCA | 8T | 8T+2H |
| SR-241 | Interchange at Jeffrey Road | Irvine/Caltrans/ TCA | 0 | I/C |
| SR-241 | SR-91 to SR-261 | Caltrans/TCA | 7T | 7T+2H |
| SR-241 | SR-261 to SR-133 | Caltrans/TCA | 6T | 6T+2H |
| SR-241 | SR-133 to Portola Parkway (W) | Caltrans/TCA | 8T | 8T+2H |
| SR-241 | Portola Parkway (W) to Santa Margarita Parkway | Caltrans/TCA | 8T | 8T+2H |
| SR-241 | Santa Margarita Parkway to Oso Parkway | Caltrans/TCA | 6T | 6T+2H |
| SR-241 (FTC-S) | Oso Parkway to Ortega Highway | Caltrans/TCA | 6T | 6T+2H |
| SR-241 (FTC-S) | Ortega Parkway to I-5 | Caltrans/TCA | 4T | 4T+2H |
| SR-241/SR-261 | Branch connectors between SR-241 south of SR-261 and SR-261 south of SR-241 | Caltrans/TCA | 0 | B/C |
| SR-261 | Interchange at Handy Creek Road | Caltrans/TCA | 0 | I/C[2] |
| SR-261 | Walnut Avenue to Irvine Boulevard | Caltrans/TCA | 6T | 6T+2H |
| SR-261 | Irvine Boulevard to Portola Parkway | Caltrans/TCA | 6T | 6T+2H |
| SR-261 | Portola Parkway to SR-241 | Caltrans/TCA | 7T | 7T+2H |

[1] Lane abbreviations: D = Divided Roadway Lane
R = Ramp Lane
T = Toll Road Lane
U = Undivided Roadway Lane
I/C - Interchange
B/C - Branch Connector
H - HOV Lane

[1] Other abbreviations: CIP - Capital Improvement Program
NITM - North Irvine Transportation Mitigation Program
OCTA - Orange County Transportation Authority
PA - City of Irvine Planning Area
PC - Planned Communities
PDF - Project Design Feature
TCA - Transportation Corridor Agencies

[2] Includes a southbound on-ramp, a northbound off-ramp and northbound and southbound collector/distributor roads between Chapman Ave and Hand Creek Road.

**Table 4-8**

**Year 2010 – Year 2015 Committed Intersection Improvements**

| ID | Description | Improvements[1] | Source[2] |
|---|---|---|---|
| 34 | Red Hill Avenue& Irvine Boulevard | Add SBR defacto lane, ATMS | PA 1 / 9 GPA; NITM fully funded |
| 91 | Tustin Ranch & Irvine Boulevard | Add 3rd WBT | PA 9C Workforce Housing |
| 128 | Jamboree Road & I-5 NB Ramps | Add 4th SBT, and 4th NBT | Irvine CIP |
| 129 | Jamboree Road & I-5 SB Ramps | Add 4th SBT, and 4th NBT | Irvine CIP |
| | | Add 1 EB lane, and restripe final EB lane geometry 2, 0, 2 (L, T, R) | Caltrans |
| 221 | Culver Drive & Bryan Avenue | Restripe EB approach to 2, 1.5, 1.5 (L, T, R) | PA 1 / 9 GPA |
| 227 | Culver Drive & Warner Avenue | Add 2nd EBL lane | PA 1 / 9 GPA |
| 229 | Culver Drive & Alton Parkway | Apply ATMS | Paid (Westpark) |
| 235 | Culver Drive & University Drive | Apply ATMS | Paid |
| 283 | Jeffrey Road & Irvine Boulevard | Apply ATMS | Paid (Northwood) |
| 286 | Jeffrey Road & Roosevelt | Intersection improvements | PA 40 VTTM approval |
| 288 | Jeffrey Road & Walnut Avenue | Add 2nd EBL lane and EB shared thru-right | Irvine CIP; NITM Program |
| 289 | Jeffrey Road & ICD | Add 3rd NBT lane | RR Xing / PA 12 / PA 17 |
| 291 | Jeffrey Road & Alton Parkway | Apply ATMS, Add SBR defacto lane | Paid (Woodbridge Mixed Use), NITM fully funded |
| 303 | Sand Canyon Avenue & I-5 NB Ramps/Marine Way | Interchange & ramp improvements | Irvine CIP; NITM Program |
| 305 | Sand Canyon Avenue & I-5 SB Ramps | Interchange & ramp improvements | Irvine CIP; NITM Program |
| 306 | Sand Canyon Avenue & Oak Canyon | Contruct 2nd SBL, 3rd SBT, and convert SBR into defacto. Add shared westbound through/right lane | Irvine CIP / PA 13 / PA 31; NITM Program |
| 321 | Laguna Canyon Road & Old Laguna Canyon Road | Construct east leg, 3rd NBT, 3rd SBT, 2nd SBL, 2nd WBL, 1 NBR | PA 18/39 GPA/ZC, NITM Program |
| 336 | Alton Parkway & 241 Ramps | Add 3rd SBT, and 3rd NBT lane | County / Irvine / Lake Forest |
| 338 | Alton Parkway & Irvine Boulevard | Add SB approach to provide 2, 3, f (L, T, R); Add 1 WBR, 3 NBT and 2 EBL lanes | County / Irvine / Lake Forest |
| 362 | Bake Parkway & Irvine Boulevard | 2nd NBL, convert WBR to WBT | NITM Program |
| 364 | Bake Parkway & Jeronimo Road | 2nd NBL, convert SB defacto to 4th through lane | NITM Program |
| 372 | Bake Parkway & Irvine Center Drive | Add 3rd SBT | TIC / PA 34 |
| 383 | Lake Forest Drvie & Avenida Carlota | Add 2nd WBL, WB Right Turn Overlap | NITM Program |
| 389 | Ridge Route Drive & Moulton Parkway | Add 2nd SBL, 2nd WBL, 4th WBT, 2nd EBL, and 1 EBR lane | County |
| 398 | El Toro Road & Moulton Parkway | Add 2nd SBL, 2nd NBL; Convert SBR, WBR, NBR defacto lanes to right-turn lanes | County |
| 406 | Laguna Canyon Road & Lake Forest Drive | Add 2 SBL, 3rd SBT, 2 WBL and free right-turn lane, 3rd NBT, and 1 NBR lane | PA 18/39 GPA |
| 410 | Bake Parkway & Lake Forest Drive | New Intersection | PA 34 |
| 432 | Alicia Parkway & Muirlands Boulevard | Add 2nd SBL lane | All 5 GPN VTTMs, NITM Program |

**Table 4-8 Cont.**

**Year 2010 – Year 2015 Committed Intersection Improvements**

| ID | Description | Improvements[1] | Source[2] |
|---|---|---|---|
| 441 | Loop & Jamboree Road (SB) | New Intersection | MCAST (Tustin) |
| 444 | Sand Canyon & Burt | Add 3rd NBT Lane | Irvine CIP |
| 463 | Jamboree Road & Chapman Avenue | Add 2nd WBR lane | Santiago Hills II |
| 464 | SR-241/SR-261 SB Ramps & Chapman Avenue | Add 1 EBR lane | Santiago Hills II |
| 465 | SR-241/SR-261 NB Ramps & Chapman Avenue | Add 2nd NBL lane | East Orange PC |
| 468 | Jamboree Road & Canyon View Avenue | Add 3rd SBT lane; Restripe SBR to SBR defacto lane | Santiago Hills II |
| 481 | Laguna Canyon Road & Technology Drive | New Intersection | PA 31 |
| 482 | Visions & Trabuco | Intersection improvements | PA 40 VTTM approval |
| 483 | Road C & Trabuco | Intersection improvements | PA 40 VTTM approval |
| 484 | Sand Canyon & Roosevelt | Intersection improvements | PA 40 VTTM approval |
| 485 | Sand Canyon & Nightmist | Intersection improvements | PA 40 VTTM approval |
| 514 | Alton Parkway & Rancho/Town Centre | New Intersection | Baker Ranch |
| 518 | Alton Parkway & Commercentre | New Intersection | Baker Ranch |
| 558 | O Street & Irvine Boulevard | New Intersection | OC Great Park |
| 559 | O Street & Trabuco Road | New Intersection | OC Great Park |
| 572 | Modjeska & Irvine Boulevard | Construct south leg | OC Great Park |

**Source: City of Irvine**

[1] L = Left; T = Through; R = Right; f = Free Right Turn Lane; d = Defacto Right Turn Lane
NB = Northbound; SB= Southbound; WB = Westbound; EB = Eastbound

[2] NITM = North Irvine Transportation Mitigation
CIP = Capital Improvement Program
OCTA = Orange County Transportation Authority
OC Great Park = Orange County Great Park
PA = City of Irvine Planning Area
PC = Planned Communities
RR = Railroad
MCAST = Marine Corps Air Station, Tustin
GPA = General Plan Amendment
TIC = The Irvine Company
GPN = Great Park Neighborhoods

**Table 4-9**

**Year 2015 – Year 2030 Committed Intersection Improvements**

| ID | Description | Improvements[1] | Source[2] |
|---|---|---|---|
| 124 | Jamboree Road & Portola Parkway | Add 2nd WBR | PA 1 / 9 GPA (Option Imps.) |
| 135 | Jamboree Road (NB) & Warner Avenue | Apply ATMS | MCAST (Tustin) |
| 136 | Jamboree Road & Barranca Parkway | Add 5th NBT lane, Convert NBF to NBR lane | IBC Vision |
| 224 | Culver Drive & Walnut Avenue | Apply ATMS | NITM Fully funded |
| 226 | Culver Drive & Irvine Center Drive | Apply ATMS | Westpark |
| 232 | Culver Drive & I-405 NB Ramps | Update WB lanes to include 1 WBL and 2 WBR lanes | IBC Vision |
| 235 | Culver Drive & University Drive | EB defacto lane, 4th NBT, Convert NBd to dual rights with WBL overlap | UCI LRDP; NITM Program |
| 249 | Yale Boulevard & Irvine Boulevard | Add 2nd SBL | NITM Program |
| 282 | Jeffrey Road & Portola Parkway | Add 3rd WBT lane and 3rd EBT lane; Convert WBR lane to WBR defacto lane | Northern Sphere |
| 283 | Jeffrey Road & Irvine Boulevard | Add 3rd WBT lane; Convert WBR lane to WBR defacto lane; Provide EBR defacto lane | Northern Sphere |
| 284 | Jeffrey Road & Bryan Avenue | Restripe final EB lane geometry to 1, 0.5, 1.5 (L, T, R) | Northern Sphere |
| 285 | Jeffrey Road & Trabuco Road | Add 4th SBT lane | Northern Sphere |
| 289 | Jeffrey Road & Irvine Center Drive | Add 4th WBT, 4th NBT, Convert SBR to 4th SBT and Add 3rd SBL | NITM Program |
| 291 | Jeffrey Road & Alton Parkway | Convert NB free right-turn lane to standard NBR, add 3rd EBT | NITM Program |
| 302 | Sand Canyon Avenue & Trabuco Road | Apply ATMS | PA 9C |
| 303 | Sand Canyon Avenue & I-5 NB ramps/Marine Way | Interchange improvements | Irvine CIP |
| 304 | Sand Canyon Avenue & Marine Way | Delete signalized intersection | Orange County Great Park |
| 310 | Sand Canyon Avenue & Alton Parkway | Add 2nd NBR | NITM Program |
| 311 | Sand Canyon Avenue & I-405 NB Ramps | Convert WB lane geometry from 0.5, 0, 1.5 to 1, 0, f (L, T, R) | NITM Program |
| 322 | Laguna Canyon Road & SR-73 NB ramps | Add 3rd SBT lane and 1 WBL lane | County (Aliso Creek Deletion) |
| 338 | Alton Parkway & Irvine Boulevard | Convert EB lane geometry to 2.5, 2.5, 1 (L, T, R), Provide East-West Split Phase | NITM Program |
| 338 | Alton Parkway & Irvine Boulevard | EB right turn overlap phase | Orange County Great Park District 5 |
| 344 | Alton Parkway & Technology | Restripe EB lanes to 1.5, 1.5, 2 (L,T,R), and WB lanes to 2.5, 1.5 (L,T,R). Provide East-West Split Phase. | NITM Program, GPN Participation |
| 345 | Alton Parkway & I-5 NB Ramps | Convert WB lane geometry to 2.5, 0, 0.5 (L, T, R) | NITM Program |
| 358 | Irvine Center Drive & Enterprise | Add 2nd WBL lane and 3rd NBT | PA18/39 GPA |
| 359 | Irvine Center Drive & I-405 SB ramps | Add 4th NBT lane, 3rd EBL and 3rd SBT | PA18/39 GPA |
| 362 | Bake Parkway & Irvine Boulevard | Convert EB lane geometry to 2, 2.5, 1.5 (L, T, R) | NITM Program |
| 364 | Bake Parkway & Jeronimo Road | Add 3rd WBT lane | NITM Program |

**Table 4-9 Cont.**

**Year 2015 – Year 2030 Committed Intersection Improvements**

| ID | Description | Improvements[1] | Source[2] |
|---|---|---|---|
| 367 | Bake Parkway & I-5 NB ramps/ Marine Way | Interchange improvements; Provide WB: 1, 0, 3 (L, T, R) & add 4th NBT | Bake/Marine MPAH |
| 372 | Bake Parkway & Irvine Center Drive | Add 4th WBT lane | County (Aliso Creek Deletion) |
| | | Add 2nd WBL lane | PA34 |
| 379 | Lake Forest Drive & Muirlands Boulevard | Convert NBR to NBT | NITM Program |
| 383 | Lake Forest Drive & Avenida Carlota | Restripe EB lane geometry to 3, 0.5, 1.5 (L, T, R) | NITM Program |
| 399 | El Toro & Aliso Creek Road | Convert NBR defacto lane to free right-turn lane | County (Aliso Creek Deletion) |
| 420 | El Toro & Jeronimo | Add 2nd SBL lane | NITM Program, GPN Participation |
| 434 | I-5 SB ramps & Alicia Parkway | Add 1 SBL lane | County (Aliso Creek Deletion) |
| 436 | Moulton Parkway & Alicia Parkway | Add 4th NBT lane | County (Aliso Creek Deletion) |
| 464 | SR-241/SR-261 SB ramps & Chapman Avenue | Add 2nd WBL lane, 3rd WBT lane and add 3rd EBT | East Orange PC |
| 465 | SR-241/SR-261 NB ramps & Chapman Avenue | Add 3rd WBT lane, and 3rd EBT lane; Add WBR defacto lane | East Orange PC |
| 466 | SR-241 ramp(s) & Santiago Canyon Road | Add 1 WBL lane, and 3rd WBT lane; Restripe final EB lane geometry 0, 2.5, 1.5 (L, T, R) | East Orange PC |
| 484 | Sand Canyon Avenue & Roosevelt | Add 2nd SBL, add 1 EBT and convert WB lane geometry to 2, 1, d (L, T, R) | PA40 TTM |
| 486 | SR-133 SB ramps at Trabuco Road | New Intersection - Lane Geometry (L,T,R) for SB is 1, 0, 2; for WB is 2, 2, 0 for EB is 0, 2, 1 | NITM Program |
| 487 | SR-133 NB ramps at Trabuco Road | New Intersection - Lane Geometry (L,T,R) for EB is 0, 2, f; for WB is 1, 2, 0; for NB is 2, 0, 2 | NITM Program |
| 517 | Portola Parkway & Rancho | New Intersection - Lane Geometry (L,T,R) for SB is 0, 4, d; for NB is 2, 4, 0; for EB is 1.5, 0, 1.5 | Baker Ranch |
| 568 | Marine Way & Rockfield[3] | New Intersection - Lane Geometry (L,T,R) for SB is 1, 2, 1; for WB is 1, 1, 1; for NB is 1, 2, 1, for EB is 1, 1, 0 | Orange County Great Park |
| 569 | Bake Parkway & Marine Way | Add NBR lane | Bake-Marine Study |

**Source: City of Irvine**

[1] L = Left; T = Through; R = Right; f = Free Right Turn Lane; d = Defacto Right Turn Lane
NB = Northbound; SB= Southbound; WB = Westbound; EB = Eastbound

[2] NITM = North Irvine Transportation Mitigation
CIP = Capital Improvement Program
OCTA = Orange County Transportation Authority
OC Great Park = Orange County Great Park
PA = City of Irvine Planning Area
PC = Planned Communities
RR = Railroad
MCAST = Marine Corps Air Station, Tustin
GPA = General Plan Amendment
TIC = The Irvine Company
GPN = Great Park Neighborhoods

[3] The 2012 Modified Project proposes to remove this 2011 Approved Project PDF identified for Year 2030.

**Table 4-10**

**Post-2030 Assumed Intersection Improvements**

| ID | Description | Improvements[1] | Source[2] |
|---|---|---|---|
| 16 | Newport Avenue & Irvine Boulevard | Apply ATMS | PA 1 / 9 GPA |
| 54 | Browning & Irvine Boulevard | Convert WBR defacto lane to 3rd WBT lane; Convert EBR defacto lane to 3rd EBT lane | Unfunded General Plan Imp. |
| 91 | Tustin Ranch Road & Irvine Boulevard | Add 2nd NBL lane | PA 1 / 9 GPA |
| 123 | Jamboree Road & Tustin Ranch Road | Add 3rd NBT and 3rd SBT | NITM Fair Share |
| 125 | Jamboree Road & Irvine Boulevard | Convert SBf to 4th SBT | NITM Program fully funded |
| 228 | Culver Drive & Barranca Parkway | Convert WBd to 3rd WBT, Apply ATMS | NITM Fair Share<br>PA 1 / 9 GPA |
| 235 | Culver Drive & University Drive | Add 2nd NBL, 2nd SBL,1 SBd and 4th SBT | NITM Program, UCI LRDP |
| 282 | Jeffrey Road & Portola Parkway | Restripe final SB lane geometry 2, 3, 0 (L, T, R); Add 2nd NBT lane and 2nd EBL lane; Convert NB free RT lane to 1 NBR lane; | Northern Sphere |
| 289 | Jeffrey Road & Irvine Center Drive | Apply ATMS | PA9C(Work Force Housing only) |
| 290 | Jeffrey Road & Barranca Parkway | Apply ATMS | PA9C(Work Force Housing), |
| | | Add NBd, add SBd | NITM Fair Share |
| 293 | Jeffrey Road & I-405 NB Ramps | Add 3rd WBL | Fair Share NITM |
| 303 | Sand Canyon Avenue & I-5 NB ramps/Marine Way | Add 2nd EBT | PA40/12 GPA/ZC |
| 306 | Sand Canyon Avenue & Oak Canyon Avenue | Provide free WBR & convert shared shared thru-right to WBT | PA40/12 GPA/ZC |
| 310 | Sand Canyon Avenue & Alton Parkway | Add 3rd WBT lane | Kaiser |
| 312 | Sand Canyon Avenue & I-405 SB ramps | Restripe final NB lane geometry 0, 2, f (L, T, R); Restripe final EB lane geometry 2, 0, 1 (L, T, R) | Unfunded General Plan Im |
| 316 | SR-133 SB ramps & Irvine Boulevard | Add 2nd WBL lane | Lambert Ranch |
| 324 | Portola Parkway & SR-241 NB ramps | Add 2nd SBT lane, and 1 SBR lane; add 2nd NBT lane, add NBL lane | Unfunded General Plan Imp. |
| 325 | Portola Parkway & SR-241 SB ramps | Add 1 NB shared T/RT lane | Unfunded General Plan Imp. |
| 327 | Barranca Parkway & Technology Drive | Add 2nd SBL and Restripe EB lane geometry to 1, 1.5, 1.5 (L, T, R) | NITM Fair Share |
| 338 | Alton Parkway & Irvine Boulevard | Convert EB lane geometry to 3, 3, d (L, T, R) and remove split phasing | LFTM Program |
| 348 | Alton Parkway & Irvine Center Drive | Restripe WB lane geometry to 2, 2.5, 1.5 (L, T, R); Add 4th NBT, convert NBR to free-right | NITM Fair Share |
| 361 | Bake Parkway & Portola Parkway | Add 3rd WBT lane | LFTM Program |
| | | Restripe NB lanes to 1.5,1,1.5 (L,T,R), Provide north-south split phase | GPN |
| 362 | Bake Parkway & Irvine Boulevard | Provide WBd | LFTM Program |
| 366 | Bake Parkway & Rockfield Drive | Add 3rd WBL lane and convert WBR to defacto | LFTM Program |

**Table 4-10 Cont.**

**Post-2030 Assumed Intersection Improvements**

| ID | Description | Improvements[1] | Source[2] |
|---|---|---|---|
| 378 | Lake Forest Drive & Jeronimo Road | Add 2nd SBL; add EBR, WBR | NITM Fair Share |
| 380 | Lake Forest Drive & Rockfield Boulevard | Convert WB lane geometry to 3, 2, 0 (L, T, R) | NITM Fair Share |
| 387 | Ridge Route & Rockfield Boulevard | Add SBL, Improve EB lanes to provide 1.5,1.5,d (L,T,R) | Unfunded General Plan Imp.; NITM fair share |
| 388 | Ridge Route & Avd Carlota | Add 1 SBL lane, 2 SBT lanes, 2 NBT lanes, and 1 EBL lane | Unfunded General Plan Imp. |
| | | Add 2nd SBL lane | County (Aliso Creek deletion) |
| 389 | Ridge Route & Moulton Parkway | Convert 1 EBR lane to 4th EBT lane | Unfunded General Plan Imp. |
| 390 | Paseo De Valencia & Avenida Carlota | Convert SB lane geometry to 2.5, 1.5, 0 (L, T, R) | NITM fair share |
| 392 | El Toro & Muirlands Boulevard | Convert 1 SBR lane to 4th SBT lane; Convert 1 NBR lane to 4th NBT lane | Unfunded General Plan Imp. |
| 396 | El Toro Road & Avenida Carlota | Convert WB lane geometry to 0.5, 1.5, 2 (L, T, R), Restripe EB lanes to 2,2,0 (L,T,R) | NITM Fair Share |
| 403 | SR-241 NB ramps & Jeffrey Road | New Intersection - Lane Geometry (L, T, R) for SB is 1.5, 0, 1.5; for WB is 0, 2, 1; for EB is 1, 2, 0 | Irvine/Caltrans/TCA; NITM fair share |
| 404 | SR-241 SB ramps & Jeffrey Road | New Intersection - Lane Geometry (L, T, R) for SB is 1.5, 0, 1.5; for WB is1, 2, 0; for EB is 0, 2, 1 | Irvine/Caltrans/TCA; NITM fair share |
| 406 | Laguna Canyon Road & Lake Forest Drive | Add 4th NBT lane, 3rd SBL | County (Aliso Creek deletion); NITM Program |
| 407 | Laguna Canyon Road & Bake Parkway | New Intersection | Unfunded General Plan Imp. |
| 408 | Laguna Canyon Road & Santa Maria | New Intersection | Unfunded General Plan Imp. |
| 410 | Bake Parkway & Lake Forest Drive | Provide 2,3,d (L,T,R) lane geometry on all approaches | Unfunded General Plan Imp. |
| 411 | Bake Parkway & Ridge Route | New Intersection | Unfunded General Plan Imp. |
| 418 | El Toro & Trabuco Road | Convert 1 SBR lane to 4th SBT lane; Add 4th NBT lane | Unfunded General Plan Imp. |
| 419 | El Toro & Toledo Way | Convert SBR defacto lane to 4th SBT lane; Convert NBR defacto lane to 4th NBT lane; | Unfunded General Plan Imp. |
| 420 | El Toro Road & Jeronimo Road | Convert NBR to 4th NBT, Convert SBd to 4th SBT, add EBR | NITM Fair Share |
| 423 | Muirlands Boulevard & Los Alisos Boulevard | Add 2nd NBL, SBL, EBL, WBL | NITM Fair Share |
| 424 | Los Alisos Boulevard & Rockfield Boulevard | Add 2nd NBL, Add SBR | NITM Fair Share |
| 425 | Los Alisos Boulevard & Avd Carlota | Add 3rd SBT lane and SBR defacto lane | Unfunded General Plan Imp. |
| 432 | Alicia Parkway & Muirlands Boulevard | Add 1 SBT/R, 2nd EBL and 1 WBL | NITM Fair Share |

**Table 4-10 Cont.**

**Post-2030 Assumed Intersection Improvements**

| ID | Description | Improvements[1] | Source[2] |
|---|---|---|---|
| 459 | Jeffrey Road & Santiago Canyon Road | New Intersection - Lane Geometry (L,T,R) for WB is 1, 2, 0; for NB is 1, 0, d; for EB is 0, 2, d | Unfunded General Plan Imp. |
| 464 | SR-241/SR-261 SB ramps & Chapman Avenue | Add 1 SBT lane | East Orange PC |
| 465 | SR-241/SR-261 NB ramps & Chapman Avenue | Add 2nd NBT and defacto right-turn lane | East Orange PC |
| 469 | Jamboree Road & Handy Creek Road | New Intersection - Lane Geometry (L,T,R) for SB is 1, 3, 0; for WB is 1, 0, 1; for NB is 0, 3, d | Unfunded General Plan Imp. |
| 470 | SR-261 SB ramps & Handy Creek Road | New Intersection - Lane Geometry (L,T,R) for SB is 0, 1, 1; for WB is 0, 1, 0; for EB is 0, 1, 1 | Caltrans/TCA. |
| 471 | SR-261 NB ramps & Handy Creek Road | New Intersection - Lane Geometry (L,T,R) for NB is 1, 1, 0; for EB is 1, 0, 0 | Caltrans/TCA. |
| 514 | Alton Parkway & Rancho Parkway | Add 2nd WBL | LFTM Program |
| 516 | Lake Forest & Rancho Parkway | Restripe WB and remove WBR, 2WBT and add defacto WBR and 2nd EBT | LFTM Program |

**Source: City of Irvine**

[1] L = Left; T = Through; R = Right; f = Free Right Turn Lane; d = Defacto Right Turn Lane
NB = Northbound; SB= Southbound; WB = Westbound; EB = Eastbound

[2] NITM = North Irvine Transportation Mitigation
CIP = Capital Improvement Program
OCTA = Orange County Transportation Authority
OC Great Park = Orange County Great Park
PA = City of Irvine Planning Area
PC = Planned Communities
RR = Railroad
MCAST = Marine Corps Air Station, Tustin
GPA = General Plan Amendment
TIC = The Irvine Company
GPN = Great Park Neighborhoods

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northeast leg of this intersection, these improvements include 2 southbound left turn lanes, 3 southbound through lanes, and 1 southbound free right turn lane on Alton Parkway. The resulting overall lane configuration is:

- Northbound – 2 left, 3 through, and 1 free right turn lane
- Southbound – 2 left, 3 through, and 1 free right turn lane
- Eastbound – 2 left, 3 through, and 1 right turn lane
- Westbound – 2 left, 3 through, and 1 right turn lane.

No additional physical widening of this intersection is anticipated for 2030 conditions. NITM improvements for 2030 are limited to a signal modification and lane striping changes which accommodate an east/west split phase signal operation, with 2 eastbound left turn lanes, 1 eastbound shared left-through lane, 2 eastbound through lanes, and 1 eastbound right turn lane.

In addition to these 2030 NITM operational/striping improvements, the 2011 Approved Project will provide eastbound right turn overlap phasing at the intersection of Alton Parkway at Irvine Boulevard as a project design feature associated with on-site development activity in District 5. This signal operation modification will enhance the signal timing dedicated to eastbound right turning vehicles, which will optimize intersection capacity utilization and reduce right turn queues.

## 4.3 Status of the List of NITM Improvements

Exhibit 4-9 shows the locations of NITM improvements in the study area.

The NITM Program improvements listed below have been constructed or are under construction and are therefore assumed as baseline improvements in place by 2015:

- **Intersection #222. Culver Drive & Trabuco Road (City of Irvine):** Constructed – The addition of a third northbound through lane and the improvement of the westbound approach to provide two left-turn lanes and two right-turn lanes.
- **Intersection #223. Culver Drive & I-5 Southbound Ramps (City of Irvine):** Constructed - The improvement of the eastbound approach to provide three left-turn lanes and two right-turn lanes (constructed as part of the OCTA/Caltrans southbound I-5 auxiliary lane project between Jamboree Road and Culver Drive).

EXHIBIT 4-9 (1 OF 2)

# LOCATIONS INCLUDED IN THE LIST OF NITM IMPROVEMENTS
# WEST STUDY AREA

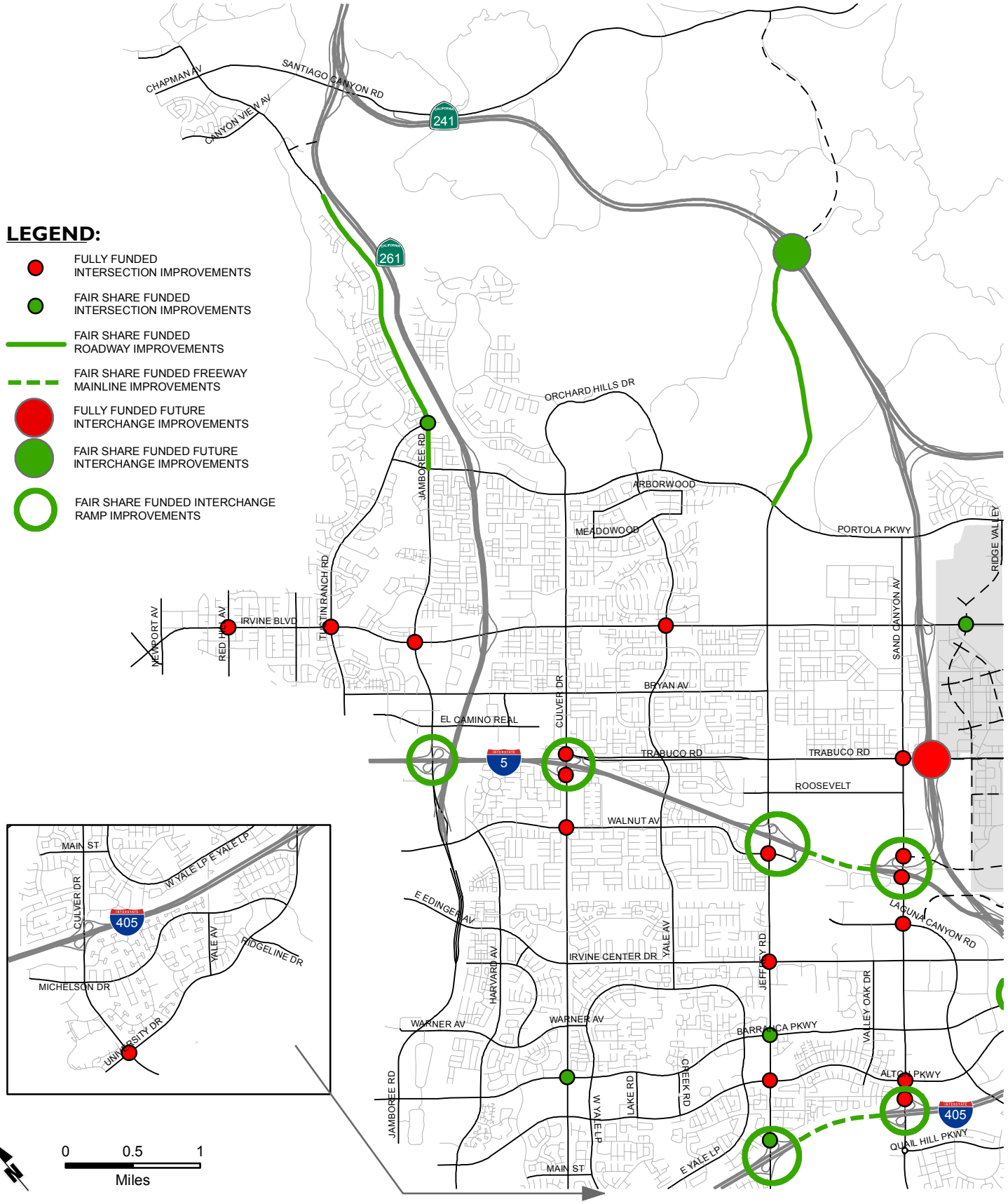
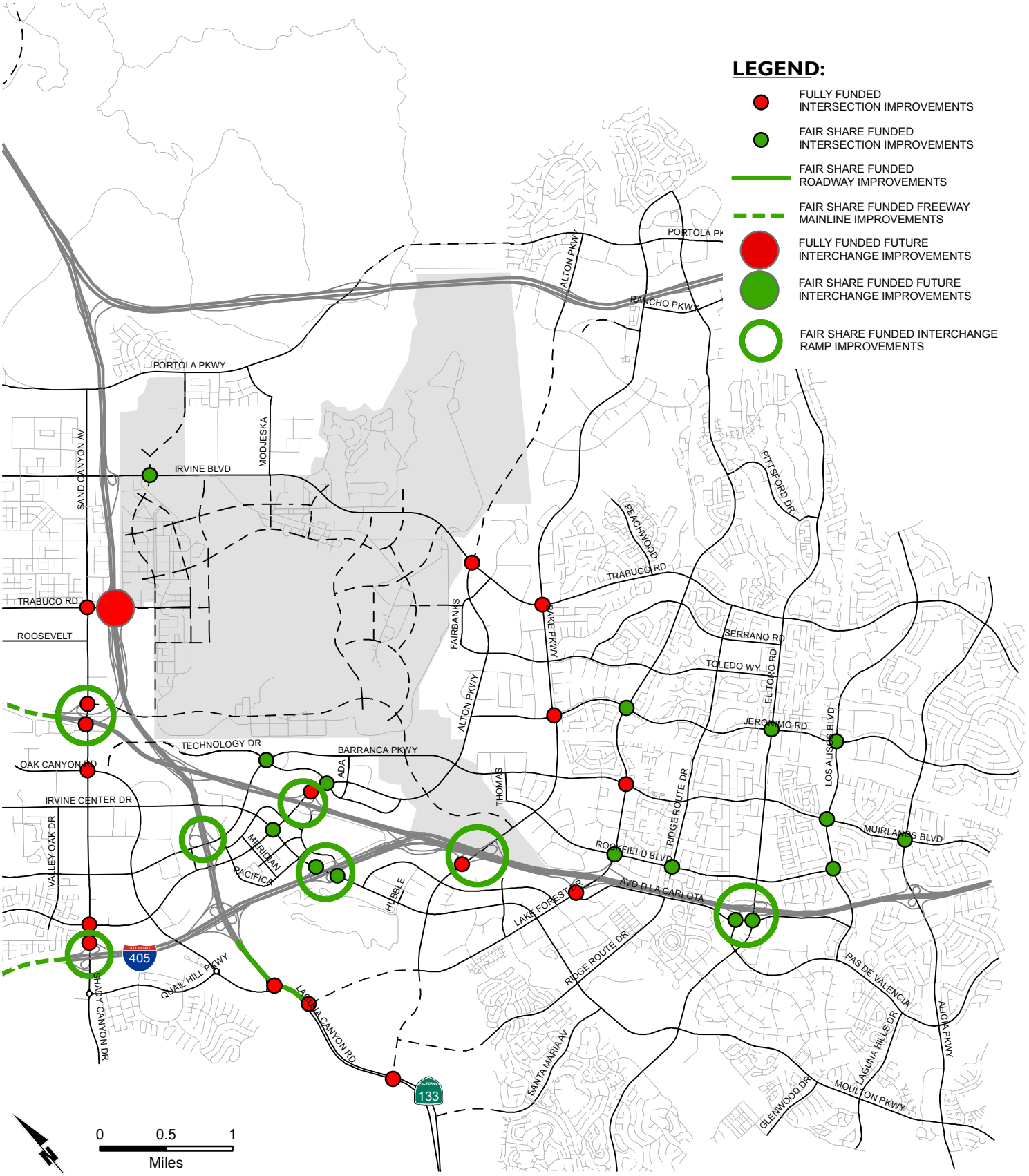


EXHIBIT 4-9 (2 OF 2)

# LOCATIONS INCLUDED IN THE LIST OF NITM IMPROVEMENTS EAST STUDY AREA



- **Intersection #302. Sand Canyon Avenue & Trabuco Road (City of Irvine):** Constructed - The conversion of the eastbound right-turn lane to a free right-turn lane.
- **Intersection #321. Laguna Canyon Road (SR-133) and Old Laguna Canyon Road (City of Irvine):** Constructed - The addition of third northbound and southbound through lanes.
- **Intersection #362. Bake Parkway and Irvine Boulevard (City of Irvine):** Completed – The Traffic Management Systems Operation Study (TMSOS) project at this intersection has been completed; hence LOS E has been designated as acceptable at this intersection.
- **Intersection #423. Muirlands Boulevard and Los Alisos Boulevard (City of Lake Forest/City of Mission Viejo):** Constructed – The addition of an eastbound right-turn lane.
- **Intersection #432. Alicia Parkway & Muirlands Boulevard (City of Mission Viejo):** Constructed – The conversion of the southbound right-turn lane to a fourth through lane.
- **SR-133 (Laguna Canyon Road) from I-405 Freeway to Lake Forest Drive (City of Irvine):** Constructed – Improvement to six lanes (three northbound and three southbound).
- **I-5 Northbound Loop On-Ramp at El Toro Road (Caltrans):** Constructed – The conversion of the high-occupancy vehicle (HOV) preferential lane to a second metered mixed-flow lane.
- **I-5 Northbound On-Ramp at Sand Canyon Avenue (Caltrans):** Constructed – The conversion of the HOV preferential lane to a second metered mixed-flow lane.
- **I-405 Northbound Off-Ramp at Jeffrey Road (Caltrans):** Constructed – The addition of a second drop lane from I-405 to the off-ramp.

The NITM Program improvements listed below are planned to be constructed in association with approved development that will occur by 2015 or 2030 and these improvements are therefore assumed as baseline improvements in place by 2030:

- **Intersection #358. Irvine Center Drive and Enterprise Drive (City of Irvine):** The NITM improvement to add a third northbound through lane will be constructed by 2030 in association with the planned development in City of Irvine Planning Area 39 (PA39).

- **Intersection #359. Irvine Center Drive and I-405 Southbound Ramps (City of Irvine):** The NITM improvements to add a third southbound through lane and a third eastbound left-turn lane will be constructed by 2030 in association with the planned development in City of Irvine Planning Area 39 (PA39).

It should also be noted that the City of Irvine Capital Improvement Program (CIP) identifies projects involving the implementation of NITM improvements that are to be fully funded by the NITM Program at the following intersections:

- **Intersection #288. Jeffrey Road and Walnut Avenue/I-5 Southbound Ramps:** The CIP improvement project adds an eastbound shared second through lane/second right-turn lane, which is a NITM Program improvement, and a second eastbound left-turn lane, which is not a NITM Program improvement.
- **Intersection #303. Sand Canyon Avenue and I-5 Northbound Ramps/Marine Way:** The CIP improvement project adds northbound and southbound through lanes, which are NITM Program improvements. The current design of the CIP project for this intersection also adds additional northbound and southbound through lanes and a second eastbound right-turn lane.
- **Intersection #305. Sand Canyon Avenue and I-5 Southbound Ramps:** The CIP improvement project adds northbound and southbound through lanes, which are NITM Program improvements. The current design of the CIP project for this intersection also adds additional northbound and southbound through lanes and an eastbound shared third left-turn/second right-turn lane.
- **Intersection #364. Bake Parkway and Jeronimo Road:** The CIP improvement project adds a third westbound through lane and a second northbound left-turn lane and converts the southbound de-facto right-turn lane to a fourth through lane, all of which are NITM Program improvements.

Two NITM improvements were advanced from Post-2025 to 2025 by the PA9C Work Force Housing project:

- **Intersection #224. Culver Drive at Walnut Avenue**: Apply ATMS
- **Intersection #291. Jeffrey Road at Alton Parkway**: Addition of a southbound de-facto right-turn lane

The 2010 NITM Review also indicated that two NITM improvements had been deleted as part of the *City of Irvine PA1/9 GPA/ZC NITM Fee Reallocation Study*:

- **Intersection #222. Culver Drive at Trabuco Road**: Deletion of the 2nd southbound left-turn lane
- **Intersection #366. Bake Parkway at Rockfield Parkway**: Deletion of all NITM improvements

On June 29, 2010, the City Public Works Director approved the removal of ten (10) NITM improvements (Intersection #'s 127, 285, 341, 385, 389, 391, 421, 427, 429, and the SR-241 southbound off-ramp at Lake Forest Drive) and the modification of one improvement at #407-Laguna Canyon/Bake (to keep the 3rd NBT but delete the rest of the previously identified improvements at this location) as identified on page "e" of the Five-Year NITM study.

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## 5.0 EXISTING-PLUS-PROJECT IMPACT ANALYSIS

This chapter analyzes the impacts on existing traffic conditions of a hypothetical scenario involving occupancy of the entire Heritage Fields / Great Park Neighborhoods project with the 2012 Modified Project, Option 1 and Option 2, without surrounding development activity that includes programmed infrastructure improvements.

The 2012 Modified Project (for long rage 2030 and Post-2030 conditions) is proposed to include:

- 9,500 residential units in Great Park Neighborhoods
- 220,000 square feet of retail uses
- 11,000 square feet of child care
- 25,000 square feet of church/synagogue
- 1,282,200 square feet of Multi-Use Non-Residential
- 3,364,000 square feet of medical and science (R&D) uses
- two K-8 schools (capacity of 2,000 students)
- one High School (capacity of 2,600 students)
- 100 acres of neighborhood park uses

A comparative traffic analysis of the impacts associated with full buildout of the 2012 Modified Project, as assessed against existing traffic conditions, is an unrealistic scenario for a project of this magnitude. The 2012 Modified Project is not a near-term construction project. For traffic analysis purposes the near-term horizon year 2015 has been used (ITAM's current near-term horizon year) for the Project's first development areas (Districts 1 North, 1 South, 4, 7 and 8). However, full occupancy of all the project districts will not occur until sometime between 2015 and 2030. Therefore, the traffic generated by the entire 2012 Modified Project would not be placed on the existing, present day roadway system and existing traffic conditions.

The existing-plus-project scenario does not account for other projected developments that will also be conditioned to provide for, or contribute to, needed traffic improvements to the circulation system in the study area. It also does not account for anticipated circulation system improvements in the City of Irvine and surrounding jurisdictions. The circulation system is projected to change over time, with or without the 2012 Modified Project. These circulation system changes include the improvement of

existing roadways through established programs such as the North Irvine Transportation Mitigation (NITM) Program, the City of Irvine Capital Improvement Program (CIP), and Orange County Transportation Authority (OCTA) Measure M projects.

## 5.1 Existing-Plus-Project Traffic Impacts with 2012 Modified Project, with Option 1 or Option 2

As discussed above, the existing conditions plus project analysis is purely hypothetical in this case due to the fact that it assumes development of the project districts would occur instantaneously, which is not a realistic portrayal of traffic impacts caused by the 2012 Modified Project. Nonetheless, traffic forecasts were prepared for a scenario in which traffic generated by the Proposed Project is added to the existing present-day traffic conditions that were summarized in Chapter 4.0. ITAM Version 8.4-10 (ITAM 8.4-10) was used to distribute the traffic associated with full development of the land uses proposed to be allowed on Heritage Fields onto the existing circulation system.

The following sub-sections summarize the resulting existing-plus-project with Option 1 or Option 2 traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway / tollway mainline segments and freeway / tollway ramps.

### 5.1.1 Existing-Plus-Project Circulation System and Average Daily Traffic Volumes

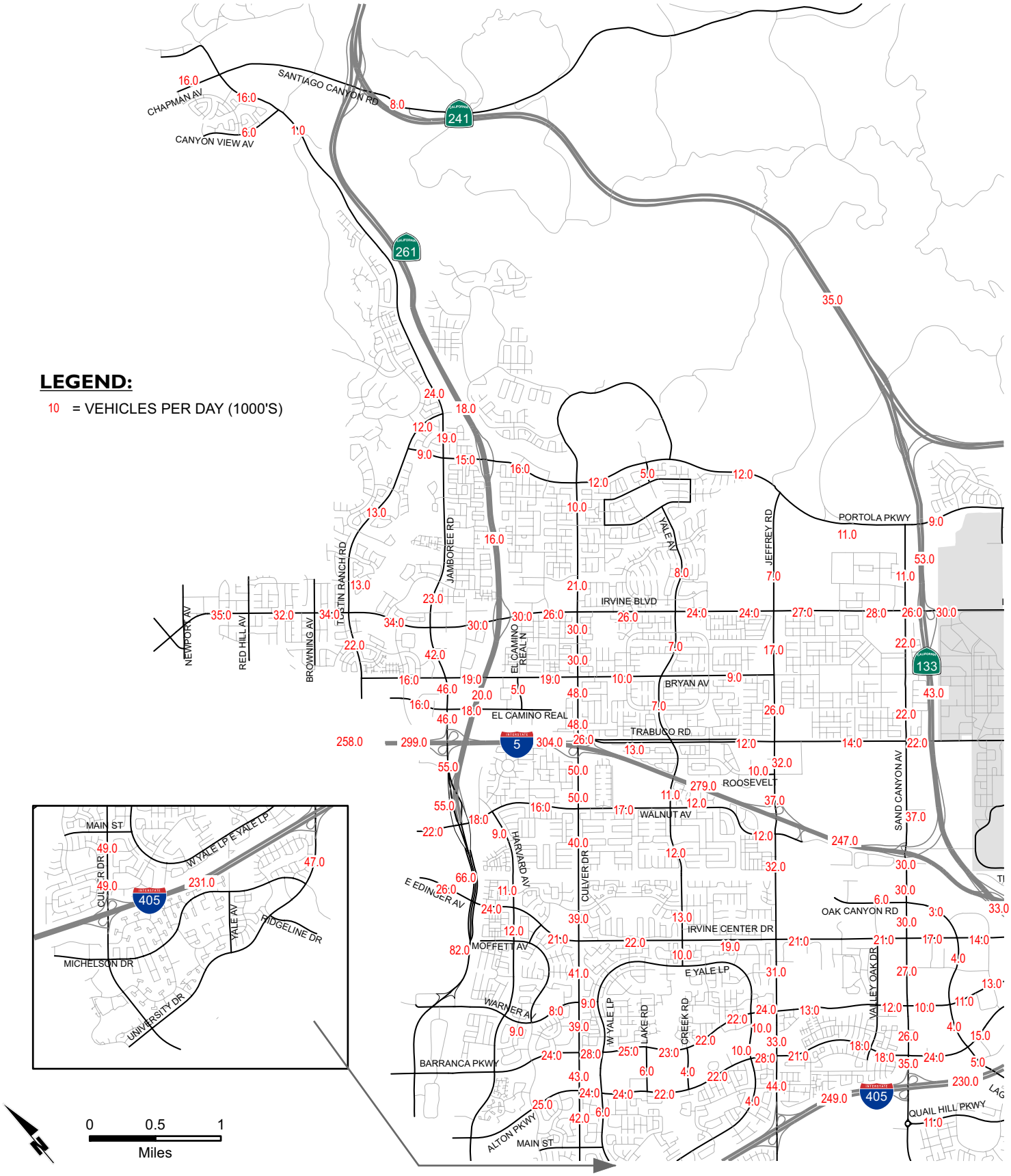
The existing circulation system in the study area was previously illustrated in Chapter 4.0. The existing-plus-project with Option 1 average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 5-1 and 5-2, respectively. The existing-plus-project with Option 2 ADT volumes and corresponding V/C ratios are shown on Exhibits 5-3 and 5-4, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following thirteen (13) arterial roadway segments are potentially impacted by the 2012 Modified Project:

- Avenida Carlota (Paseo de Valencia to El Toro Rd)
- Bake Pkwy (north of Commercentre Dr)

EXHIBIT 5-1 (1 OF 2)

# EXISTING-PLUS-PROJECT ADT VOLUMES - OPTION 1, WEST STUDY AREA



# EXISTING-PLUS-PROJECT ADT VOLUMES - OPTION 1, EAST STUDY AREA

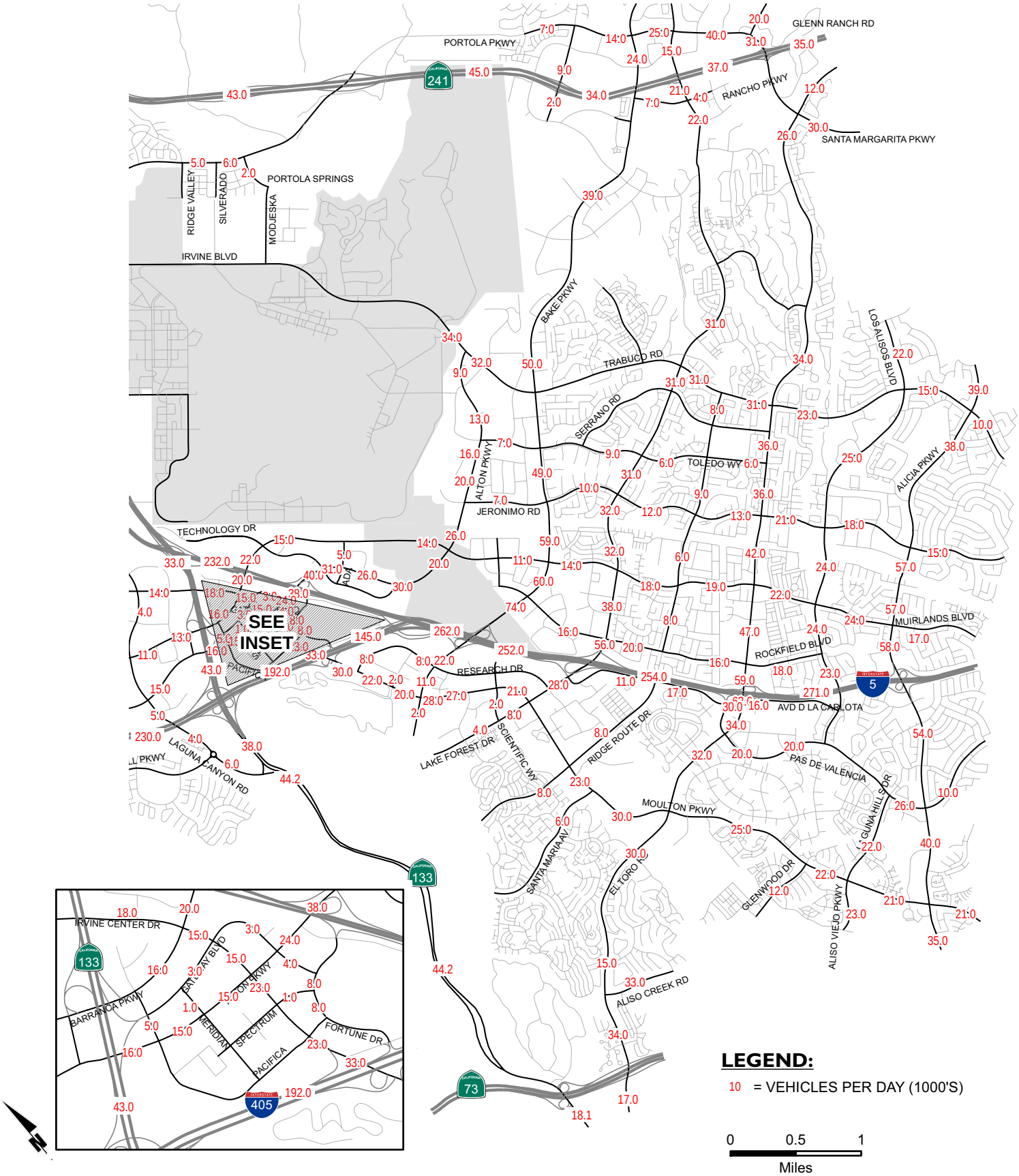


EXHIBIT 5-2 (1 OF 2)

# EXISTING-PLUS-PROJECT ADT V/C RATIOS - OPTION 1, WEST STUDY AREA

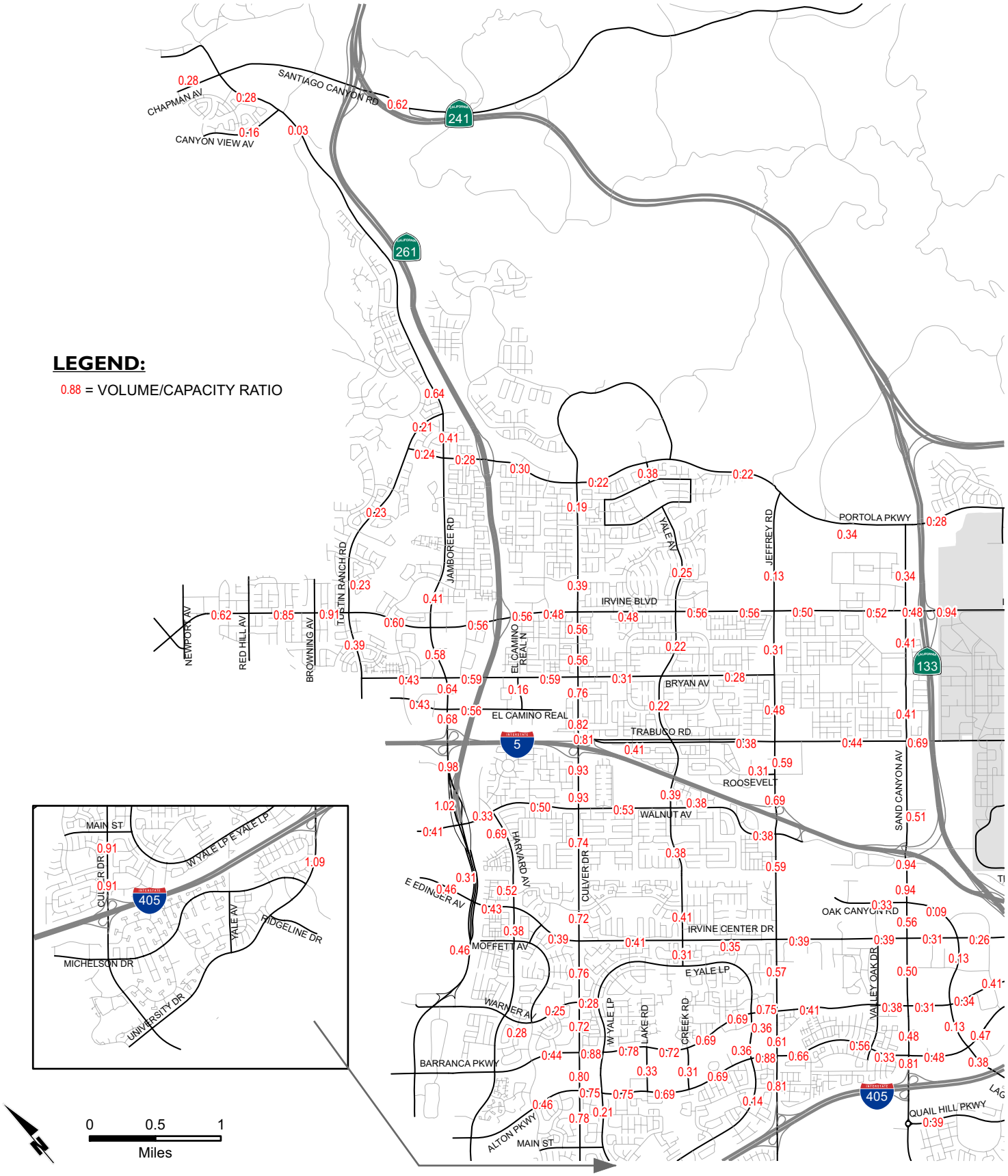


EXHIBIT 5-2 (2 OF 2)

# EXISTING-PLUS-PROJECT ADT V/C RATIOS - OPTION 1, EAST STUDY AREA

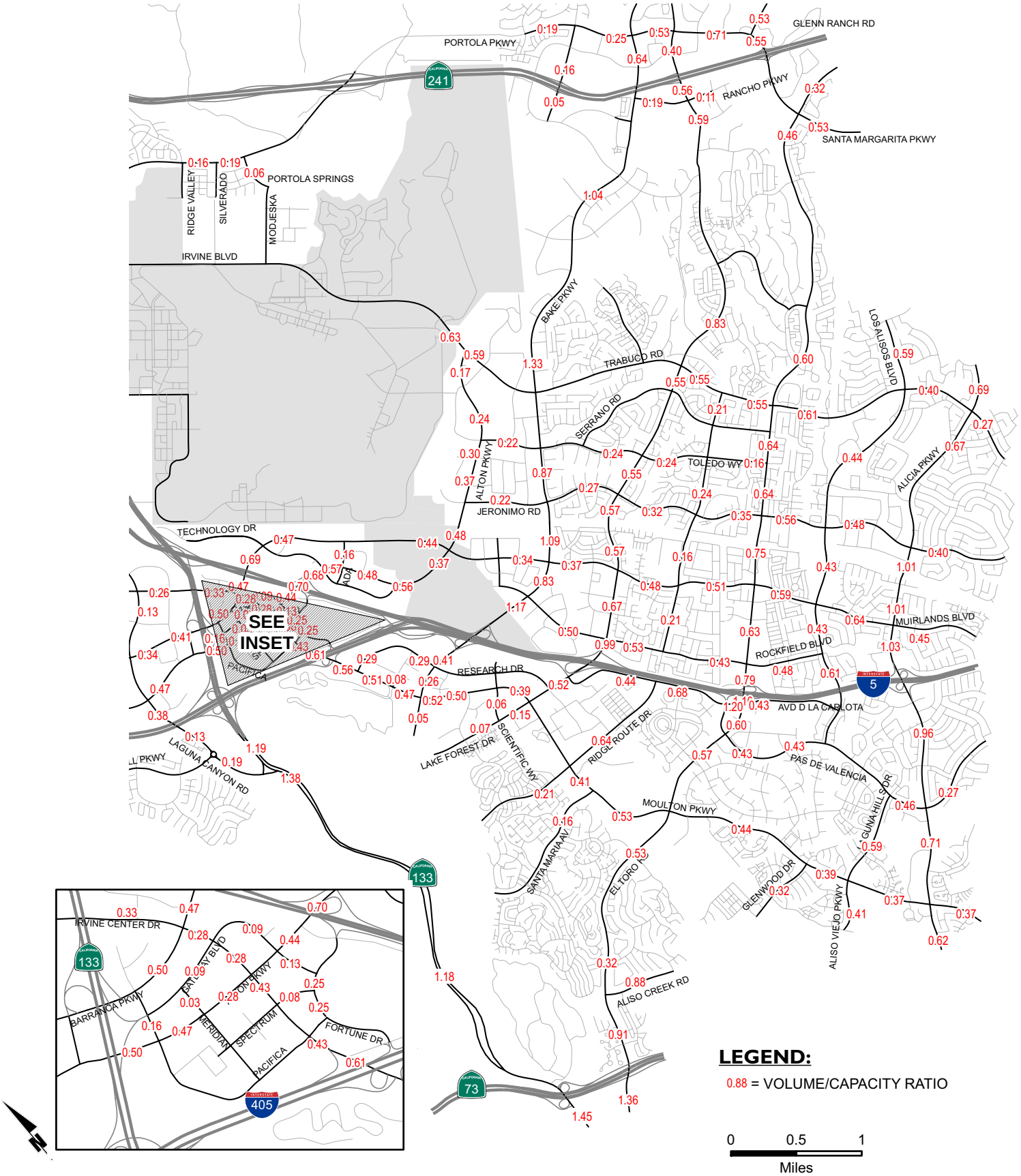


EXHIBIT 5-3 (1 OF 2)

# EXISTING-PLUS-PROJECT ADT VOLUMES - OPTION 2, WEST STUDY AREA

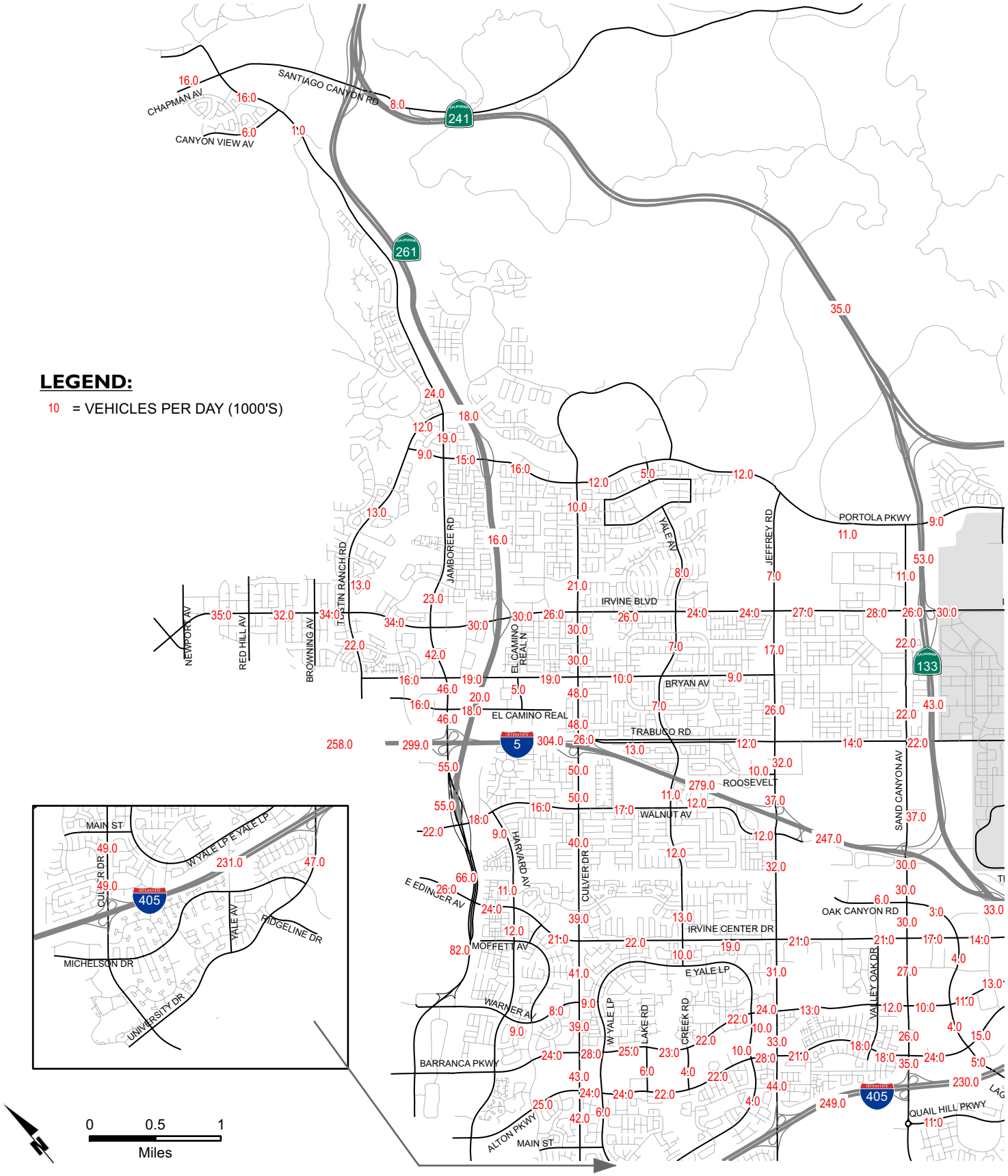
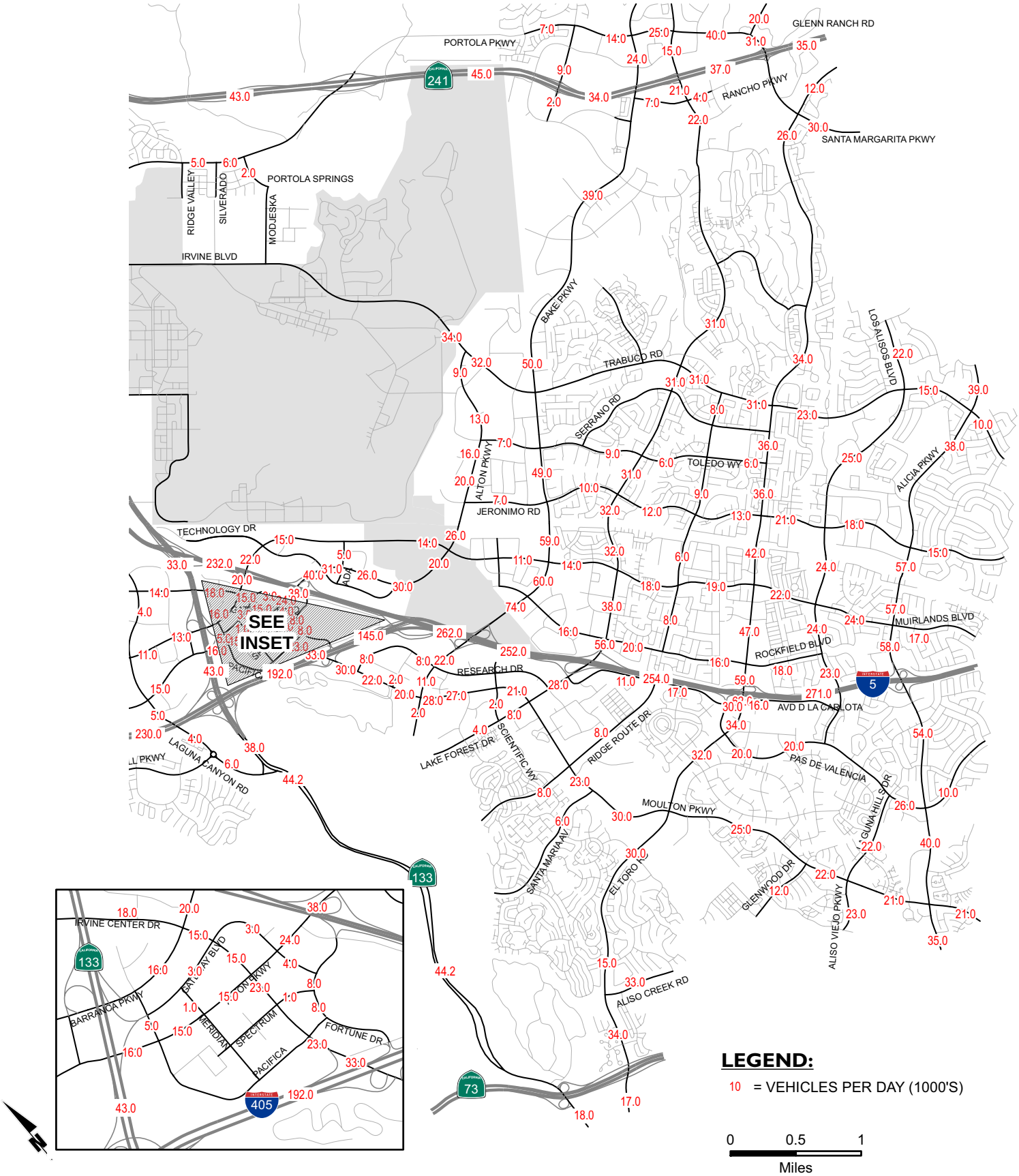


EXHIBIT 5-3 (2 OF 2)

# EXISTING-PLUS-PROJECT ADT VOLUMES - OPTION 2, EAST STUDY AREA



# EXISTING-PLUS-PROJECT ADT V/C RATIOS - OPTION 2, WEST STUDY AREA

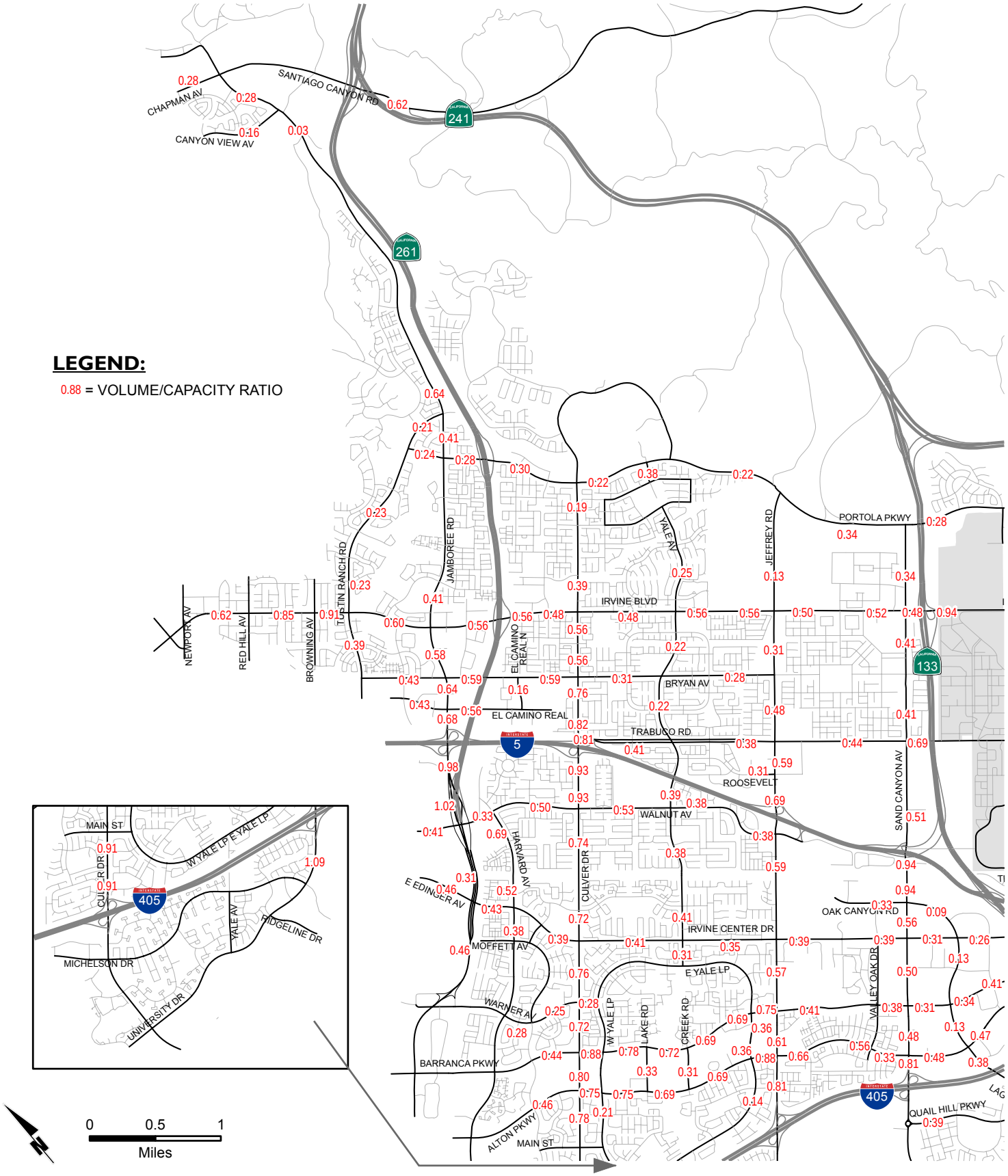
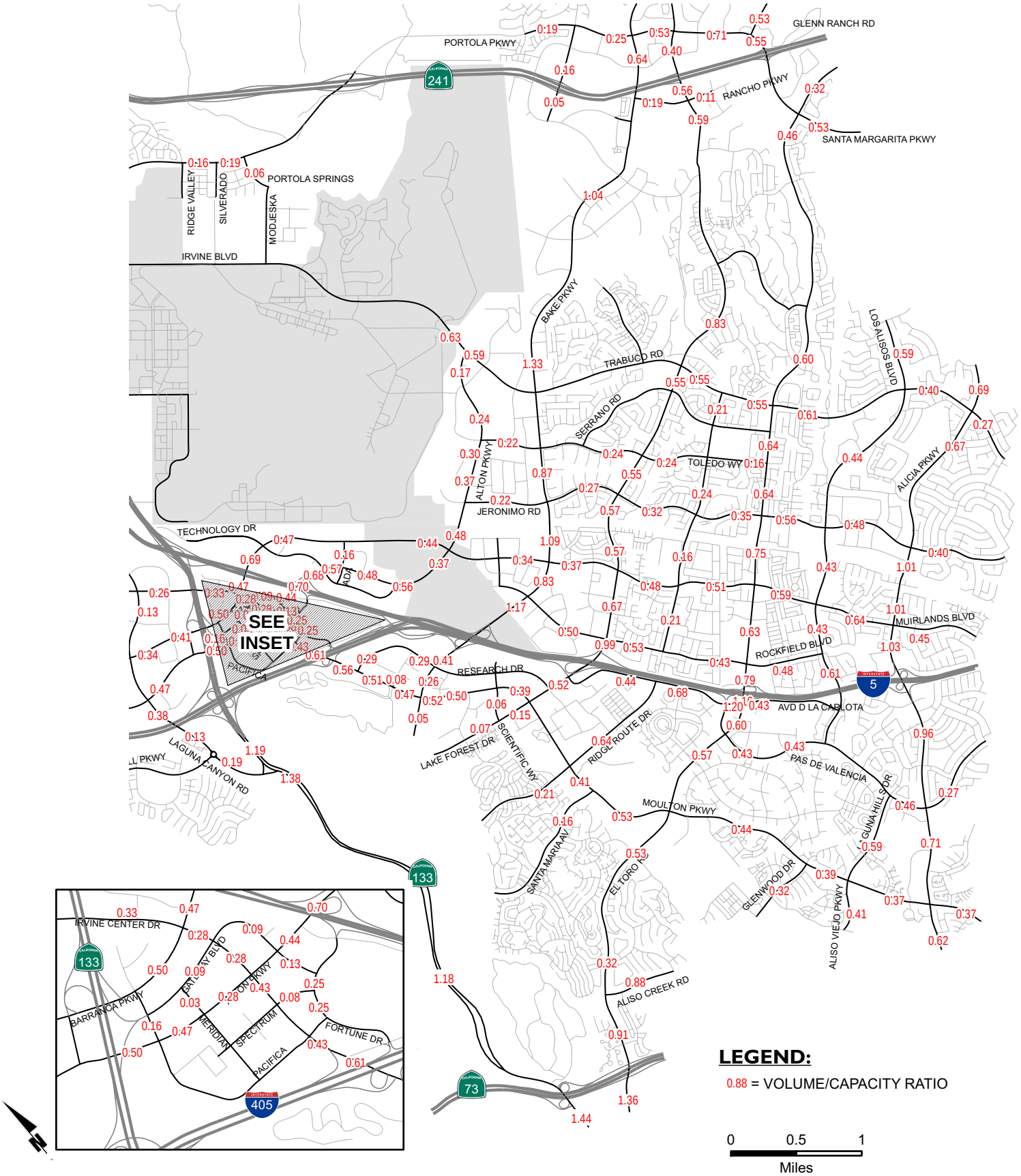


EXHIBIT 5-4 (2 OF 2)

# EXISTING-PLUS-PROJECT ADT V/C RATIOS - OPTION 2, EAST STUDY AREA



- Bake Pkwy (north of Irvine Bl)
- Bake Pkwy (north of Muirlands Bl)
- Bake Pkwy (south of Rockfield Bl)
- El Toro Rd (south of SR-73)
- Lake Forest Dr (south of Rockfield Bl)
- Irvine Bl (east of SR-133 Northbound Ramps)
- Sand Canyon Av (I-5 Southbound Ramps to Burt Rd)
- Sand Canyon Av (Burt Rd to Oak Cyn/Laguna Cyn Rd)
- University Dr (I-405 SB Ramps to Michelson Dr)
- Culver Dr (Main St to San Leandro)
- Culver Dr ( San Leandro to I-5 NB Ramps)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under existing-plus-project with 2012 Modified Project with Option 1 and Option 2 conditions are summarized in Table 5-1. As the summary table indicates, arterial roadway segments are forecast to operate at acceptable levels of service during peak hours.

### 5.1.2 Existing-Plus-Project Peak Hour Intersection Levels of Service

Existing-plus-project AM and PM peak hour intersection capacity utilization (ICU) results for the intersections previously illustrated in Exhibit 4-1 are summarized in Table 5-2. Actual turn volumes, lane geometrics and ICU calculation worksheets for existing-plus-project conditions are included in Appendix 5.1 for Option 1 and Appendix 5.2 for Option 2.

Based on the peak hour intersection performance criteria and impact thresholds discussed in Chapter 2.0, the following intersection as shown in Table 5-3 exceeds adopted impact thresholds with the hypothetical existing-plus-project scenarios:

**Table 5-1**

**Existing-Plus-Project Arterial Roadway Peak Hour Analysis**
**With 2012 Modified Project - Options 1 and 2**

| ADT Seg. ID | Arterial | ADT Segment Limits | Juris | # of Lanes | Peak Hour Capacity | Existing + Project. Option 1 | | | | | Existing + Project Option 2 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ADT | Highest Peak Volume | | Peak Hour V/C | Peak Hour LOS | ADT | Highest Peak Volume | | Peak Hour V/C | Peak Hour LOS |
| 1096 | Avenida Carlota | b/w Paseo de Valencia & El Toro Rd. | LH | 4D | 3,200 | 30,000 | 1,839 | PM EB | 0.57 | A | 30,000 | 1,841 | PM EB | 0.58 | A |
| 418 | Bake Pkwy. | n/o Commercentre Dr. | LF | 4D | 3,200 | 39,000 | 1,915 | PM NB | 0.60 | A | 39,000 | 1,916 | PM NB | 0.60 | A |
| 419 | Bake Pkwy. | n/o Irvine Bl. | LF | 4D | 3,200 | 48,000 | 2,450 | AM NB | 0.77 | C | 48,000 | 2,449 | AM NB | 0.77 | C |
| 423 | Bake Pkwy. | n/o Muirlands Bl. | Irv | 6D | 4,800 | 59,000 | 2,866 | AM NB | 0.60 | A | 59,000 | 2,862 | AM NB | 0.60 | A |
| 2061 | Bake Pkwy. | s/o Rockfield Bl. | Irv | 7D | 4,800 | 74,000 | 4,331 | AM NB | 0.90 | D | 74,000 | 4,324 | AM NB | 0.90 | D |
| 466 | El Toro Rd. | s/o SR-73 | OC | 2U | 1,600 | 17,000 | 733 | PM NB | 0.46 | A | 17,000 | 733 | PM NB | 0.46 | A |
| 512 | Irvine Bl. | e/o SR-133 NB Ramps | Irv | 4D | 3,200 | 30,000 | 2,168 | PM WB | 0.68 | B | 30,000 | 2,163 | PM WB | 0.68 | B |
| 443 | Lake Forest Dr. | b/w Rockfield Bl. & I-5 NB Ramps | LF | 6D | 4,800 | 55,000 | 2,856 | PM NB | 0.60 | A | 55,000 | 2,860 | PM NB | 0.60 | A |
| 310 | Sand Canyon Av. | b/w I-5 SB Ramps & Burt Rd. | Irv | 4D | 3,200 | 30,000 | 2,493 | AM SB | 0.78 | C | 30,000 | 2,499 | AM SB | 0.78 | C |
| 311 | Sand Canyon Av. | b/w Burt Rd. & Oak Cyn./Laguna Cyn | Irv | 4D | 3,200 | 30,000 | 2,264 | AM SB | 0.71 | B | 30,000 | 2,269 | AM SB | 0.71 | B |
| 347 | University Dr. | b/w I-405 SB Ramps & Michelson Dr. | Irv | 5D | 3,200 | 47,000 | 2,759 | PM NB | 0.86 | D | 47,000 | 2,757 | PM NB | 0.86 | D |
| 221 | Culver Dr. | b/w Main St. and San Leandro | Irv | 6D | 4,800 | 49,000 | 2,788 | PM NB | 0.58 | A | 49,000 | 2,788 | PM NB | 0.58 | A |
| 222 | Culver Dr. | b/w San Leandro and I-405 NB Ramps | Irv | 6D | 4,800 | 49,000 | 2,788 | PM NB | 0.58 | A | 49,000 | 2,788 | PM NB | 0.58 | A |



*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 5-2

## Existing-Plus-Project Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project - Options 1 and 2

| | | | | | Existing Conditions | | | | Existing Plus Project, Option 1 | | | | Existing Plus Project, Option 2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | | | | 0.63 | B | 0.58 | A | 0.63 | B | 0.58 | A | 0.63 | B | 0.58 | A |
| 34 | Red Hill Av at Irvine Bl | | F | | 0.64 | B | 0.69 | B | 0.65 | B | 0.70 | B | 0.66 | B | 0.70 | B |
| 54 | Browning Av at Irvine Bl | | | | 0.75 | C | 0.70 | B | 0.78 | C | 0.72 | C | 0.78 | C | 0.72 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | | F | | 0.83 | D | 0.79 | C | 0.85 | D | 0.82 | D | 0.85 | D | 0.82 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | | P | | 0.49 | A | 0.59 | A | 0.50 | A | 0.60 | A | 0.51 | A | 0.60 | A |
| 124 | Jamboree Rd at Portola Pw | | | | 0.56 | A | 0.74 | C | 0.57 | A | 0.76 | C | 0.57 | A | 0.76 | C |
| 125 | Jamboree Rd at Irvine Bl | | F | Yes | 0.78 | C | 0.70 | B | 0.79 | C | 0.72 | C | 0.79 | C | 0.73 | C |
| 126 | Jamboree Rd at Bryan Av | | | | 0.64 | B | 0.66 | B | 0.66 | B | 0.66 | B | 0.66 | B | 0.66 | B |
| 127 | Jamboree Rd at El Camino Real | | | | 0.59 | A | 0.66 | B | 0.59 | A | 0.66 | B | 0.59 | A | 0.66 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | | | | 0.78 | C | 0.86 | D | 0.79 | C | 0.86 | D | 0.79 | C | 0.87 | D |
| 129 | Jamboree Rd at I-5 SB Ramps | | | | 0.79 | C | 0.73 | C | 0.80 | C | 0.73 | C | 0.80 | C | 0.73 | C |
| 131 | Jamboree Rd SB at Walnut Av | | | | 0.77 | C | 0.53 | A | 0.77 | C | 0.55 | A | 0.77 | C | 0.55 | A |
| 132 | Jamboree Rd NB at Walnut Av | | | | 0.32 | A | 0.49 | A | 0.32 | A | 0.50 | A | 0.32 | A | 0.50 | A |
| 133 | Jamboree Rd at Edinger Av | | | Yes | 0.56 | A | 0.55 | A | 0.59 | A | 0.59 | A | 0.59 | A | 0.59 | A |
| 135 | Jamboree Rd NB at Warner Av | | | | 0.31 | A | 0.81 | D | 0.31 | A | 0.82 | D | 0.31 | A | 0.81 | D |
| 136 | Jamboree Rd at Barranca Pw | | | Yes | 0.75 | C | 0.90 | D | 0.77 | C | 0.92 | E | 0.77 | C | 0.92 | E |
| 157 | SR-261 SB Ramps at Portola Pw | | | | 0.31 | A | 0.35 | A | 0.34 | A | 0.37 | A | 0.34 | A | 0.37 | A |
| 158 | SR-261 NB Ramps at Portola Pw | | | | 0.27 | A | 0.37 | A | 0.29 | A | 0.38 | A | 0.29 | A | 0.38 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | | | | 0.44 | A | 0.48 | A | 0.45 | A | 0.49 | A | 0.45 | A | 0.49 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | | | | 0.43 | A | 0.53 | A | 0.45 | A | 0.55 | A | 0.45 | A | 0.55 | A |
| 218 | Culver Dr at Portola Pk | | | | 0.39 | A | 0.40 | A | 0.40 | A | 0.41 | A | 0.40 | A | 0.41 | A |
| 220 | Culver Dr at Irvine Bl | | | | 0.61 | B | 0.64 | B | 0.63 | B | 0.68 | B | 0.63 | B | 0.67 | B |
| 221 | Culver Dr at Bryan Av | | | | 0.66 | B | 0.58 | A | 0.68 | B | 0.59 | A | 0.68 | B | 0.59 | A |
| 222 | Culver Dr at Trabuco Rd | | F | | 0.59 | A | 0.65 | B | 0.61 | B | 0.65 | B | 0.61 | B | 0.65 | B |
| 223 | Culver Dr at I-5 SB Ramps | | F | | 0.60 | A | 0.74 | C | 0.62 | B | 0.75 | C | 0.62 | B | 0.76 | C |
| 224 | Culver Dr at Walnut Av | | F | | 0.68 | B | 0.76 | C | 0.70 | B | 0.77 | C | 0.70 | B | 0.77 | C |
| 226 | Culver Dr at ICD | | | | 0.61 | B | 0.62 | B | 0.63 | B | 0.64 | B | 0.62 | B | 0.65 | B |
| 227 | Culver Dr at Warner Av | | | | 0.62 | B | 0.62 | B | 0.63 | B | 0.66 | B | 0.63 | B | 0.66 | B |
| 228 | Culver Dr at Barranca Pw | | P | | 0.72 | C | 0.77 | C | 0.73 | C | 0.80 | C | 0.74 | C | 0.80 | C |
| 229 | Culver Dr at Alton Pkwy | | | | 0.75 | C | 0.82 | D | 0.76 | C | 0.84 | D | 0.77 | C | 0.84 | D |
| 232 | Culver Dr at I-405 NB Ramps | | | | 0.51 | A | 0.73 | C | 0.51 | A | 0.73 | C | 0.51 | A | 0.73 | C |
| 233 | Culver Dr at I-405 SB Ramps | | | | 0.54 | A | 0.70 | B | 0.54 | A | 0.70 | B | 0.54 | A | 0.70 | B |
| 235 | Culver Dr at University | | F | | 0.70 | B | 0.90 | D | 0.70 | B | **0.91** | **E** | 0.71 | C | **0.92** | **E** |
| 249 | Yale Av at Irvine Bl | | F | | 0.59 | A | 0.74 | C | 0.60 | A | 0.77 | C | 0.60 | A | 0.77 | C |
| 252 | Yale Av at Bryan Av | | | | 0.31 | A | 0.39 | A | 0.32 | A | 0.40 | A | 0.33 | A | 0.41 | A |
| 255 | Yale Av at Trabuco Rd | | | | 0.37 | A | 0.39 | A | 0.45 | A | 0.45 | A | 0.45 | A | 0.45 | A |
| 259 | Yale Av at Walnut Av | | | | 0.40 | A | 0.63 | B | 0.43 | A | 0.64 | B | 0.43 | A | 0.64 | B |
| 261 | Yale Av at ICD | | | | 0.51 | A | 0.55 | A | 0.52 | A | 0.57 | A | 0.52 | A | 0.57 | A |
| 264 | W Yale Lp at Barranca Pw | | | | 0.54 | A | 0.52 | A | 0.56 | A | 0.53 | A | 0.56 | A | 0.53 | A |

## Table 5-2 Cont.

## Existing-Plus-Project Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project - Options 1 and 2

| | | | | | Existing Conditions | | | | Existing Plus Project, Option 1 | | | | Existing Plus Project, Option 2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 267 | E Yale Lp at Barranca Pw | | | | 0.58 | A | 0.52 | A | 0.60 | A | 0.54 | A | 0.60 | A | 0.54 | A |
| 268 | W Yale Loop at Alton Pw | | | | 0.49 | A | 0.64 | B | 0.50 | A | 0.65 | B | 0.50 | A | 0.65 | B |
| 271 | E Yale Lp at Alton Pw | | | | 0.65 | B | 0.62 | B | 0.66 | B | 0.64 | B | 0.66 | B | 0.63 | B |
| 282 | Jeffrey Rd at Portola Pw | | | | 0.34 | A | 0.35 | A | 0.35 | A | 0.38 | A | 0.35 | A | 0.37 | A |
| 283 | Jeffrey Rd at Irvine Bl | | | | 0.47 | A | 0.55 | A | 0.50 | A | 0.59 | A | 0.50 | A | 0.59 | A |
| 284 | Jeffrey Rd at Bryan Av | | | | 0.45 | A | 0.37 | A | 0.48 | A | 0.38 | A | 0.47 | A | 0.38 | A |
| 285 | Jeffrey Rd at Trabuco Rd | | | | 0.45 | A | 0.42 | A | 0.51 | A | 0.50 | A | 0.52 | A | 0.50 | A |
| 286 | Jeffrey Rd at Roosevelt | | | | 0.56 | A | 0.57 | A | 0.59 | A | 0.58 | A | 0.59 | A | 0.58 | A |
| 287 | Jeffrey Rd at I-5 NB Ramps | | | | 0.52 | A | 0.59 | A | 0.54 | A | 0.63 | B | 0.54 | A | 0.63 | B |
| 288 | Jeffrey Rd at Walnut Av | | F | | 0.67 | B | 0.66 | B | 0.71 | C | 0.75 | C | 0.71 | C | 0.74 | C |
| 289 | Jeffrey Rd at ICD | | F | | 0.51 | A | 0.82 | D | 0.54 | A | 0.84 | D | 0.54 | A | 0.84 | D |
| 290 | Jeffrey Rd at Barranca Pw | | P | | 0.68 | B | 0.69 | B | 0.71 | C | 0.71 | C | 0.71 | C | 0.70 | B |
| 291 | Jeffrey Rd at Alton Pw | | F | | 0.86 | D | 0.78 | C | 0.87 | D | 0.81 | D | 0.87 | D | 0.81 | D |
| 293 | Jeffrey Rd at I-405 NB Ramps | | P | | 0.71 | C | 0.68 | B | 0.72 | C | 0.69 | B | 0.72 | C | 0.69 | B |
| 294 | University Dr at I-405 SB Ramps | | | | 0.61 | B | 0.54 | A | 0.61 | B | 0.55 | A | 0.61 | B | 0.55 | A |
| 300 | Sand Canyon Av at Portola Pw | | | | 0.27 | A | 0.29 | A | 0.28 | A | 0.33 | A | 0.28 | A | 0.33 | A |
| 301 | Sand Canyon Av at Irvine Bl | | | | 0.50 | A | 0.49 | A | 0.53 | A | 0.53 | A | 0.54 | A | 0.53 | A |
| 302 | Sand Canyon Av at Trabuco Pw | | F | | 0.39 | A | 0.37 | A | 0.57 | A | 0.50 | A | 0.57 | A | 0.51 | A |
| 303 | Sand Canyon Av at I-5 NB Ramps | | F | | 0.67 | B | 0.50 | A | 0.82 | D | 0.62 | B | 0.82 | D | 0.62 | B |
| 304 | Sand Canyon Av at Marine Wy | | | | 0.59 | A | 0.60 | A | 0.81 | D | 0.77 | C | 0.81 | D | 0.77 | C |
| 305 | Sand Canyon Av at I-5 SB Ramps | | F | | 0.67 | B | 0.61 | B | 0.79 | C | 0.79 | C | 0.79 | C | 0.79 | C |
| 306 | Sand Canyon Av at Oak Canyon | | F | | 0.50 | A | 0.51 | A | 0.60 | A | 0.58 | A | 0.61 | B | 0.58 | A |
| 307 | Sand Canyon Av at ICD | | | | 0.42 | A | 0.43 | A | 0.47 | A | 0.51 | A | 0.47 | A | 0.51 | A |
| 309 | Sand Canyon Av at Barranca Pw | | | | 0.43 | A | 0.44 | A | 0.48 | A | 0.46 | A | 0.48 | A | 0.47 | A |
| 310 | Sand Canyon Av at Alto | | F | | 0.54 | A | 0.63 | B | 0.58 | A | 0.64 | B | 0.58 | A | 0.64 | B |
| 311 | Sand Canyon Av at I-405 NB Ramps | | F | | 0.56 | A | 0.41 | A | 0.57 | A | 0.42 | A | 0.57 | A | 0.43 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | | | | 0.74 | C | 0.51 | A | 0.75 | C | 0.55 | A | 0.75 | C | 0.55 | A |
| 313 | Laguna Canyon Rd at ICD | | | | 0.20 | A | 0.27 | A | 0.21 | A | 0.28 | A | 0.21 | A | 0.29 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | | | | 0.27 | A | 0.26 | A | 0.29 | A | 0.28 | A | 0.29 | A | 0.28 | A |
| 315 | Laguna Canyon Rd at Alton Pw | | | | 0.41 | A | 0.37 | A | 0.43 | A | 0.38 | A | 0.43 | A | 0.38 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | | | | 0.39 | A | 0.43 | A | 0.47 | A | 0.48 | A | 0.47 | A | 0.47 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | | | | 0.46 | A | 0.48 | A | 0.56 | A | 0.55 | A | 0.56 | A | 0.54 | A |
| 318 | Banting at Barranca Pkwy | | | | 0.58 | A | 0.41 | A | 0.62 | B | 0.43 | A | 0.62 | B | 0.43 | A |
| 319 | Banting at Alton Pw | | | | 0.54 | A | 0.41 | A | 0.57 | A | 0.43 | A | 0.57 | A | 0.42 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | | F | | 0.90 | D | 0.89 | D | 0.90 | D | 0.89 | D | 0.90 | D | 0.89 | D |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | | | Yes | 1.00 | E | 0.83 | D | 1.00 | E | 0.84 | D | 1.00 | E | 0.84 | D |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | | | Yes | 0.32 | A | 0.38 | A | 0.32 | A | 0.38 | A | 0.32 | A | 0.38 | A |
| 324 | Portola Pw at SR-241 NB Ramps | | | | 0.16 | A | 0.10 | A | 0.18 | A | 0.11 | A | 0.18 | A | 0.11 | A |
| 325 | Portola Pw at SR-241 SB Ramps | | | | 0.15 | A | 0.20 | A | 0.17 | A | 0.24 | A | 0.17 | A | 0.23 | A |

## Table 5-2 Cont.

## Existing-Plus-Project Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project - Options 1 and 2

| | | | | | Existing Conditions | | | | Existing Plus Project, Option 1 | | | | Existing Plus Project, Option 2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 327 | Barranca Pw at Technology | | P | | 0.47 | A | 0.62 | B | 0.50 | A | 0.66 | B | 0.49 | A | 0.66 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | | | Yes | 0.46 | A | 0.35 | A | 0.51 | A | 0.38 | A | 0.51 | A | 0.38 | A |
| 329 | Barranca Pw at ICD | | | Yes | 0.48 | A | 0.55 | A | 0.49 | A | 0.59 | A | 0.49 | A | 0.59 | A |
| 330 | Barranca Pw at Pacifica | | | Yes | 0.52 | A | 0.61 | B | 0.54 | A | 0.63 | B | 0.54 | A | 0.63 | B |
| 333 | Pacifica at Gateway | | | Yes | 0.51 | A | 0.55 | A | 0.56 | A | 0.61 | B | 0.57 | A | 0.61 | B |
| 335 | Alton Pw at Portola Pw | | | | 0.40 | A | 0.23 | A | 0.40 | A | 0.23 | A | 0.40 | A | 0.23 | A |
| 336 | Alton Pw at SR-241 Ramps | | | | 0.18 | A | 0.21 | A | 0.18 | A | 0.23 | A | 0.18 | A | 0.22 | A |
| 338 | Alton Pw at Irvine Bl | | F | Yes | 0.45 | A | 0.49 | A | 0.53 | A | 0.60 | A | 0.53 | A | 0.59 | A |
| 339 | Alton Pw at Toledo Wy | | | | 0.38 | A | 0.36 | A | 0.48 | A | 0.42 | A | 0.49 | A | 0.42 | A |
| 340 | Alton Pw at Jeronimo Rd | | | | 0.35 | A | 0.77 | C | 0.37 | A | 0.79 | C | 0.37 | A | 0.79 | C |
| 341 | Alton Pw at Barranca Pw | | | | 0.45 | A | 0.58 | A | 0.46 | A | 0.63 | B | 0.46 | A | 0.63 | B |
| 343 | Alton Pw at Ada | | | | 0.29 | A | 0.42 | A | 0.35 | A | 0.52 | A | 0.35 | A | 0.52 | A |
| 344 | Alton Pw at Technology | | P | | 0.39 | A | 0.55 | A | 0.46 | A | 0.59 | A | 0.46 | A | 0.59 | A |
| 345 | Alton Pw at I-5 NB Ramps | | F | Yes | 0.65 | B | 0.38 | A | 0.72 | C | 0.38 | A | 0.72 | C | 0.38 | A |
| 346 | Alton Pw at Enterprise | | | Yes | 0.60 | A | 0.54 | A | 0.68 | B | 0.56 | A | 0.68 | B | 0.56 | A |
| 348 | Alton Pw at ICD | | P | Yes | 0.54 | A | 0.45 | A | 0.57 | A | 0.46 | A | 0.57 | A | 0.46 | A |
| 350 | Alton Pw at Pacifica | | | Yes | 0.53 | A | 0.33 | A | 0.53 | A | 0.35 | A | 0.53 | A | 0.35 | A |
| 351 | Fortune Dr /I-5 SB Ramps | | | Yes | 0.27 | A | 0.52 | A | 0.30 | A | 0.57 | A | 0.29 | A | 0.57 | A |
| 357 | Enterprise Dr at Fortune Dr | | | Yes | 0.40 | A | 0.70 | B | 0.40 | A | 0.70 | B | 0.40 | A | 0.70 | B |
| 358 | ICD at Enterprise Dr | | P | Yes | 0.59 | A | 0.54 | A | 0.59 | A | 0.54 | A | 0.59 | A | 0.54 | A |
| 359 | ICD at I-405 SB Ramps | | P | Yes | 0.59 | A | 0.55 | A | 0.59 | A | 0.55 | A | 0.59 | A | 0.55 | A |
| 361 | Bake Pw at Portola Pw | | | | 0.71 | C | 0.58 | A | 0.71 | C | 0.59 | A | 0.71 | C | 0.59 | A |
| 362 | Bake Pw at Irvine Bl | | F | Yes | 0.73 | C | 0.72 | C | 0.79 | C | 0.75 | C | 0.79 | C | 0.75 | C |
| 363 | Bake Pw at Toledo Wy | | | | 0.68 | B | 0.61 | B | 0.75 | C | 0.64 | B | 0.74 | C | 0.64 | B |
| 364 | Bake Pw at Jeronimo Rd | | F | | 0.81 | D | 0.76 | C | 0.88 | D | 0.77 | C | 0.88 | D | 0.78 | C |
| 365 | Bake Pw at Muirlands Bl | | | | 0.58 | A | 0.64 | B | 0.60 | A | 0.67 | B | 0.60 | A | 0.67 | B |
| 366 | Bake Pw at Rockfield Bl | | | | 0.54 | A | 0.63 | B | 0.64 | B | 0.67 | B | 0.64 | B | 0.67 | B |
| 367 | Bake Pw at I-5 NB Ramps | | | Yes | 0.82 | D | 0.58 | A | 0.97 | E | 0.63 | B | 0.97 | E | 0.63 | B |
| 368 | Bake Pw at I-5 SB Ramps | | F | Yes | 0.67 | B | 0.72 | C | 0.72 | C | 0.74 | C | 0.70 | B | 0.74 | C |
| 371 | Bake Pw at Research Dr | | | | 0.36 | A | 0.46 | A | 0.36 | A | 0.48 | A | 0.36 | A | 0.48 | A |
| 372 | Bake Pw at ICD | | | | 0.34 | A | 0.39 | A | 0.38 | A | 0.45 | A | 0.37 | A | 0.45 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | | | | 0.29 | A | 0.35 | A | 0.29 | A | 0.36 | A | 0.29 | A | 0.37 | A |
| 374 | Lake Forest Dr at Portola Pw | | | | 0.46 | A | 0.69 | B | 0.46 | A | 0.70 | B | 0.46 | A | 0.70 | B |
| 375 | Lake Forest Dr at SR-241 SB Ramp | | | | 0.38 | A | 0.40 | A | 0.41 | A | 0.42 | A | 0.41 | A | 0.42 | A |
| 376 | Lake Forest Dr at Trabuco Rd | | | | 0.55 | A | 0.59 | A | 0.57 | A | 0.60 | A | 0.57 | A | 0.60 | A |
| 377 | Lake Forest Dr at Toledo Wy | | | | 0.52 | A | 0.52 | A | 0.54 | A | 0.54 | A | 0.54 | A | 0.53 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | | P | | 0.69 | B | 0.67 | B | 0.72 | C | 0.69 | B | 0.72 | C | 0.69 | B |
| 379 | Lake Forest Dr at Muirlands Bl | | F | | 0.54 | A | 0.72 | C | 0.58 | A | 0.73 | C | 0.57 | A | 0.73 | C |
| 380 | Lake Forest Dr at Rockfield Bl | | P | | 0.54 | A | 0.68 | B | 0.60 | A | 0.73 | C | 0.60 | A | 0.73 | C |

## Table 5-2 Cont.

## Existing-Plus-Project Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project - Options 1 and 2

| | | | | | Existing Conditions | | | | Existing Plus Project, Option 1 | | | | Existing Plus Project, Option 2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 381 | Lake Forest Dr at I-5 NB Ramps | | | | 0.44 | A | 0.66 | B | 0.46 | A | 0.66 | B | 0.46 | A | 0.67 | B |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | | **F** | Yes | 0.70 | B | 0.70 | B | 0.70 | B | 0.71 | C | 0.70 | B | 0.71 | C |
| 385 | Lake Forest Dr at ICD | | | Yes | 0.41 | A | 0.51 | A | 0.42 | A | 0.53 | A | 0.42 | A | 0.53 | A |
| 386 | Ridge Route Dr at Muirlands Bl | | | | 0.48 | A | 0.60 | A | 0.49 | A | 0.61 | B | 0.49 | A | 0.61 | B |
| 387 | Ridge Route Dr at Rockfield Bl | | **P** | | 0.38 | A | 0.47 | A | 0.39 | A | 0.47 | A | 0.38 | A | 0.47 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | | | | 0.30 | A | 0.63 | B | 0.30 | A | 0.63 | B | 0.30 | A | 0.63 | B |
| 389 | Ridge Route at Moulton Pw | | | | 0.44 | A | 0.60 | A | 0.45 | A | 0.61 | B | 0.45 | A | 0.61 | B |
| 390 | Paseo de Valencia at Ave | | **P** | | 0.47 | A | 0.58 | A | 0.48 | A | 0.59 | A | 0.48 | A | 0.58 | A |
| 391 | Santa Maria Av at Moulton Pw | | | | 0.42 | A | 0.65 | B | 0.43 | A | 0.66 | B | 0.43 | A | 0.66 | B |
| 392 | El Toro Rd at Muirlands Bl | | | | 0.62 | B | 0.74 | C | 0.64 | B | 0.74 | C | 0.63 | B | 0.75 | C |
| 393 | El Toro Rd at Rockfield Bl | | | | 0.52 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 394 | El Toro Rd at I-5 NB Ramps | | | Yes | 0.61 | B | 0.82 | D | 0.62 | B | 0.82 | D | 0.63 | B | 0.82 | D |
| 396 | El Toro Rd at Avenida Carlota | | **P** | Yes | **1.03** | **F** | **1.26** | **F** | **1.03** | **F** | **1.27** | **F** | **1.03** | **F** | **1.27** | **F** |
| 397 | El Toro Rd at Paseo de Valencia | | | | 0.47 | A | 0.58 | A | 0.48 | A | 0.58 | A | 0.47 | A | 0.58 | A |
| 398 | El Toro Rd at Moulton Pw | | | Yes | 0.59 | A | 0.53 | A | 0.61 | B | 0.54 | A | 0.61 | B | 0.54 | A |
| 399 | El Toro Rd at Aliso Creek Rd | | | | 0.71 | C | **0.93** | **E** | 0.72 | C | **0.93** | **E** | 0.72 | C | **0.93** | **E** |
| 400 | El Toro Rd at SR-73 NB Ramps | | | Yes | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | | | Yes | 0.45 | A | 0.66 | B | 0.45 | A | 0.67 | B | 0.45 | A | 0.67 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | | | | 0.49 | A | 0.54 | A | 0.54 | A | 0.59 | A | 0.55 | A | 0.60 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | | | | 0.24 | A | 0.28 | A | 0.25 | A | 0.30 | A | 0.25 | A | 0.30 | A |
| 409 | Bake Pw at Commercentre Dr | | | | 0.56 | A | 0.56 | A | 0.59 | A | 0.58 | A | 0.59 | A | 0.58 | A |
| 412 | Ridge Route Dr at Trabuco Rd | | | | 0.49 | A | 0.59 | A | 0.51 | A | 0.60 | A | 0.51 | A | 0.60 | A |
| 413 | Ridge Route Dr at Toledo Wy | | | | 0.33 | A | 0.30 | A | 0.33 | A | 0.31 | A | 0.33 | A | 0.31 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | | | | 0.45 | A | 0.46 | A | 0.46 | A | 0.46 | A | 0.46 | A | 0.46 | A |
| 415 | Glenn Ranch Rd at Portola Pw | | | | 0.57 | A | 0.55 | A | 0.57 | A | 0.55 | A | 0.57 | A | 0.55 | A |
| 416 | Portola Pw East at SR-241 Ramps | | | | 0.43 | A | 0.59 | A | 0.43 | A | 0.60 | A | 0.43 | A | 0.60 | A |
| 417 | El Toro Rd at Portola Pw | | | | 0.64 | B | 0.61 | B | 0.65 | B | 0.62 | B | 0.65 | B | 0.62 | B |
| 418 | El Toro Rd at Trabuco Rd | | | Yes | 0.68 | B | 0.56 | A | 0.74 | C | 0.56 | A | 0.74 | C | 0.55 | A |
| 419 | El Toro Rd at Toledo Wy | | | | 0.54 | A | 0.46 | A | 0.55 | A | 0.48 | A | 0.55 | A | 0.47 | A |
| 420 | El Toro Rd at Jeronimo Rd | | **P** | | 0.65 | B | 0.77 | C | 0.66 | B | 0.79 | C | 0.66 | B | 0.79 | C |
| 421 | Los Alisos Bl at Trabuco Rd | | | | 0.66 | B | 0.68 | B | 0.69 | B | 0.70 | B | 0.69 | B | 0.70 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | | **P** | | 0.67 | B | 0.74 | C | 0.68 | B | 0.74 | C | 0.68 | B | 0.74 | C |
| 423 | Muirlands Bl at Los Alisos Bl | | **P** | | 0.64 | B | 0.69 | B | 0.64 | B | 0.70 | B | 0.64 | B | 0.69 | B |
| 424 | Los Alisos Bl at Rockfield Bl | | **P** | | 0.61 | B | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B | 0.50 | A |
| 425 | Los Alisos Bl at Avenido Carlota | | | | 0.41 | A | 0.46 | A | 0.41 | A | 0.46 | A | 0.41 | A | 0.47 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | | | | 0.44 | A | 0.53 | A | 0.45 | A | 0.54 | A | 0.44 | A | 0.54 | A |
| 427 | Moulton Pw at Glenwood/Indian Creek | | | | 0.46 | A | 0.53 | A | 0.47 | A | 0.53 | A | 0.47 | A | 0.53 | A |
| 428 | Laguna Hills Dr at Paseo de Valencia | | | | 0.59 | A | 0.70 | B | 0.59 | A | 0.70 | B | 0.59 | A | 0.70 | B |
| 429 | Moulton Pw at Laguna Hills Dr | | | | 0.53 | A | 0.61 | B | 0.53 | A | 0.61 | B | 0.53 | A | 0.61 | B |

## Table 5-2 Cont.

## Existing-Plus-Project Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project - Options 1 and 2

| | | | | | Existing Conditions | | | | Existing Plus Project, Option 1 | | | | Existing Plus Project, Option 2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 430 | Trabuco Rd at Alicia Pw | | | | 0.70 | B | 0.64 | B | 0.71 | C | 0.65 | B | 0.70 | B | 0.65 | B |
| 431 | Jeronimo Rd at Alicia Pw | | | | 0.72 | C | 0.72 | C | 0.73 | C | 0.73 | C | 0.73 | C | 0.73 | C |
| 432 | Alicia Pw at Muirlands Bl | | **P** | | 0.68 | B | 0.82 | D | 0.68 | B | 0.83 | D | 0.68 | B | 0.83 | D |
| 433 | I-5 NB Ramps at Alicia Pw | | | | 0.55 | A | 0.59 | A | 0.55 | A | 0.59 | A | 0.55 | A | 0.59 | A |
| 434 | I-5 SB Ramps at Alicia Pw | | | | 0.75 | C | 0.82 | D | 0.76 | C | 0.83 | D | 0.76 | C | 0.83 | D |
| 435 | Alicia Pw at Paseo de Valencia | | | | 0.59 | A | 0.61 | B | 0.60 | A | 0.61 | B | 0.59 | A | 0.61 | B |
| 436 | Moulton Pw at Alicia Pw | | | | 0.58 | A | 0.67 | B | 0.58 | A | 0.70 | B | 0.59 | A | 0.69 | B |
| 437 | Scientific Wy at ICD | | | | 0.49 | A | 0.64 | B | 0.51 | A | 0.65 | B | 0.50 | A | 0.65 | B |
| 441 | Loop Rd at Jamboree Rd | | | | 0.41 | A | 0.28 | A | 0.27 | A | 0.53 | A | 0.41 | A | 0.28 | A |
| 444 | Sand Canyon Av at Burt Rd | | | | 0.65 | B | 0.55 | A | 0.73 | C | 0.65 | B | 0.73 | C | 0.65 | B |
| 452 | Jamboree Rd at Santiago Canyon Rd | | | | 0.52 | A | 0.57 | A | 0.52 | A | 0.58 | A | 0.52 | A | 0.58 | A |
| 463 | Jamboree Rd at Chapman Av | | | | 0.44 | A | 0.76 | C | 0.45 | A | 0.78 | C | 0.45 | A | 0.78 | C |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | | | | 0.34 | A | 0.45 | A | 0.35 | A | 0.45 | A | 0.35 | A | 0.46 | A |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | | | | 0.37 | A | 0.60 | A | 0.37 | A | 0.60 | A | 0.37 | A | 0.60 | A |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | | | | 0.28 | A | 0.35 | A | 0.29 | A | 0.36 | A | 0.29 | A | 0.36 | A |
| 468 | Jamboree Rd at Canyon View | | | | 0.61 | B | 0.33 | A | 0.62 | B | 0.33 | A | 0.62 | B | 0.33 | A |
| 477 | El Camino Real N at Bryan Av | | | | 0.37 | A | 0.39 | A | 0.38 | A | 0.40 | A | 0.38 | A | 0.40 | A |
| 515 | Bake Pw N at Rancho Pw North | | | | 0.58 | A | 0.73 | C | 0.59 | A | 0.73 | C | 0.59 | A | 0.73 | C |
| 516 | Lake Forest Dr at Rancho Pw North | | | | 0.36 | A | 0.45 | A | 0.38 | A | 0.46 | A | 0.38 | A | 0.47 | A |
| 555 | Bake Pw at Rancho Pkw | | | | 0.69 | B | 0.65 | B | 0.70 | B | 0.65 | B | 0.70 | B | 0.65 | B |
| 556 | Ridge Valley at Portola Pw | | | | 0.26 | A | 0.16 | A | 0.28 | A | 0.24 | A | 0.28 | A | 0.23 | A |
| 571 | Portola Springs at Portola Pw | | | | 0.17 | A | 0.15 | A | 0.20 | A | 0.17 | A | 0.20 | A | 0.17 | A |
| 572 | Modjeska / A St at Irvine Bl | | | | 0.44 | A | 0.43 | A | 0.44 | A | 0.43 | A | 0.44 | A | 0.43 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_9.19.12.xlsx]5-2

**Table 5-3**

**Existing-Plus-Project Intersection ICU LOS With 2012 Modified Project**
**Project Impact Location – Options 1 and 2**

| Intersection | Peak Hour | Without Project | | With Project | |
|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS |
| 235. Culver & University | | | | | |
| - Option 1 | PM | 0.90 | D | 0.91 | E |
| - Option 2 | PM | 0.90 | D | 0.92 | E |

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting existing and existing-plus-project peak hour levels of service based on the HCM methodology are summarized in Table 5-4 (HCM intersection LOS calculation worksheets are included in Appendix 5.3). As the summary table indicates, each of the ramp intersections are forecast to operate at an acceptable LOS (i.e., LOS D or better) under existing-plus-project conditions.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented in Table 5-4 for the Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection.

Table 5-5 summarizes the longest 95$^{th}$ percentile queue length at each off-ramp under existing-plus-project peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 5.4). As the summary table indicates, none of the vehicle queue lengths exceed the physical length of the off-ramps, and therefore traffic exiting at the I-5 at Sand Canyon Avenue off-ramps is not expected to back up onto the I-5 mainline under existing-plus-project conditions. The on-ramps at the Sand Canyon

**Table 5-4**

**Existing-Plus-Project Caltrans Ramp Intersection LOS Summary (HCM Methodology)**
**With 2012 Modified Project - Options 1 and 2**

| Intersection | Existing | | Existing-Plus-Project | | | |
|---|---|---|---|---|---|---|
| | | | Option 1 | | Option 2 | |
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | | | | | | |
| - AM Peak Hour | 20.8 | C | 31.4 | C | 31.2 | C |
| - PM Peak Hour | 24.6 | C | 30.9 | C | 30.8 | C |
| 304. Sand Canyon & Marine Way | | | | | | |
| - AM Peak Hour | 4.6 | A | 18.6 | B | 18.8 | B |
| - PM Peak Hour | 7.1 | A | 15.5 | B | 15.5 | B |
| 305. Sand Canyon & I-5 SB Ramps | | | | | | |
| - AM Peak Hour | 23.8 | C | 32.2 | C | 32.6 | C |
| - PM Peak Hour | 27.5 | C | 33.7 | C | 33.5 | C |
| 316. SR-133 SB Ramps & Irvine Boulevard | | | | | | |
| - AM Peak Hour | 13.2 | B | 14.6 | B | 14.6 | B |
| - PM Peak Hour | 7 | A | 8.7 | A | 8.7 | A |
| 317. SR-133 NB Ramps & Irvine Boulevard | | | | | | |
| - AM Peak Hour | 6.7 | A | 8.1 | A | 8.1 | A |
| - PM Peak Hour | 9.1 | A | 13.2 | B | 13.1 | B |

**Table 5-5**

**Existing-Plus-Project With 2012 Modified Project, HCM**
**Freeway Ramp Queuing Analysis Summary - Options 1 and 2**

| Intersection | Total Ramp Length | Highest Queue Length | Peak Hour | Does the Queue Exceed the Ramp Length?[1] |
|---|---|---|---|---|
| 303. I-5 Northbound Off-Ramp at Sand Canyon Av | | | | |
| - Option 1 | 1,180 feet | 381 feet | (PM) | No |
| - Option 2 | 1,180 feet | 378 feet | (PM) | No |
| 305. I-5 Southbound Off-Ramp at Sand Canyon Av | | | | |
| - Option 1 | 810 feet | 571 feet | (AM) | No |
| - Option 2 | 810 feet | 571 feet | (AM) | No |

[1] If the maximum queue length does not exceed the total length of the off-ramp, then the traffic queue on the ramp is not expected to back up onto the freeway mainline during the peak hours.

Avenue/I-5 interchanges are metered with queue detectors installed, and the timing of the ramp meters will continue to be coordinated by Caltrans and the City of Irvine to ensure that on-ramp traffic does not back up through Caltrans ramp intersections onto City arterial roadways.

### 5.1.3 Existing-Plus-Project Peak Hour Freeway/Tollway Ramp Levels of Service

Exhibit 4-5 (previously presented) illustrates the interchange locations where freeway/tollway ramps were analyzed based on existing conditions. Existing and existing-plus-project AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 5-6. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, one freeway ramp is forecast to exceed adopted impact thresholds with the 2012 Modified Project based on existing-plus-project conditions:

- SR-133 Northbound loop on ramp at Barranca Parkway

### 5.1.4 Existing-Plus-Project Peak Hour Freeway/Tollway Mainline Levels of Service

Existing and existing-plus-project AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 5-7. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, none of the freeway mainline segments are forecast to exceed adopted impact thresholds with the project based on existing-plus-project conditions.

## 5.2 Existing-Plus-Project Programmed Improvements, with Option 1 or Option 2

For Culver Drive & University Drive, the fully funded NITM improvements of converting the northbound de-facto right-turn lane to dual right-turn lanes addresses the hypothetical existing-plus-project intersection peak hour impact (see results in Table 5-8 below).

## Table 5-6

### Existing-Plus-Project Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Options 1 and 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Existing | | | | | | With Modified Project, Option 1 | | | | | | With Modified Project, Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 302 | 0.20 | A | 908 | 0.61 | B | 302 | 0.20 | A | 908 | 0.61 | B | 302 | 0.20 | A | 908 | 0.61 | B |
| | SB Loop On | 1 | 1,080 | 838 | 0.78 | C | 510 | 0.47 | A | 852 | 0.79 | C | 512 | 0.47 | A | 854 | 0.79 | C | 511 | 0.47 | A |
| | NB Direct On | 1 | 1,080 | 596 | 0.55 | A | 483 | 0.45 | A | 596 | 0.55 | A | 483 | 0.45 | A | 596 | 0.55 | A | 483 | 0.45 | A |
| | NB Loop On | 1 | 1,080 | 586 | 0.54 | A | 537 | 0.50 | A | 586 | 0.54 | A | 537 | 0.50 | A | 586 | 0.54 | A | 537 | 0.50 | A |
| | SB Off | 1 | 1,500 | 1,359 | 0.91 | E | 1,318 | 0.88 | D | 1,359 | 0.91 | E | 1,318 | 0.88 | D | 1,359 | 0.91 | E | 1,318 | 0.88 | D |
| | NB Off | 1 | 1,500 | 1,277 | 0.85 | D | 1,402 | 0.93 | E | 1,294 | 0.86 | D | 1,429 | 0.95 | E | 1,298 | 0.87 | D | 1,424 | 0.95 | E |
| I-5 at Culver | SB Direct On | 1 | 900 | 281 | 0.31 | A | 302 | 0.34 | A | 281 | 0.31 | A | 316 | 0.35 | A | 281 | 0.31 | A | 319 | 0.35 | A |
| | SB Loop On | 1 | 900 | 616 | 0.68 | B | 290 | 0.32 | A | 640 | 0.71 | C | 290 | 0.32 | A | 640 | 0.71 | C | 290 | 0.32 | A |
| | NB Direct On | 1 | 900 | 560 | 0.62 | B | 202 | 0.22 | A | 560 | 0.62 | B | 202 | 0.22 | A | 560 | 0.62 | B | 202 | 0.22 | A |
| | NB Loop On | 1 | 1,500 | 866 | 0.58 | A | 517 | 0.34 | A | 891 | 0.59 | A | 534 | 0.36 | A | 909 | 0.61 | B | 553 | 0.37 | A |
| | SB Off | 2 | 2,250 | 912 | 0.41 | A | 1,754 | 0.78 | C | 972 | 0.43 | A | 1,809 | 0.80 | C | 966 | 0.43 | A | 1,812 | 0.81 | D |
| | NB Off | 1 | 1,500 | 326 | 0.22 | A | 658 | 0.44 | A | 330 | 0.22 | A | 663 | 0.44 | A | 330 | 0.22 | A | 664 | 0.44 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 709 | 0.66 | B | 659 | 0.61 | B | 743 | 0.69 | B | 681 | 0.63 | B | 743 | 0.69 | B | 683 | 0.63 | B |
| | NB Direct On | 1 | 1,080 | 290 | 0.27 | A | 256 | 0.24 | A | 296 | 0.27 | A | 258 | 0.24 | A | 290 | 0.27 | A | 259 | 0.24 | A |
| | NB Loop On | 1 | 1,500 | 211 | 0.14 | A | 293 | 0.20 | A | 211 | 0.14 | A | 293 | 0.20 | A | 211 | 0.14 | A | 293 | 0.20 | A |
| | SB Off | 1 | 1,500 | 548 | 0.37 | A | 935 | 0.62 | B | 590 | 0.39 | A | 1,033 | 0.69 | B | 592 | 0.39 | A | 1,040 | 0.69 | B |
| | NB Off | 2 | 2,250 | 949 | 0.42 | A | 1,133 | 0.50 | A | 957 | 0.43 | A | 1,149 | 0.51 | A | 954 | 0.42 | A | 1,149 | 0.51 | A |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 525 | 0.35 | A | 479 | 0.32 | A | 640 | 0.43 | A | 570 | 0.38 | A | 639 | 0.43 | A | 568 | 0.38 | A |
| | NB On | 1 | 1,500 | 463 | 0.31 | A | 756 | 0.50 | A | 573 | 0.38 | A | 812 | 0.54 | A | 572 | 0.38 | A | 812 | 0.54 | A |
| | SB Off | 1 | 1,500 | 1,058 | 0.71 | C | 688 | 0.46 | A | 1,219 | 0.81 | D | 856 | 0.57 | A | 1,220 | 0.81 | D | 854 | 0.57 | A |
| | NB Off | 2 | 2,250 | 470 | 0.21 | A | 552 | 0.25 | A | 491 | 0.22 | A | 641 | 0.28 | A | 484 | 0.22 | A | 639 | 0.28 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 20 | 0.01 | A | 116 | 0.08 | A | 26 | 0.02 | A | 189 | 0.13 | A | 26 | 0.02 | A | 181 | 0.12 | A |
| | SB Off | 1 | 1,500 | 112 | 0.07 | A | 73 | 0.05 | A | 192 | 0.13 | A | 100 | 0.07 | A | 193 | 0.13 | A | 100 | 0.07 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 106 | 0.07 | A | 434 | 0.29 | A | 141 | 0.09 | A | 453 | 0.30 | A | 147 | 0.10 | A | 452 | 0.30 | A |
| | NB Direct On | 2 | 1,800 | 176 | 0.10 | A | 881 | 0.49 | A | 221 | 0.12 | A | 1,107 | 0.62 | B | 240 | 0.13 | A | 1,110 | 0.62 | B |
| | NB Loop On | 1 | 1,500 | 508 | 0.34 | A | 131 | 0.09 | A | 508 | 0.34 | A | 131 | 0.09 | A | 508 | 0.34 | A | 131 | 0.09 | A |
| | SB Off | 2 | 2,250 | 1,638 | 0.73 | C | 623 | 0.28 | A | 1,876 | 0.83 | D | 725 | 0.32 | A | 1,875 | 0.83 | D | 722 | 0.32 | A |
| | NB Off | 2 | 2,250 | 978 | 0.43 | A | 285 | 0.13 | A | 1,016 | 0.45 | A | 296 | 0.13 | A | 1,013 | 0.45 | A | 298 | 0.13 | A |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 18 | 0.01 | A | 96 | 0.06 | A | 18 | 0.01 | A | 96 | 0.06 | A | 18 | 0.01 | A | 96 | 0.06 | A |
| | SB Loop On | 1 | 1,080 | 186 | 0.17 | A | 496 | 0.46 | A | 269 | 0.25 | A | 649 | 0.60 | A | 268 | 0.25 | A | 651 | 0.60 | A |
| | NB Direct On | 2 | 3,400 | 1,800 | 0.53 | A | 2,584 | 0.76 | C | 2,221 | 0.65 | B | 2,362 | 0.69 | B | 2,215 | 0.65 | B | 2,361 | 0.69 | B |
| | NB Loop On | 1 | 1,500 | 306 | 0.20 | A | 1,017 | 0.68 | B | 306 | 0.20 | A | 1,017 | 0.68 | B | 306 | 0.20 | A | 1,017 | 0.68 | B |
| | SB Off | 2 | 3,000 | 3,179 | **1.06** | **F** | 2,264 | 0.75 | C | 3,179 | **1.06** | **F** | 2,264 | 0.75 | C | 3,179 | **1.06** | **F** | 2,264 | 0.75 | C |
| | NB Off | 2 | 3,000 | 845 | 0.28 | A | 273 | 0.09 | A | 1,194 | 0.40 | A | 401 | 0.13 | A | 1,198 | 0.40 | A | 401 | 0.13 | A |

**Table 5-6 Cont.**

**Existing-Plus-Project Freeway/Tollway Ramp LOS Summary**
**With 2012 Modified Project - Options 1 and 2**

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Existing | | | | | | With Modified Project, Option 1 | | | | | | With Modified Project, Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 397 | 0.26 | A | 967 | 0.64 | B | 397 | 0.26 | A | 962 | 0.64 | B | 397 | 0.26 | A | 962 | 0.64 | B |
| | SB Loop On | 1 | 1,080 | 486 | 0.45 | A | 509 | 0.47 | A | 489 | 0.45 | A | 547 | 0.51 | A | 490 | 0.45 | A | 547 | 0.51 | A |
| | NB On | 2 | 1,800 | 1,021 | 0.57 | A | 849 | 0.47 | A | 1,085 | 0.60 | A | 868 | 0.48 | A | 1,031 | 0.57 | A | 867 | 0.48 | A |
| | SB Off | 2 | 3,000 | 1,689 | 0.56 | A | 2,559 | 0.85 | D | 1,789 | 0.60 | A | 2,621 | 0.87 | D | 1,790 | 0.60 | A | 2,627 | 0.88 | D |
| | NB Off | 1 | 1,500 | 976 | 0.65 | B | 639 | 0.43 | A | 985 | 0.66 | B | 639 | 0.43 | A | 989 | 0.66 | B | 639 | 0.43 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 278 | 0.26 | A | 714 | 0.66 | B | 270 | 0.25 | A | 710 | 0.66 | B | 271 | 0.25 | A | 711 | 0.66 | B |
| | SB Loop On | 1 | 1,500 | 498 | 0.33 | A | 526 | 0.35 | A | 498 | 0.33 | A | 529 | 0.35 | A | 498 | 0.33 | A | 528 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 960 | 0.64 | B | 601 | 0.40 | A | 1,033 | 0.69 | B | 636 | 0.42 | A | 1,068 | 0.71 | C | 633 | 0.42 | A |
| | NB Loop On | 1 | 1,500 | 739 | 0.49 | A | 829 | 0.55 | A | 739 | 0.49 | A | 833 | 0.56 | A | 739 | 0.49 | A | 833 | 0.56 | A |
| | SB Off | 2 | 2,250 | 1,460 | 0.65 | B | 1,158 | 0.51 | A | 1,499 | 0.67 | B | 1,207 | 0.54 | A | 1,502 | 0.67 | B | 1,210 | 0.54 | A |
| | NB Off | 1 | 1,500 | 756 | 0.50 | A | 1,212 | 0.81 | D | 756 | 0.50 | A | 1,212 | 0.81 | D | 756 | 0.50 | A | 1,212 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 234 | 0.22 | A | 287 | 0.27 | A | 234 | 0.22 | A | 287 | 0.27 | A | 234 | 0.22 | A | 287 | 0.27 | A |
| | SB Loop On | 1 | 1,500 | 733 | 0.49 | A | 556 | 0.37 | A | 733 | 0.49 | A | 560 | 0.37 | A | 733 | 0.49 | A | 557 | 0.37 | A |
| | NB Direct On | 1 | 1,500 | 1,349 | 0.90 | D | 1,073 | 0.72 | C | 1,392 | 0.93 | E | 1,074 | 0.72 | C | 1,395 | 0.93 | E | 1,078 | 0.72 | C |
| | NB Loop On | 1 | 1,500 | 1,157 | 0.77 | C | 1,066 | 0.71 | C | 1,176 | 0.78 | C | 1,069 | 0.71 | C | 1,176 | 0.78 | C | 1,070 | 0.71 | C |
| | SB Off | 2 | 3,000 | 1,768 | 0.59 | A | 2,200 | 0.73 | C | 1,805 | 0.60 | A | 2,254 | 0.75 | C | 1,808 | 0.60 | A | 2,255 | 0.75 | C |
| | NB Off | 1 | 1,500 | 498 | 0.33 | A | 720 | 0.48 | A | 498 | 0.33 | A | 721 | 0.48 | A | 498 | 0.33 | A | 720 | 0.48 | A |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 325 | 0.22 | A | 725 | 0.48 | A | 331 | 0.22 | A | 725 | 0.48 | A | 332 | 0.22 | A | 725 | 0.48 | A |
| | SB Loop On | 1 | 900 | 380 | 0.42 | A | 342 | 0.38 | A | 380 | 0.42 | A | 344 | 0.38 | A | 380 | 0.42 | A | 344 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 1,057 | 0.70 | B | 509 | 0.34 | A | 1,057 | 0.70 | B | 509 | 0.34 | A | 1,057 | 0.70 | B | 509 | 0.34 | A |
| | NB Loop On | 1 | 1,500 | 787 | 0.52 | A | 324 | 0.22 | A | 793 | 0.53 | A | 344 | 0.23 | A | 792 | 0.53 | A | 342 | 0.23 | A |
| | SB Off | 2 | 3,000 | 822 | 0.27 | A | 1,672 | 0.56 | A | 836 | 0.28 | A | 1,676 | 0.56 | A | 835 | 0.28 | A | 1,672 | 0.56 | A |
| | NB Off | 1 | 1,500 | 652 | 0.43 | A | 763 | 0.51 | A | 658 | 0.44 | A | 763 | 0.51 | A | 653 | 0.44 | A | 763 | 0.51 | A |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 977 | 0.65 | B | 1,279 | 0.85 | D | 977 | 0.65 | B | 1,279 | 0.85 | D | 977 | 0.65 | B | 1,279 | 0.85 | D |
| | SB Loop On | 1 | 900 | 279 | 0.31 | A | 183 | 0.20 | A | 290 | 0.32 | A | 193 | 0.21 | A | 286 | 0.32 | A | 195 | 0.22 | A |
| | NB Direct On | 1 | 1,500 | 1,285 | 0.86 | D | 417 | 0.28 | A | 1,285 | 0.86 | D | 417 | 0.28 | A | 1,286 | 0.86 | D | 417 | 0.28 | A |
| | NB Loop On | 1 | 900 | 272 | 0.30 | A | 113 | 0.13 | A | 272 | 0.30 | A | 113 | 0.13 | A | 272 | 0.30 | A | 113 | 0.13 | A |
| | SB Off | 1 | 1,500 | 368 | 0.25 | A | 453 | 0.30 | A | 368 | 0.25 | A | 453 | 0.30 | A | 368 | 0.25 | A | 453 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,381 | 0.61 | B | 1,351 | 0.60 | A | 1,381 | 0.61 | B | 1,362 | 0.61 | B | 1,381 | 0.61 | B | 1,359 | 0.60 | A |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 379 | 0.25 | A | 522 | 0.35 | A | 379 | 0.25 | A | 523 | 0.35 | A | 381 | 0.25 | A | 524 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 855 | 0.57 | A | 1,031 | 0.69 | B | 1,006 | 0.67 | B | 1,094 | 0.73 | C | 1,006 | 0.67 | B | 1,098 | 0.73 | C |
| | NB Loop On | 1 | 1,500 | 651 | 0.43 | A | 270 | 0.18 | A | 654 | 0.44 | A | 273 | 0.18 | A | 655 | 0.44 | A | 273 | 0.18 | A |
| | SB Off | 1 | 1,500 | 1,311 | 0.87 | D | 701 | 0.47 | A | 1,365 | 0.91 | E | 789 | 0.53 | A | 1,366 | 0.91 | E | 790 | 0.53 | A |
| | NB Off | 1 | 1,500 | 328 | 0.22 | A | 451 | 0.30 | A | 328 | 0.22 | A | 451 | 0.30 | A | 333 | 0.22 | A | 467 | 0.31 | A |

## Table 5-6 Cont.

### Existing-Plus-Project Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Options 1 and 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Existing | | | | | | With Modified Project, Option 1 | | | | | | With Modified Project, Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 15 | 0.02 | A | 51 | 0.06 | A | 15 | 0.02 | A | 51 | 0.06 | A | 15 | 0.02 | A | 51 | 0.06 | A |
| | SB Loop On | 1 | 900 | 118 | 0.13 | A | 401 | 0.45 | A | 119 | 0.13 | A | 406 | 0.45 | A | 119 | 0.13 | A | 403 | 0.45 | A |
| | NB Direct On | 1 | 1,500 | 101 | 0.07 | A | 551 | 0.37 | A | 112 | 0.07 | A | 556 | 0.37 | A | 115 | 0.08 | A | 554 | 0.37 | A |
| | NB Loop On | 1 | 1,500 | 258 | 0.17 | A | 331 | 0.22 | A | 263 | 0.18 | A | 379 | 0.25 | A | 269 | 0.18 | A | 382 | 0.25 | A |
| | SB Off | 2 | 2,250 | 2,036 | 0.90 | D | 1,182 | 0.53 | A | 2,138 | 0.95 | E | 1,211 | 0.54 | A | 2,101 | 0.93 | E | 1,201 | 0.53 | A |
| | NB Off | 2 | 3,000 | 43 | 0.01 | A | 262 | 0.09 | A | 43 | 0.01 | A | 262 | 0.09 | A | 43 | 0.01 | A | 262 | 0.09 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 272 | 0.18 | A | 116 | 0.08 | A | 366 | 0.24 | A | 211 | 0.14 | A | 370 | 0.25 | A | 213 | 0.14 | A |
| | NB Direct On | 1 | 1,500 | 35 | 0.02 | A | 198 | 0.13 | A | 99 | 0.07 | A | 240 | 0.16 | A | 98 | 0.07 | A | 242 | 0.16 | A |
| | NB Loop On | 1 | 1,500 | 106 | 0.07 | A | 191 | 0.13 | A | 106 | 0.07 | A | 199 | 0.13 | A | 106 | 0.07 | A | 193 | 0.13 | A |
| | SB Off | 2 | 2,250 | 519 | 0.23 | A | 167 | 0.07 | A | 530 | 0.24 | A | 225 | 0.10 | A | 530 | 0.24 | A | 220 | 0.10 | A |
| | NB Off | 1 | 1,500 | 110 | 0.07 | A | 181 | 0.12 | A | 217 | 0.14 | A | 427 | 0.28 | A | 219 | 0.15 | A | 421 | 0.28 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 91 | 0.08 | A | 985 | 0.91 | E | 117 | 0.11 | A | 1,016 | 0.94 | E | 118 | 0.11 | A | 1,013 | 0.94 | E |
| | NB Direct On | 1 | 1,080 | 65 | 0.06 | A | 417 | 0.39 | A | 71 | 0.07 | A | 433 | 0.40 | A | 72 | 0.07 | A | 434 | 0.40 | A |
| | NB Loop On | 1 | 1,080 | 113 | 0.10 | A | 1,005 | 0.93 | E | 169 | 0.16 | A | 1,088 | **1.01** | **F** | 180 | 0.17 | A | 1,090 | **1.01** | **F** |
| | SB Off | 2 | 3,000 | 2,047 | 0.68 | B | 336 | 0.11 | A | 2,103 | 0.70 | B | 394 | 0.13 | A | 2,106 | 0.70 | B | 395 | 0.13 | A |
| | NB Off | 2 | 2,250 | 1,070 | 0.48 | A | 164 | 0.07 | A | 1,143 | 0.51 | A | 185 | 0.08 | A | 1,140 | 0.51 | A | 186 | 0.08 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 438 | 0.24 | A | 224 | 0.12 | A | 425 | 0.24 | A | 180 | 0.10 | A | 423 | 0.24 | A | 176 | 0.10 | A |
| | NB On | 1 | 1,500 | 189 | 0.13 | A | 352 | 0.23 | A | 191 | 0.13 | A | 353 | 0.24 | A | 190 | 0.13 | A | 353 | 0.24 | A |
| | SB Off | 1 | 1,500 | 369 | 0.25 | A | 165 | 0.11 | A | 371 | 0.25 | A | 168 | 0.11 | A | 371 | 0.25 | A | 169 | 0.11 | A |
| | NB Off | 1 | 1,500 | 287 | 0.19 | A | 529 | 0.35 | A | 313 | 0.21 | A | 544 | 0.36 | A | 313 | 0.21 | A | 546 | 0.36 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 106 | 0.07 | A | 256 | 0.17 | A | 173 | 0.12 | A | 319 | 0.21 | A | 171 | 0.11 | A | 311 | 0.21 | A |
| | NB On | 1 | 1,500 | 6 | 0.00 | A | 18 | 0.01 | A | 6 | 0.00 | A | 18 | 0.01 | A | 6 | 0.00 | A | 18 | 0.01 | A |
| | SB Off | 1 | 1,500 | 3 | 0.00 | A | 10 | 0.01 | A | 3 | 0.00 | A | 10 | 0.01 | A | 3 | 0.00 | A | 10 | 0.01 | A |
| | NB Off | 1 | 1,500 | 367 | 0.24 | A | 142 | 0.09 | A | 438 | 0.29 | A | 185 | 0.12 | A | 434 | 0.29 | A | 183 | 0.12 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 141 | 0.09 | A | 118 | 0.08 | A | 141 | 0.09 | A | 118 | 0.08 | A | 141 | 0.09 | A | 118 | 0.08 | A |
| | NB On | 1 | 1,500 | 370 | 0.25 | A | 222 | 0.15 | A | 388 | 0.26 | A | 254 | 0.17 | A | 384 | 0.26 | A | 254 | 0.17 | A |
| | SB Off | 1 | 1,500 | 211 | 0.14 | A | 363 | 0.24 | A | 240 | 0.16 | A | 378 | 0.25 | A | 241 | 0.16 | A | 379 | 0.25 | A |
| | NB Off | 2 | 2,250 | 125 | 0.06 | A | 93 | 0.04 | A | 127 | 0.06 | A | 93 | 0.04 | A | 128 | 0.06 | A | 93 | 0.04 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 172 | 0.08 | A | 308 | 0.14 | A | 198 | 0.09 | A | 332 | 0.15 | A | 202 | 0.09 | A | 332 | 0.15 | A |
| | SB Off | 1 | 1,500 | 379 | 0.25 | A | 211 | 0.14 | A | 437 | 0.29 | A | 257 | 0.17 | A | 437 | 0.29 | A | 253 | 0.17 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 156 | 0.10 | A | 559 | 0.37 | A | 156 | 0.10 | A | 559 | 0.37 | A | 156 | 0.10 | A | 559 | 0.37 | A |
| | NB On | 2 | 2,250 | 568 | 0.25 | A | 126 | 0.06 | A | 601 | 0.27 | A | 174 | 0.08 | A | 592 | 0.26 | A | 174 | 0.08 | A |
| | SB Off | 1 | 1,500 | 228 | 0.15 | A | 519 | 0.35 | A | 256 | 0.17 | A | 557 | 0.37 | A | 256 | 0.17 | A | 557 | 0.37 | A |
| | NB Off | 2 | 2,250 | 477 | 0.21 | A | 149 | 0.07 | A | 477 | 0.21 | A | 149 | 0.07 | A | 477 | 0.21 | A | 149 | 0.07 | A |

## Table 5-6 Cont.

### Existing-Plus-Project Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Options 1 and 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Existing | | | | | | With Modified Project, Option 1 | | | | | | With Modified Project, Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-261 at Chapman | SB On | 1 | 1,500 | 433 | 0.29 | A | 49 | 0.03 | A | 433 | 0.29 | A | 49 | 0.03 | A | 433 | 0.29 | A | 49 | 0.03 | A |
| | NB Off | 1 | 1,500 | 21 | 0.01 | A | 374 | 0.25 | A | 21 | 0.01 | A | 374 | 0.25 | A | 21 | 0.01 | A | 374 | 0.25 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 190 | 0.13 | A | 51 | 0.03 | A | 0 | 0.00 | A | 3 | 0.00 | A | 190 | 0.13 | A | 51 | 0.03 | A |
| | NB On | 1 | 1,500 | 131 | 0.09 | A | 63 | 0.04 | A | 133 | 0.09 | A | 71 | 0.05 | A | 132 | 0.09 | A | 73 | 0.05 | A |
| | SB Off | 1 | 1,500 | 77 | 0.05 | A | 90 | 0.06 | A | 2 | 0.00 | A | 2 | 0.00 | A | 126 | 0.08 | A | 106 | 0.07 | A |
| | NB Off | 1 | 1,500 | 38 | 0.03 | A | 201 | 0.13 | A | 38 | 0.03 | A | 201 | 0.13 | A | 38 | 0.03 | A | 201 | 0.13 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 501 | 0.33 | A | 91 | 0.06 | A | 503 | 0.34 | A | 115 | 0.08 | A | 513 | 0.34 | A | 115 | 0.08 | A |
| | NB On | 1 | 1,500 | 98 | 0.07 | A | 113 | 0.08 | A | 98 | 0.07 | A | 113 | 0.08 | A | 98 | 0.07 | A | 113 | 0.08 | A |
| | SB Off | 1 | 1,500 | 199 | 0.13 | A | 103 | 0.07 | A | 204 | 0.14 | A | 103 | 0.07 | A | 202 | 0.13 | A | 103 | 0.07 | A |
| | NB Off | 1 | 1,500 | 46 | 0.03 | A | 656 | 0.44 | A | 55 | 0.04 | A | 676 | 0.45 | A | 54 | 0.04 | A | 670 | 0.45 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

## Table 5-7

## Existing-Plus-Project Freeway Mainline LOS Summary With 2012 Modified Project, - Options 1 and 2

| | | | | | Existing Conditions | | | | | | Existing Plus Project, Option 1 | | | | | | Existing Plus Project, Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | Location | Direction | Lanes | Capacity | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Tustin Ranch | NB | 5+1H | 11,600 | 8,590 | 0.74 | C | 7,710 | 0.66 | B | 8,961 | 0.77 | C | 7,854 | 0.68 | B | 8,937 | 0.77 | C | 7,895 | 0.68 | B |
| | | SB | 5+1H | 11,600 | 7,410 | 0.64 | B | 9,560 | 0.82 | D | 7,651 | 0.66 | B | 9,765 | 0.84 | D | 7,632 | 0.66 | B | 9,758 | 0.84 | D |
| | n/o Jamboree | NB | 5+1H | 11,600 | 9,780 | 0.84 | D | 7,670 | 0.66 | B | 10,022 | 0.86 | D | 7,840 | 0.68 | B | 10,128 | 0.87 | D | 7,884 | 0.68 | B |
| | | SB | 5+1H | 11,600 | 8,570 | 0.74 | C | 11,040 | 0.95 | E | 8,816 | 0.76 | C | 11,206 | 0.97 | E | 8,809 | 0.76 | C | 11,094 | 0.96 | E |
| | n/o Culver | NB | 5+1H | 11,600 | 11,040 | 0.95 | E | 8,150 | 0.70 | B | 11,308 | 0.97 | E | 8,367 | 0.72 | C | 11,352 | 0.98 | E | 8,395 | 0.72 | C |
| | | SB | 5+1H | 11,600 | 8,370 | 0.72 | C | 10,080 | 0.87 | D | 8,664 | 0.75 | C | 10,259 | 0.88 | D | 8,662 | 0.75 | C | 10,263 | 0.88 | D |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 9,510 | 0.82 | D | 7,380 | 0.64 | B | 9,648 | 0.83 | D | 7,568 | 0.65 | B | 9,621 | 0.83 | D | 7,578 | 0.65 | B |
| | | SB | 5+1H | 11,600 | 7,220 | 0.62 | B | 8,960 | 0.77 | C | 7,517 | 0.65 | B | 9,127 | 0.79 | C | 7,525 | 0.65 | B | 9,129 | 0.79 | C |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 7,940 | 0.68 | B | 8,420 | 0.73 | C | 8,104 | 0.70 | B | 8,636 | 0.74 | C | 8,081 | 0.70 | B | 8,644 | 0.75 | C |
| | | SB | 5+1H | 11,600 | 7,080 | 0.61 | B | 7,570 | 0.65 | B | 7,407 | 0.64 | B | 7,704 | 0.66 | B | 7,412 | 0.64 | B | 7,700 | 0.66 | B |
| | n/o Alton | NB | 4+1H | 9,600 | 6,620 | 0.69 | B | 7,130 | 0.74 | C | 6,704 | 0.70 | B | 7,491 | 0.78 | C | 6,679 | 0.70 | B | 7,496 | 0.78 | C |
| | | SB | 4+1H | 9,600 | 7,410 | 0.77 | C | 7,320 | 0.76 | C | 7,839 | 0.82 | D | 7,428 | 0.77 | C | 7,839 | 0.82 | D | 7,422 | 0.77 | C |
| | n/o Bake | NB | 9+2H | 21,500 | 7,940 | 0.37 | A | 8,420 | 0.39 | A | 7,765 | 0.36 | A | 8,453 | 0.39 | A | 7,700 | 0.36 | A | 8,463 | 0.39 | A |
| | | SB | 9+2H | 21,500 | 9,790 | 0.46 | A | 8,970 | 0.42 | A | 9,919 | 0.46 | A | 8,937 | 0.42 | A | 9,921 | 0.46 | A | 8,950 | 0.42 | A |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 7,920 | 0.41 | A | 7,470 | 0.38 | A | 8,155 | 0.42 | A | 7,595 | 0.39 | A | 8,117 | 0.42 | A | 7,598 | 0.39 | A |
| | | SB | 8+2H | 19,500 | 9,060 | 0.46 | A | 8,940 | 0.46 | A | 9,272 | 0.48 | A | 9,055 | 0.46 | A | 9,272 | 0.48 | A | 9,070 | 0.47 | A |
| | n/o El Toro | NB | 5+2H | 13,500 | 8,770 | 0.65 | B | 7,610 | 0.56 | A | 8,941 | 0.66 | B | 7,698 | 0.57 | A | 8,961 | 0.66 | B | 7,705 | 0.57 | A |
| | | SB | 5+2H | 13,500 | 8,610 | 0.64 | B | 8,540 | 0.63 | B | 8,737 | 0.65 | B | 8,651 | 0.64 | B | 8,739 | 0.65 | B | 8,662 | 0.64 | B |
| | n/o Alicia | NB | 5+1H | 11,600 | 8,700 | 0.75 | C | 7,200 | 0.62 | B | 8,795 | 0.76 | C | 7,245 | 0.62 | B | 8,803 | 0.76 | C | 7,255 | 0.63 | B |
| | | SB | 4+1H | 9,600 | 7,530 | 0.78 | C | 9,640 | 1.00 | E | 7,617 | 0.79 | C | 9,704 | **1.01** | **F** | 7,616 | 0.79 | C | 9,720 | **1.01** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 9,420 | 0.98 | E | 7,260 | 0.76 | C | 9,453 | 0.98 | E | 7,298 | 0.76 | C | 9,459 | 0.99 | E | 7,304 | 0.76 | C |
| | | SB | 4+1H | 9,600 | 8,090 | 0.84 | D | 10,100 | **1.05** | **F** | 8,132 | 0.85 | D | 10,125 | **1.05** | **F** | 8,128 | 0.85 | D | 10,120 | **1.05** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 8,620 | 0.90 | D | 6,760 | 0.70 | B | 8,893 | 0.93 | E | 6,955 | 0.72 | C | 8,806 | 0.92 | E | 7,058 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 7,980 | 0.83 | D | 7,390 | 0.77 | C | 8,210 | 0.86 | D | 7,513 | 0.78 | C | 8,204 | 0.85 | D | 7,556 | 0.79 | C |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 7,970 | 0.83 | D | 7,120 | 0.74 | C | 8,087 | 0.84 | D | 7,349 | 0.77 | C | 8,094 | 0.84 | D | 7,328 | 0.76 | C |
| | | SB | 4+1H | 9,600 | 8,510 | 0.89 | D | 8,140 | 0.85 | D | 8,763 | 0.91 | E | 8,293 | 0.86 | D | 8,756 | 0.91 | E | 8,333 | 0.87 | D |
| | n/o SR-133 | NB | 4+1H | 9,600 | 9,220 | 0.96 | E | 7,750 | 0.81 | C | 9,184 | 0.96 | E | 7,900 | 0.82 | D | 9,194 | 0.96 | E | 7,894 | 0.82 | D |
| | | SB | 4+1H | 9,600 | 7,450 | 0.78 | C | 7,330 | 0.76 | C | 7,642 | 0.80 | C | 7,373 | 0.77 | C | 7,638 | 0.80 | C | 7,392 | 0.77 | C |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 6,110 | 0.64 | B | 6,400 | 0.67 | B | 6,028 | 0.63 | B | 6,473 | 0.67 | B | 6,017 | 0.63 | B | 6,468 | 0.67 | B |
| | | SB | 4+1H | 9,600 | 6,540 | 0.68 | B | 3,440 | 0.36 | A | 6,638 | 0.69 | B | 3,452 | 0.36 | A | 6,644 | 0.69 | B | 3,457 | 0.36 | A |
| | n/o I-5 | NB | 4+1H | 9,600 | 3,850 | 0.40 | A | 3,050 | 0.32 | A | 3,600 | 0.38 | A | 3,079 | 0.32 | A | 3,689 | 0.38 | A | 3,077 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 5,460 | 0.57 | A | 6,320 | 0.66 | B | 5,457 | 0.57 | A | 6,308 | 0.66 | B | 5,486 | 0.57 | A | 6,321 | 0.66 | B |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 1,130 | 0.14 | A | 3,320 | 0.42 | A | 1,235 | 0.15 | A | 3,399 | 0.42 | A | 1,239 | 0.15 | A | 3,411 | 0.43 | A |
| | | SB | 4 | 8,000 | 4,330 | 0.54 | A | 1,270 | 0.16 | A | 4,358 | 0.54 | A | 1,399 | 0.17 | A | 4,368 | 0.55 | A | 1,390 | 0.17 | A |
| | n/o I-5 | NB | 3 | 6,000 | 530 | 0.09 | A | 1,420 | 0.24 | A | 679 | 0.11 | A | 1,695 | 0.28 | A | 684 | 0.11 | A | 1,706 | 0.28 | A |
| | | SB | 3 | 6,000 | 1,600 | 0.27 | A | 570 | 0.10 | A | 1,721 | 0.29 | A | 737 | 0.12 | A | 1,728 | 0.29 | A | 735 | 0.12 | A |
| | s/o I-5 | NB | 3 | 6,000 | 1,370 | 0.23 | A | 1,710 | 0.29 | A | 1,470 | 0.25 | A | 1,858 | 0.31 | A | 1,481 | 0.25 | A | 1,867 | 0.31 | A |
| | | SB | 3 | 6,000 | 2,740 | 0.46 | A | 1,500 | 0.25 | A | 2,839 | 0.47 | A | 1,662 | 0.28 | A | 2,753 | 0.46 | A | 1,658 | 0.28 | A |
| | n/o I-405 | NB | 3 | 6,000 | 1,430 | 0.24 | A | 2,350 | 0.39 | A | 1,532 | 0.26 | A | 2,419 | 0.40 | A | 1,536 | 0.26 | A | 2,426 | 0.40 | A |
| | | SB | 3 | 6,000 | 3,940 | 0.66 | B | 1,310 | 0.22 | A | 4,014 | 0.67 | B | 1,419 | 0.24 | A | 4,027 | 0.67 | B | 1,416 | 0.24 | A |

## Table 5-7 Cont.

## Existing-Plus-Project Freeway Mainline LOS Summary With 2012 Modified Project, - Options 1 and 2

| | | | | | Existing Conditions | | | | | | Existing Plus Project, Option 1 | | | | | | Existing Plus Project, Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | Location | Direction | Lanes | Capacity | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-241 | n/o Santiago Canyon | NB | 3 | 6,000 | 1,270 | 0.21 | A | 1,840 | 0.31 | A | 1,357 | 0.23 | A | 1,957 | 0.33 | A | 1,360 | 0.23 | A | 1,954 | 0.33 | A |
| | | SB | 3 | 6,000 | 2,240 | 0.37 | A | 1,120 | 0.19 | A | 2,362 | 0.39 | A | 1,237 | 0.21 | A | 2,361 | 0.39 | A | 1,232 | 0.21 | A |
| | n/o SR-133 | NB | 3 | 6,000 | 1,270 | 0.21 | A | 1,840 | 0.31 | A | 1,379 | 0.23 | A | 1,995 | 0.33 | A | 1,380 | 0.23 | A | 2,000 | 0.33 | A |
| | | SB | 3 | 6,000 | 2,240 | 0.37 | A | 1,120 | 0.19 | A | 2,325 | 0.39 | A | 1,243 | 0.21 | A | 2,325 | 0.39 | A | 1,236 | 0.21 | A |
| | n/o Portola (West) | NB | 4 | 8,000 | 3,270 | 0.41 | A | 1,160 | 0.15 | A | 3,284 | 0.41 | A | 1,253 | 0.16 | A | 3,295 | 0.41 | A | 1,252 | 0.16 | A |
| | | SB | 4 | 8,000 | 1,200 | 0.15 | A | 2,620 | 0.33 | A | 1,267 | 0.16 | A | 2,630 | 0.33 | A | 1,270 | 0.16 | A | 2,640 | 0.33 | A |
| | n/o Alton | NB | 3 | 6,000 | 3,440 | 0.57 | A | 1,520 | 0.25 | A | 3,524 | 0.59 | A | 1,656 | 0.28 | A | 3,532 | 0.59 | A | 1,654 | 0.28 | A |
| | | SB | 3 | 6,000 | 1,180 | 0.20 | A | 1,980 | 0.33 | A | 1,314 | 0.22 | A | 2,053 | 0.34 | A | 1,315 | 0.22 | A | 2,054 | 0.34 | A |
| | n/o Lake Forest | NB | 3 | 6,000 | 2,420 | 0.40 | A | 1,090 | 0.18 | A | 2,486 | 0.41 | A | 1,189 | 0.20 | A | 2,501 | 0.42 | A | 1,187 | 0.20 | A |
| | | SB | 3 | 6,000 | 650 | 0.11 | A | 2,015 | 0.34 | A | 753 | 0.13 | A | 2,068 | 0.34 | A | 752 | 0.13 | A | 2,067 | 0.34 | A |
| SR-261 | n/o Portola | NB | 2 | 4,000 | 350 | 0.09 | A | 1,260 | 0.32 | A | 350 | 0.09 | A | 1,235 | 0.31 | A | 351 | 0.09 | A | 1,230 | 0.31 | A |
| | | SB | 2 | 4,000 | 2,260 | 0.57 | A | 380 | 0.10 | A | 2,299 | 0.57 | A | 398 | 0.10 | A | 2,296 | 0.57 | A | 396 | 0.10 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 190 | 0.03 | A | 1,250 | 0.21 | A | 188 | 0.03 | A | 1,224 | 0.20 | A | 191 | 0.03 | A | 1,218 | 0.20 | A |
| | | SB | 3 | 6,000 | 2,190 | 0.37 | A | 270 | 0.05 | A | 2,197 | 0.37 | A | 273 | 0.05 | A | 2,193 | 0.37 | A | 270 | 0.05 | A |
| | s/o Irvine Blvd | NB | 2 | 4,000 | 230 | 0.06 | A | 1,730 | 0.43 | A | 239 | 0.06 | A | 1,723 | 0.43 | A | 240 | 0.06 | A | 1,712 | 0.43 | A |
| | | SB | 2 | 4,000 | 2,570 | 0.64 | B | 360 | 0.09 | A | 2,572 | 0.64 | B | 379 | 0.09 | A | 2,583 | 0.65 | B | 375 | 0.09 | A |

**Bold =** Deficient Segment



*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_newest.xls]5-7

**Table 5-8**

**Existing-Plus-Project Intersection ICU LOS**
**Project Impact Location With Programmed Improvement – Options 1 and 2**

| Intersection | Peak Hour | Without Project | | With Project | | With Project & Programmed Improvement | |
|---|---|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS | ICU | LOS |
| 235. Culver & University | | | | | | | |
| - Option 1 | PM | 0.90 | D | 0.91 | E | 0.82 | D |
| - Option 2 | PM | 0.90 | D | 0.92 | E | 0.82 | D |

The hypothetical existing-plus-project conditions also exceed adopted impact thresholds at one freeway ramp interchange:

- SR-133 Northbound loop on-ramp at Barranca Parkway

This ramp improvement will be funded on a NITM methodology fair share basis. The improvement that would address this hypothetical existing-plus-project scenario is to convert the HOV preferential lane to a second metered mixed-flow lane. Table 5-9 contains the analysis of the SR-133 northbound loop on-ramp from Barranca with the proposed improvement.

**Table 5-9**

**Existing-Plus-Project Peak Hour V/C Ratio With the Proposed Improvement for SR-133 Northbound Loop On-ramp at Barranca – Options 1 and 2**

| Scenario | Peak Hour | Lanes | Peak Hour Capacity | Volume | V/C | LOS |
|---|---|---|---|---|---|---|
| Existing Conditions | PM | 1 | 1,080 | 1,005 | 0.93 | E |
| 2012 Modified Project | | | | | | |
| - Option 1 | PM | 1 | 1,080 | 1,088 | 1.01 | F |
| - Option 2 | PM | 1 | 1,080 | 1,090 | 1.01 | F |
| 2012 Modified Project with Mitigation | | | | | | |
| - Option 1 | PM | 2 | 1,500 | 1,088 | 0.73 | B |
| - Option 2 | PM | 2 | 1,500 | 1,090 | 0.73 | B |

# 6.0 YEAR 2015 ANALYSIS

This chapter analyzes the impacts of the 2012 Modified Project on year 2015 traffic conditions in the traffic analysis study area. The potential traffic impacts of the Project are assessed based on a comparison of Year 2015 Without Project and Year 2015 With 2012 Modified Project conditions.

For interim year (2015) conditions, development is assumed to include previously approved land uses in Districts 1 North, 1 South, 4, 7 and 8 as well as the Modified Project changes in District 1 North and 1 South. For Option 1, within the footprint of those land uses in District 1 North which change to Multi Use or Medical and Science (R&D), the 2015 analysis assumes full development of the proposed land uses. For Option 2, within the footprint of those land uses in District 1 North and 1 South which change, the interim year analysis assumes full development of the proposed land uses for 2015. Table 2-2 shows the 2015 land use by District for Combined PA 51.

Within the footprint of those land uses in District 1 North and 1 South which change in either Option 1 or Option 2, the without project scenario assumes existing occupied land uses.

The Irvine Transportation Analysis Model (ITAM) version 8.4-10 Year 2015 is used for conducting this analysis, including network refinements necessary for representation of the 2012 Modified Project options. The modeling methodology and post processing procedures are consistent with those used in April 2003 NITM Program Traffic Study.

For the portion of the study area within the City of Lake Forest, the intersection and link analyses for future options incorporate project-related volume changes (from ITAM) for interim year 2015 conditions as an overlay to the City of Lake Forest's traffic model (LFTAM)-based data.

## 6.1 Interim Year 2015 Traffic Impacts with 2012 Modified Project with Option 1

The following sub-sections summarize the resulting Year 2015 Without Project and Year 2015 With 2012 Modified Project Option 1 traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline segments and freeway/tollway ramps. Option 1 includes the conversion of Institutional (Education) and Office land uses to Multi-Use (Non-Residential) or Medical and Science (R&D) in District 1 North.

### 6.1.1 Interim Year 2015 Circulation System and Average Daily Traffic Volumes, Option 1

The Year 2015 circulation system in the study area was previously illustrated in Chapter 4.0 and only improvements committed for construction (i.e., public agency capital improvement programs, state transportation improvement program, etc.) or would be constructed as part of previously entitled development by the year 2015 are assumed.

The Year 2015 Without Project and Year 2015 With 2012 Modified Project Option 1 average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 6-1 through 6-4, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following four (4) arterial roadway segments are potentially impacted by the Proposed Project:

- Irvine Bl (west of A-02 St)
- Irvine Bl (east of A-02 St)
- Jeffrey Rd (south of Roosevelt)
- Trabuco Rd (east of Culver Dr)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under year 2015 with Option 1 conditions are summarized in Table 6-1. As the summary table indicates, these arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

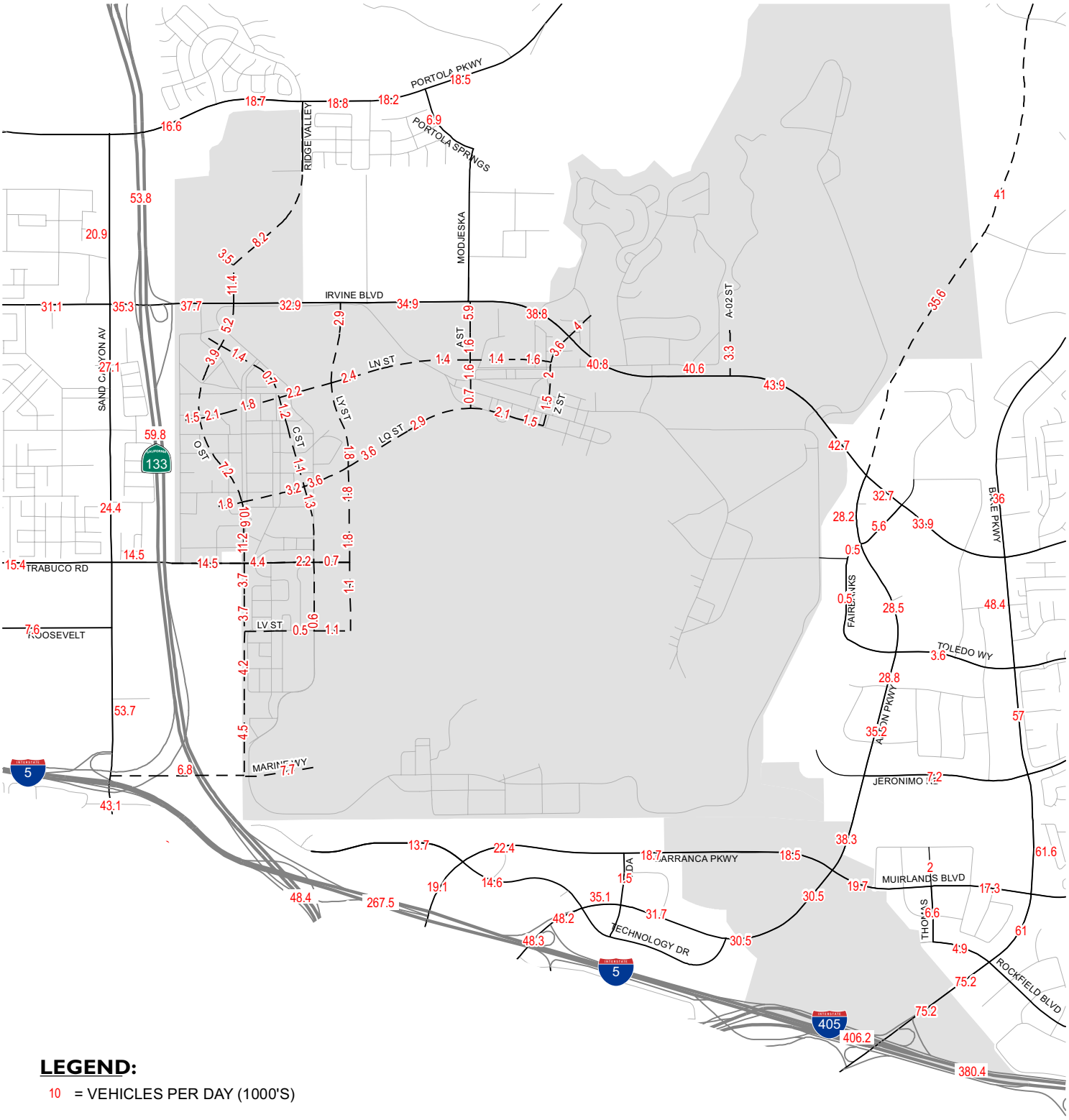
**TABLE 6-1**

**Year 2015 Arterial Roadway Peak Hour Analysis**
**With 2012 Modified Project, Option 1**

| | | | | | 2015 with 2012 Modified Project Option 1 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Segment | Segment Limits | Juris | # of Lanes | Peak Hour Capacity | Refined ADT | Highest Peak Volume | | Peak Hour V/C | Peak Hour LOS |
| Irvine Bl. | w/o "A-02" St. | Irv | 5D | 4,000 | 42,400 | 2,240 | PM WB | 0.56 | A |
| Irvine Bl. | e/o "A-02" St. | Irv | 4D | 3,200 | 45,600 | 2,740 | PM WB | 0.86 | D |
| Jeffrey Rd. | b/w Roosevelt & I-5 NB Ramps | Irv | 6D | 4,800 | 62,400 | 3,230 | PM NB | 0.67 | B |
| Trabuco Rd. | e/o Culver Dr. | Irv | 4D | 3,200 | 36,600 | 1,781 | PM EB | 0.56 | A |

EXHIBIT 6-1 (1 OF 3)

# YEAR 2015 ADT VOLUMES - WITHOUT PROJECT, PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 6-1 (2 OF 3)

# YEAR 2015 ADT VOLUMES WITHOUT PROJECT, WEST STUDY AREA

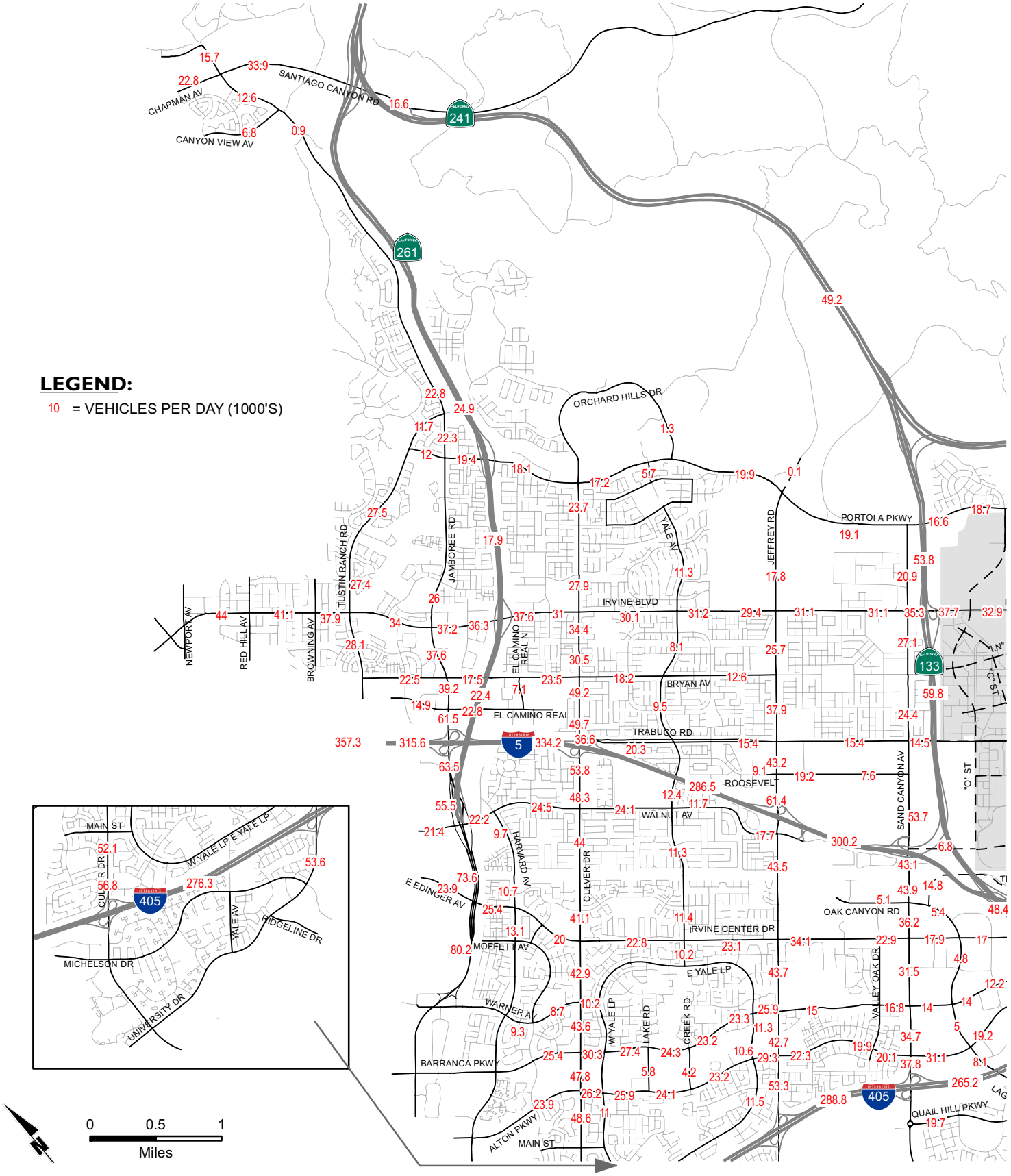
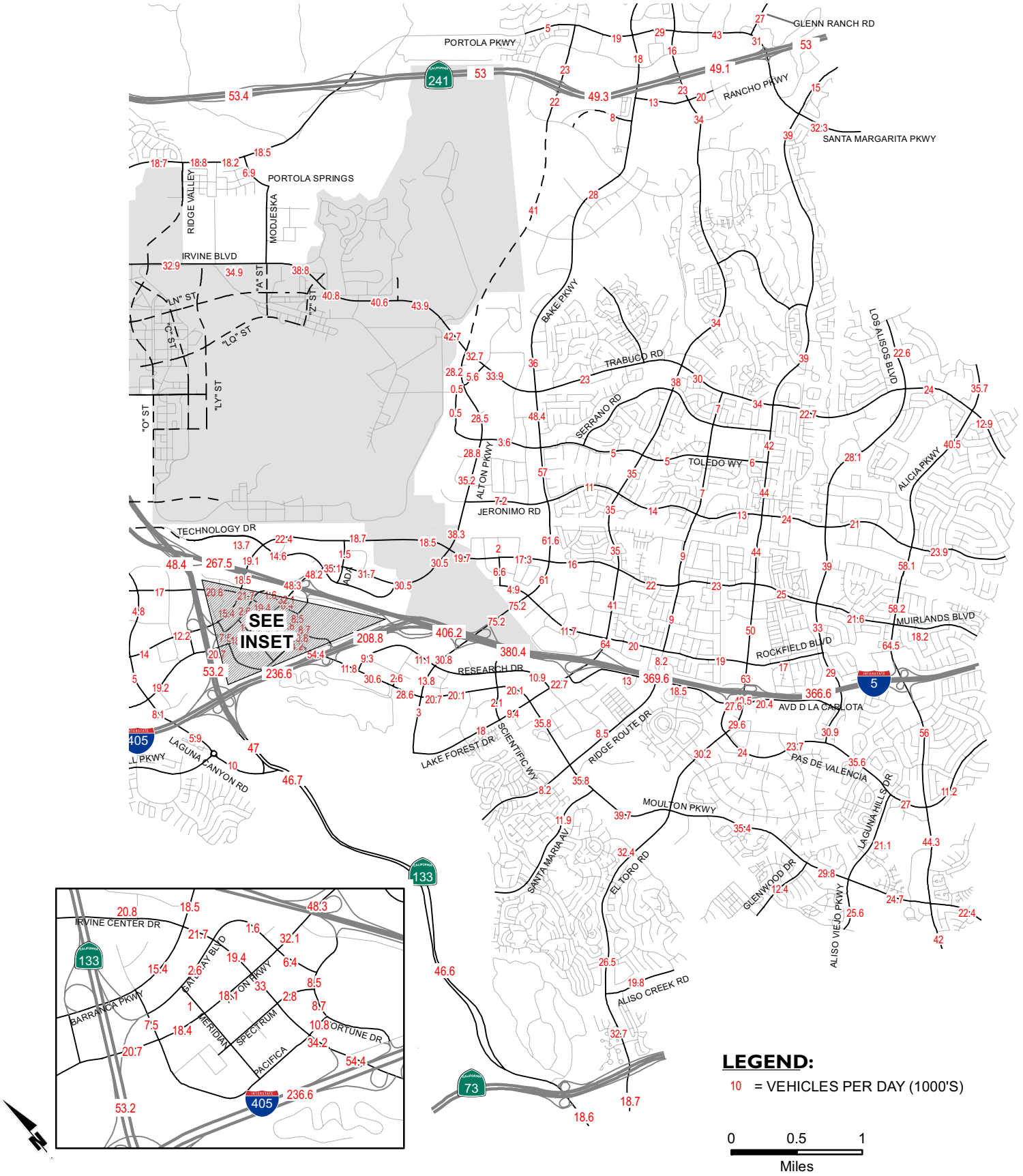
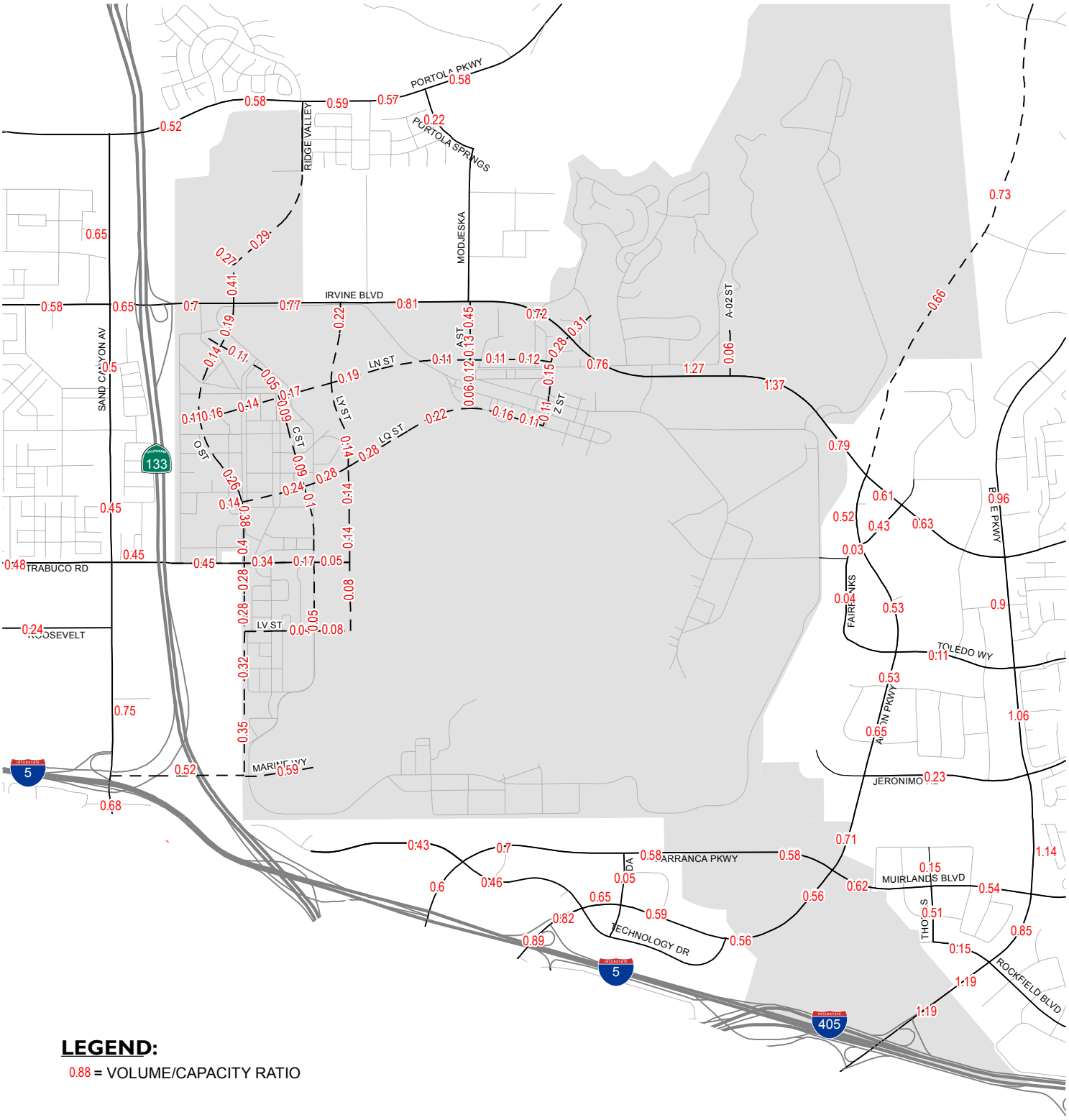


EXHIBIT 6-1 (3 OF 3)

# YEAR 2015 ADT VOLUMES WITHOUT PROJECT, EAST STUDY AREA



# YEAR 2015 ADT V/C RATIOS WITHOUT PROJECT, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

EXHIBIT 6-2 (2 OF 3)

# YEAR 2015 ADT V/C RATIOS WITHOUT PROJECT, WEST STUDY AREA

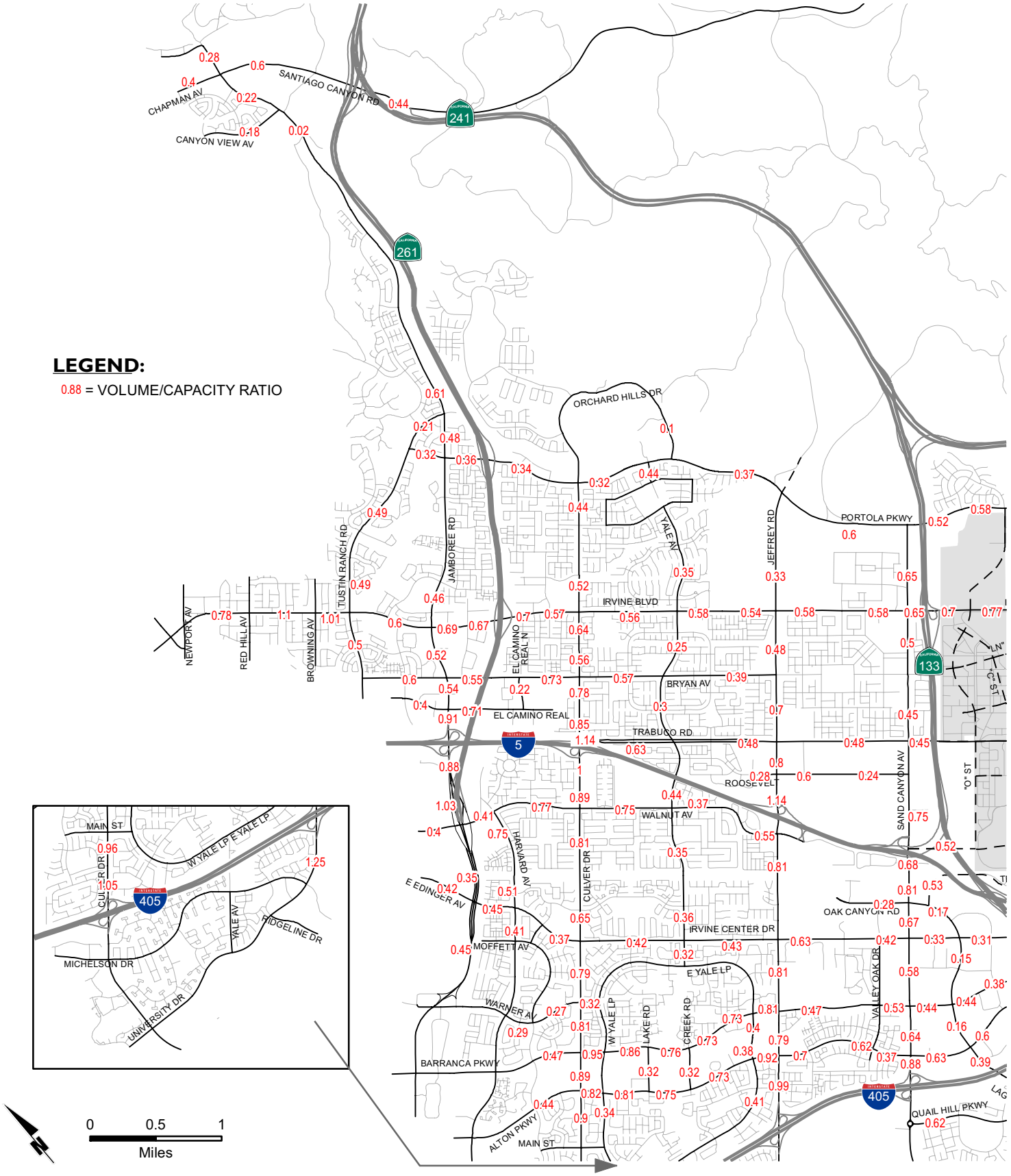


EXHIBIT 6-2 (3 OF 3)

# YEAR 2015 ADT V/C RATIOS WITHOUT PROJECT, EAST STUDY AREA

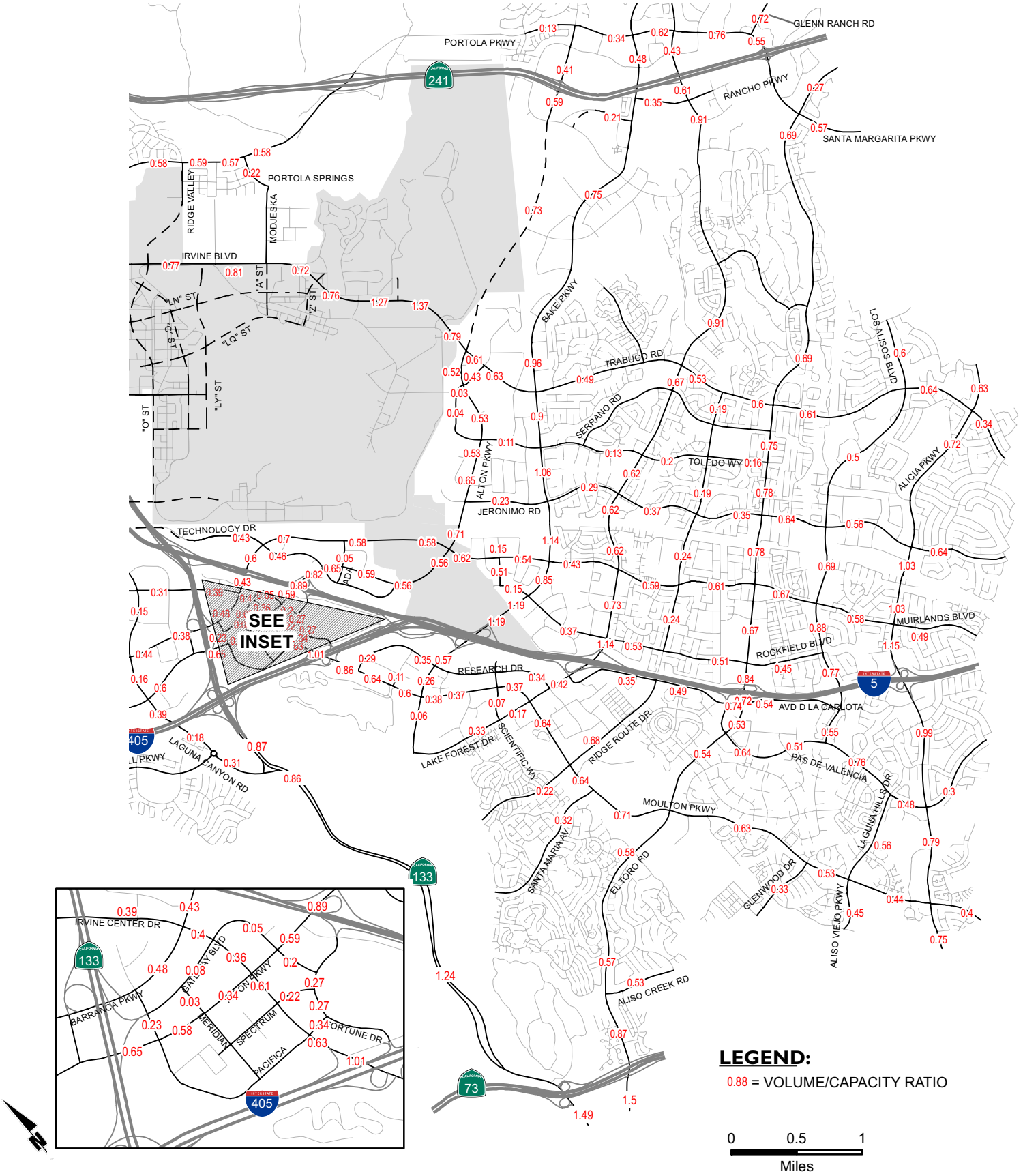
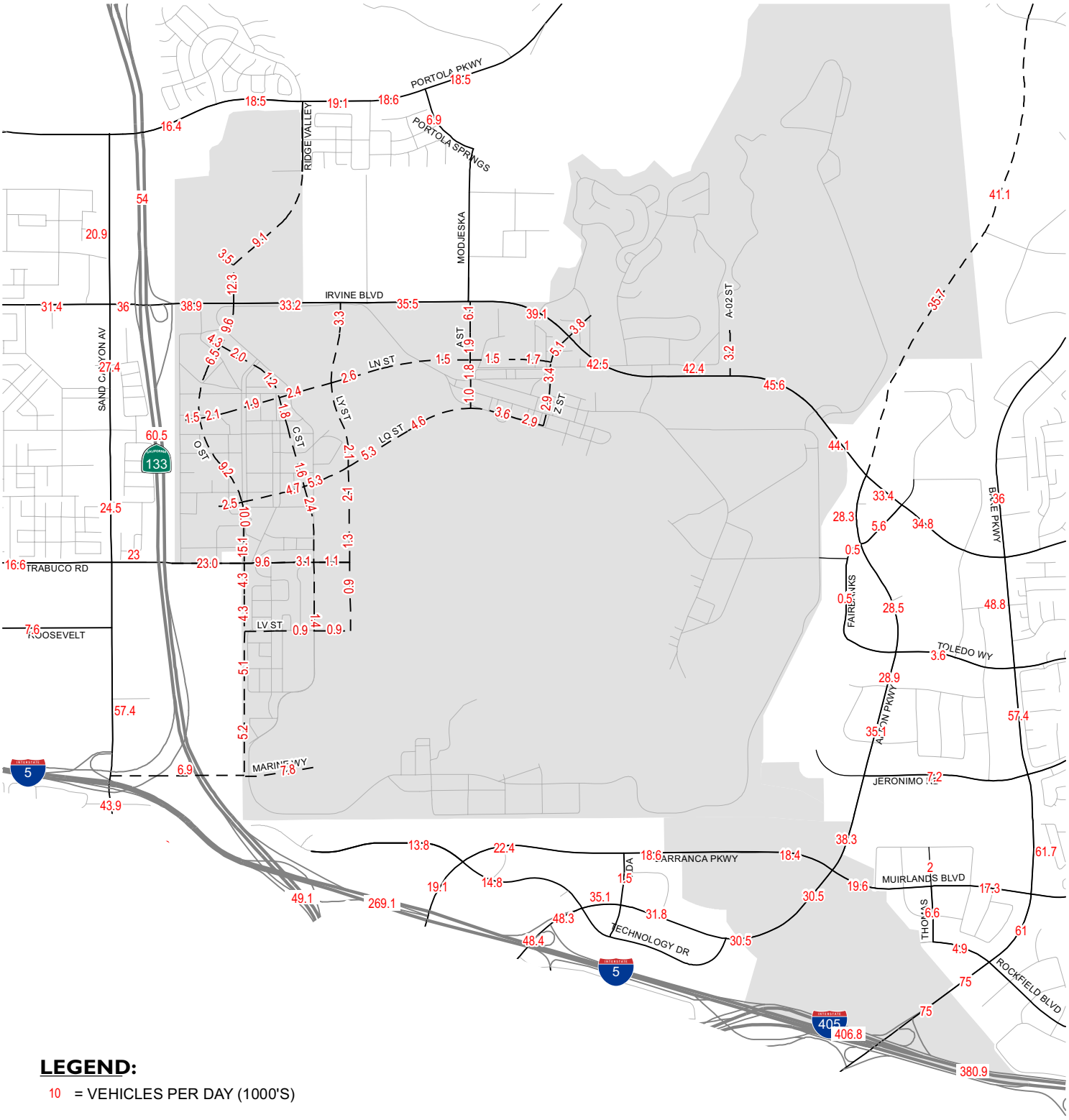


EXHIBIT 6-3 (1 OF 3)

# YEAR 2015 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 1, PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 6-3 (2 OF 3)

# YEAR 2015 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 1, WEST STUDY AREA

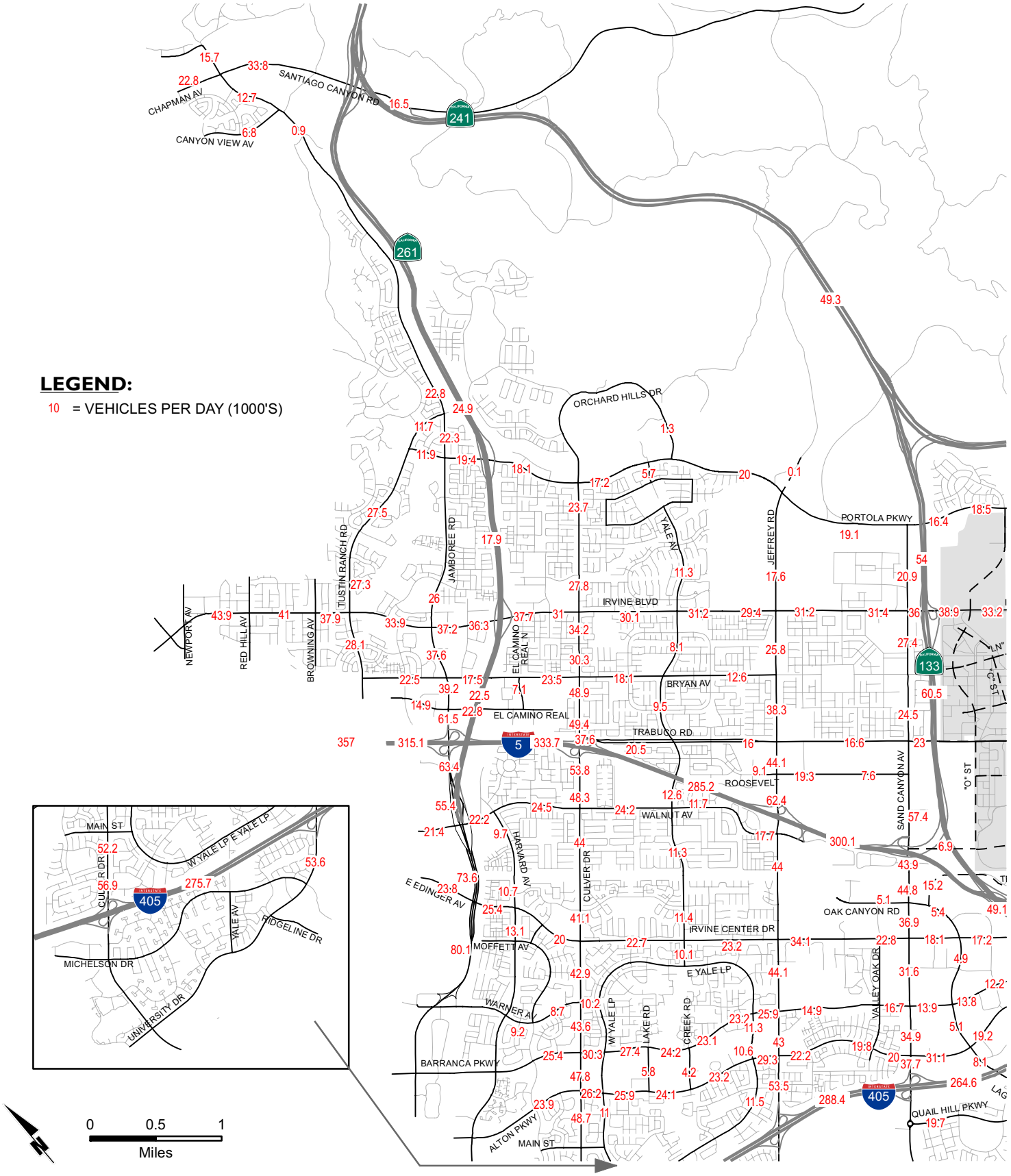


EXHIBIT 6-3 (3 OF 3)

# YEAR 2015 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 1, EAST STUDY AREA

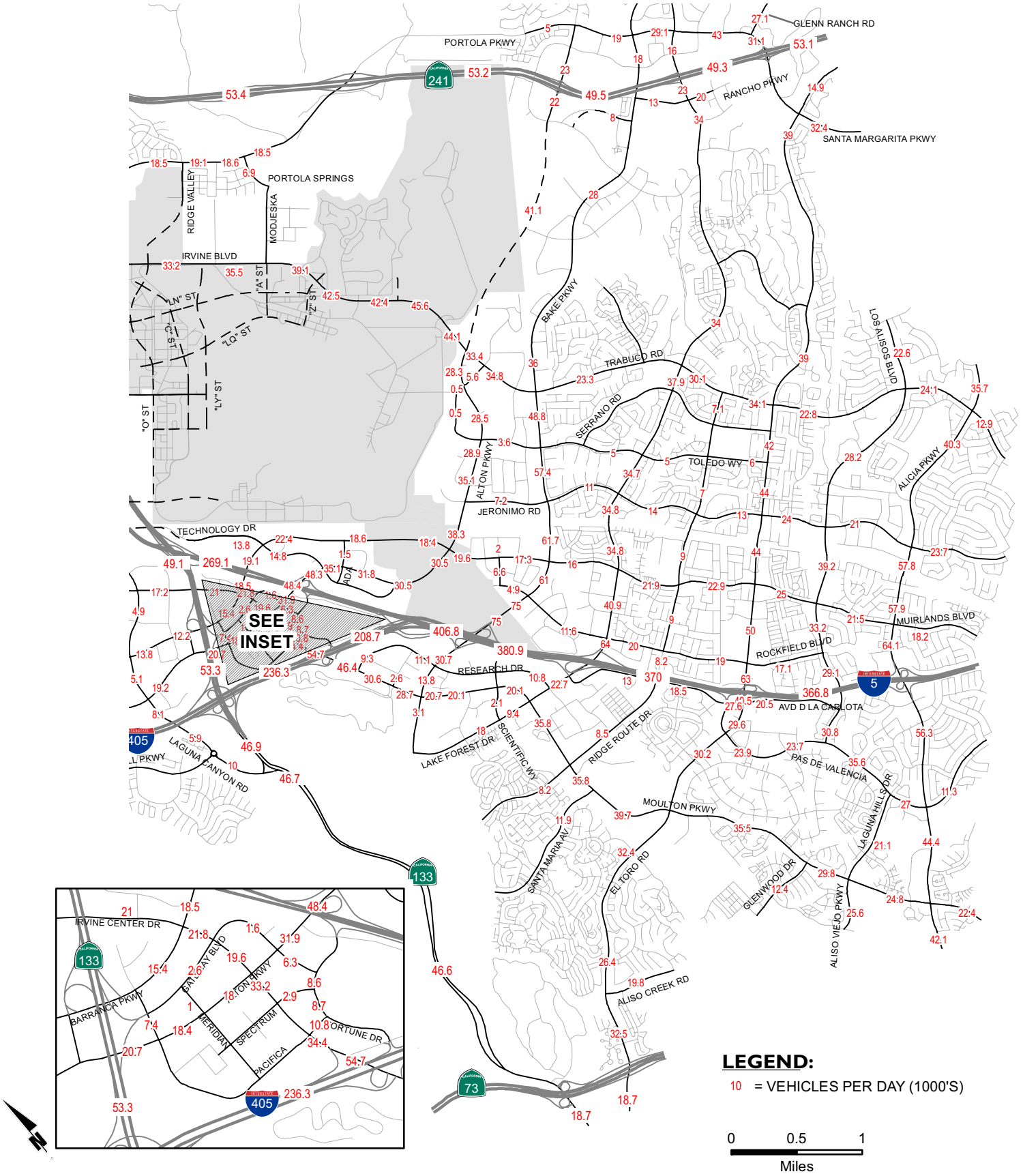
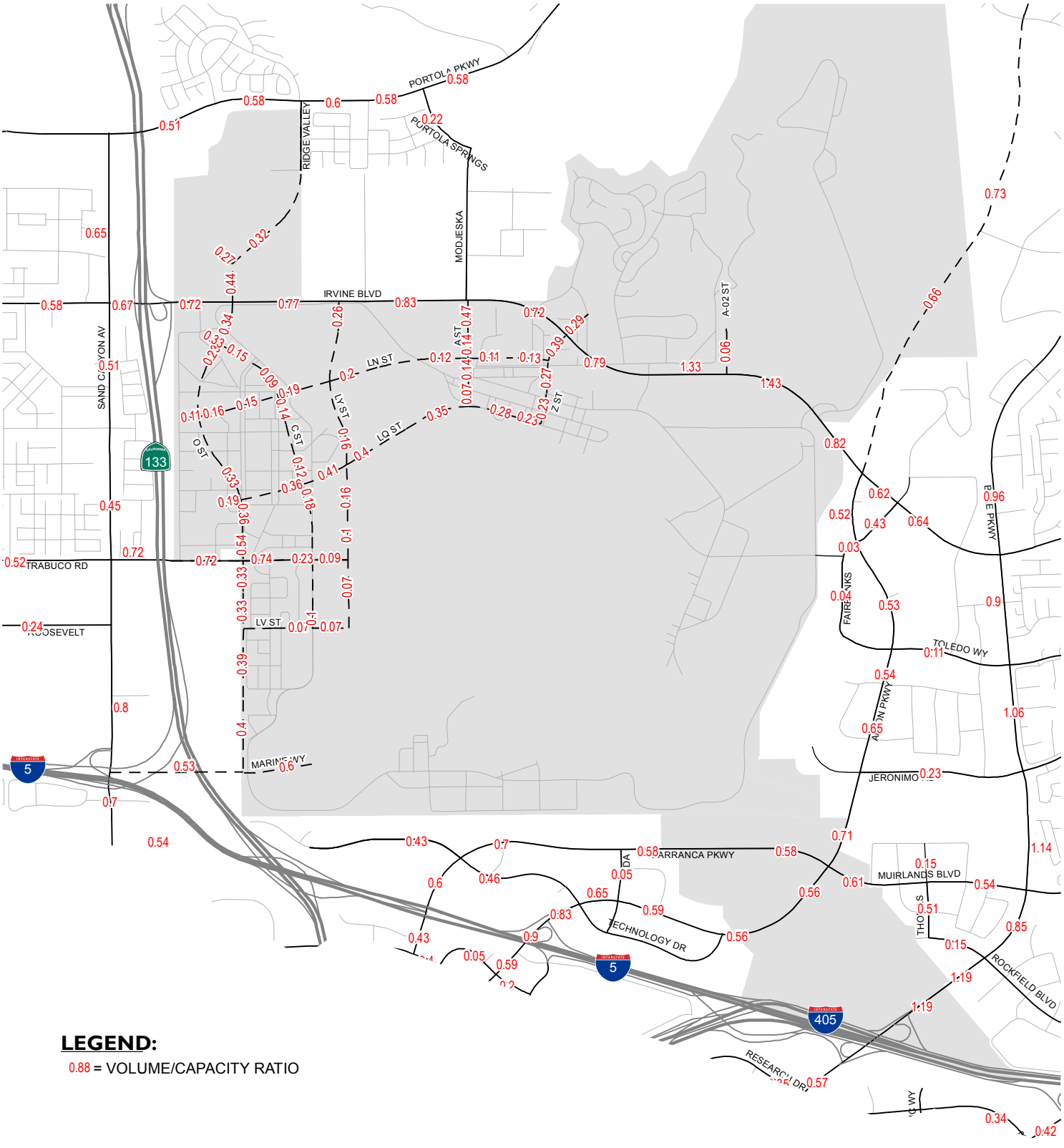


EXHIBIT 6-4 (1 OF 3)

# YEAR 2015 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 1, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

EXHIBIT 6-4 (2 OF 3)

# YEAR 2015 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 1, WEST STUDY AREA

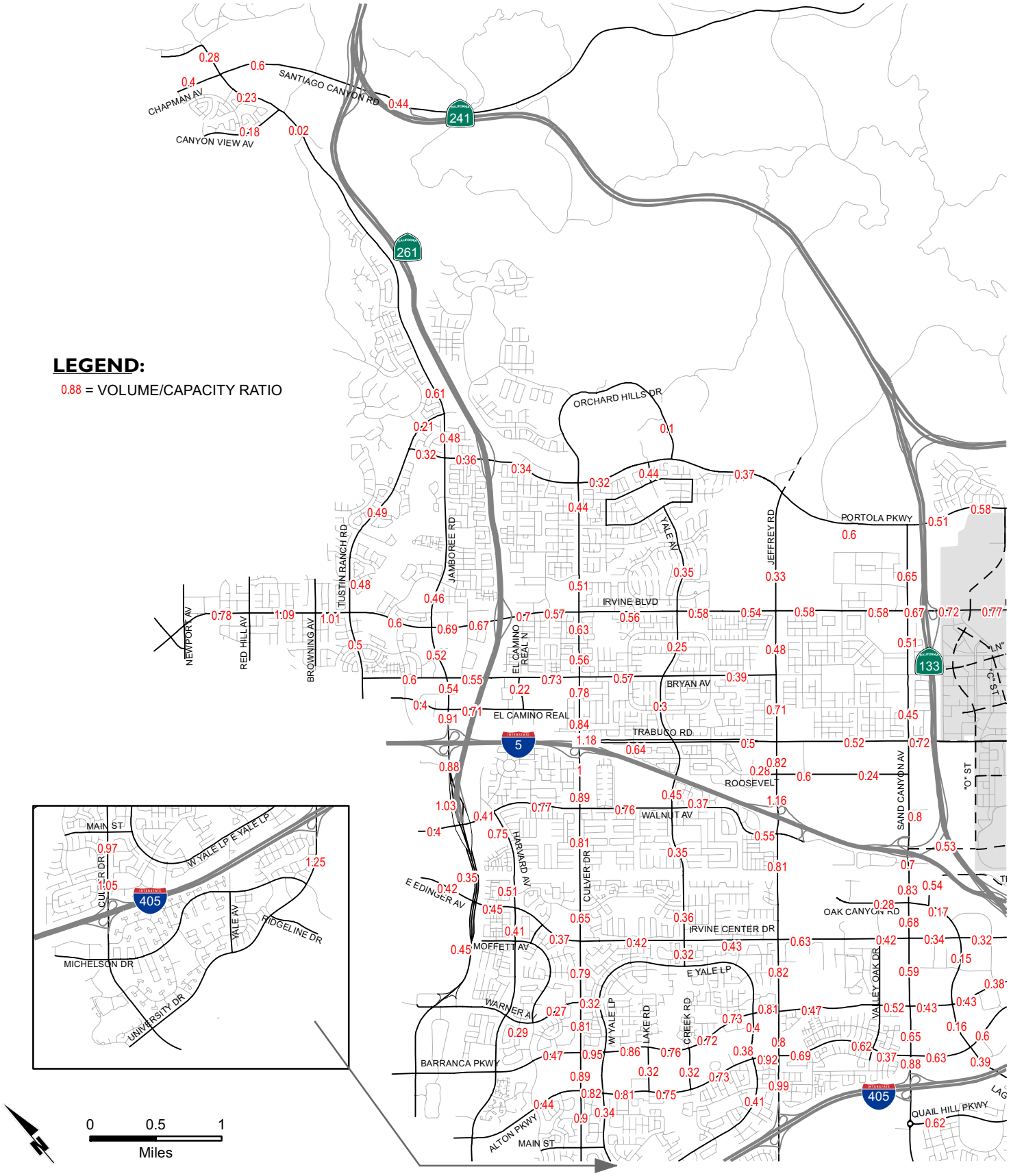
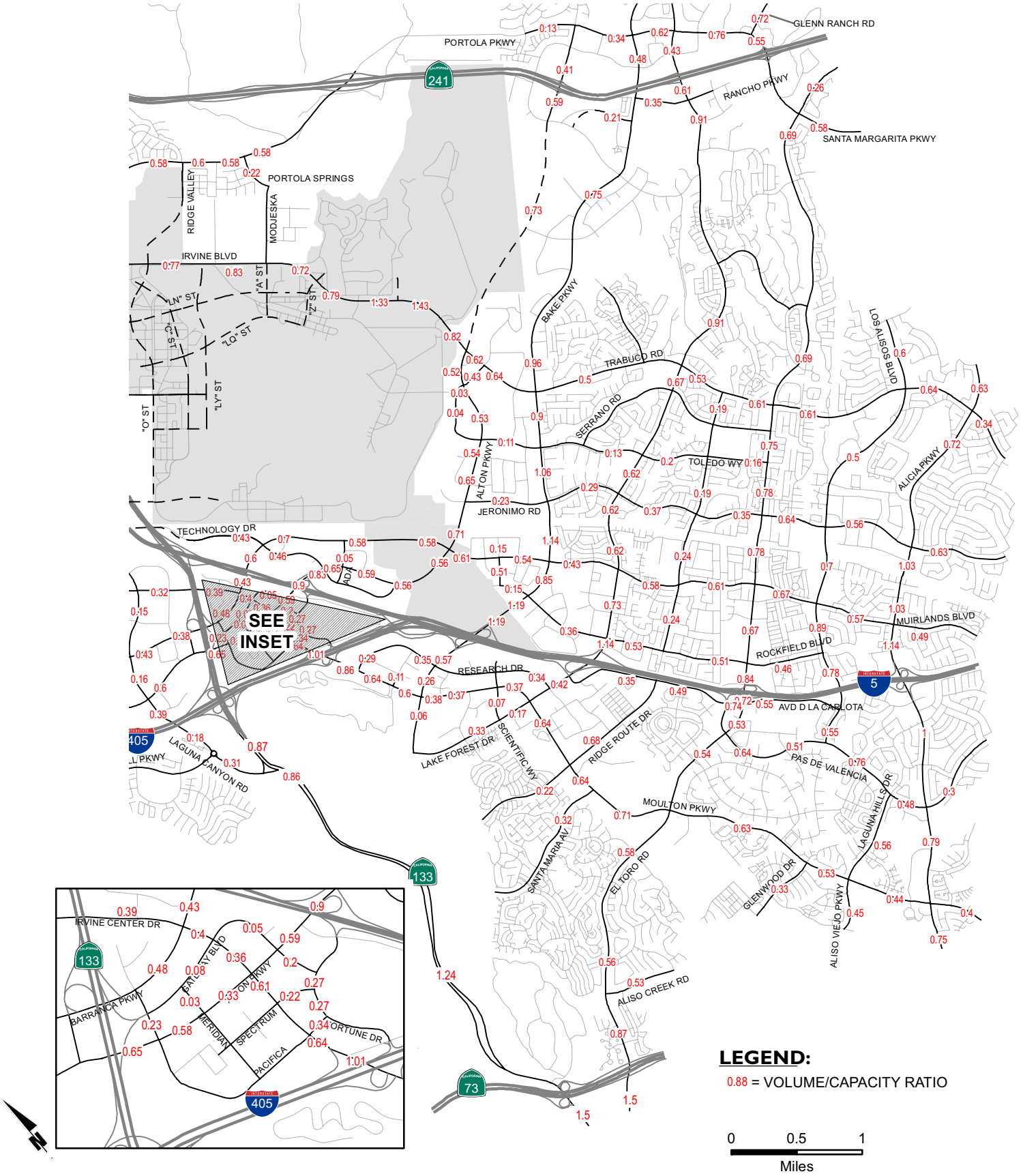


EXHIBIT 6-4 (3 OF 3)

# YEAR 2015 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 1, EAST STUDY AREA



### 6.1.2 Interim Year 2015 Peak Hour Intersection Levels of Service, Option 1

Year 2015 with Option 1 AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 6-5 that are analyzed in this traffic study are summarized in Table 6-2. Actual turn volumes, lane geometrics and ICU calculation worksheets for Year 2015 Without Project and with 2012 Modified Project are included in Appendix 6.1 and 6.2. Based on the peak hour intersection performance criteria and impact thresholds previously presented in Table 2-4, none of the intersections are forecast to exceed adopted impact thresholds with Option 1 based on Year 2015 conditions.

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting 2015 Without Project and with Option 1 peak hour levels of service based on the HCM methodology are summarized in Table 6-3 (HCM intersection LOS calculation worksheets are included in Appendix 6.3). As the summary table indicates, each of the ramp intersections are forecast to operate at an acceptable LOS (i.e., LOS D or better) under 2015 with 2012 Modified Project Option 1 conditions.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 6-4 summarizes the longest 95$^{th}$ percentile queue length at each off-ramp under Year 2015 with Option 1 peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 6.4). As the summary table indicates, none of the vehicle queue lengths exceed the physical length of the off-ramps, and therefore traffic exiting at the I-5 at Sand Canyon Avenue off-ramps is not expected to back up onto the I-5 mainline under Year 2015 with Option 1 conditions. The on-ramps at the Sand Canyon Avenue/I-5

EXHIBIT 6-5 (1 OF 2)

# YEAR 2015 INTERSECTION LOCATION MAP
# WEST STUDY AREA

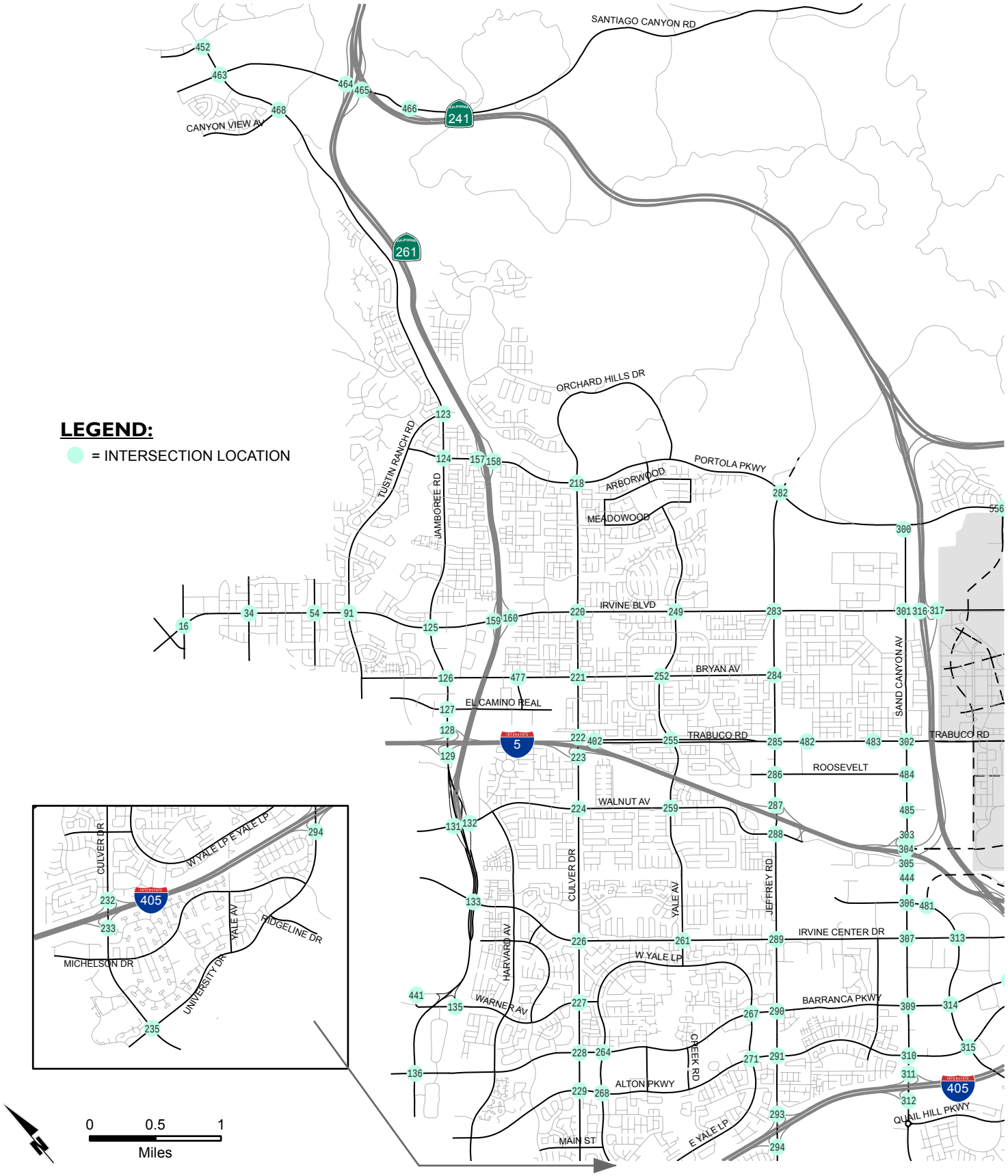
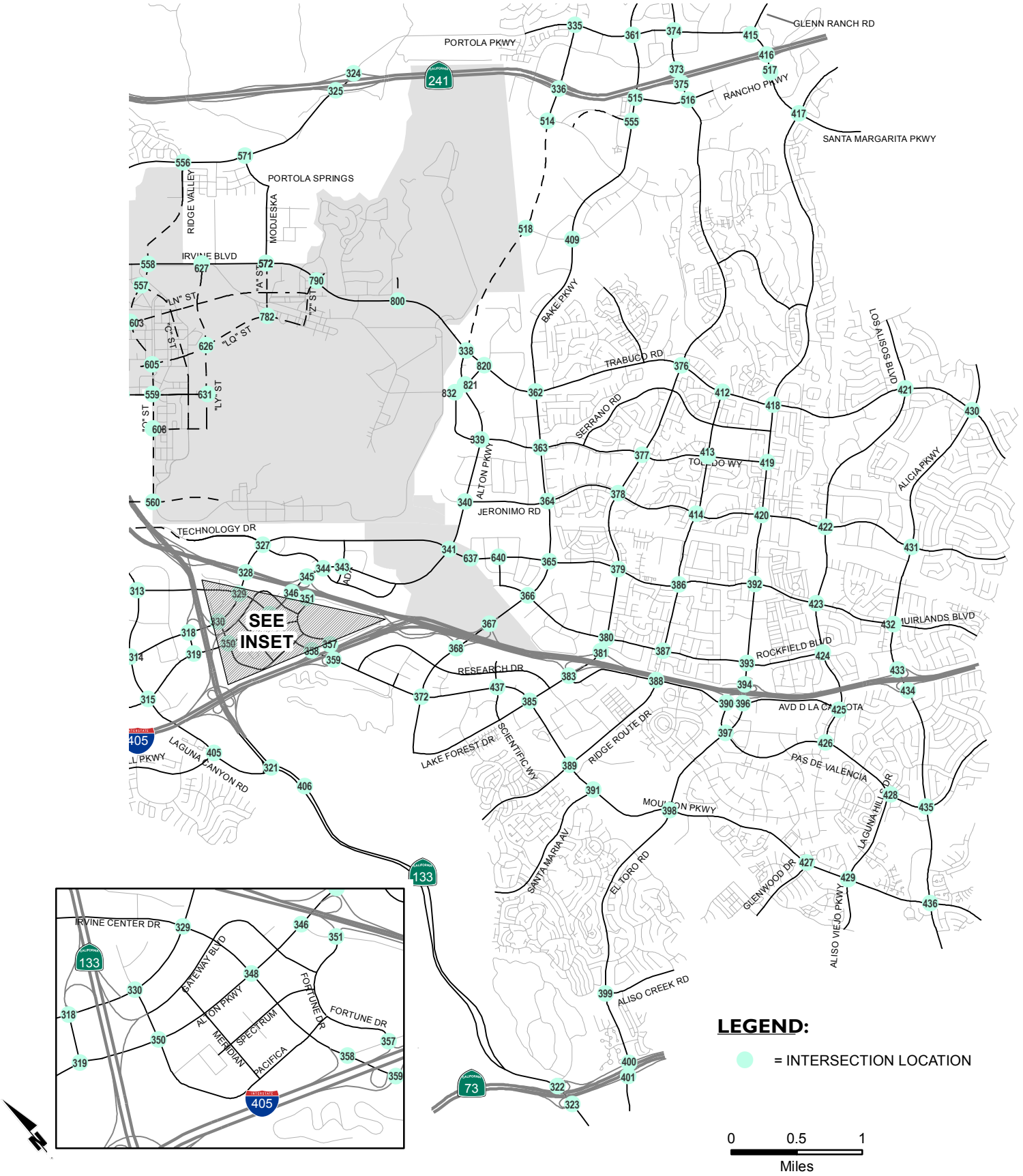


EXHIBIT 6-5 (2 OF 2)

# YEAR 2015 INTERSECTION LOCATION MAP
# EAST STUDY AREA



## Table 6-2

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.76 | C | 0.77 | C | 0.76 | C | 0.76 | C |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | | | 0.72 | C | 0.80 | C | 0.71 | C | 0.80 | C |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **0.92** | **E** | 0.76 | C | **0.92** | **E** | 0.77 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | | | 0.81 | D | 0.81 | D | 0.81 | D | 0.81 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.59 | A | 0.73 | C | 0.59 | A | 0.73 | C |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | Yes | 0.79 | C | 0.69 | B | 0.78 | C | 0.69 | B |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.68 | B | 0.61 | B | 0.67 | B | 0.61 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.69 | B | 0.67 | B | 0.68 | B | 0.67 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.71 | C | 0.66 | B | 0.70 | B | 0.66 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.48 | A | 0.50 | A | 0.48 | A | 0.50 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.40 | A | 0.62 | B | 0.39 | A | 0.62 | B |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.41 | A | 0.60 | A | 0.41 | A | 0.61 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.35 | A | 0.32 | A | 0.35 | A | 0.32 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.82 | D | 0.98 | E | 0.81 | D | 0.98 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.34 | A | 0.38 | A | 0.34 | A | 0.38 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.37 | A | 0.34 | A | 0.36 | A | 0.34 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.48 | A | 0.43 | A | 0.47 | A | 0.43 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.61 | B | 0.51 | A | 0.61 | B | 0.52 | A |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.63 | B | 0.59 | A | 0.62 | B | 0.59 | A |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.73 | C | 0.74 | C | 0.73 | C | 0.74 | C |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.84 | D | 0.66 | B | 0.84 | D | 0.65 | B |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | 0.70 | B | 0.75 | C | 0.71 | C | 0.75 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | 0.59 | A | 0.65 | B | 0.58 | A | 0.65 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | | | 0.77 | C | 0.80 | C | 0.78 | C | 0.81 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.73 | C | 0.65 | B | 0.71 | C | 0.65 | B |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.77 | C | 0.58 | A | 0.77 | C | 0.59 | A |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | | | 0.85 | D | 0.73 | C | 0.84 | D | 0.72 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.79 | C | 0.82 | D | 0.79 | C | 0.82 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.50 | A | 0.88 | D | 0.49 | A | 0.88 | D |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.51 | A | 0.62 | B | 0.51 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | **F** | | | 0.60 | A | 0.81 | D | 0.60 | A | 0.81 | D |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | 0.67 | B | 0.79 | C | 0.66 | B | 0.78 | C |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.43 | A | 0.40 | A | 0.42 | A | 0.40 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.58 | A | 0.46 | A | 0.57 | A | 0.47 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.58 | A | 0.69 | B | 0.57 | A | 0.69 | B |
| 261 | Yale Av at ICD | Irv | | | | 0.60 | A | 0.59 | A | 0.58 | A | 0.59 | A |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.62 | B | 0.59 | A | 0.62 | B | 0.59 | A |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.66 | B | 0.64 | B | 0.66 | B | 0.64 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.62 | B | 0.62 | B | 0.62 | B | 0.62 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.68 | B | 0.68 | B | 0.68 | B | 0.68 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.56 | A | 0.62 | B | 0.57 | A | 0.61 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.66 | B | 0.65 | B | 0.66 | B | 0.66 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.61 | B | 0.56 | A | 0.62 | B | 0.57 | A |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.60 | A | 0.62 | B | 0.61 | B | 0.63 | B |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.89 | D | 0.82 | D | 0.88 | D | 0.82 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.67 | B | 0.78 | C | 0.67 | B | 0.78 | C |

## Table 6-2 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | 0.71 | C | 0.69 | B | 0.71 | C | 0.69 | B |
| 289 | Jeffrey Rd at ICD | Irv | **F** | | | 0.72 | C | 0.81 | D | 0.72 | C | 0.82 | D |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | | | 0.84 | D | 0.72 | C | 0.83 | D | 0.72 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | | **0.92** | **E** | 0.84 | D | **0.92** | **E** | 0.84 | D |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | 0.72 | C | 0.81 | D | 0.71 | C | 0.81 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.61 | B | 0.63 | B | 0.61 | B | 0.63 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.36 | A | 0.47 | A | 0.35 | A | 0.46 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.61 | B | 0.58 | A | 0.62 | B | 0.58 | A |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | | 0.70 | B | 0.61 | B | 0.70 | B | 0.69 | B |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | 0.69 | B | 0.72 | C | 0.68 | B | 0.75 | C |
| 304 | Sand Canyon at Marine Wy | | | | | 0.79 | C | 0.85 | D | 0.80 | C | 0.86 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | 0.80 | C | 0.77 | C | 0.80 | C | 0.81 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | 0.65 | B | 0.84 | D | 0.66 | B | 0.85 | D |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.53 | A | 0.61 | B | 0.53 | A | 0.63 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.50 | A | 0.51 | A | 0.50 | A | 0.51 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | 0.67 | B | 0.70 | B | 0.68 | B | 0.70 | B |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | 0.66 | B | 0.47 | A | 0.66 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.83 | D | 0.62 | B | 0.83 | D | 0.62 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.30 | A | 0.37 | A | 0.30 | A | 0.38 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.37 | A | 0.36 | A | 0.38 | A | 0.36 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.54 | A | 0.53 | A | 0.54 | A | 0.52 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.48 | A | 0.50 | A | 0.50 | A | 0.50 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.52 | A | 0.69 | B | 0.60 | A | 0.71 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.67 | B | 0.53 | A | 0.67 | B | 0.52 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.59 | A | 0.56 | A | 0.59 | A | 0.55 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | 0.66 | B | 0.61 | B | 0.66 | B | 0.61 | B |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | **1.05** | **F** | 0.88 | D | **1.06** | **F** | 0.88 | D |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.34 | A | 0.38 | A | 0.34 | A | 0.38 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.28 | A | 0.18 | A | 0.29 | A | 0.19 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.26 | A | 0.31 | A | 0.26 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | 0.58 | A | 0.73 | C | 0.60 | A | 0.73 | C |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.60 | A | 0.44 | A | 0.59 | A | 0.44 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.67 | B | 0.63 | B | 0.67 | B | 0.63 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.57 | A | 0.72 | C | 0.58 | A | 0.72 | C |
| 333 | Pacifica at Gateway | Irv | | | Yes | 0.61 | B | 0.71 | C | 0.62 | B | 0.71 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.44 | A | 0.31 | A | 0.44 | A | 0.31 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | 0.45 | A | 0.42 | A | 0.45 | A | 0.42 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | Yes | 0.84 | D | 0.79 | C | 0.84 | D | 0.80 | C |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.65 | B | 0.59 | A | 0.65 | B | 0.59 | A |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.67 | B | 0.53 | A | 0.67 | B | 0.52 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.58 | A | 0.69 | B | 0.58 | A | 0.69 | B |
| 343 | Alton Pw at Ada | Irv | | | | 0.48 | A | 0.56 | A | 0.48 | A | 0.56 | A |
| 344 | Alton Pw at Technology | Irv | **P** | | | 0.59 | A | 0.83 | D | 0.59 | A | 0.83 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | Yes | 0.71 | C | 0.45 | A | 0.71 | C | 0.45 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.64 | B | 0.74 | C | 0.64 | B | 0.74 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | Yes | 0.64 | B | 0.72 | C | 0.63 | B | 0.72 | C |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.61 | B | 0.56 | A | 0.62 | B | 0.56 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.47 | A | 0.76 | C | 0.48 | A | 0.78 | C |

## Table 6-2 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.47 | A | 0.43 | A | 0.47 | A | 0.43 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | Yes | 0.85 | D | 0.74 | C | 0.84 | D | 0.74 | C |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | Yes | 0.78 | C | 0.74 | C | 0.78 | C | 0.74 | C |
| 361 | Bake Pw at Portola Pw | LF | | | | 0.51 | A | 0.81 | D | 0.52 | A | 0.81 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | Yes | 0.77 | C | 0.79 | C | 0.77 | C | 0.80 | C |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.81 | D | 0.63 | B | 0.79 | C | 0.64 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | 0.77 | C | 0.67 | B | 0.77 | C | 0.68 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.70 | B | 0.85 | D | 0.71 | C | 0.84 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.65 | B | 0.83 | D | 0.65 | B | 0.82 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.84 | D | 0.69 | B | 0.84 | D | 0.69 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | Yes | 0.75 | C | 0.88 | D | 0.75 | C | 0.87 | D |
| 371 | Bake Pw at Research | Irv | | | | 0.56 | A | 0.84 | D | 0.56 | A | 0.77 | C |
| 372 | Bake Pw at ICD | Irv | | | | 0.49 | A | 0.59 | A | 0.49 | A | 0.59 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.31 | A | 0.35 | A | 0.31 | A | 0.35 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.54 | A | 0.76 | C | 0.54 | A | 0.76 | C |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.41 | A | 0.44 | A | 0.41 | A | 0.44 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.83 | D | 0.82 | D | 0.83 | D | 0.83 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.52 | A | 0.48 | A | 0.52 | A | 0.48 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | 0.70 | B | 0.74 | C | 0.70 | B | 0.74 | C |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | 0.65 | B | 0.84 | D | 0.64 | B | 0.85 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | 0.69 | B | 0.76 | C | 0.69 | B | 0.76 | C |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | 0.57 | A | 0.64 | B | 0.57 | A | 0.64 | B |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | | Yes | 0.71 | C | 0.75 | C | 0.71 | C | 0.75 | C |
| 385 | Lake Forest Dr at ICD | Irv | | | Yes | 0.49 | A | 0.59 | A | 0.49 | A | 0.59 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.45 | A | 0.65 | B | 0.45 | A | 0.65 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | 0.45 | A | 0.55 | A | 0.46 | A | 0.55 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | 0.34 | A | 0.74 | C | 0.34 | A | 0.75 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.46 | A | 0.67 | B | 0.46 | A | 0.68 | B |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.53 | A | 0.71 | C | 0.53 | A | 0.71 | C |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | 0.53 | A | 0.73 | C | 0.53 | A | 0.74 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.65 | B | 0.80 | C | 0.65 | B | 0.80 | C |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.52 | A | 0.63 | B | 0.51 | A | 0.63 | B |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | Yes | 0.75 | C | 0.88 | D | 0.74 | C | 0.87 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | Yes | 0.60 | A | 0.88 | D | 0.60 | A | 0.87 | D |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B |
| 398 | El Toro Rd at Moulton Pw | LW | | | Yes | 0.70 | B | 0.80 | C | 0.71 | C | 0.80 | C |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | 0.53 | A | 0.84 | D | 0.54 | A | 0.83 | D |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.56 | A | 0.62 | B | 0.56 | A | 0.62 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | Yes | 0.45 | A | 0.64 | B | 0.45 | A | 0.64 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.59 | A | 0.61 | B | 0.57 | A | 0.61 | B |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.42 | A | 0.35 | A | 0.42 | A | 0.35 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | 0.46 | A | 0.42 | A | 0.46 | A | 0.42 | A |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.60 | A | 0.71 | C | 0.60 | A | 0.72 | C |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.49 | A | 0.60 | A | 0.49 | A | 0.60 | A |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.31 | A | 0.33 | A | 0.31 | A | 0.34 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.44 | A | 0.55 | A | 0.45 | A | 0.55 | A |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.61 | B | 0.62 | B | 0.60 | A | 0.62 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.48 | A | 0.60 | A | 0.49 | A | 0.59 | A |

## Table 6-2 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.64 | B | 0.85 | D | 0.65 | B | 0.85 | D |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.68 | B | 0.75 | C | 0.69 | B | 0.75 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.57 | A | 0.59 | A | 0.58 | A | 0.59 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | 0.74 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | 0.70 | B | 0.80 | C | 0.72 | C | 0.80 | C |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | 0.88 | D | **0.93** | **E** | 0.88 | D | **0.93** | **E** |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | 0.81 | D | 0.81 | D | 0.81 | D | 0.81 | D |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | 0.51 | A | 0.66 | B | 0.51 | A | 0.66 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | 0.49 | A | 0.58 | A | 0.49 | A | 0.58 | A |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | 0.59 | A | 0.54 | A | 0.59 | A | 0.54 | A |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | 0.65 | B | 0.72 | C | 0.65 | B | 0.72 | C |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | 0.61 | B | 0.67 | B | 0.61 | B | 0.67 | B |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.78 | C | 0.75 | C | 0.78 | C | 0.75 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | 0.68 | B | 0.85 | D | 0.68 | B | 0.85 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | 0.44 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.77 | C | 0.87 | D | 0.77 | C | 0.87 | D |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.60 | A | 0.68 | B | 0.60 | A | 0.68 | B |
| 436 | Moulton Pw at Alicia Pw | LH | | | | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 437 | Scientific Wy at ICD | Irv | | | | 0.31 | A | 0.37 | A | 0.31 | A | 0.37 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | 0.26 | A | 0.17 | A | 0.26 | A | 0.17 | A |
| 444 | Sand Canyon at Burt Rd | Irv | | | | 0.70 | B | 0.57 | A | 0.76 | C | 0.77 | C |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.53 | A | 0.57 | A | 0.53 | A | 0.57 | A |
| 463 | Jamboree Rd at Chapman Av | Ora | | | | 0.59 | A | 0.68 | B | 0.59 | A | 0.69 | B |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.67 | B | 0.66 | B | 0.67 | B | 0.66 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.64 | B | 0.75 | C | 0.64 | B | 0.75 | C |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | 0.53 | A | 0.52 | A | 0.53 | A | 0.51 | A |
| 468 | Jamboree Rd at Canyon View | Ora | | | | 0.53 | A | 0.36 | A | 0.54 | A | 0.36 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.36 | A | 0.44 | A | 0.37 | A | 0.43 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.41 | A | 0.36 | A | 0.40 | A | 0.36 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.36 | A | 0.30 | A | 0.36 | A | 0.31 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.30 | A | 0.25 | A | 0.30 | A | 0.26 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.68 | B | 0.40 | A | 0.68 | B | 0.42 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | 0.69 | B | 0.51 | A | 0.69 | B | 0.52 | A |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.60 | A | 0.55 | A | 0.60 | A | 0.55 | A |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.61 | B | 0.71 | C | 0.62 | B | 0.71 | C |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | 0.59 | A | 0.85 | D | 0.59 | A | 0.85 | D |
| 518 | Alton Pw at Commercentre | LF | | | | 0.53 | A | 0.64 | B | 0.53 | A | 0.64 | B |
| 555 | Bake Pw at Rancho Pkw South | LF | | | | 0.61 | B | 0.67 | B | 0.62 | B | 0.66 | B |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.50 | A | 0.58 | A | 0.51 | A | 0.63 | B |
| 557 | O St at C St | Irv | | | | 0.18 | A | 0.24 | A | 0.34 | A | 0.34 | A |
| 558 | O St at Irvine Bl | Irv | | | | 0.58 | A | 0.75 | C | 0.59 | A | 0.76 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.63 | B | 0.44 | A | 0.69 | B | 0.58 | A |
| 560 | O St at Marine Wy | Irv | | | | 0.27 | A | 0.47 | A | 0.27 | A | 0.48 | A |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.43 | A | 0.40 | A | 0.43 | A | 0.40 | A |
| 571 | Portola Springs at Portola Pw | Irv | | | | 0.54 | A | 0.47 | A | 0.55 | A | 0.48 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.51 | A | 0.56 | A | 0.52 | A | 0.56 | A |

## Table 6-2 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 603 | O St at LN St | Irv | | | | 0.28 | A | 0.21 | A | 0.33 | A | 0.24 | A |
| 605 | O St at LQ St | Irv | | | | 0.43 | A | 0.35 | A | 0.44 | A | 0.35 | A |
| 608 | O St at LV St | Irv | | | | 0.15 | A | 0.28 | A | 0.19 | A | 0.34 | A |
| 626 | LY St at LQ St | Irv | | | | 0.30 | A | 0.29 | A | 0.36 | A | 0.33 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.44 | A | 0.65 | B | 0.43 | A | 0.66 | B |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.10 | A | 0.15 | A | 0.10 | A | 0.11 | A |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.33 | A | 0.46 | A | 0.33 | A | 0.46 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.29 | A | 0.39 | A | 0.29 | A | 0.39 | A |
| 782 | A St at LQ St | Irv | | | | 0.18 | A | 0.22 | A | 0.21 | A | 0.26 | A |
| 787 | Z St at LQ St | Irv | | | | 0.11 | A | 0.14 | A | 0.15 | A | 0.18 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.62 | B | 0.58 | A | 0.65 | B | 0.57 | A |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.78 | C | 0.81 | D | 0.79 | C | 0.83 | D |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.50 | A | 0.61 | B | 0.51 | A | 0.62 | B |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | 0.51 | A | 0.53 | A | 0.51 | A | 0.53 | A |
| 832 | Fairbanks at Astor | Irv | | | | 0.06 | A | 0.07 | A | 0.06 | A | 0.07 | A |

**Bold** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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**Table 6-3**

**Year 2015 Caltrans Ramp Intersection LOS Summary (HCM Methodology)**
**Adjacent Intersections With 2012 Modified Project, Option 1**

| Intersection | 2015 Without Project | | 2015 With 2012 Modified Project Option 1 | |
|---|---|---|---|---|
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | | | | |
| - AM Peak Hour | 37.0 | D | 40.7 | D |
| - PM Peak Hour | 31.9 | C | 33.3 | C |
| 304. Sand Canyon & Marine Way | | | | |
| - AM Peak Hour | 15.5 | B | 20.1 | C |
| - PM Peak Hour | 22.5 | C[1] | 26.8 | C[1] |
| 305. Sand Canyon & I-5 SB Ramps | | | | |
| - AM Peak Hour | 46.0 | D[2] | 49.3 | D[2] |
| - PM Peak Hour | 35.6 | D | 42.1 | D[3] |
| 316. SR-133 SB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.0 | B | 14.9 | B |
| - PM Peak Hour | 11.6 | B | 12.8 | B |
| 317. SR-133 NB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 9.2 | A | 10.4 | B |
| - PM Peak Hour | 18.0 | B | 18.6 | B |

[1] Per the HCM methodoloy, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the existing offset intersection design which is ultimately addressed with the realignment of Marine Way).

[2] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of eastbound right turn vehicles during the morning peak hour).

[3] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of southbound left vehicles during the evening peak hour).

interchanges are metered with queue detectors installed, and the timing of the ramp meters will continue to be coordinated by Caltrans and the City of Irvine.

**Table 6-4**

**Year 2015 With 2012 Modified Project Option 1 HCM**
**Freeway Ramp Queuing Analysis Summary**

| Intersection | Total Ramp Length | Highest Queue Length | Peak Hour | Does the Queue Exceed the Ramp Length?[1] |
|---|---|---|---|---|
| I-5 Northbound Off-Ramp at Sand Canyon Av | 1,180 feet | 437 feet | (PM) | No |
| I-5 Southbound Off-Ramp at Sand Canyon Av | 810 feet | 732 feet | (AM) | No |

[1] If the maximum queue length does not exceed the total length of the off-ramp, then the traffic queue on the ramp is not expected to back up onto the freeway mainline during the peak hours.

### 6.1.3 Interim Year 2015 Peak Hour Freeway/Tollway Ramp Levels of Service, Option 1

Exhibit 6-6 illustrates the interchange locations where freeway/tollway ramps are analyzed based on Year 2015 conditions. Year 2015 Without Project and with 2012 Modified Project Option 1 AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 6-5. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, none of the freeway ramps are forecast to exceed adopted impact thresholds with Option 1 based on Year 2015 conditions.

### 6.1.4 Interim Year 2015 Peak Hour Freeway/Tollway Mainline Levels of Service, Option 1

Year 2015 Without Project and Year 2015 With 2012 Modified Project Option 1 AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 6-6. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-3, none of the freeway mainline segments are forecast to exceed adopted impact thresholds with Option 1 based on Year 2015 conditions.

## 6.2 Interim Year 2015 Traffic Impacts with 2012 Modified Project with Option 2

The following sub-sections summarize the resulting Year 2015 Without Project and Year 2015 With 2012 Modified Project Option 2 traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline

EXHIBIT 6-6 (1 OF 2)

# YEAR 2015 FREEWAY INTERCHANGE LOCATIONS
# WEST STUDY AREA

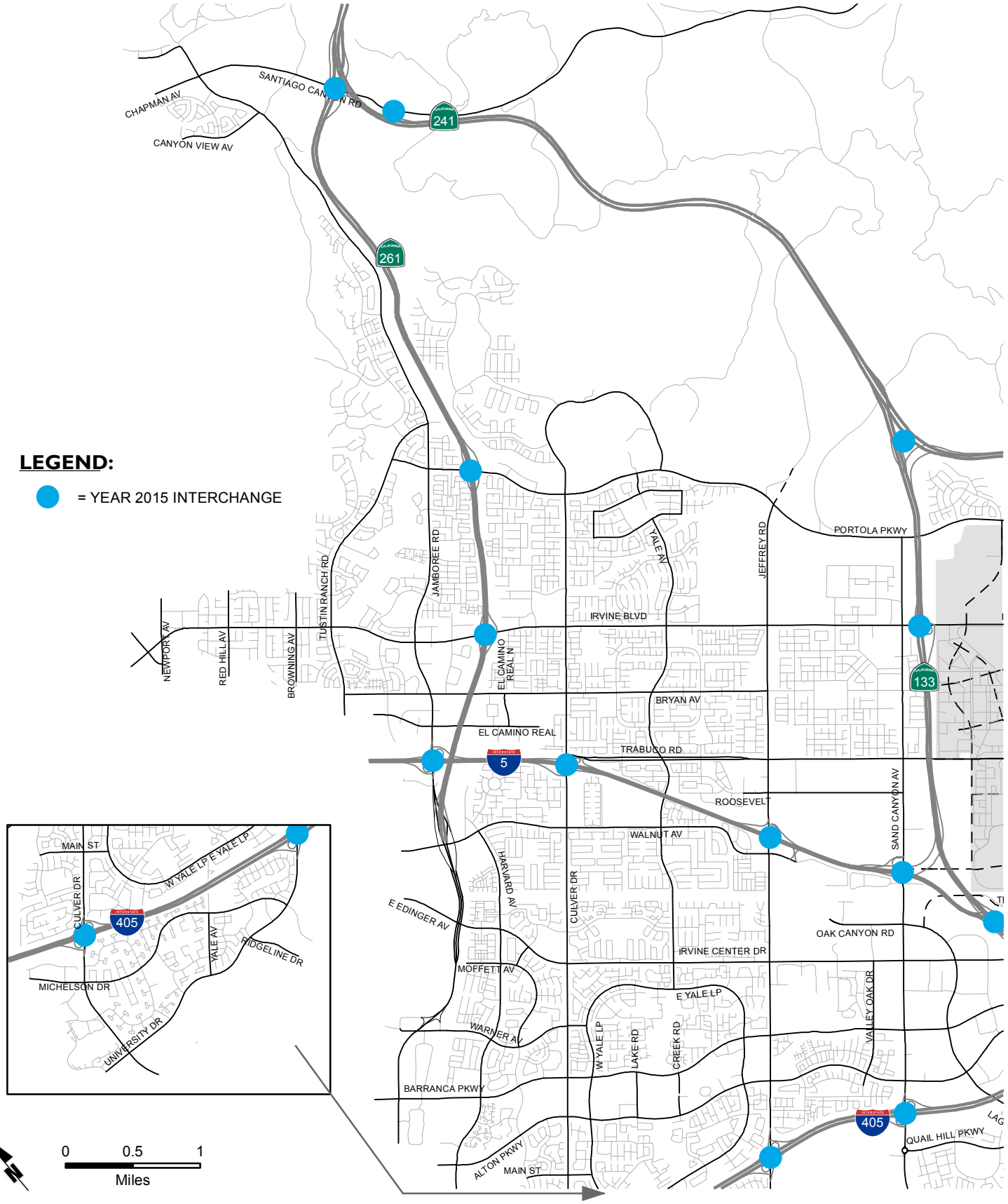
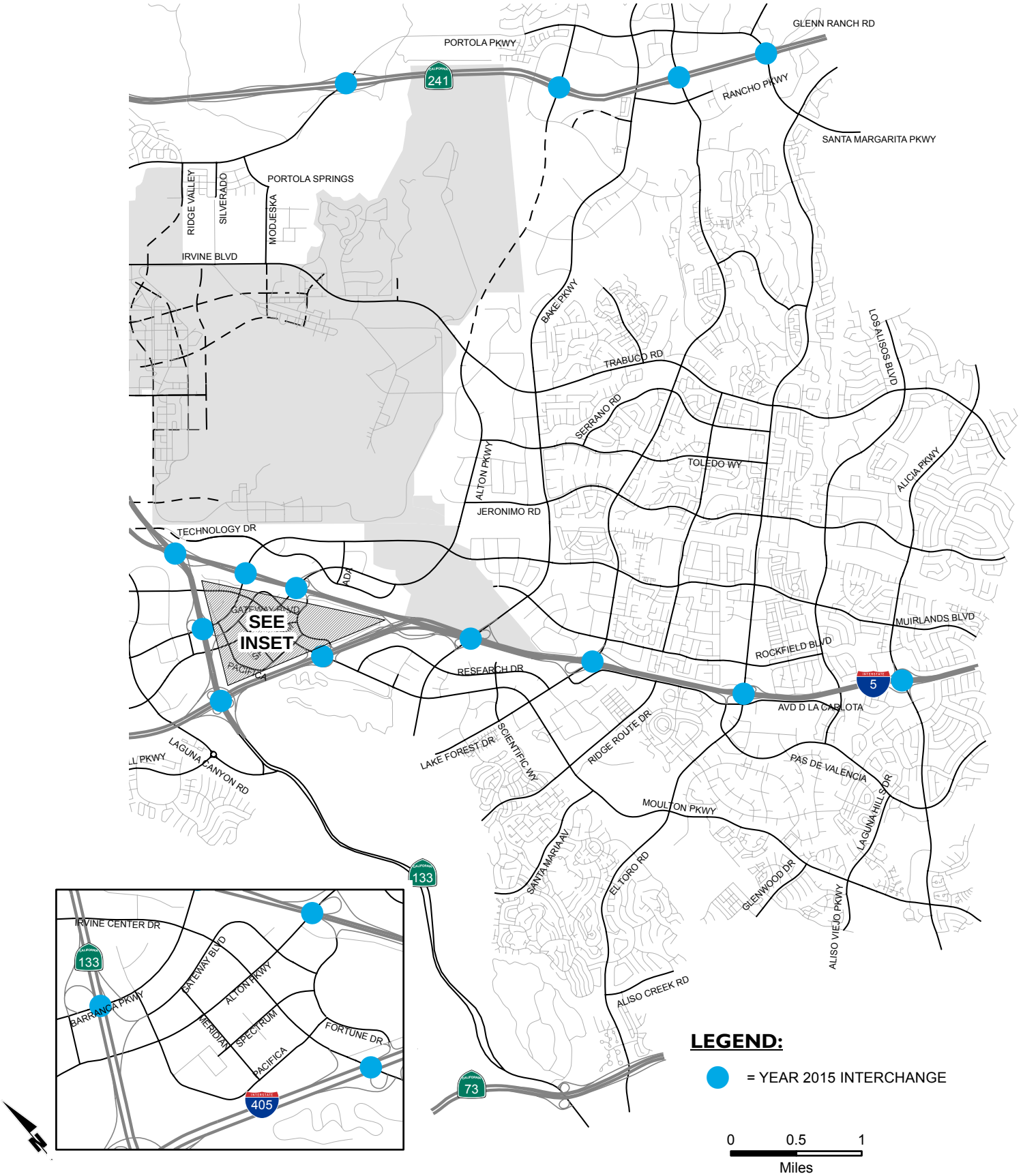


EXHIBIT 6-6 (2 OF 2)

# YEAR 2015 FREEWAY INTERCHANGE LOCATIONS
# EAST STUDY AREA



## Table 6-5

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 1 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 420 | 0.28 | A | 1,110 | 0.74 | C | 410 | 0.27 | A | 1,110 | 0.74 | C |
| | SB Loop On | 1 | 1,080 | 520 | 0.48 | A | 440 | 0.41 | A | 530 | 0.49 | A | 440 | 0.41 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 760 | 0.70 | B | 670 | 0.62 | B | 750 | 0.69 | B |
| | SB Off | 1 | 1,500 | 1,516 | **1.01** | **F** | 1,519 | **1.01** | **F** | 1,504 | 1.00 | E | 1,519 | **1.01** | **F** |
| | NB Off | 1 | 1,500 | 1,549 | **1.03** | **F** | 1,289 | 0.86 | D | 1,542 | **1.03** | **F** | 1,300 | 0.87 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 260 | 0.29 | A | 390 | 0.43 | A | 260 | 0.29 | A |
| | NB Direct On | 1 | 900 | 735 | 0.82 | D | 179 | 0.20 | A | 736 | 0.82 | D | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,180 | 0.79 | C | 590 | 0.39 | A | 1,150 | 0.77 | C | 600 | 0.40 | A |
| | SB Off | 2 | 2,250 | 1,097 | 0.49 | A | 2,156 | 0.96 | E | 1,110 | 0.49 | A | 2,145 | 0.95 | E |
| | NB Off | 1 | 1,500 | 332 | 0.22 | A | 523 | 0.35 | A | 334 | 0.22 | A | 538 | 0.36 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 886 | 0.82 | D | 611 | 0.57 | A | 891 | 0.83 | D | 621 | 0.58 | A |
| | NB Direct On | 1 | 1,080 | 680 | 0.63 | B | 330 | 0.31 | A | 670 | 0.62 | B | 340 | 0.31 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 611 | 0.41 | A | 831 | 0.55 | A | 610 | 0.41 | A | 829 | 0.55 | A |
| | NB Off | 2 | 2,250 | 811 | 0.36 | A | 1,387 | 0.62 | B | 820 | 0.36 | A | 1,392 | 0.62 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 950 | 0.63 | B | 880 | 0.59 | A | 1,000 | 0.67 | B | 980 | 0.65 | B |
| | NB On | 1 | 1,500 | 500 | 0.33 | A | 1,110 | 0.74 | C | 500 | 0.33 | A | 1,110 | 0.74 | C |
| | SB Off | 1 | 1,500 | 1,450 | 0.97 | E | 771 | 0.51 | A | 1,461 | 0.97 | E | 770 | 0.51 | A |
| | NB Off | 2 | 2,250 | 712 | 0.32 | A | 841 | 0.37 | A | 782 | 0.35 | A | 882 | 0.39 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 40 | 0.03 | A | 180 | 0.12 | A | 40 | 0.03 | A | 170 | 0.11 | A |
| | SB Off | 1 | 1,500 | 188 | 0.13 | A | 120 | 0.08 | A | 198 | 0.13 | A | 120 | 0.08 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 350 | 0.23 | A | 600 | 0.40 | A | 340 | 0.23 | A | 590 | 0.39 | A |
| | NB Direct On | 2 | 1,800 | 350 | 0.19 | A | 1,080 | 0.60 | A | 350 | 0.19 | A | 1,100 | 0.61 | B |
| | NB Loop On | 1 | 1,500 | 584 | 0.39 | A | 145 | 0.10 | A | 575 | 0.38 | A | 146 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,100 | 0.93 | E | 920 | 0.41 | A | 2,129 | 0.95 | E | 950 | 0.42 | A |
| | NB Off | 2 | 2,250 | 1,170 | 0.52 | A | 310 | 0.14 | A | 1,160 | 0.52 | A | 310 | 0.14 | A |

## Table 6-5 Cont.

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 1 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 17 | 0.01 | A | 105 | 0.07 | A | 18 | 0.01 | A | 105 | 0.07 | A |
| | SB Loop On | 1 | 1,080 | 291 | 0.27 | A | 600 | 0.56 | A | 290 | 0.27 | A | 600 | 0.56 | A |
| | NB Direct On | 2 | 3,400 | 2,178 | 0.64 | B | 1,979 | 0.58 | A | 2,180 | 0.64 | B | 1,975 | 0.58 | A |
| | NB Loop On | 1 | 1,500 | 510 | 0.34 | A | 1,240 | 0.83 | D | 500 | 0.33 | A | 1,242 | 0.83 | D |
| | SB Off | 2 | 3,000 | 3,283 | **1.09** | **F** | 2,581 | 0.86 | D | 3,290 | **1.10** | **F** | 2,580 | 0.86 | D |
| | NB Off | 2 | 3,000 | 841 | 0.28 | A | 381 | 0.13 | A | 850 | 0.28 | A | 380 | 0.13 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 291 | 0.19 | A | 730 | 0.49 | A | 292 | 0.19 | A | 731 | 0.49 | A |
| | SB Loop On | 1 | 1,080 | 400 | 0.37 | A | 550 | 0.51 | A | 400 | 0.37 | A | 550 | 0.51 | A |
| | NB On | 2 | 1,800 | 1,470 | 0.82 | D | 1,020 | 0.57 | A | 1,519 | 0.84 | D | 1,033 | 0.57 | A |
| | SB Off | 2 | 3,000 | 1,873 | 0.62 | B | 2,548 | 0.85 | D | 1,891 | 0.63 | B | 2,558 | 0.85 | D |
| | NB Off | 1 | 1,500 | 1,140 | 0.76 | C | 610 | 0.41 | A | 1,146 | 0.76 | C | 609 | 0.41 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 247 | 0.23 | A | 197 | 0.18 | A | 248 | 0.23 | A | 201 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 387 | 0.26 | A | 433 | 0.29 | A | 385 | 0.26 | A | 433 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,837 | **1.22** | **F** | 1,329 | 0.89 | D | 1,816 | **1.21** | **F** | 1,330 | 0.89 | D |
| | NB Loop On | 1 | 1,500 | 900 | 0.60 | A | 1,100 | 0.73 | C | 903 | 0.60 | A | 1,106 | 0.74 | C |
| | SB Off | 2 | 2,250 | 1,442 | 0.64 | B | 1,310 | 0.58 | A | 1,441 | 0.64 | B | 1,341 | 0.60 | A |
| | NB Off | 1 | 1,500 | 1,220 | 0.81 | D | 1,220 | 0.81 | D | 1,223 | 0.82 | D | 1,218 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 200 | 0.19 | A | 150 | 0.14 | A | 200 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 830 | 0.55 | A | 750 | 0.50 | A | 830 | 0.55 | A | 750 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,302 | 0.87 | D | 800 | 0.53 | A | 1,302 | 0.87 | D | 810 | 0.54 | A |
| | NB Loop On | 1 | 1,500 | 1,252 | 0.83 | D | 800 | 0.53 | A | 1,252 | 0.83 | D | 810 | 0.54 | A |
| | SB Off | 2 | 3,000 | 2,156 | 0.72 | C | 2,363 | 0.79 | C | 2,170 | 0.72 | C | 2,349 | 0.78 | C |
| | NB Off | 1 | 1,500 | 310 | 0.21 | A | 1,060 | 0.71 | C | 309 | 0.21 | A | 1,069 | 0.71 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 271 | 0.18 | A | 640 | 0.43 | A | 271 | 0.18 | A | 631 | 0.42 | A |
| | SB Loop On | 1 | 900 | 251 | 0.28 | A | 310 | 0.34 | A | 251 | 0.28 | A | 311 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 660 | 0.44 | A | 940 | 0.63 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 640 | 0.43 | A | 440 | 0.29 | A | 640 | 0.43 | A | 450 | 0.30 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,472 | 0.49 | A | 830 | 0.28 | A | 1,470 | 0.49 | A |
| | NB Off | 1 | 1,500 | 1,200 | 0.80 | C | 1,249 | 0.83 | D | 1,210 | 0.81 | D | 1,251 | 0.83 | D |

## Table 6-5 Cont.

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 1 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 990 | 0.66 | B | 1,120 | 0.75 | C | 980 | 0.65 | B | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 260 | 0.29 | A | 310 | 0.34 | A | 250 | 0.28 | A |
| | NB Direct On | 1 | 1,500 | 1,296 | 0.86 | D | 550 | 0.37 | A | 1,294 | 0.86 | D | 550 | 0.37 | A |
| | NB Loop On | 1 | 900 | 301 | 0.33 | A | 80 | 0.09 | A | 301 | 0.33 | A | 80 | 0.09 | A |
| | SB Off | 1 | 1,500 | 576 | 0.38 | A | 741 | 0.49 | A | 587 | 0.39 | A | 749 | 0.50 | A |
| | NB Off | 2 | 2,250 | 1,028 | 0.46 | A | 1,558 | 0.69 | B | 1,029 | 0.46 | A | 1,566 | 0.70 | B |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 531 | 0.35 | A | 360 | 0.24 | A | 540 | 0.36 | A |
| | NB Direct On | 1 | 1,500 | 1,203 | 0.80 | C | 1,130 | 0.75 | C | 1,203 | 0.80 | C | 1,143 | 0.76 | C |
| | NB Loop On | 1 | 1,500 | 652 | 0.43 | A | 390 | 0.26 | A | 641 | 0.43 | A | 391 | 0.26 | A |
| | SB Off | 1 | 1,500 | 1,604 | **1.07** | **F** | 962 | 0.64 | B | 1,609 | **1.07** | **F** | 954 | 0.64 | B |
| | NB Off | 1 | 1,500 | 496 | 0.33 | A | 500 | 0.33 | A | 496 | 0.33 | A | 500 | 0.33 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 100 | 0.11 | A | 90 | 0.10 | A | 100 | 0.11 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 140 | 0.16 | A | 310 | 0.34 | A | 140 | 0.16 | A | 310 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 497 | 0.33 | A | 679 | 0.45 | A | 479 | 0.32 | A | 688 | 0.46 | A |
| | NB Loop On | 1 | 1,500 | 480 | 0.32 | A | 1,230 | 0.82 | D | 470 | 0.31 | A | 1,230 | 0.82 | D |
| | SB Off | 2 | 2,250 | 2,117 | 0.94 | E | 1,585 | 0.70 | B | 2,132 | 0.95 | E | 1,593 | 0.71 | C |
| | NB Off | 2 | 3,000 | 1,208 | 0.40 | A | 460 | 0.15 | A | 1,220 | 0.41 | A | 460 | 0.15 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 788 | 0.20 | A | 2,422 | 0.61 | B | 791 | 0.20 | A | 2,427 | 0.61 | B |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 2,785 | 0.70 | B | 1,240 | 0.31 | A | 2,810 | 0.70 | B | 1,239 | 0.31 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,431 | 0.36 | A | 2,446 | 0.61 | B | 1,409 | 0.35 | A | 2,477 | 0.62 | B |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,210 | 0.80 | C | 1,515 | 0.38 | A | 3,235 | 0.81 | D | 1,515 | 0.38 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 530 | 0.35 | A | 330 | 0.22 | A | 530 | 0.35 | A | 380 | 0.25 | A |
| | NB Direct On | 1 | 1,500 | 140 | 0.09 | A | 150 | 0.10 | A | 140 | 0.09 | A | 150 | 0.10 | A |
| | NB Loop On | 1 | 1,500 | 220 | 0.15 | A | 270 | 0.18 | A | 210 | 0.14 | A | 290 | 0.19 | A |
| | SB Off | 2 | 2,250 | 492 | 0.22 | A | 319 | 0.14 | A | 520 | 0.23 | A | 319 | 0.14 | A |
| | NB Off | 1 | 1,500 | 222 | 0.15 | A | 632 | 0.42 | A | 315 | 0.21 | A | 653 | 0.44 | A |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 808 | 0.40 | A | 1,303 | 0.65 | B | 836 | 0.42 | A | 1,307 | 0.65 | B |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,671 | 0.84 | D | 947 | 0.47 | A | 1,666 | 0.83 | D | 968 | 0.48 | A |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,579 | 0.79 | C | 779 | 0.39 | A | 1,570 | 0.79 | C | 781 | 0.39 | A |

## Table 6-5 Cont.

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 1 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 662 | 0.33 | A | 1,539 | 0.77 | C | 675 | 0.34 | A | 1,541 | 0.77 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 1,774 | 0.44 | A | 1,417 | 0.35 | A | 1,796 | 0.45 | A | 1,442 | 0.36 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 1,702 | 0.43 | A | 1,872 | 0.47 | A | 1,725 | 0.43 | A | 1,882 | 0.47 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 130 | 0.12 | A | 1,144 | **1.06** | **F** | 131 | 0.12 | A | 1,144 | **1.06** | **F** |
| | NB Direct On | 1 | 1,080 | 115 | 0.11 | A | 570 | 0.53 | A | 131 | 0.12 | A | 582 | 0.54 | A |
| | NB Loop On | 1 | 1,080 | 350 | 0.32 | A | 1,420 | **1.31** | **F** | 382 | 0.35 | A | 1,430 | **1.32** | **F** |
| | SB Off | 2 | 3,000 | 2,109 | 0.70 | B | 420 | 0.14 | A | 2,109 | 0.70 | B | 450 | 0.15 | A |
| | NB Off | 2 | 2,250 | 1,416 | 0.63 | B | 590 | 0.26 | A | 1,420 | 0.63 | B | 580 | 0.26 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 724 | 0.36 | A | 593 | 0.30 | A | 759 | 0.38 | A | 613 | 0.31 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 215 | 0.11 | A | 348 | 0.17 | A | 214 | 0.11 | A | 347 | 0.17 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 691 | 0.17 | A | 511 | 0.13 | A | 698 | 0.17 | A | 517 | 0.13 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 650 | 0.16 | A | 316 | 0.08 | A | 641 | 0.16 | A | 316 | 0.08 | A |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 196 | 0.10 | A | 363 | 0.18 | A | 192 | 0.10 | A | 357 | 0.18 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,484 | 0.74 | C | 1,600 | 0.80 | C | 1,495 | 0.75 | C | 1,585 | 0.79 | C |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 455 | 0.23 | A | 501 | 0.25 | A | 454 | 0.23 | A | 501 | 0.25 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 677 | 0.38 | A | 391 | 0.22 | A | 685 | 0.38 | A | 390 | 0.22 | A |
| | NB On | 1 | 1,500 | 320 | 0.21 | A | 401 | 0.27 | A | 310 | 0.21 | A | 400 | 0.27 | A |
| | SB Off | 1 | 1,500 | 749 | 0.50 | A | 361 | 0.24 | A | 751 | 0.50 | A | 361 | 0.24 | A |
| | NB Off | 1 | 1,500 | 688 | 0.46 | A | 811 | 0.54 | A | 687 | 0.46 | A | 816 | 0.54 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 265 | 0.18 | A | 410 | 0.27 | A | 277 | 0.18 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 58 | 0.04 | A | 30 | 0.02 | A | 50 | 0.03 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 50 | 0.03 | A | 70 | 0.05 | A | 50 | 0.03 | A | 71 | 0.05 | A |
| | NB Off | 1 | 1,500 | 660 | 0.44 | A | 354 | 0.24 | A | 665 | 0.44 | A | 365 | 0.24 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 350 | 0.23 | A | 620 | 0.41 | A | 349 | 0.23 | A | 619 | 0.41 | A |
| | NB On | 1 | 1,500 | 300 | 0.20 | A | 370 | 0.25 | A | 306 | 0.20 | A | 373 | 0.25 | A |
| | SB Off | 1 | 1,500 | 420 | 0.28 | A | 290 | 0.19 | A | 426 | 0.28 | A | 294 | 0.20 | A |
| | NB Off | 2 | 2,250 | 550 | 0.24 | A | 430 | 0.19 | A | 553 | 0.25 | A | 428 | 0.19 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 250 | 0.11 | A | 580 | 0.26 | A | 252 | 0.11 | A | 584 | 0.26 | A |
| | SB Off | 1 | 1,500 | 540 | 0.36 | A | 360 | 0.24 | A | 545 | 0.36 | A | 366 | 0.24 | A |

## Table 6-5 Cont.

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 1 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 250 | 0.17 | A | 1,000 | 0.67 | B | 250 | 0.17 | A | 1,001 | 0.67 | B |
| | NB On | 2 | 2,250 | 870 | 0.39 | A | 380 | 0.17 | A | 896 | 0.40 | A | 386 | 0.17 | A |
| | SB Off | 1 | 1,500 | 370 | 0.25 | A | 630 | 0.42 | A | 377 | 0.25 | A | 628 | 0.42 | A |
| | NB Off | 2 | 2,250 | 1,650 | 0.73 | C | 360 | 0.16 | A | 1,654 | 0.74 | C | 360 | 0.16 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 760 | 0.51 | A | 200 | 0.13 | A | 770 | 0.51 | A | 200 | 0.13 | A |
| | NB Off | 1 | 1,500 | 60 | 0.04 | A | 608 | 0.41 | A | 60 | 0.04 | A | 607 | 0.40 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 170 | 0.11 | A | 100 | 0.07 | A | 169 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 260 | 0.17 | A | 160 | 0.11 | A | 260 | 0.17 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 101 | 0.07 | A | 182 | 0.12 | A | 100 | 0.07 | A | 172 | 0.11 | A |
| | NB Off | 1 | 1,500 | 101 | 0.07 | A | 99 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 621 | 0.41 | A | 260 | 0.17 | A | 630 | 0.42 | A | 260 | 0.17 | A |
| | NB On | 1 | 1,500 | 240 | 0.16 | A | 170 | 0.11 | A | 240 | 0.16 | A | 180 | 0.12 | A |
| | SB Off | 1 | 1,500 | 90 | 0.06 | A | 90 | 0.06 | A | 90 | 0.06 | A | 90 | 0.06 | A |
| | NB Off | 1 | 1,500 | 152 | 0.10 | A | 311 | 0.21 | A | 152 | 0.10 | A | 311 | 0.21 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 6-6

### Year 2015 Freeway Mainline LOS Summary
### With 2012 Modified Project - Option 1

| | Location | Direction | Lanes | Capacity | Without Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,321 | **1.32** | **F** | 11,587 | 1.00 | E | 15,284 | **1.32** | **F** | 11,618 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 9,114 | 0.79 | C | 10,235 | 0.88 | D | 9,117 | 0.79 | C | 10,241 | 0.88 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,622 | **1.26** | **F** | 11,009 | 0.95 | E | 14,585 | **1.26** | **F** | 11,044 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,082 | 0.96 | E | 12,357 | **1.07** | **F** | 11,124 | 0.96 | E | 12,336 | **1.06** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 14,970 | **1.29** | **F** | 11,391 | 0.98 | E | 14,934 | **1.29** | **F** | 11,443 | 0.99 | E |
| | | SB | 5+1H | 11,600 | 11,614 | 1.00 | E | 12,845 | **1.11** | **F** | 11,642 | 1.00 | E | 12,817 | **1.10** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,370 | **1.24** | **F** | 11,093 | 0.96 | E | 14,331 | **1.24** | **F** | 11,120 | 0.96 | E |
| | | SB | 5+1H | 11,600 | 11,158 | 0.96 | E | 12,328 | **1.06** | **F** | 11,182 | 0.96 | E | 12,294 | **1.06** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,419 | **1.24** | **F** | 10,877 | 0.94 | E | 14,365 | **1.24** | **F** | 10,922 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 10,563 | 0.91 | E | 12,188 | **1.05** | **F** | 10,597 | 0.91 | E | 12,151 | **1.05** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,415 | **1.07** | **F** | 10,146 | 0.87 | D | 12,366 | **1.07** | **F** | 10,185 | 0.88 | D |
| | | SB | 5+1H | 11,600 | 10,083 | 0.87 | D | 10,894 | 0.94 | E | 10,127 | 0.87 | D | 10,871 | 0.94 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,193 | **1.05** | **F** | 10,182 | 0.88 | D | 12,168 | **1.05** | **F** | 10,208 | 0.88 | D |
| | | SB | 5+1H | 11,600 | 10,596 | 0.91 | E | 11,012 | 0.95 | E | 10,637 | 0.92 | E | 11,002 | 0.95 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 9,840 | **1.03** | **F** | 8,200 | 0.85 | D | 9,883 | **1.03** | **F** | 8,269 | 0.86 | D |
| | | SB | 4+1H | 9,600 | 8,914 | 0.93 | E | 8,936 | 0.93 | E | 8,949 | 0.93 | E | 9,014 | 0.94 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,257 | **1.07** | **F** | 7,314 | 0.76 | C | 10,291 | **1.07** | **F** | 7,364 | 0.77 | C |
| | | SB | 4+1H | 9,600 | 7,286 | 0.76 | C | 9,194 | 0.96 | E | 7,289 | 0.76 | C | 9,239 | 0.96 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 21,352 | 0.99 | E | 14,181 | 0.66 | B | 21,370 | 0.99 | E | 14,207 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 10,700 | 0.50 | A | 15,961 | 0.74 | C | 10,716 | 0.50 | A | 16,011 | 0.74 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 19,662 | **1.01** | **F** | 12,133 | 0.62 | B | 19,695 | **1.01** | **F** | 12,162 | 0.62 | B |
| | | SB | 8+2H | 19,500 | 10,845 | 0.56 | A | 16,333 | 0.84 | D | 10,862 | 0.56 | A | 16,380 | 0.84 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 18,784 | **1.39** | **F** | 11,554 | 0.86 | D | 18,774 | **1.39** | **F** | 11,570 | 0.86 | D |
| | | SB | 5+2H | 13,500 | 8,487 | 0.63 | B | 14,144 | **1.05** | **F** | 8,494 | 0.63 | B | 14,182 | **1.05** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 15,487 | **1.61** | **F** | 9,483 | 0.99 | E | 15,499 | **1.61** | **F** | 9,490 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 7,517 | 0.78 | C | 12,643 | **1.32** | **F** | 7,521 | 0.78 | C | 12,659 | **1.32** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 11,573 | **1.21** | **F** | 7,075 | 0.74 | C | 11,591 | **1.21** | **F** | 7,078 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,006 | 0.63 | B | 9,751 | **1.02** | **F** | 6,001 | 0.63 | B | 9,786 | **1.02** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,609 | **1.31** | **F** | 8,691 | 0.91 | D | 12,559 | **1.31** | **F** | 8,698 | 0.91 | D |
| | | SB | 4+1H | 9,600 | 8,200 | 0.85 | D | 10,645 | **1.11** | **F** | 8,233 | 0.86 | D | 10,611 | **1.11** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,593 | **1.31** | **F** | 8,882 | 0.93 | E | 12,539 | **1.31** | **F** | 8,900 | 0.93 | E |
| | | SB | 4+1H | 9,600 | 8,376 | 0.87 | D | 10,532 | **1.10** | **F** | 8,396 | 0.87 | D | 10,486 | **1.09** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,181 | **1.27** | **F** | 8,096 | 0.84 | D | 12,131 | **1.26** | **F** | 8,092 | 0.84 | D |
| | | SB | 4+1H | 9,600 | 7,493 | 0.78 | C | 10,018 | **1.04** | **F** | 7,504 | 0.78 | C | 9,985 | **1.04** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 11,296 | **1.18** | **F** | 7,770 | 0.81 | C | 11,245 | **1.17** | **F** | 7,760 | 0.81 | C |
| | | SB | 4+1H | 9,600 | 6,753 | 0.70 | B | 8,997 | 0.94 | E | 6,791 | 0.71 | B | 9,003 | 0.94 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,788 | 0.81 | D | 4,467 | 0.47 | A | 7,803 | 0.81 | D | 4,453 | 0.46 | A |
| | | SB | 4+1H | 9,600 | 5,710 | 0.59 | A | 8,591 | 0.89 | D | 5,729 | 0.60 | A | 8,598 | 0.90 | D |

## Table 6-6 Cont.

### Year 2015 Freeway Mainline LOS Summary
### With 2012 Modified Project - Option 1

| | Location | Direction | Lanes | Capacity | Without Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,219 | 0.28 | A | 4,868 | 0.61 | A | 2,200 | 0.28 | A | 4,904 | 0.61 | B |
| | | SB | 4 | 8,000 | 5,996 | 0.75 | C | 2,755 | 0.34 | A | 6,045 | 0.76 | C | 2,754 | 0.34 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 1,924 | 0.32 | A | 4,698 | 0.78 | C | 2,010 | 0.34 | A | 4,714 | 0.79 | C |
| | | SB | 3 | 6,000 | 5,472 | 0.91 | E | 2,481 | 0.41 | A | 5,493 | 0.92 | E | 2,531 | 0.42 | A |
| | n/o I-5 | NB | 3 | 6,000 | 1,924 | 0.32 | A | 4,698 | 0.78 | C | 2,010 | 0.34 | A | 4,714 | 0.79 | C |
| | | SB | 3 | 6,000 | 3,893 | 0.65 | B | 1,702 | 0.28 | A | 3,923 | 0.65 | B | 1,751 | 0.29 | A |
| | s/o I-5 | NB | 3 | 6,000 | 2,157 | 0.36 | A | 3,727 | 0.62 | B | 2,223 | 0.37 | A | 3,747 | 0.62 | B |
| | | SB | 3 | 6,000 | 3,996 | 0.67 | B | 2,171 | 0.36 | A | 4,053 | 0.68 | B | 2,225 | 0.37 | A |
| | n/o I-405 | NB | 3 | 6,000 | 2,938 | 0.49 | A | 2,899 | 0.48 | A | 2,966 | 0.49 | A | 2,888 | 0.48 | A |
| | | SB | 3 | 6,000 | 2,460 | 0.41 | A | 2,327 | 0.39 | A | 2,509 | 0.42 | A | 2,361 | 0.39 | A |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 3,885 | 0.65 | B | 3,915 | 0.65 | B | 3,849 | 0.64 | B | 3,948 | 0.66 | B |
| | | SB | 3 | 6,000 | 4,936 | 0.82 | D | 3,480 | 0.58 | A | 4,966 | 0.83 | D | 3,471 | 0.58 | A |
| | n/o Portola (West) | NB | 4 | 8,000 | 5,240 | 0.66 | B | 2,708 | 0.34 | A | 5,250 | 0.66 | B | 2,710 | 0.34 | A |
| | | SB | 4 | 8,000 | 2,514 | 0.31 | A | 4,387 | 0.55 | A | 2,523 | 0.32 | A | 4,383 | 0.55 | A |
| | n/o Alton | NB | 3 | 6,000 | 5,699 | 0.95 | E | 3,086 | 0.51 | A | 5,744 | 0.96 | E | 3,102 | 0.52 | A |
| | | SB | 3 | 6,000 | 2,964 | 0.49 | A | 4,865 | 0.81 | D | 2,988 | 0.50 | A | 4,880 | 0.81 | B |
| | n/o Lake Forest | NB | 3 | 6,000 | 6,004 | 1.00 | E | 2,814 | 0.47 | A | 6,047 | 1.01 | E | 2,826 | 0.47 | A |
| | | SB | 3 | 6,000 | 2,487 | 0.41 | A | 5,059 | 0.84 | D | 2,504 | 0.42 | A | 5,070 | 0.85 | D |
| SR-261 | n/o Portola | NB | 2 | 4,000 | 1,121 | 0.28 | A | 2,847 | 0.71 | C | 1,121 | 0.28 | A | 2,858 | 0.71 | C |
| | | SB | 2 | 4,000 | 3,583 | 0.90 | D | 1,365 | 0.34 | A | 3,584 | 0.90 | D | 1,357 | 0.34 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 572 | 0.10 | A | 2,314 | 0.39 | A | 568 | 0.09 | A | 2,326 | 0.39 | A |
| | | SB | 3 | 6,000 | 3,113 | 0.52 | A | 886 | 0.15 | A | 3,103 | 0.52 | A | 881 | 0.15 | A |
| | s/o Irvine Blvd | NB | 2 | 4,000 | 785 | 0.20 | A | 2,985 | 0.75 | C | 782 | 0.20 | A | 2,990 | 0.75 | C |
| | | SB | 2 | 4,000 | 3,580 | 0.90 | D | 1,185 | 0.30 | A | 3,580 | 0.90 | D | 1,184 | 0.30 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 3,855 | 0.64 | B | 6,114 | **1.02** | **F** | 3,822 | 0.64 | B | 6,150 | **1.03** | **F** |
| | | SB | 3 | 6,000 | 8,154 | **1.36** | **F** | 3,988 | 0.66 | B | 8,182 | **1.36** | **F** | 3,970 | 0.66 | B |

**Bold** = Deficient Segment

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*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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segments and freeway/tollway ramps. In addition to the Option 1 conversions in District 1 North, includes a relocation of Multi-Use and Retail from District 1 North to District 1 South as well as changes in Districts 1 North to accommodate approved residential units displaced from a portion of District 1 South.

### 6.2.1 Interim Year 2015 Circulation System and Average Daily Traffic Volumes, Option 2

The Year 2015 circulation system in the study area was previously illustrated in Chapter 4.0 and only improvements committed for construction (i.e., public agency capital improvement programs, state transportation improvement program, etc.) or would be constructed as part of previously entitled development by the year 2015 are assumed.

The Year 2015 with Option 2 average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 6-7 and 6-8, respectively.

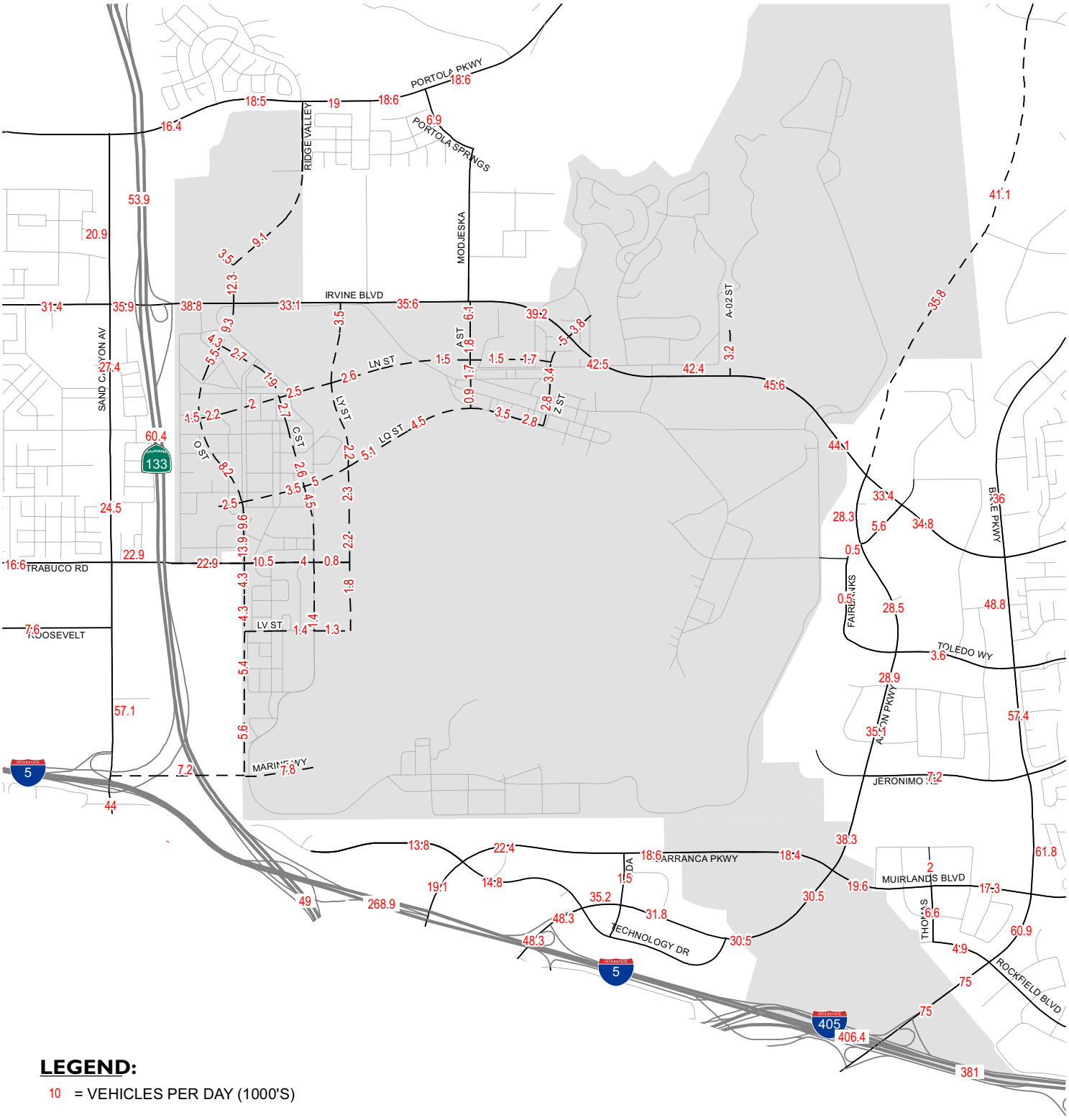
Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following three (3) arterial roadway segments are potentially impacted by Option 2:

- Irvine Bl (west of A-02 St)
- Irvine Bl (east of A-02 St)
- Trabuco Rd (east of Culver Dr)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under year 2015 with Option 2 conditions are summarized in Table 6-7. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed the adopted thresholds.

EXHIBIT 6-7 (1 OF 3)

# YEAR 2015 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 2, PROJECT AREA




**LEGEND:**

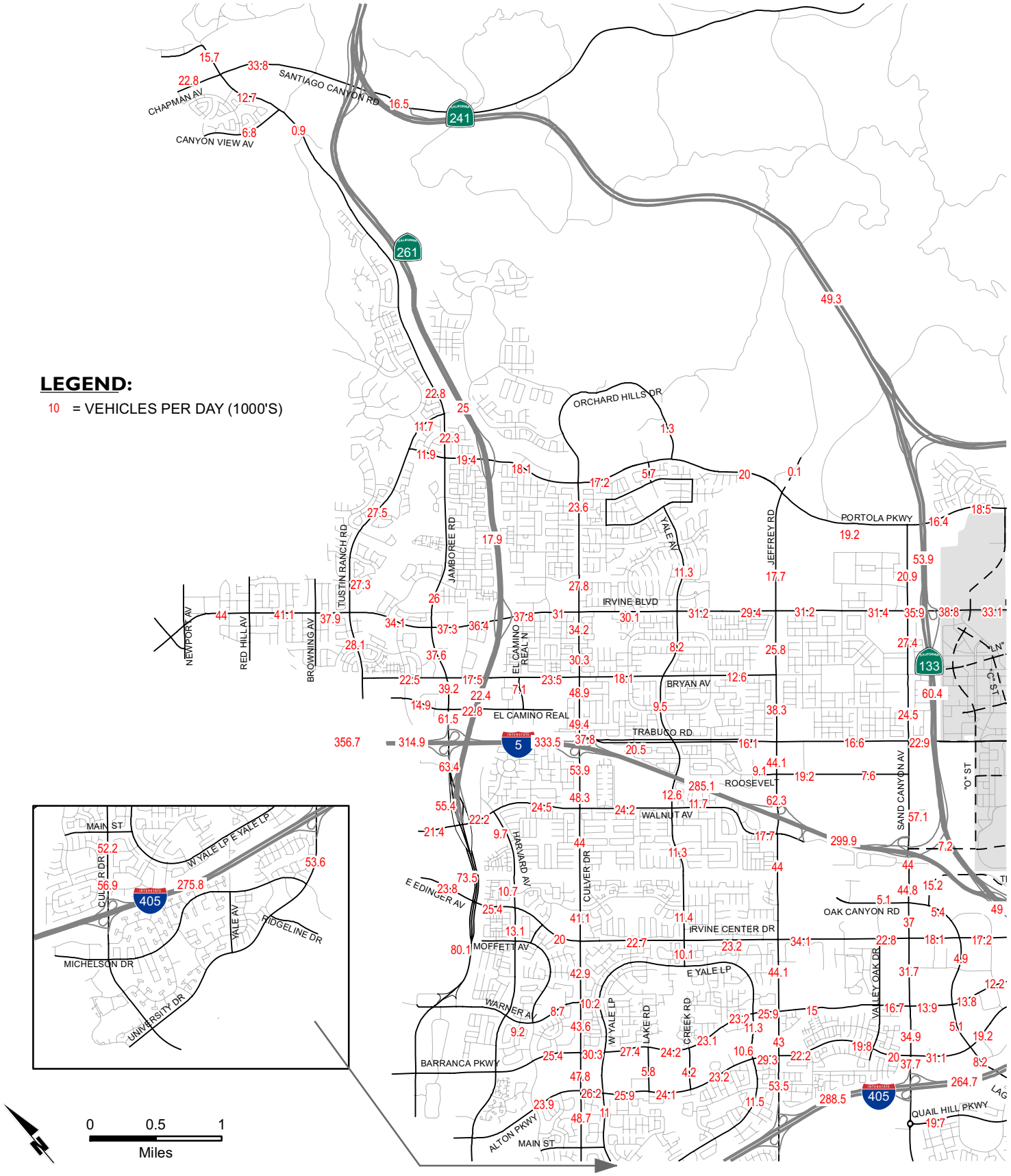
10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 6-7 (2 OF 3)

# YEAR 2015 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 2, WEST STUDY AREA



# YEAR 2015 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 2, EAST STUDY AREA

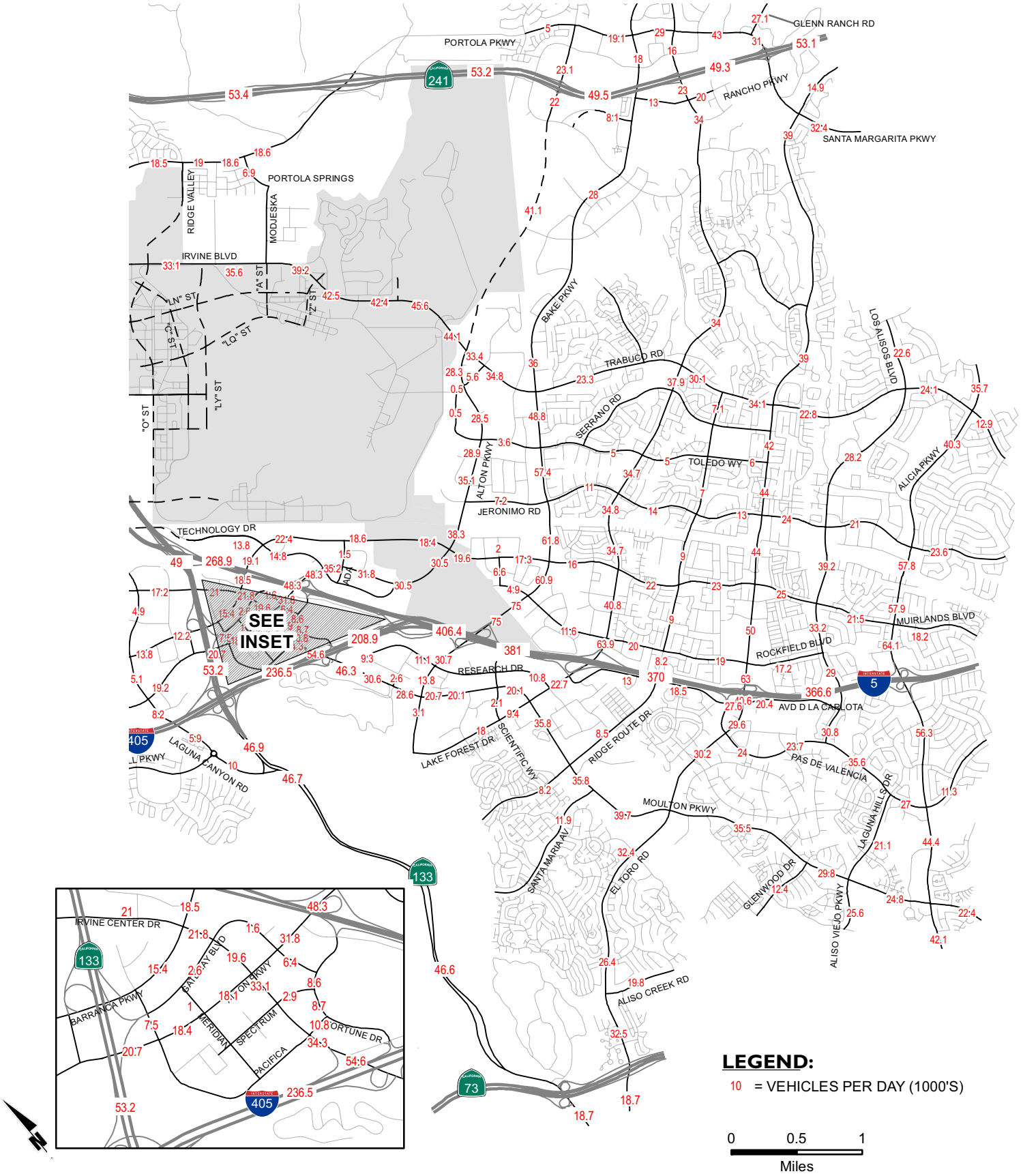
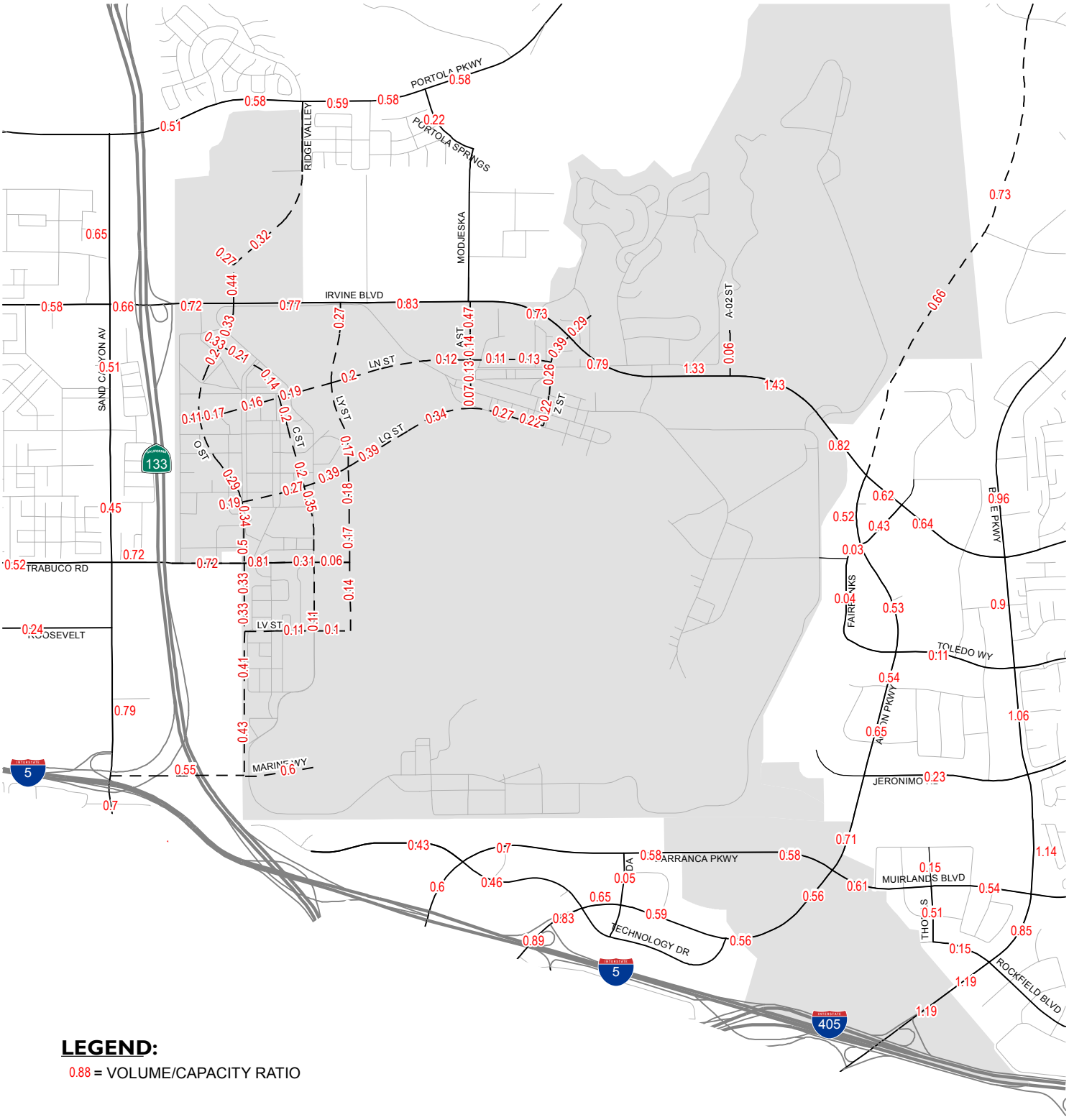


EXHIBIT 6-8 (1 OF 3)

# YEAR 2015 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 2, PROJECT AREA



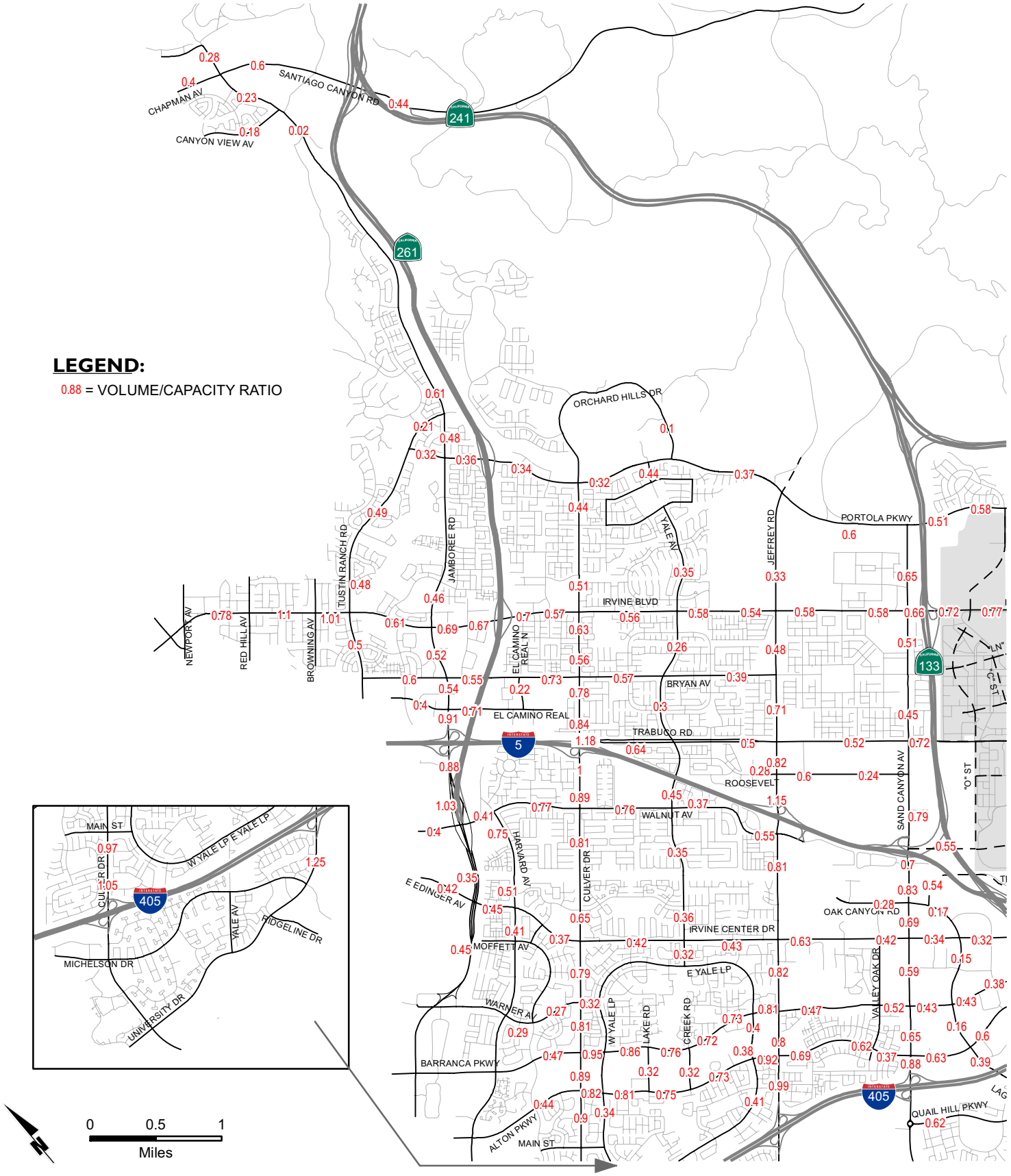

**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

# YEAR 2015 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 2, WEST STUDY AREA



# YEAR 2015 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 2, EAST STUDY AREA

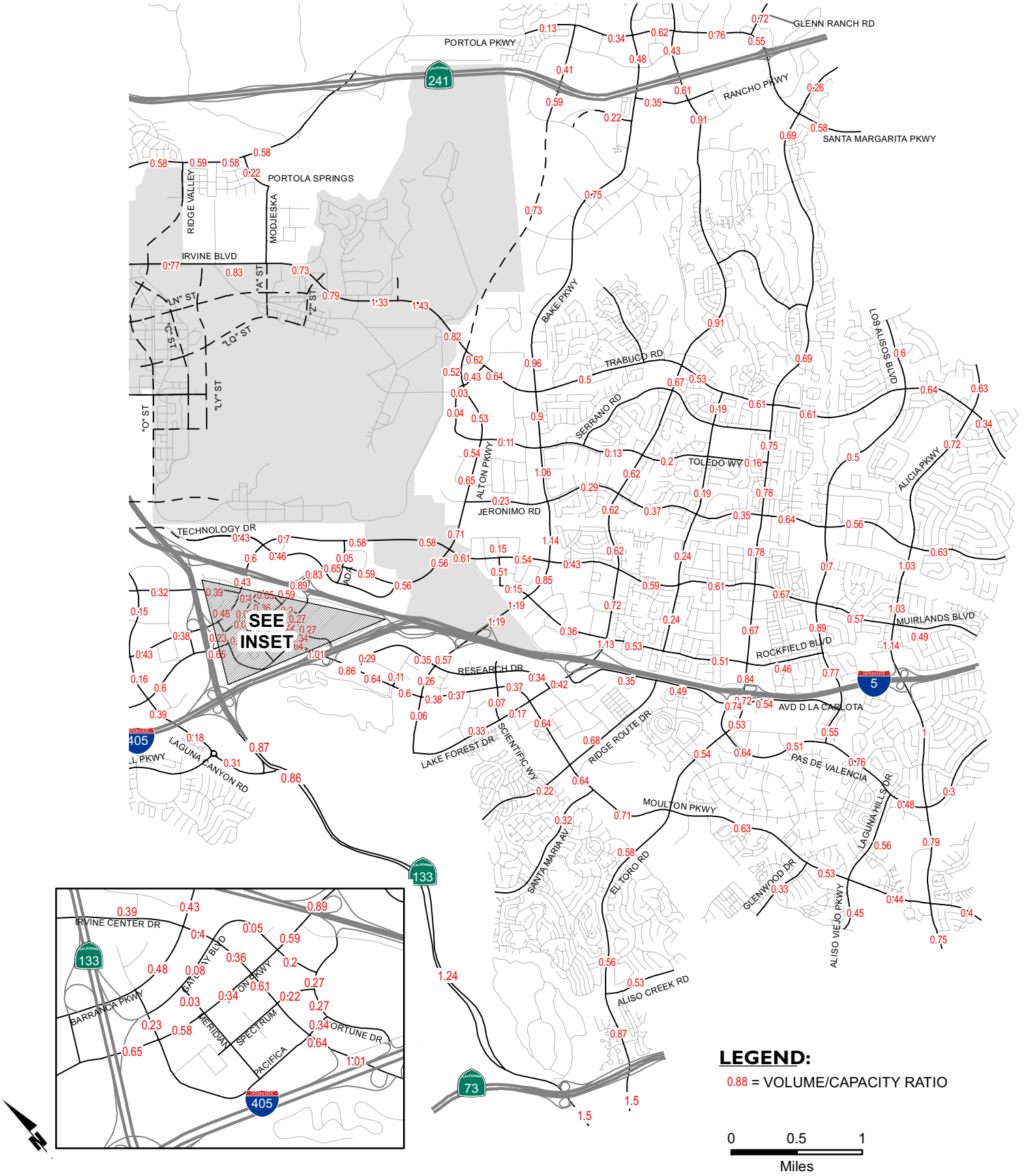


**TABLE 6-7**

**Year 2015 Arterial Roadway Peak Hour Analysis**
**With 2012 Modified Project, Option 2**

| Segment | Segment Limits | Juris | # of Lanes | Peak Hour Capacity | 2015 with 2012 Modified Project Option 2 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Refined ADT | Highest Peak Volume | Peak Hour V/C | Peak Hour LOS |
| Irvine Bl. | w/o "A-02" St. | Irv | 5D | 400 | 42,400 | 2,440 PM WB | 0.61 | B |
| Irvine Bl. | e/o "A-02" St. | Irv | 4D | 3,200 | 45,600 | 2,744 PM WB | 0.86 | D |
| Trabuco Rd. | e/o Culver Dr. | Irv | 4D | 3,200 | 37,800 | 1,813 PM EB | 0.57 | A |

6.2.2 Interim Year 2015 Peak Hour Intersection Levels of Service, Option 2

Year 2015 with Option 2 AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 6-5 that are analyzed in this traffic study are summarized in Table 6-8. Actual turn volumes, lane geometrics and ICU calculation worksheets for Year 2015 with Option 2 are included in Appendix 6.5. Based on the peak hour intersection performance criteria and impact thresholds discussed in Chapter 2.0, none of the intersections are forecast to exceed adopted impact thresholds with the Option 2 based on Year 2015 conditions.

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting 2015 Without Project and with Option 2 peak hour levels of service based on the HCM methodology are summarized in Table 6-9 (HCM intersection LOS calculation worksheets are included in Appendix 6.6). As the summary table indicates, each of the ramp intersections are forecast to operate at an acceptable LOS (i.e., LOS D or better) under 2015 with Option 2 conditions.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results

## Table 6-8

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.76 | C | 0.77 | C | 0.76 | C | 0.76 | C |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | | | 0.72 | C | 0.80 | C | 0.72 | C | 0.81 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **0.92** | **E** | 0.76 | C | **0.92** | **E** | 0.77 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | | | 0.81 | D | 0.81 | D | 0.81 | D | 0.81 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.59 | A | 0.73 | C | 0.59 | A | 0.73 | C |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | Yes | 0.79 | C | 0.69 | B | 0.79 | C | 0.69 | B |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.68 | B | 0.61 | B | 0.67 | B | 0.61 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.69 | B | 0.67 | B | 0.68 | B | 0.66 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.71 | C | 0.66 | B | 0.70 | B | 0.65 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.48 | A | 0.50 | A | 0.48 | A | 0.49 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.40 | A | 0.62 | B | 0.39 | A | 0.62 | B |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.41 | A | 0.60 | A | 0.41 | A | 0.61 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.35 | A | 0.32 | A | 0.35 | A | 0.32 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.82 | D | 0.98 | E | 0.81 | D | 0.98 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.34 | A | 0.38 | A | 0.33 | A | 0.38 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.37 | A | 0.34 | A | 0.36 | A | 0.34 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.48 | A | 0.43 | A | 0.48 | A | 0.43 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.61 | B | 0.51 | A | 0.61 | B | 0.52 | A |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.63 | B | 0.59 | A | 0.62 | B | 0.59 | A |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.73 | C | 0.74 | C | 0.72 | C | 0.75 | C |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.84 | D | 0.66 | B | 0.84 | D | 0.65 | B |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | 0.70 | B | 0.75 | C | 0.71 | C | 0.77 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | 0.59 | A | 0.65 | B | 0.58 | A | 0.65 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | | | 0.77 | C | 0.80 | C | 0.78 | C | 0.81 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.73 | C | 0.65 | B | 0.71 | C | 0.65 | B |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.77 | C | 0.58 | A | 0.77 | C | 0.59 | A |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | | | 0.85 | D | 0.73 | C | 0.85 | D | 0.72 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.79 | C | 0.82 | D | 0.79 | C | 0.82 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.50 | A | 0.88 | D | 0.49 | A | 0.88 | D |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.51 | A | 0.62 | B | 0.51 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | **F** | | | 0.60 | A | 0.81 | D | 0.60 | A | 0.81 | D |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | 0.67 | B | 0.79 | C | 0.66 | B | 0.80 | C |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.43 | A | 0.40 | A | 0.43 | A | 0.40 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.58 | A | 0.46 | A | 0.57 | A | 0.47 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.58 | A | 0.69 | B | 0.59 | A | 0.68 | B |
| 261 | Yale Av at ICD | Irv | | | | 0.60 | A | 0.59 | A | 0.58 | A | 0.59 | A |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.62 | B | 0.59 | A | 0.62 | B | 0.59 | A |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.66 | B | 0.64 | B | 0.66 | B | 0.64 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.62 | B | 0.62 | B | 0.62 | B | 0.62 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.68 | B | 0.68 | B | 0.68 | B | 0.68 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.56 | A | 0.62 | B | 0.57 | A | 0.62 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.66 | B | 0.65 | B | 0.66 | B | 0.66 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.61 | B | 0.56 | A | 0.62 | B | 0.58 | A |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.60 | A | 0.62 | B | 0.61 | B | 0.63 | B |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.89 | D | 0.82 | D | 0.88 | D | 0.82 | D |

## Table 6-8 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.67 | B | 0.78 | C | 0.67 | B | 0.78 | C |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | 0.71 | C | 0.69 | B | 0.71 | C | 0.69 | B |
| 289 | Jeffrey Rd at ICD | Irv | **F** | | | 0.72 | C | 0.81 | D | 0.72 | C | 0.82 | D |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | | | 0.84 | D | 0.72 | C | 0.84 | D | 0.72 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | | **0.92** | **E** | 0.84 | D | **0.93** | **E** | 0.84 | D |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | 0.72 | C | 0.81 | D | 0.71 | C | 0.81 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.61 | B | 0.63 | B | 0.61 | B | 0.63 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.36 | A | 0.47 | A | 0.35 | A | 0.47 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.61 | B | 0.58 | A | 0.62 | B | 0.58 | A |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | | 0.70 | B | 0.61 | B | 0.69 | B | 0.69 | B |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | 0.69 | B | 0.72 | C | 0.69 | B | 0.75 | C |
| 304 | Sand Canyon at Marine Wy | | | | | 0.79 | C | 0.85 | D | 0.80 | C | 0.86 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | 0.80 | C | 0.77 | C | 0.80 | C | 0.81 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | 0.65 | B | 0.84 | D | 0.66 | B | 0.84 | D |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.53 | A | 0.61 | B | 0.53 | A | 0.63 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.50 | A | 0.51 | A | 0.50 | A | 0.51 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | 0.67 | B | 0.70 | B | 0.67 | B | 0.70 | B |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | 0.66 | B | 0.47 | A | 0.65 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.83 | D | 0.62 | B | 0.83 | D | 0.62 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.30 | A | 0.37 | A | 0.30 | A | 0.39 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.37 | A | 0.36 | A | 0.38 | A | 0.36 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.54 | A | 0.53 | A | 0.54 | A | 0.53 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.48 | A | 0.50 | A | 0.50 | A | 0.50 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.52 | A | 0.69 | B | 0.60 | A | 0.71 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.67 | B | 0.53 | A | 0.67 | B | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.59 | A | 0.56 | A | 0.59 | A | 0.55 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | 0.66 | B | 0.61 | B | 0.66 | B | 0.61 | B |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | **1.05** | **F** | 0.88 | D | **1.06** | **F** | 0.88 | D |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.34 | A | 0.38 | A | 0.34 | A | 0.38 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.28 | A | 0.18 | A | 0.29 | A | 0.19 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.26 | A | 0.31 | A | 0.26 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | 0.58 | A | 0.73 | C | 0.60 | A | 0.73 | C |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.60 | A | 0.44 | A | 0.60 | A | 0.44 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.67 | B | 0.63 | B | 0.67 | B | 0.63 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.57 | A | 0.72 | C | 0.58 | A | 0.72 | C |
| 333 | Pacifica at Gateway | Irv | | | Yes | 0.61 | B | 0.71 | C | 0.62 | B | 0.71 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.44 | A | 0.31 | A | 0.44 | A | 0.31 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | 0.45 | A | 0.42 | A | 0.45 | A | 0.42 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | Yes | 0.84 | D | 0.79 | C | 0.84 | D | 0.80 | C |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.65 | B | 0.59 | A | 0.65 | B | 0.59 | A |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.67 | B | 0.53 | A | 0.67 | B | 0.52 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.58 | A | 0.69 | B | 0.58 | A | 0.69 | B |
| 343 | Alton Pw at Ada | Irv | | | | 0.48 | A | 0.56 | A | 0.48 | A | 0.57 | A |
| 344 | Alton Pw at Technology | Irv | **P** | | | 0.59 | A | 0.83 | D | 0.59 | A | 0.84 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | Yes | 0.71 | C | 0.45 | A | 0.71 | C | 0.45 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.64 | B | 0.74 | C | 0.64 | B | 0.75 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | Yes | 0.64 | B | 0.72 | C | 0.64 | B | 0.73 | C |

## Table 6-8 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.61 | B | 0.56 | A | 0.62 | B | 0.56 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.47 | A | 0.76 | C | 0.48 | A | 0.77 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.47 | A | 0.43 | A | 0.47 | A | 0.43 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | Yes | 0.85 | D | 0.74 | C | 0.84 | D | 0.73 | C |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | Yes | 0.78 | C | 0.74 | C | 0.78 | C | 0.74 | C |
| 361 | Bake Pw at Portola Pw | LF | | | | 0.51 | A | 0.81 | D | 0.52 | A | 0.81 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | Yes | 0.77 | C | 0.79 | C | 0.77 | C | 0.80 | C |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.81 | D | 0.63 | B | 0.80 | C | 0.64 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | 0.77 | C | 0.67 | B | 0.77 | C | 0.68 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.70 | B | 0.85 | D | 0.70 | B | 0.84 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.65 | B | 0.83 | D | 0.64 | B | 0.83 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.84 | D | 0.69 | B | 0.84 | D | 0.69 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | Yes | 0.75 | C | 0.88 | D | 0.75 | C | 0.87 | D |
| 371 | Bake Pw at Research | Irv | | | | 0.56 | A | 0.84 | D | 0.56 | A | 0.78 | C |
| 372 | Bake Pw at ICD | Irv | | | | 0.49 | A | 0.59 | A | 0.48 | A | 0.59 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.31 | A | 0.35 | A | 0.31 | A | 0.35 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.54 | A | 0.76 | C | 0.54 | A | 0.76 | C |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.41 | A | 0.44 | A | 0.41 | A | 0.44 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.83 | D | 0.82 | D | 0.83 | D | 0.83 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.52 | A | 0.48 | A | 0.52 | A | 0.48 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | 0.70 | B | 0.74 | C | 0.70 | B | 0.74 | C |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | 0.65 | B | 0.84 | D | 0.64 | B | 0.85 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | 0.69 | B | 0.76 | C | 0.69 | B | 0.76 | C |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | 0.57 | A | 0.64 | B | 0.57 | A | 0.64 | B |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | | Yes | 0.71 | C | 0.75 | C | 0.71 | C | 0.75 | C |
| 385 | Lake Forest Dr at ICD | Irv | | | Yes | 0.49 | A | 0.59 | A | 0.49 | A | 0.59 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.45 | A | 0.65 | B | 0.46 | A | 0.65 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | 0.45 | A | 0.55 | A | 0.46 | A | 0.55 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | 0.34 | A | 0.74 | C | 0.34 | A | 0.75 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.46 | A | 0.67 | B | 0.46 | A | 0.68 | B |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.53 | A | 0.71 | C | 0.53 | A | 0.72 | C |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | 0.53 | A | 0.73 | C | 0.53 | A | 0.74 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.65 | B | 0.80 | C | 0.65 | B | 0.80 | C |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.52 | A | 0.63 | B | 0.52 | A | 0.63 | B |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | Yes | 0.75 | C | 0.88 | D | 0.74 | C | 0.88 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | Yes | 0.60 | A | 0.88 | D | 0.60 | A | 0.88 | D |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B |
| 398 | El Toro Rd at Moulton Pw | LW | | | Yes | 0.70 | B | 0.80 | C | 0.70 | B | 0.80 | C |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | 0.53 | A | 0.84 | D | 0.54 | A | 0.83 | D |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.56 | A | 0.62 | B | 0.56 | A | 0.61 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | Yes | 0.45 | A | 0.64 | B | 0.45 | A | 0.64 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.59 | A | 0.61 | B | 0.59 | A | 0.62 | B |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.42 | A | 0.35 | A | 0.42 | A | 0.35 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | 0.46 | A | 0.42 | A | 0.46 | A | 0.42 | A |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.60 | A | 0.71 | C | 0.60 | A | 0.73 | C |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.49 | A | 0.60 | A | 0.49 | A | 0.60 | A |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.31 | A | 0.33 | A | 0.31 | A | 0.33 | A |

## Table 6-8 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.44 | A | 0.55 | A | 0.44 | A | 0.55 | A |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.61 | B | 0.62 | B | 0.60 | A | 0.62 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.48 | A | 0.60 | A | 0.48 | A | 0.59 | A |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.64 | B | 0.85 | D | 0.64 | B | 0.85 | D |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.68 | B | 0.75 | C | 0.69 | B | 0.75 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.57 | A | 0.59 | A | 0.58 | A | 0.59 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | 0.74 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | 0.70 | B | 0.80 | C | 0.72 | C | 0.80 | C |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | 0.88 | D | **0.93** | **E** | 0.89 | D | **0.94** | **E** |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | 0.81 | D | 0.81 | D | 0.81 | D | 0.81 | D |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | 0.51 | A | 0.66 | B | 0.50 | A | 0.66 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | 0.49 | A | 0.58 | A | 0.49 | A | 0.58 | A |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | 0.59 | A | 0.54 | A | 0.58 | A | 0.54 | A |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | 0.65 | B | 0.72 | C | 0.65 | B | 0.72 | C |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | 0.61 | B | 0.67 | B | 0.62 | B | 0.67 | B |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.78 | C | 0.75 | C | 0.78 | C | 0.75 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | 0.68 | B | 0.85 | D | 0.68 | B | 0.85 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | 0.44 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.77 | C | 0.87 | D | 0.77 | C | 0.87 | D |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.60 | A | 0.68 | B | 0.61 | B | 0.68 | B |
| 436 | Moulton Pw at Alicia Pw | LH | | | | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 437 | Scientific Wy at ICD | Irv | | | | 0.31 | A | 0.37 | A | 0.31 | A | 0.37 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | 0.26 | A | 0.17 | A | 0.25 | A | 0.17 | A |
| 444 | Sand Canyon at Burt Rd | Irv | | | | 0.70 | B | 0.57 | A | 0.76 | C | 0.78 | C |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.53 | A | 0.57 | A | 0.54 | A | 0.57 | A |
| 463 | Jamboree Rd at Chapman Av | Ora | | | | 0.59 | A | 0.68 | B | 0.61 | B | 0.69 | B |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.67 | B | 0.66 | B | 0.67 | B | 0.66 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.64 | B | 0.75 | C | 0.64 | B | 0.75 | C |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | 0.53 | A | 0.52 | A | 0.53 | A | 0.52 | A |
| 468 | Jamboree Rd at Canyon View | Ora | | | | 0.53 | A | 0.36 | A | 0.54 | A | 0.36 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.36 | A | 0.44 | A | 0.38 | A | 0.43 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.41 | A | 0.36 | A | 0.40 | A | 0.36 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.36 | A | 0.30 | A | 0.36 | A | 0.30 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.30 | A | 0.25 | A | 0.30 | A | 0.26 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.68 | B | 0.40 | A | 0.68 | B | 0.42 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | 0.69 | B | 0.51 | A | 0.68 | B | 0.52 | A |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.60 | A | 0.55 | A | 0.60 | A | 0.56 | A |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.61 | B | 0.71 | C | 0.62 | B | 0.71 | C |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | 0.59 | A | 0.85 | D | 0.60 | A | 0.85 | D |
| 518 | Alton Pw at Commercentre | LF | | | | 0.53 | A | 0.64 | B | 0.53 | A | 0.64 | B |
| 555 | Bake Pw at Rancho Pkw South | LF | | | | 0.61 | B | 0.67 | B | 0.61 | B | 0.66 | B |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.50 | A | 0.58 | A | 0.51 | A | 0.63 | B |
| 557 | O St at C St | Irv | | | | 0.18 | A | 0.24 | A | 0.34 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | 0.58 | A | 0.75 | C | 0.59 | A | 0.76 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.63 | B | 0.44 | A | 0.70 | B | 0.57 | A |

## Table 6-8 Cont.

## Year 2015 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | Without Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 560 | O St at Marine Wy | Irv | | | | 0.27 | A | 0.47 | A | 0.27 | A | 0.48 | A |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.43 | A | 0.40 | A | 0.43 | A | 0.40 | A |
| 571 | Portola Springs at Portola Pw | Irv | | | | 0.54 | A | 0.47 | A | 0.54 | A | 0.48 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.51 | A | 0.56 | A | 0.52 | A | 0.57 | A |
| 603 | O St at LN St | Irv | | | | 0.28 | A | 0.21 | A | 0.31 | A | 0.23 | A |
| 605 | O St at LQ St | Irv | | | | 0.43 | A | 0.35 | A | 0.44 | A | 0.34 | A |
| 608 | O St at LV St | Irv | | | | 0.15 | A | 0.28 | A | 0.18 | A | 0.35 | A |
| 626 | LY St at LQ St | Irv | | | | 0.30 | A | 0.29 | A | 0.35 | A | 0.32 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.44 | A | 0.65 | B | 0.43 | A | 0.66 | B |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.10 | A | 0.15 | A | 0.13 | A | 0.14 | A |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.33 | A | 0.46 | A | 0.33 | A | 0.46 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.29 | A | 0.39 | A | 0.29 | A | 0.39 | A |
| 782 | A St at LQ St | Irv | | | | 0.18 | A | 0.22 | A | 0.21 | A | 0.25 | A |
| 787 | Z St at LQ St | Irv | | | | 0.11 | A | 0.14 | A | 0.14 | A | 0.17 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.62 | B | 0.58 | A | 0.65 | B | 0.58 | A |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.78 | C | 0.81 | D | 0.79 | C | 0.84 | D |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.50 | A | 0.61 | B | 0.51 | A | 0.62 | B |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | 0.51 | A | 0.53 | A | 0.51 | A | 0.53 | A |
| 832 | Fairbanks at Astor | Irv | | | | 0.06 | A | 0.07 | A | 0.06 | A | 0.07 | A |

**Bold** = Deficient Intersection

1. Fully Funded (F), Parially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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**Table 6-9**

**Year 2015 Caltrans Ramp Intersection LOS Summary (HCM Methodology)**
**Adjacent Intersections With 2012 Modified Project, Option 2**

| Intersection | 2015 Without Project | | 2015 Project GPA/ZC | |
|---|---|---|---|---|
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | | | | |
| - AM Peak Hour | 37.0 | D | 41.1 | D |
| - PM Peak Hour | 31.9 | C | 33.2 | C |
| 304. Sand Canyon & Marine Way | | | | |
| - AM Peak Hour | 15.5 | B | 18.0 | B |
| - PM Peak Hour | 22.5 | C[1] | 26.4 | C[1] |
| 305. Sand Canyon & I-5 SB Ramps | | | | |
| - AM Peak Hour | 46.0 | D[2] | 49.3 | D[2] |
| - PM Peak Hour | 35.6 | D | 44.2 | D[3] |
| 316. SR-133 SB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.0 | B | 15.3 | B |
| - PM Peak Hour | 11.6 | B | 12.6 | B |
| 317. SR-133 NB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 9.2 | A | 11.5 | B |
| - PM Peak Hour | 18.0 | B | 19.1 | B |

[1] Per the HCM methodoloy, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the existing offset intersection design which is ultimately addressed with the realignment of Marine Way).

[2] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of eastbound right turn vehicles during the morning peak hour).

[3] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of southbound left vehicles during the evening peak hour).

presented earlier for the Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 6-10 summarizes the longest 95th percentile queue length at each off-ramp under Year 2015 with Option 2 peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 6.7). As the summary table indicates, none of the vehicle queue lengths exceed the physical length of the off-ramps, and therefore traffic exiting at the I-5 at Sand Canyon Avenue off-ramps is not expected to back up onto the I-5 mainline under Year 2015 with Option 2 conditions. The on-ramps at the Sand Canyon Avenue/I-5 interchanges are metered with queue detectors installed, and the timing of the ramp meters will continue to be coordinated by Caltrans and the City of Irvine.

**Table 6-10**

**Year 2015 With 2012 Modified Project Option 2 HCM**
**Freeway Ramp Queuing Analysis Summary**

| Intersection | Total Ramp Length | Highest Queue Length | Peak Hour | Does the Queue Exceed the Ramp Length?[1] |
|---|---|---|---|---|
| I-5 Northbound Off-Ramp at Sand Canyon Av | 1,180 feet | 436 feet | (PM) | No |
| I-5 Southbound Off-Ramp at Sand Canyon Av | 810 feet | 732 feet | (AM) | No |

[1] If the maximum queue length does not exceed the total length of the off-ramp, then the traffic queue on the ramp is not expected to back up onto the freeway mainline during the peak hours.

### 6.2.3 Interim Year 2015 Peak Hour Freeway/Tollway Ramp Levels of Service, Option 2

Exhibit 6-6 (previously presented) illustrates the interchange locations where freeway/tollway ramps were analyzed based on Year 2015 conditions. Year 2015 Without Project and Year 2015 With 2012 Modified Project Option 2 AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 6-11. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, none of the freeway ramps are forecast to exceed the adopted impact thresholds with the Option 2 based on Year 2015 conditions.

## Table 6-11

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 420 | 0.28 | A | 1,110 | 0.74 | C | 410 | 0.27 | A | 1,110 | 0.74 | C |
| | SB Loop On | 1 | 1,080 | 520 | 0.48 | A | 440 | 0.41 | A | 530 | 0.49 | A | 440 | 0.41 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 760 | 0.70 | B | 670 | 0.62 | B | 750 | 0.69 | B |
| | SB Off | 1 | 1,500 | 1,516 | **1.01** | **F** | 1,519 | **1.01** | **F** | 1,504 | 1.00 | E | 1,511 | **1.01** | **F** |
| | NB Off | 1 | 1,500 | 1,549 | **1.03** | **F** | 1,289 | 0.86 | D | 1,542 | **1.03** | **F** | 1,302 | 0.87 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 260 | 0.29 | A | 390 | 0.43 | A | 260 | 0.29 | A |
| | NB Direct On | 1 | 900 | 735 | 0.82 | D | 179 | 0.20 | A | 729 | 0.81 | D | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,180 | 0.79 | C | 590 | 0.39 | A | 1,190 | 0.79 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 1,097 | 0.49 | A | 2,156 | 0.96 | E | 1,118 | 0.50 | A | 2,142 | 0.95 | E |
| | NB Off | 1 | 1,500 | 332 | 0.22 | A | 523 | 0.35 | A | 332 | 0.22 | A | 532 | 0.35 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 886 | 0.82 | D | 611 | 0.57 | A | 880 | 0.81 | D | 609 | 0.56 | A |
| | NB Direct On | 1 | 1,080 | 680 | 0.63 | B | 330 | 0.31 | A | 670 | 0.62 | B | 340 | 0.31 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 611 | 0.41 | A | 831 | 0.55 | A | 610 | 0.41 | A | 829 | 0.55 | A |
| | NB Off | 2 | 2,250 | 811 | 0.36 | A | 1,387 | 0.62 | B | 819 | 0.36 | A | 1,395 | 0.62 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 950 | 0.63 | B | 880 | 0.59 | A | 1,000 | 0.67 | B | 982 | 0.65 | B |
| | NB On | 1 | 1,500 | 500 | 0.33 | A | 1,110 | 0.74 | C | 502 | 0.33 | A | 1,110 | 0.74 | C |
| | SB Off | 1 | 1,500 | 1,450 | 0.97 | E | 771 | 0.51 | A | 1,460 | 0.97 | E | 770 | 0.51 | A |
| | NB Off | 2 | 2,250 | 712 | 0.32 | A | 841 | 0.37 | A | 780 | 0.35 | A | 880 | 0.39 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 40 | 0.03 | A | 180 | 0.12 | A | 40 | 0.03 | A | 170 | 0.11 | A |
| | SB Off | 1 | 1,500 | 188 | 0.13 | A | 120 | 0.08 | A | 188 | 0.13 | A | 120 | 0.08 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 350 | 0.23 | A | 600 | 0.40 | A | 350 | 0.23 | A | 590 | 0.39 | A |
| | NB Direct On | 2 | 1,800 | 350 | 0.19 | A | 1,080 | 0.60 | A | 341 | 0.19 | A | 1,100 | 0.61 | B |
| | NB Loop On | 1 | 1,500 | 584 | 0.39 | A | 145 | 0.10 | A | 579 | 0.39 | A | 144 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,100 | 0.93 | E | 920 | 0.41 | A | 2,130 | 0.95 | E | 954 | 0.42 | A |
| | NB Off | 2 | 2,250 | 1,170 | 0.52 | A | 310 | 0.14 | A | 1,160 | 0.52 | A | 310 | 0.14 | A |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 17 | 0.01 | A | 105 | 0.07 | A | 18 | 0.01 | A | 105 | 0.07 | A |
| | SB Loop On | 1 | 1,080 | 291 | 0.27 | A | 600 | 0.56 | A | 290 | 0.27 | A | 600 | 0.56 | A |
| | NB Direct On | 2 | 3,400 | 2,178 | 0.64 | B | 1,979 | 0.58 | A | 2,179 | 0.64 | B | 1,979 | 0.58 | A |
| | NB Loop On | 1 | 1,500 | 510 | 0.34 | A | 1,240 | 0.83 | D | 500 | 0.33 | A | 1,250 | 0.83 | D |
| | SB Off | 2 | 3,000 | 3,283 | **1.09** | **F** | 2,581 | 0.86 | D | 3,284 | **1.09** | **F** | 2,580 | 0.86 | D |
| | NB Off | 2 | 3,000 | 841 | 0.28 | A | 381 | 0.13 | A | 840 | 0.28 | A | 380 | 0.13 | A |

## Table 6-11 Cont.

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 291 | 0.19 | A | 730 | 0.49 | A | 294 | 0.20 | A | 730 | 0.49 | A |
| | SB Loop On | 1 | 1,080 | 400 | 0.37 | A | 550 | 0.51 | A | 400 | 0.37 | A | 550 | 0.51 | A |
| | NB On | 2 | 1,800 | 1,470 | 0.82 | D | 1,020 | 0.57 | A | 1,514 | 0.84 | D | 1,027 | 0.57 | A |
| | SB Off | 2 | 3,000 | 1,873 | 0.62 | B | 2,548 | 0.85 | D | 1,891 | 0.63 | B | 2,563 | 0.85 | D |
| | NB Off | 1 | 1,500 | 1,140 | 0.76 | C | 610 | 0.41 | A | 1,142 | 0.76 | C | 609 | 0.41 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 247 | 0.23 | A | 197 | 0.18 | A | 248 | 0.23 | A | 197 | 0.18 | A |
| | SB Loop On | 1 | 1,500 | 387 | 0.26 | A | 433 | 0.29 | A | 385 | 0.26 | A | 434 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,837 | **1.22** | **F** | 1,329 | 0.89 | D | 1,826 | **1.22** | **F** | 1,328 | 0.89 | D |
| | NB Loop On | 1 | 1,500 | 900 | 0.60 | A | 1,100 | 0.73 | C | 904 | 0.60 | A | 1,107 | 0.74 | C |
| | SB Off | 2 | 2,250 | 1,442 | 0.64 | B | 1,310 | 0.58 | A | 1,441 | 0.64 | B | 1,333 | 0.59 | A |
| | NB Off | 1 | 1,500 | 1,220 | 0.81 | D | 1,220 | 0.81 | D | 1,227 | 0.82 | D | 1,218 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 200 | 0.19 | A | 150 | 0.14 | A | 200 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 830 | 0.55 | A | 750 | 0.50 | A | 821 | 0.55 | A | 750 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,302 | 0.87 | D | 800 | 0.53 | A | 1,310 | 0.87 | D | 811 | 0.54 | A |
| | NB Loop On | 1 | 1,500 | 1,252 | 0.83 | D | 800 | 0.53 | A | 1,250 | 0.83 | D | 801 | 0.53 | A |
| | SB Off | 2 | 3,000 | 2,156 | 0.72 | C | 2,363 | 0.79 | C | 2,167 | 0.72 | C | 2,349 | 0.78 | C |
| | NB Off | 1 | 1,500 | 310 | 0.21 | A | 1,060 | 0.71 | C | 310 | 0.21 | A | 1,070 | 0.71 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 271 | 0.18 | A | 640 | 0.43 | A | 271 | 0.18 | A | 640 | 0.43 | A |
| | SB Loop On | 1 | 900 | 251 | 0.28 | A | 310 | 0.34 | A | 251 | 0.28 | A | 310 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 660 | 0.44 | A | 940 | 0.63 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 640 | 0.43 | A | 440 | 0.29 | A | 640 | 0.43 | A | 450 | 0.30 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,472 | 0.49 | A | 830 | 0.28 | A | 1,470 | 0.49 | A |
| | NB Off | 1 | 1,500 | 1,200 | 0.80 | C | 1,249 | 0.83 | D | 1,210 | 0.81 | D | 1,249 | 0.83 | D |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 990 | 0.66 | B | 1,120 | 0.75 | C | 990 | 0.66 | B | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 260 | 0.29 | A | 310 | 0.34 | A | 250 | 0.28 | A |
| | NB Direct On | 1 | 1,500 | 1,296 | 0.86 | D | 550 | 0.37 | A | 1,294 | 0.86 | D | 560 | 0.37 | A |
| | NB Loop On | 1 | 900 | 301 | 0.33 | A | 80 | 0.09 | A | 301 | 0.33 | A | 80 | 0.09 | A |
| | SB Off | 1 | 1,500 | 576 | 0.38 | A | 741 | 0.49 | A | 587 | 0.39 | A | 749 | 0.50 | A |
| | NB Off | 2 | 2,250 | 1,028 | 0.46 | A | 1,558 | 0.69 | B | 1,029 | 0.46 | A | 1,559 | 0.69 | B |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 531 | 0.35 | A | 360 | 0.24 | A | 530 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 1,203 | 0.80 | C | 1,130 | 0.75 | C | 1,190 | 0.79 | C | 1,140 | 0.76 | C |
| | NB Loop On | 1 | 1,500 | 652 | 0.43 | A | 390 | 0.26 | A | 640 | 0.43 | A | 390 | 0.26 | A |
| | SB Off | 1 | 1,500 | 1,604 | **1.07** | **F** | 962 | 0.64 | B | 1,609 | **1.07** | **F** | 954 | 0.64 | B |
| | NB Off | 1 | 1,500 | 496 | 0.33 | A | 500 | 0.33 | A | 487 | 0.32 | A | 510 | 0.34 | A |

## Table 6-11 Cont.

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 100 | 0.11 | A | 90 | 0.10 | A | 100 | 0.11 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 140 | 0.16 | A | 310 | 0.34 | A | 140 | 0.16 | A | 310 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 497 | 0.33 | A | 679 | 0.45 | A | 479 | 0.32 | A | 689 | 0.46 | A |
| | NB Loop On | 1 | 1,500 | 480 | 0.32 | A | 1,230 | 0.82 | D | 470 | 0.31 | A | 1,230 | 0.82 | D |
| | SB Off | 2 | 2,250 | 2,117 | 0.94 | E | 1,585 | 0.70 | B | 2,137 | 0.95 | E | 1,593 | 0.71 | C |
| | NB Off | 2 | 3,000 | 1,208 | 0.40 | A | 460 | 0.15 | A | 1,217 | 0.41 | A | 460 | 0.15 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 788 | 0.20 | A | 2,422 | 0.61 | B | 787 | 0.20 | A | 2,426 | 0.61 | B |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 2,785 | 0.70 | B | 1,240 | 0.31 | A | 2,805 | 0.70 | B | 1,233 | 0.31 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,431 | 0.36 | A | 2,446 | 0.61 | B | 1,409 | 0.35 | A | 2,473 | 0.62 | B |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,210 | 0.80 | C | 1,515 | 0.38 | A | 3,226 | 0.81 | D | 1,514 | 0.38 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 530 | 0.35 | A | 330 | 0.22 | A | 540 | 0.36 | A | 380 | 0.25 | A |
| | NB Direct On | 1 | 1,500 | 140 | 0.09 | A | 150 | 0.10 | A | 140 | 0.09 | A | 150 | 0.10 | A |
| | NB Loop On | 1 | 1,500 | 220 | 0.15 | A | 270 | 0.18 | A | 210 | 0.14 | A | 290 | 0.19 | A |
| | SB Off | 2 | 2,250 | 492 | 0.22 | A | 319 | 0.14 | A | 529 | 0.24 | A | 319 | 0.14 | A |
| | NB Off | 1 | 1,500 | 222 | 0.15 | A | 632 | 0.42 | A | 305 | 0.20 | A | 656 | 0.44 | A |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 808 | 0.40 | A | 1,303 | 0.65 | B | 837 | 0.42 | A | 1,310 | 0.66 | B |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,671 | 0.84 | D | 947 | 0.47 | A | 1,668 | 0.83 | D | 972 | 0.49 | A |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,579 | 0.79 | C | 779 | 0.39 | A | 1,573 | 0.79 | C | 778 | 0.39 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 662 | 0.33 | A | 1,539 | 0.77 | C | 670 | 0.34 | A | 1,537 | 0.77 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 1,774 | 0.44 | A | 1,417 | 0.35 | A | 1,799 | 0.45 | A | 1,439 | 0.36 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 1,702 | 0.43 | A | 1,872 | 0.47 | A | 1,729 | 0.43 | A | 1,883 | 0.47 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 130 | 0.12 | A | 1,144 | **1.06** | **F** | 131 | 0.12 | A | 1,140 | **1.06** | **F** |
| | NB Direct On | 1 | 1,080 | 115 | 0.11 | A | 570 | 0.53 | A | 130 | 0.12 | A | 589 | 0.55 | A |
| | NB Loop On | 1 | 1,080 | 350 | 0.32 | A | 1,420 | **1.31** | **F** | 380 | 0.35 | A | 1,420 | **1.31** | **F** |
| | SB Off | 2 | 3,000 | 2,109 | 0.70 | B | 420 | 0.14 | A | 2,110 | 0.70 | B | 441 | 0.15 | A |
| | NB Off | 2 | 2,250 | 1,416 | 0.63 | B | 590 | 0.26 | A | 1,426 | 0.63 | B | 581 | 0.26 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 724 | 0.36 | A | 593 | 0.30 | A | 759 | 0.38 | A | 614 | 0.31 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 215 | 0.11 | A | 348 | 0.17 | A | 215 | 0.11 | A | 347 | 0.17 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 691 | 0.17 | A | 511 | 0.13 | A | 678 | 0.17 | A | 508 | 0.13 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 650 | 0.16 | A | 316 | 0.08 | A | 638 | 0.16 | A | 317 | 0.08 | A |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 196 | 0.10 | A | 363 | 0.18 | A | 191 | 0.10 | A | 355 | 0.18 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,484 | 0.74 | C | 1,600 | 0.80 | C | 1,496 | 0.75 | C | 1,590 | 0.80 | C |

## Table 6-11 Cont.

### Year 2015 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project | | | | | | 2012 Modified Project Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 455 | 0.23 | A | 501 | 0.25 | A | 454 | 0.23 | A | 501 | 0.25 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 677 | 0.38 | A | 391 | 0.22 | A | 689 | 0.38 | A | 390 | 0.22 | A |
| | NB On | 1 | 1,500 | 320 | 0.21 | A | 401 | 0.27 | A | 311 | 0.21 | A | 400 | 0.27 | A |
| | SB Off | 1 | 1,500 | 749 | 0.50 | A | 361 | 0.24 | A | 759 | 0.51 | A | 361 | 0.24 | A |
| | NB Off | 1 | 1,500 | 688 | 0.46 | A | 811 | 0.54 | A | 687 | 0.46 | A | 816 | 0.54 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 265 | 0.18 | A | 410 | 0.27 | A | 277 | 0.18 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 58 | 0.04 | A | 30 | 0.02 | A | 50 | 0.03 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 50 | 0.03 | A | 70 | 0.05 | A | 50 | 0.03 | A | 71 | 0.05 | A |
| | NB Off | 1 | 1,500 | 660 | 0.44 | A | 354 | 0.24 | A | 665 | 0.44 | A | 365 | 0.24 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 350 | 0.23 | A | 620 | 0.41 | A | 349 | 0.23 | A | 620 | 0.41 | A |
| | NB On | 1 | 1,500 | 300 | 0.20 | A | 370 | 0.25 | A | 314 | 0.21 | A | 371 | 0.25 | A |
| | SB Off | 1 | 1,500 | 420 | 0.28 | A | 290 | 0.19 | A | 428 | 0.29 | A | 293 | 0.20 | A |
| | NB Off | 2 | 2,250 | 550 | 0.24 | A | 430 | 0.19 | A | 552 | 0.25 | A | 428 | 0.19 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 250 | 0.11 | A | 580 | 0.26 | A | 247 | 0.11 | A | 584 | 0.26 | A |
| | SB Off | 1 | 1,500 | 540 | 0.36 | A | 360 | 0.24 | A | 544 | 0.36 | A | 366 | 0.24 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 250 | 0.17 | A | 1,000 | 0.67 | B | 250 | 0.17 | A | 1,000 | 0.67 | B |
| | NB On | 2 | 2,250 | 870 | 0.39 | A | 380 | 0.17 | A | 891 | 0.40 | A | 386 | 0.17 | A |
| | SB Off | 1 | 1,500 | 370 | 0.25 | A | 630 | 0.42 | A | 377 | 0.25 | A | 630 | 0.42 | A |
| | NB Off | 2 | 2,250 | 1,650 | 0.73 | C | 360 | 0.16 | A | 1,655 | 0.74 | C | 360 | 0.16 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 760 | 0.51 | A | 200 | 0.13 | A | 761 | 0.51 | A | 200 | 0.13 | A |
| | NB Off | 1 | 1,500 | 60 | 0.04 | A | 608 | 0.41 | A | 60 | 0.04 | A | 607 | 0.40 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 170 | 0.11 | A | 100 | 0.07 | A | 168 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 260 | 0.17 | A | 160 | 0.11 | A | 260 | 0.17 | A | 170 | 0.11 | A |
| | SB Off | 1 | 1,500 | 101 | 0.07 | A | 182 | 0.12 | A | 100 | 0.07 | A | 172 | 0.11 | A |
| | NB Off | 1 | 1,500 | 101 | 0.07 | A | 99 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 621 | 0.41 | A | 260 | 0.17 | A | 630 | 0.42 | A | 260 | 0.17 | A |
| | NB On | 1 | 1,500 | 240 | 0.16 | A | 170 | 0.11 | A | 240 | 0.16 | A | 180 | 0.12 | A |
| | SB Off | 1 | 1,500 | 90 | 0.06 | A | 90 | 0.06 | A | 90 | 0.06 | A | 90 | 0.06 | A |
| | NB Off | 1 | 1,500 | 152 | 0.10 | A | 311 | 0.21 | A | 152 | 0.10 | A | 311 | 0.21 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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### 6.2.4 Interim Year 2015 Peak Hour Freeway/Tollway Mainline Levels of Service, Option 2

Year 2015 Without Project and Year 2015 With 2012 Modified Project Option 2 AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 6-12. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, none of the freeway mainline segments are forecast to exceed adopted impact threshold with Option 2 based on Year 2015 conditions.

## Table 6-12

### Year 2015 Freeway Mainline LOS Summary
### With 2012 Modified Project - Option 2

| | Location | Direction | Lanes | Capacity | Without Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,321 | **1.32** | **F** | 11,587 | 1.00 | E | 15,234 | **1.31** | **F** | 11,588 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 9,114 | 0.79 | C | 10,235 | 0.88 | D | 9,118 | 0.79 | C | 10,216 | 0.88 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,622 | **1.26** | **F** | 11,009 | 0.95 | E | 14,556 | **1.25** | **F** | 11,015 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,082 | 0.96 | E | 12,357 | **1.07** | **F** | 11,134 | 0.96 | E | 12,310 | **1.06** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 14,970 | **1.29** | **F** | 11,391 | 0.98 | E | 14,905 | **1.28** | **F** | 11,407 | 0.98 | E |
| | | SB | 5+1H | 11,600 | 11,614 | 1.00 | E | 12,845 | **1.11** | **F** | 11,667 | **1.01** | **F** | 12,798 | **1.10** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,370 | **1.24** | **F** | 11,093 | 0.96 | E | 14,313 | **1.23** | **F** | 11,095 | 0.96 | E |
| | | SB | 5+1H | 11,600 | 11,158 | 0.96 | E | 12,328 | **1.06** | **F** | 11,202 | 0.97 | E | 12,270 | **1.06** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,419 | **1.24** | **F** | 10,877 | 0.94 | E | 14,358 | **1.24** | **F** | 10,904 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 10,563 | 0.91 | E | 12,188 | **1.05** | **F** | 10,618 | 0.92 | E | 12,131 | **1.05** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,415 | **1.07** | **F** | 10,146 | 0.87 | D | 12,362 | **1.07** | **F** | 10,165 | 0.88 | D |
| | | SB | 5+1H | 11,600 | 10,083 | 0.87 | D | 10,894 | 0.94 | E | 10,140 | 0.87 | D | 10,852 | 0.94 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,193 | **1.05** | **F** | 10,182 | 0.88 | D | 12,154 | **1.05** | **F** | 10,196 | 0.88 | D |
| | | SB | 5+1H | 11,600 | 10,596 | 0.91 | E | 11,012 | 0.95 | E | 10,644 | 0.92 | E | 10,978 | 0.95 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 9,840 | **1.03** | **F** | 8,200 | 0.85 | D | 9,878 | **1.03** | **F** | 8,262 | 0.86 | D |
| | | SB | 4+1H | 9,600 | 8,914 | 0.93 | E | 8,936 | 0.93 | E | 8,963 | 0.93 | E | 9,002 | 0.94 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,257 | **1.07** | **F** | 7,314 | 0.76 | C | 10,289 | **1.07** | **F** | 7,360 | 0.77 | C |
| | | SB | 4+1H | 9,600 | 7,286 | 0.76 | C | 9,194 | 0.96 | E | 7,299 | 0.76 | C | 9,226 | 0.96 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 21,352 | 0.99 | E | 14,181 | 0.66 | B | 21,411 | 1.00 | E | 14,206 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 10,700 | 0.50 | A | 15,961 | 0.74 | C | 10,716 | 0.50 | A | 16,002 | 0.74 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 19,662 | **1.01** | **F** | 12,133 | 0.62 | B | 19,725 | **1.01** | **F** | 12,153 | 0.62 | B |
| | | SB | 8+2H | 19,500 | 10,845 | 0.56 | A | 16,333 | 0.84 | D | 10,862 | 0.56 | A | 16,371 | 0.84 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 18,784 | **1.39** | **F** | 11,554 | 0.86 | D | 18,806 | **1.39** | **F** | 11,568 | 0.86 | D |
| | | SB | 5+2H | 13,500 | 8,487 | 0.63 | B | 14,144 | **1.05** | **F** | 8,493 | 0.63 | B | 14,174 | **1.05** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 15,487 | **1.61** | **F** | 9,483 | 0.99 | E | 15,524 | **1.62** | **F** | 9,489 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 7,517 | 0.78 | C | 12,643 | **1.32** | **F** | 7,524 | 0.78 | C | 12,653 | **1.32** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 11,573 | **1.21** | **F** | 7,075 | 0.74 | C | 11,602 | **1.21** | **F** | 7,078 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,006 | 0.63 | B | 9,751 | **1.02** | **F** | 5,998 | 0.62 | B | 9,773 | **1.02** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,609 | **1.31** | **F** | 8,691 | 0.91 | D | 12,581 | **1.31** | **F** | 8,699 | 0.91 | D |
| | | SB | 4+1H | 9,600 | 8,200 | 0.85 | D | 10,645 | **1.11** | **F** | 8,221 | 0.86 | D | 10,627 | **1.11** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,593 | **1.31** | **F** | 8,882 | 0.93 | E | 12,561 | **1.31** | **F** | 8,886 | 0.93 | E |
| | | SB | 4+1H | 9,600 | 8,376 | 0.87 | D | 10,532 | **1.10** | **F** | 8,390 | 0.87 | D | 10,505 | **1.09** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,181 | **1.27** | **F** | 8,096 | 0.84 | D | 12,153 | **1.27** | **F** | 8,087 | 0.84 | D |
| | | SB | 4+1H | 9,600 | 7,493 | 0.78 | C | 10,018 | **1.04** | **F** | 7,498 | 0.78 | C | 9,992 | **1.04** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 11,296 | **1.18** | **F** | 7,770 | 0.81 | C | 11,291 | **1.18** | **F** | 7,763 | 0.81 | C |
| | | SB | 4+1H | 9,600 | 6,753 | 0.70 | B | 8,997 | 0.94 | E | 6,784 | 0.71 | B | 9,008 | 0.94 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,788 | 0.81 | D | 4,467 | 0.47 | A | 7,867 | 0.82 | D | 4,457 | 0.46 | A |
| | | SB | 4+1H | 9,600 | 5,710 | 0.59 | A | 8,591 | 0.89 | D | 5,719 | 0.60 | A | 8,603 | 0.90 | D |

## Table 6-12 Cont.

### Year 2015 Freeway Mainline LOS Summary
### With 2012 Modified Project - Option 2

| | Location | Direction | Lanes | Capacity | Without Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,219 | 0.28 | A | 4,868 | 0.61 | A | 2,196 | 0.27 | A | 4,899 | 0.61 | B |
| | | SB | 4 | 8,000 | 5,996 | 0.75 | C | 2,755 | 0.34 | A | 6,031 | 0.75 | C | 2,747 | 0.34 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 1,924 | 0.32 | A | 4,698 | 0.78 | C | 2,003 | 0.33 | A | 4,715 | 0.79 | C |
| | | SB | 3 | 6,000 | 5,472 | 0.91 | E | 2,481 | 0.41 | A | 5,479 | 0.91 | E | 2,524 | 0.42 | A |
| | n/o I-5 | NB | 3 | 6,000 | 1,924 | 0.32 | A | 4,698 | 0.78 | C | 2,003 | 0.33 | A | 4,715 | 0.79 | C |
| | | SB | 3 | 6,000 | 3,893 | 0.65 | B | 1,702 | 0.28 | A | 3,906 | 0.65 | B | 1,747 | 0.29 | A |
| | s/o I-5 | NB | 3 | 6,000 | 2,157 | 0.36 | A | 3,727 | 0.62 | B | 2,224 | 0.37 | A | 3,751 | 0.63 | B |
| | | SB | 3 | 6,000 | 3,996 | 0.67 | B | 2,171 | 0.36 | A | 4,036 | 0.67 | B | 2,215 | 0.37 | A |
| | n/o I-405 | NB | 3 | 6,000 | 2,938 | 0.49 | A | 2,899 | 0.48 | A | 2,967 | 0.49 | A | 2,894 | 0.48 | A |
| | | SB | 3 | 6,000 | 2,460 | 0.41 | A | 2,327 | 0.39 | A | 2,489 | 0.41 | A | 2,351 | 0.39 | A |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 3,885 | 0.65 | B | 3,915 | 0.65 | B | 3,849 | 0.64 | B | 3,948 | 0.66 | B |
| | | SB | 3 | 6,000 | 4,936 | 0.82 | D | 3,480 | 0.58 | A | 4,963 | 0.83 | D | 3,477 | 0.58 | A |
| | n/o Portola (West) | NB | 4 | 8,000 | 5,240 | 0.66 | B | 2,708 | 0.34 | A | 5,244 | 0.66 | B | 2,707 | 0.34 | A |
| | | SB | 4 | 8,000 | 2,514 | 0.31 | A | 4,387 | 0.55 | A | 2,524 | 0.32 | A | 4,388 | 0.55 | A |
| | n/o Alton | NB | 3 | 6,000 | 5,699 | 0.95 | E | 3,086 | 0.51 | A | 5,732 | 0.96 | E | 3,100 | 0.52 | A |
| | | SB | 3 | 6,000 | 2,964 | 0.49 | A | 4,865 | 0.81 | D | 2,989 | 0.50 | A | 4,883 | 0.81 | B |
| | n/o Lake Forest | NB | 3 | 6,000 | 6,004 | 1.00 | E | 2,814 | 0.47 | A | 6,026 | 1.00 | E | 2,825 | 0.47 | A |
| | | SB | 3 | 6,000 | 2,487 | 0.41 | A | 5,059 | 0.84 | D | 2,503 | 0.42 | A | 5,074 | 0.85 | D |
| SR-261 | n/o Portola | NB | 2 | 4,000 | 1,121 | 0.28 | A | 2,847 | 0.71 | C | 1,118 | 0.28 | A | 2,866 | 0.72 | C |
| | | SB | 2 | 4,000 | 3,583 | 0.90 | D | 1,365 | 0.34 | A | 3,586 | 0.90 | D | 1,358 | 0.34 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 572 | 0.10 | A | 2,314 | 0.39 | A | 567 | 0.09 | A | 2,329 | 0.39 | A |
| | | SB | 3 | 6,000 | 3,113 | 0.52 | A | 886 | 0.15 | A | 3,106 | 0.52 | A | 881 | 0.15 | A |
| | s/o Irvine Blvd | NB | 2 | 4,000 | 785 | 0.20 | A | 2,985 | 0.75 | C | 779 | 0.19 | A | 2,992 | 0.75 | C |
| | | SB | 2 | 4,000 | 3,580 | 0.90 | D | 1,185 | 0.30 | A | 3,577 | 0.89 | D | 1,182 | 0.30 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 3,855 | 0.64 | B | 6,114 | **1.02** | **F** | 3,820 | 0.64 | B | 6,155 | **1.03** | **F** |
| | | SB | 3 | 6,000 | 8,154 | **1.36** | **F** | 3,988 | 0.66 | B | 8,182 | **1.36** | **F** | 3,971 | 0.66 | B |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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# 7.0 YEAR 2030 ANALYSIS

This chapter analyzes the impacts of The 2012 Modified Project on year 2030 traffic conditions in the traffic analysis study area. The potential traffic impacts of the Project are assessed based on a comparison of 2011 Approved Project and 2012 Modified Project conditions. The 2011 Approved Project references are a result of the 2011 Approved Project plus any Baseline land use and network updates.

The 2012 Modified Project includes 9,500 dwelling units within the 8.1 zoning, consisting of 3,625 previously approved dwelling units and 1,269 previously approved density bonus units, plus 3,412 dwelling units and 1,194 density bonus units (35% of 3,412). The maximum non-residential intensities for the 2012 Modified Project in 8.1 zoning would be revised to 1,318,200 square feet of Multi-Use (a category which includes previously approved 11,000 square feet of Child Care and 25,000 square feet of Church), 3,364,000 square feet of Medical and Science (R&D), and 220,000 square feet of Community Commercial. The 220,000 square feet of Community Commercial was previously approved and allocated per the master plans for District 1 North and District 4.

The 2012 Modified Project would also amend the General Plan, Objective B-1, Policy (c) regarding LOS "E" consideration as follows: In conjunction with traffic studies for development proposed in Planning Area 51, a LOS "E" standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35, 39 and a portion of 51 south of Marine Way. LOS "E" would be acceptable subject to the following:

1. Preparation, submittal, processing and approval of a traffic study.
2. Level of Service "E" will only be considered acceptable for an intersection that does not contain a residential quadrant, unless the residential development has a net density of 30 dwelling units per acre or greater. No Level of Service "E" will be acceptable along Sand Canyon except at the Sand Canyon/I-5 Interchange Ramps/Intersections.
3. Participation/funding to an upgraded traffic signal system as defined in the Traffic Management Systems Operations Study (TMSOS) and/or an Advance Traffic Management System (ATMS), which may be in place at the time of processing of the individual traffic studies. The City, in conjunction with specific traffic studies, shall determine the level of participation/funding using criteria and a process developed concurrently.

The Project includes a 2,600 student high school in District 5, which is included in the 2030 scenario. The Great Park Neighborhoods/Heritage Fields tentative tract map land uses in Districts 1 North, 1 South, 4, 7, and 8 are assumed to be as approved for 2030 with the following exceptions:

Option 1 - Includes the conversion of Institutional (Education) and Office land uses to Multi-Use (Non-Residential) or Medical and Science (R&D) in District 1 North.

Option 2 – In addition to the Option 1 conversions in District 1 North, this option includes a relocation of Multi-Use and Retail from District 1 North to District 1 South as well as changes in Districts 1 North to accommodate approved residential units displaced from a portion of District 1 South.

The Irvine Transportation Analysis Model (ITAM) version 8.4-10 Year 2030 is used for conducting this analysis, including transportation analysis zone (TAZ) and network refinements necessary for representation of the 2012 Modified Project options. The modeling methodology and post processing procedures are consistent with those used in the April 2003 NITM Program Traffic Study.

For the portion of the study area within the City of Lake Forest, the intersection and link analyses for future options incorporate project-related volume changes (from ITAM) for long range 2030 conditions as an overlay to the City of Lake Forest's traffic model (LFTAM)-based data.

The results of the Year 2030 traffic impact analysis are summarized in the first part of this chapter, and then mitigation measures are presented for the locations on the study area circulation system that are impacted by the 2012 Modified Project under 2030 conditions.

## 7.1 Year 2030 Traffic Impacts with 2012 Modified Project, with Option 1

The following sub-sections summarize the resulting 2011 Approved Project (baseline) and 2012 Modified Project Option 1 traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline segments and freeway/tollway ramps.

### 7.1.1 Year 2030 Circulation System and Average Daily Traffic Volumes, Option 1

The Year 2030 circulation system in the study area was previously illustrated in Chapter 4.0 and only improvements committed for construction (i.e., public agency capital improvement programs, state transportation improvement program, etc.) or would be constructed as part of previously entitled development by the year 2030 are assumed.

The Year 2030 Without Project and Year 2030 With 2012 Modified Project Option 1 average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 7-1 through 7-4, respectively.

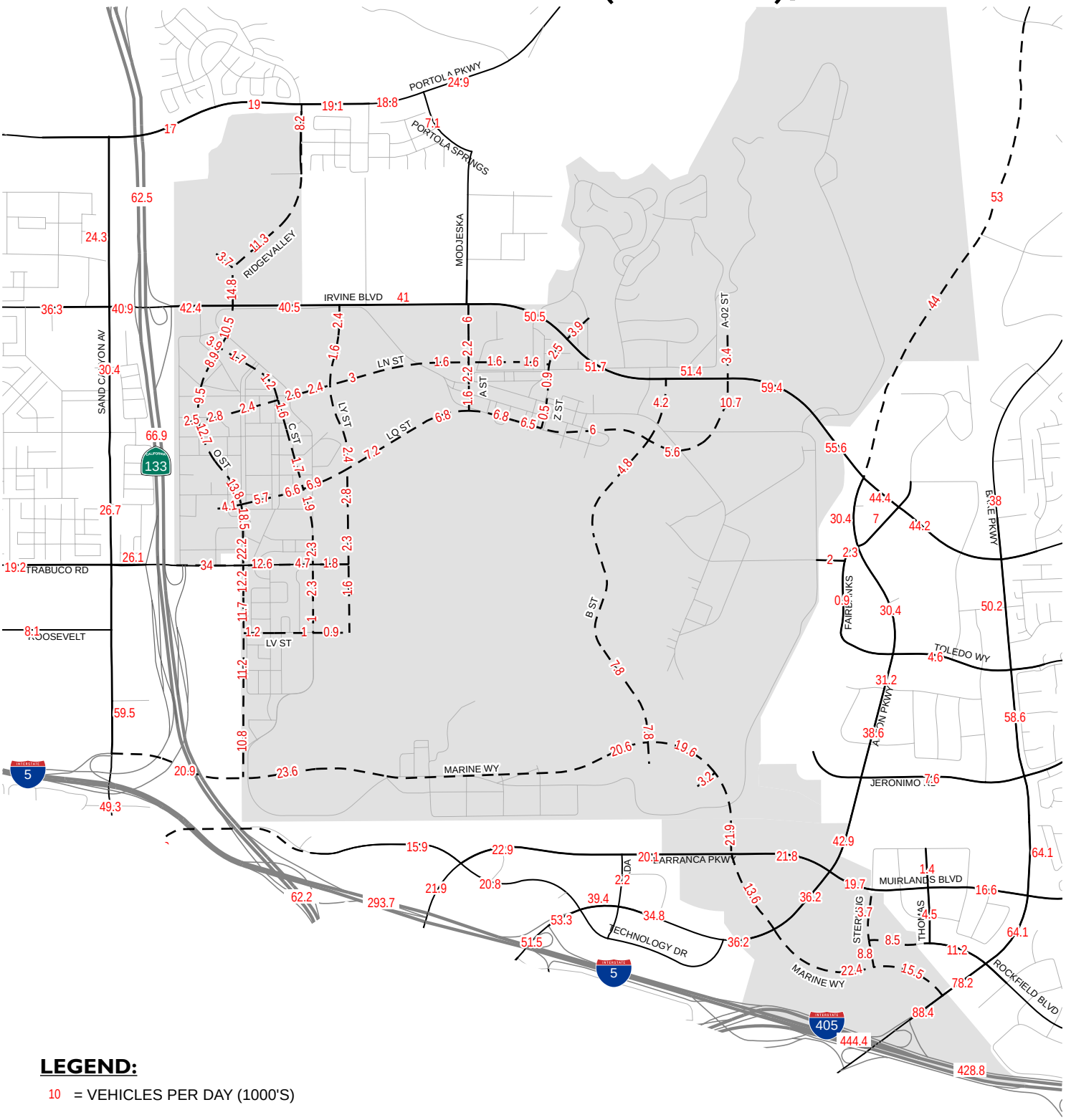
Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following roadway segments are potentially impacted by Option 1:

- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Irvine Bl (b/w A St and Z St)
- Irvine Bl (b/w Z St and B St)
- Jeffrey Rd (b/w Roosevelt and I-5 NB Ramps)
- Alton Pkwy (e/o Culver Dr)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under year 2030 with Option 1 conditions are summarized in Table 7-1. As the summary table indicates, these arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

EXHIBIT 7-1 (1 OF 3)

# YEAR 2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 7-1 (2 OF 3)

# YEAR 2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA

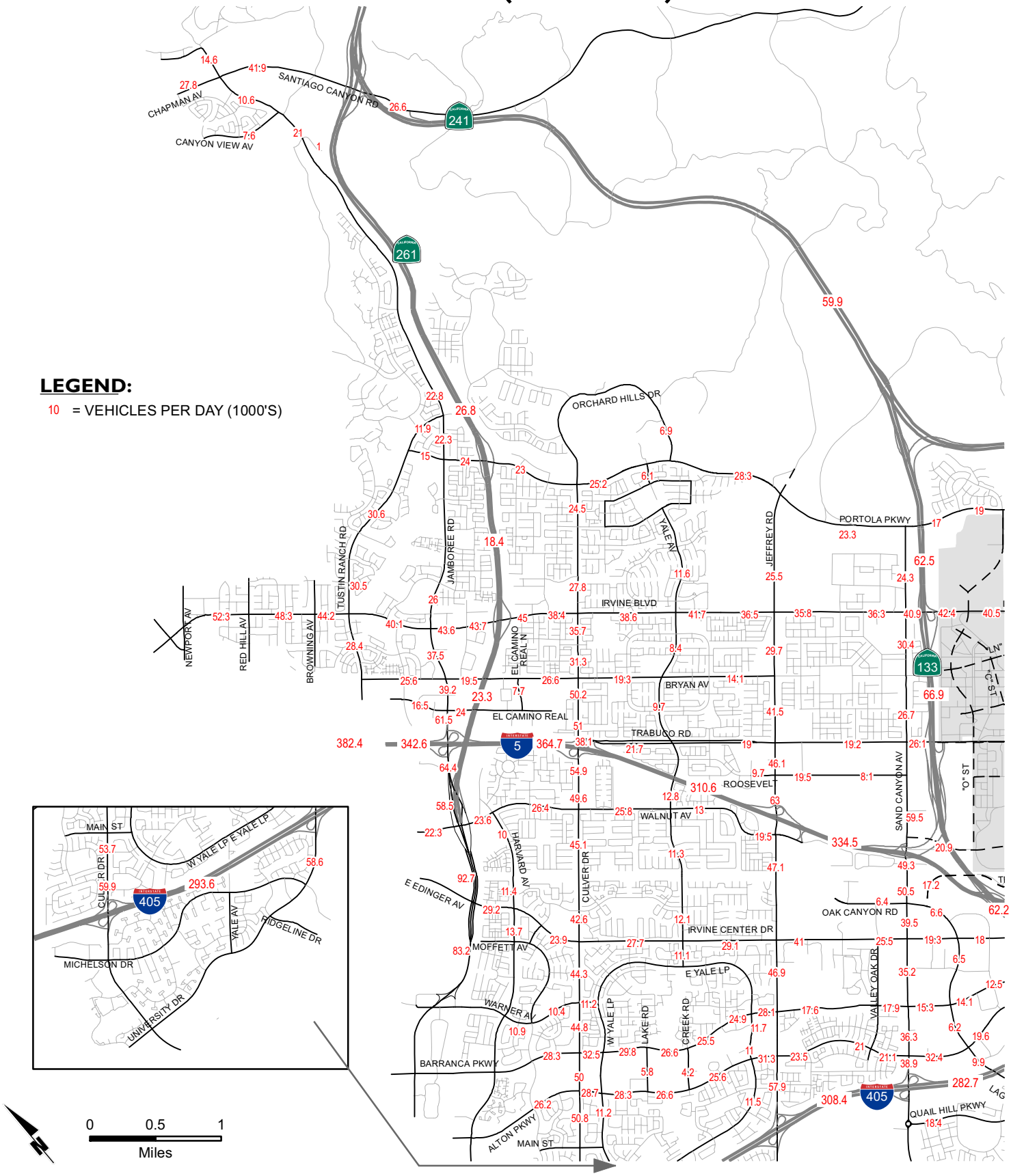
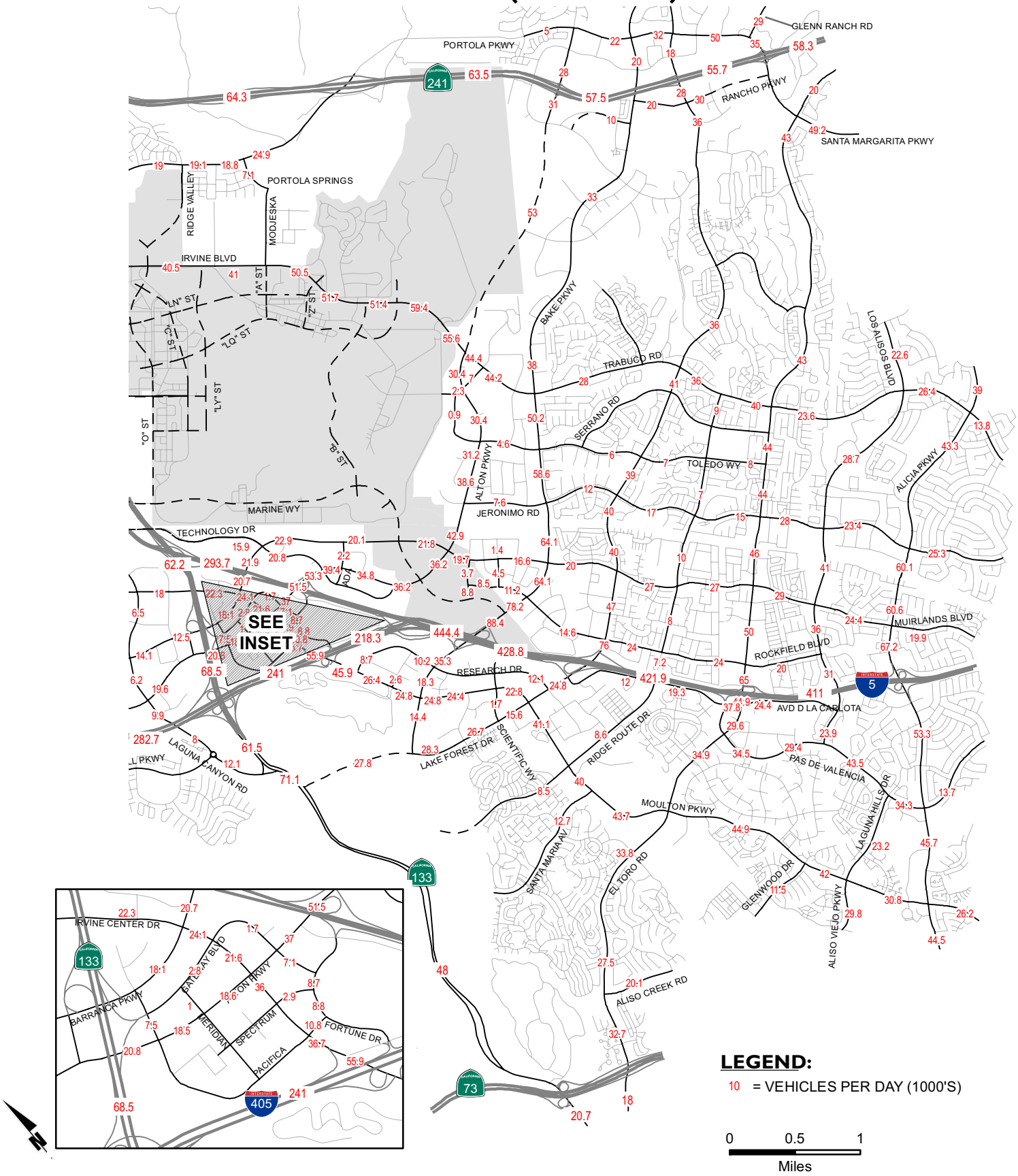
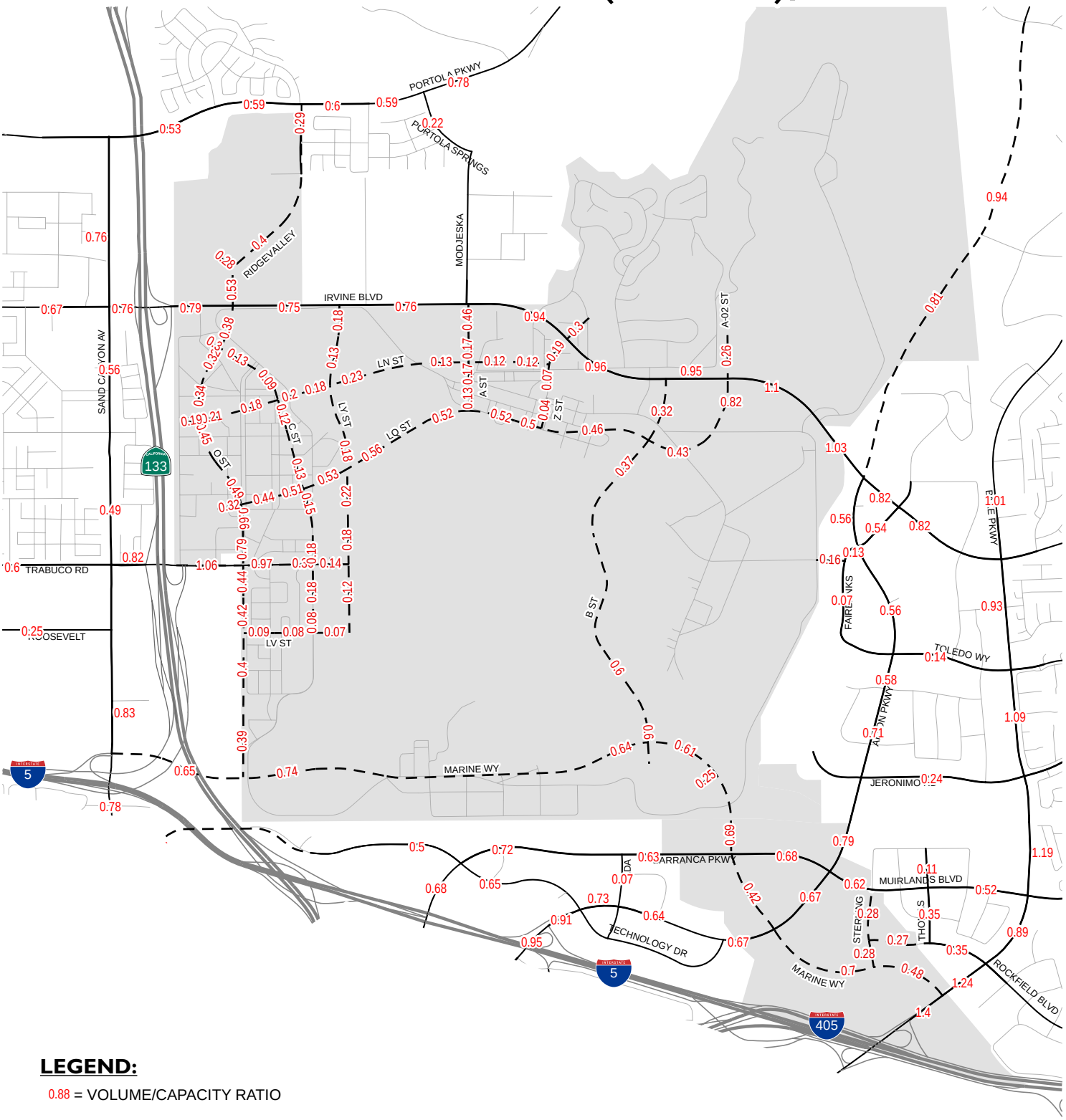


EXHIBIT 7-1 (3 OF 3)

# YEAR 2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA



# YEAR 2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA




**LEGEND:**

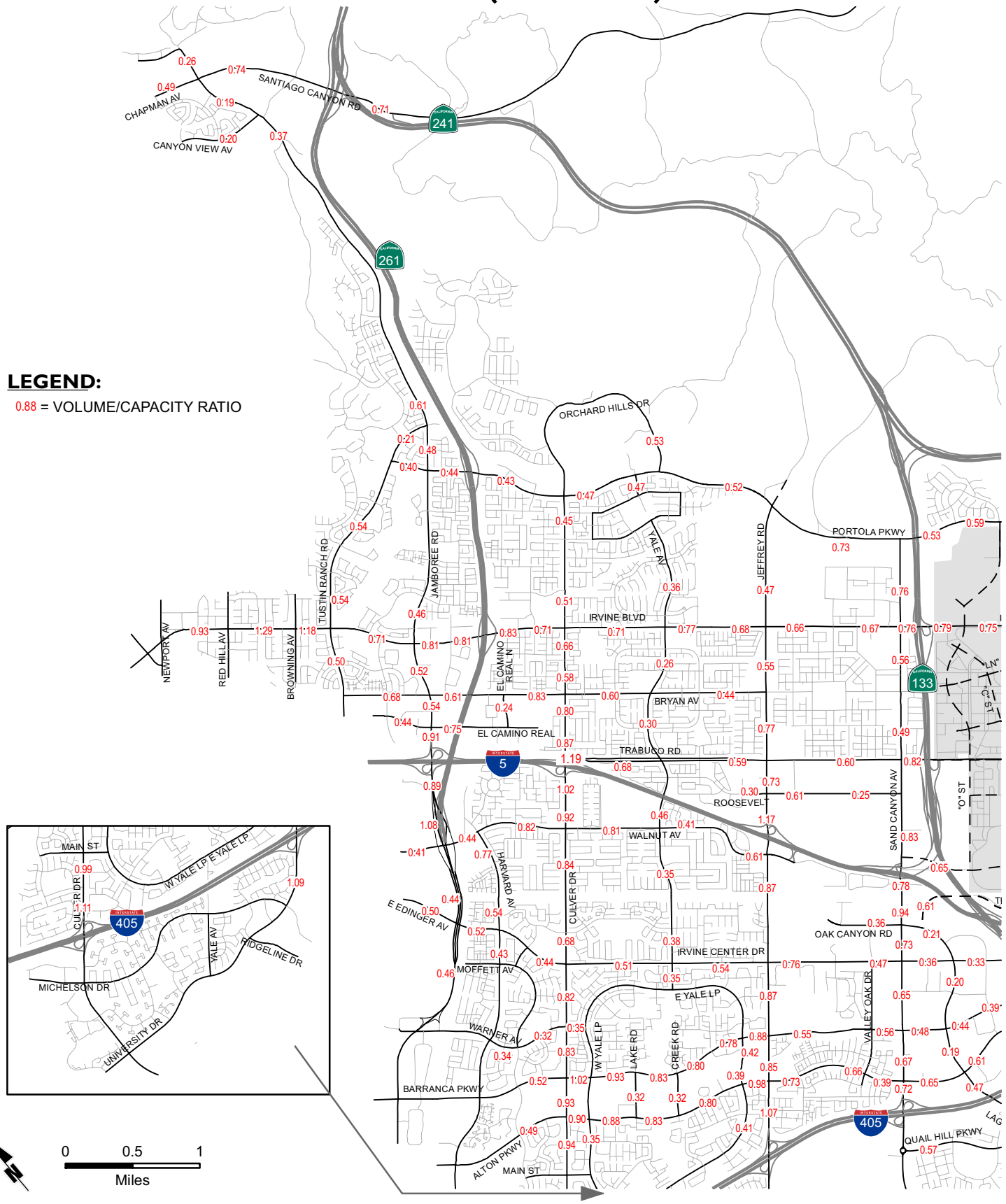
0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

EXHIBIT 7-2 (2 OF 3)

# YEAR 2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA



# YEAR 2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA

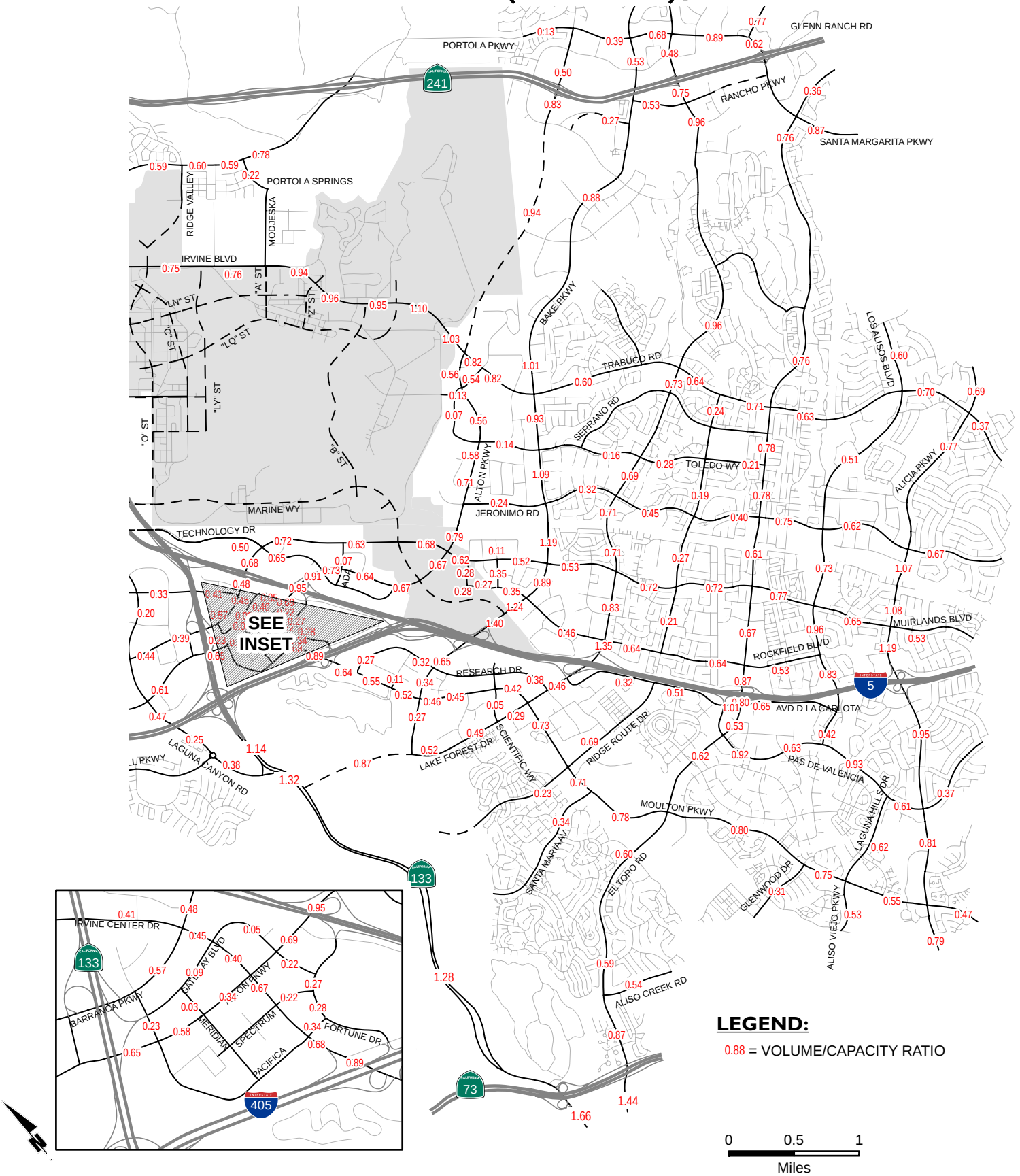
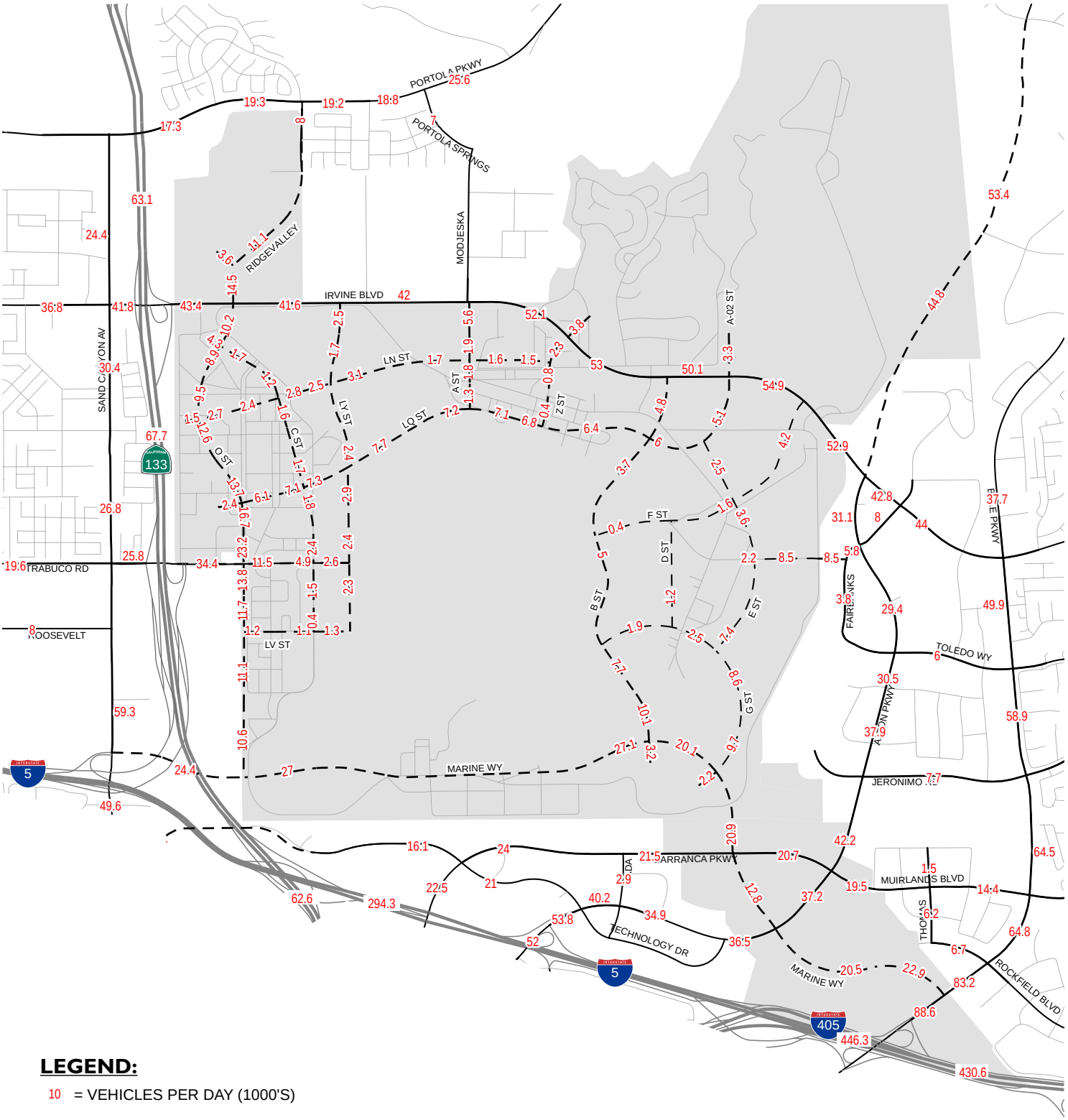


EXHIBIT 7-3 (1 OF 3)

# YEAR 2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 1, PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 7-3 (2 OF 3)

# YEAR 2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 1, WEST STUDY AREA

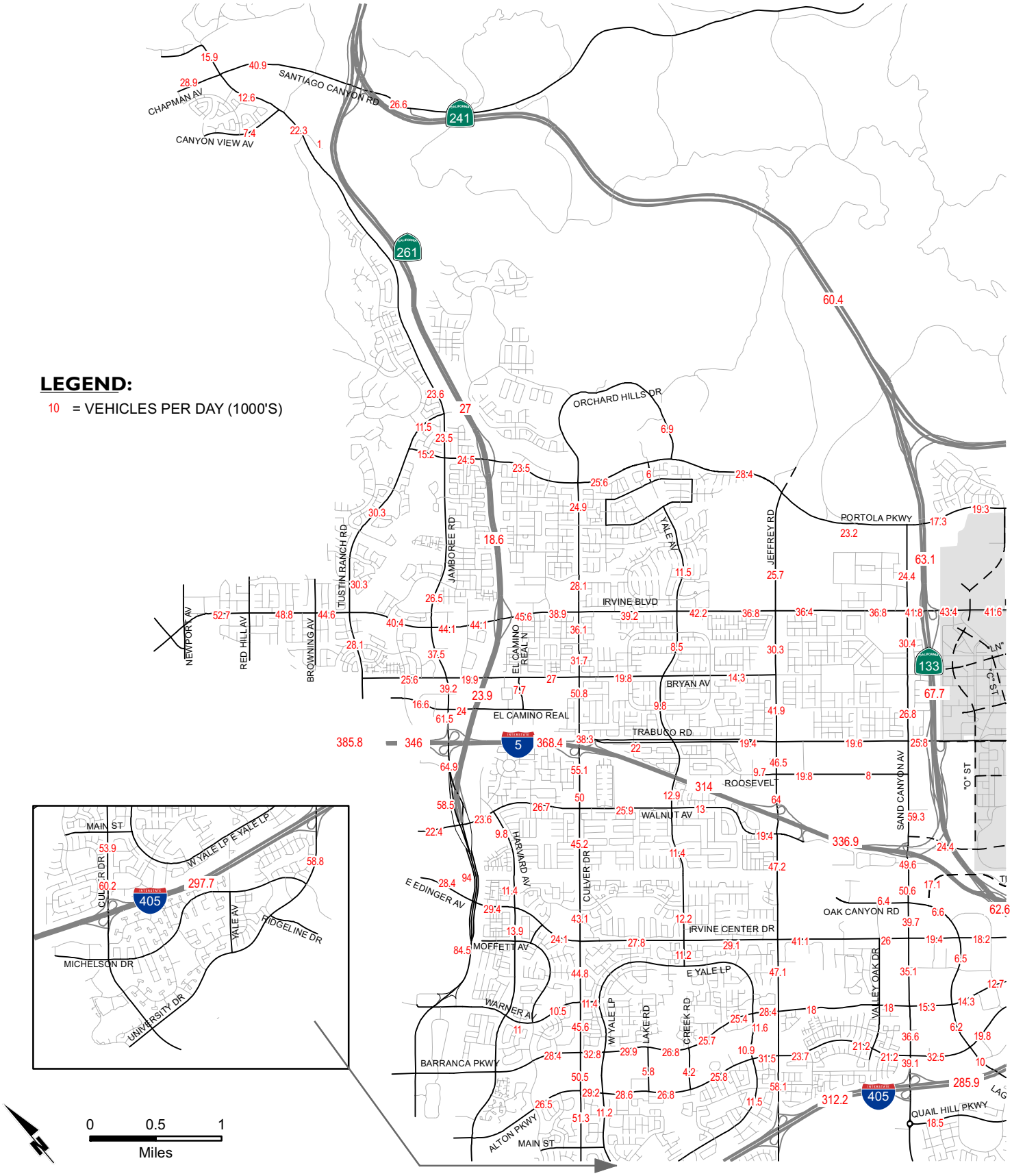
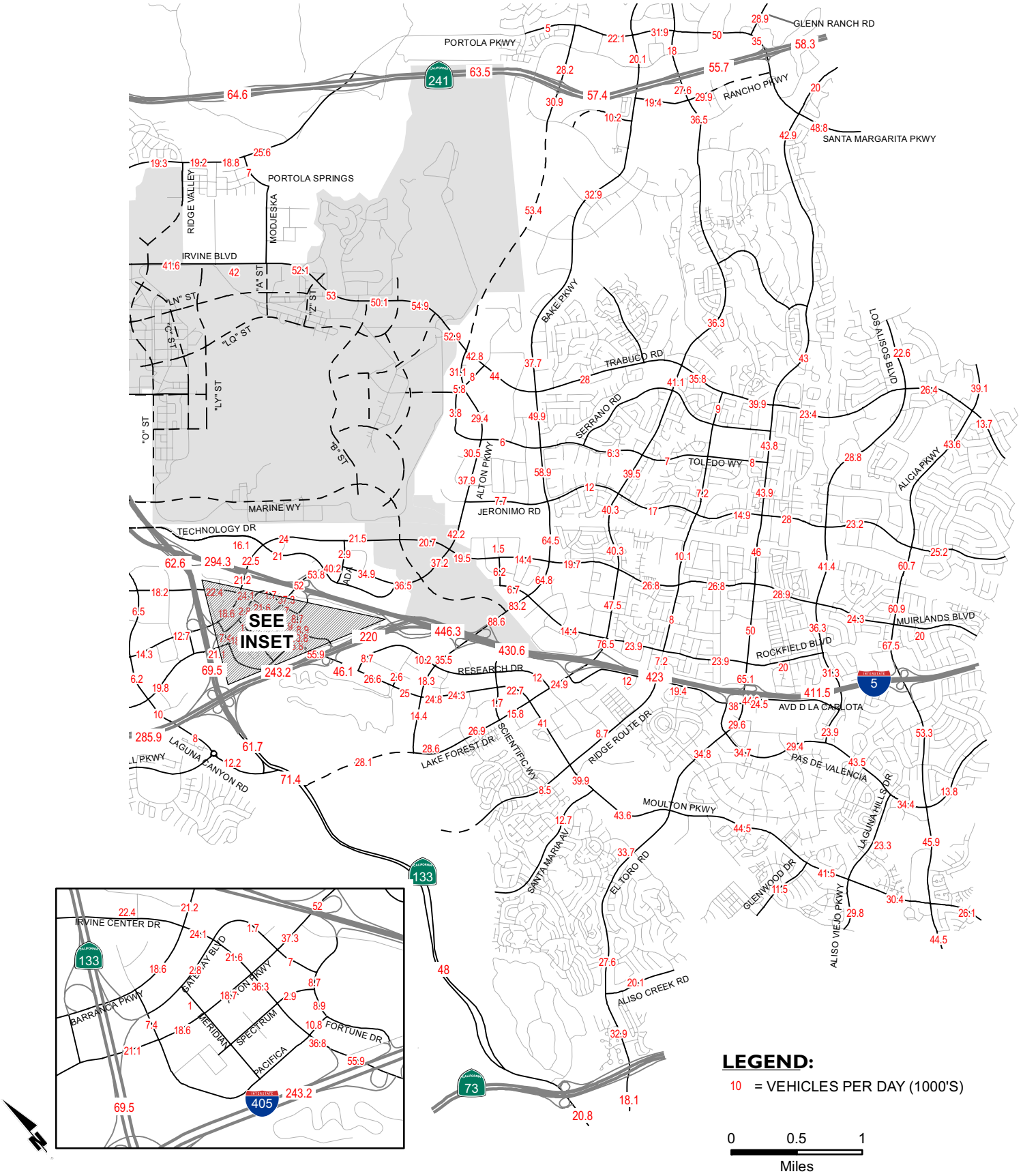


EXHIBIT 7-3 (3 OF 3)

# YEAR 2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 1, EAST STUDY AREA




**LEGEND:**

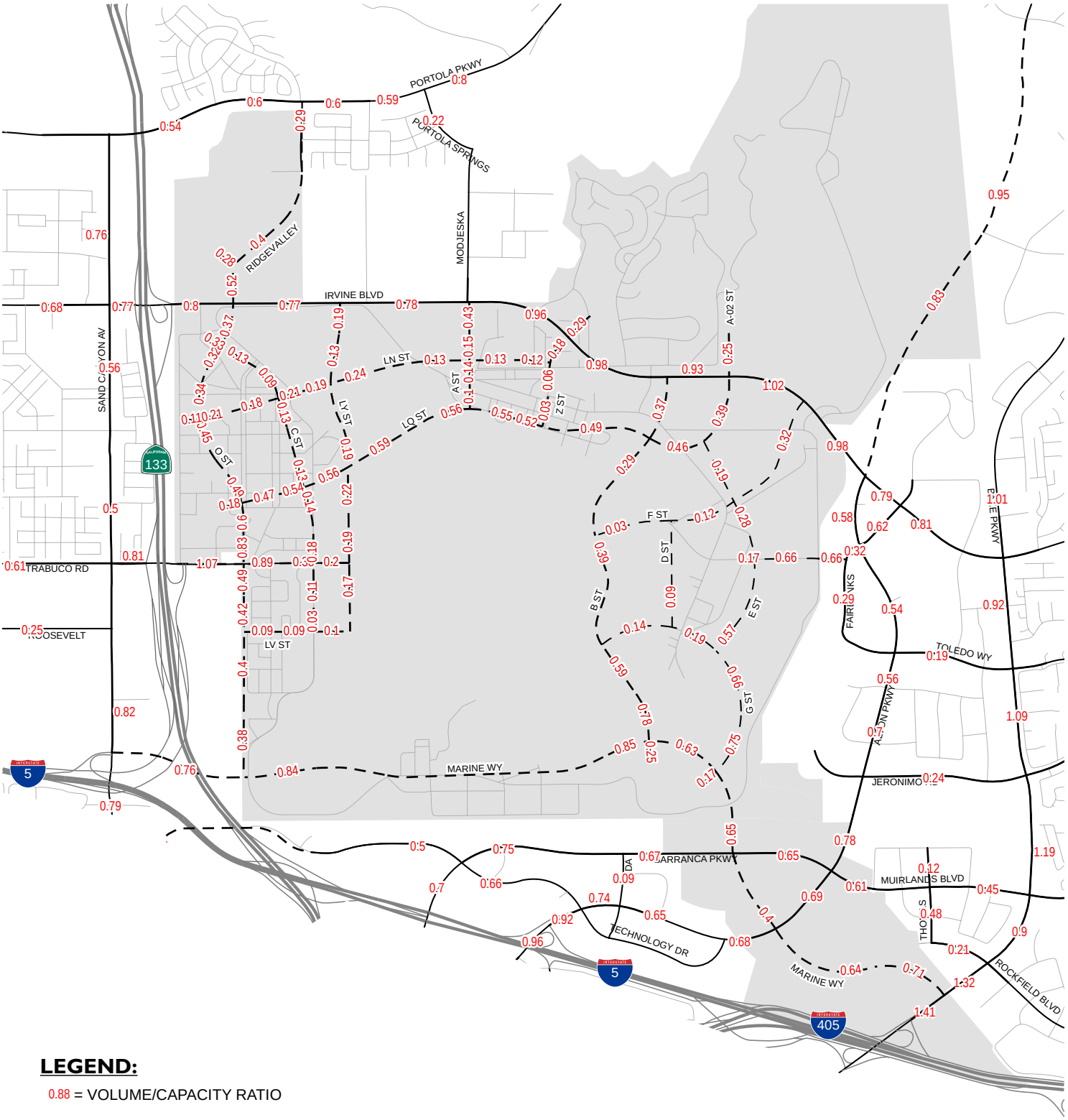
10 = VEHICLES PER DAY (1000'S)

0 0.5 1

Miles

EXHIBIT 7-4 (1 OF 3)

# YEAR 2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 1, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

EXHIBIT 7-4 (2 OF 3)

# YEAR 2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 1, WEST STUDY AREA

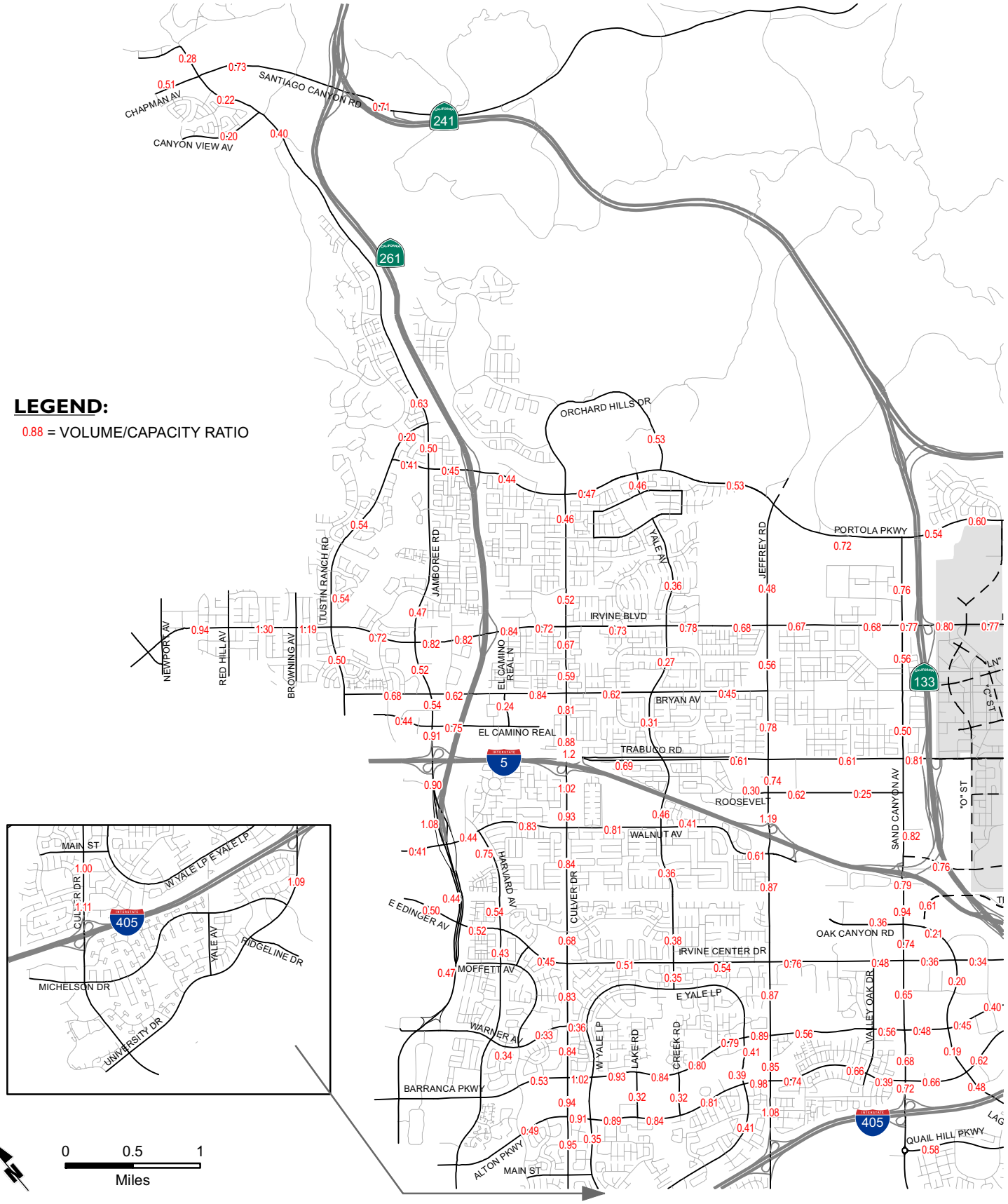
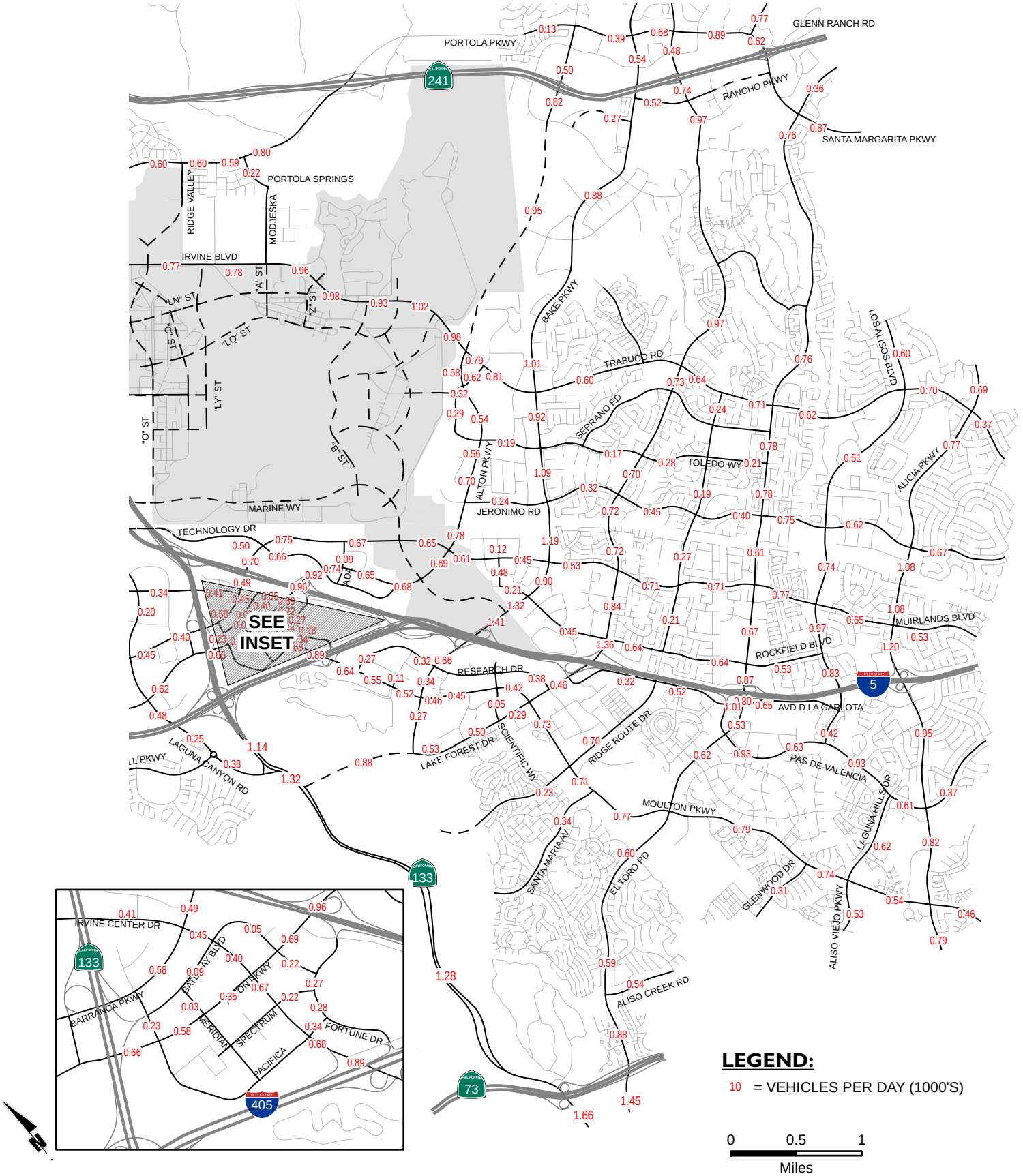


EXHIBIT 7-4 (3 OF 3)

# YEAR 2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 1, EAST STUDY AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 0.5 1

Miles

**TABLE 7-1**

**Year 2030 Arterial Roadway Peak Hour Analysis**
**With 2012 Modified Project, Option 1**

| Segment | Segment Limits | Juris | # of Lanes | Peak Hour Capacity | Refined ADT | Highest Peak Volume | | Peak Hour V/C | Peak Hour LOS |
|---|---|---|---|---|---|---|---|---|---|
| Bake Pkwy. | b/w Rockfield Bl. & Marine Wy. | Irv | 8D | 6,400 | 83,200 | 4,034 | AM NB | 0.63 | B |
| Irvine Bl. | b/w A St. & Z St. | Irv | 6D | 4,800 | 52,100 | 3,000 | PM WB | 0.63 | B |
| Irvine Bl. | b/w Z St. & B St. | Irv | 6D | 4,800 | 53,000 | 3,066 | PM WB | 0.64 | B |
| Jeffrey Rd. | b/w Roosevelt & I-5 NB Ramps | Irv | 6D | 4,800 | 64,000 | 3,359 | AM SB | 0.70 | B |
| Alton Pkwy. | e/o Culver Dr. | Irv | 4D | 3,200 | 29,200 | 1,728 | AM WB | 0.54 | A |

### 7.1.2 Year 2030 Peak Hour Intersection Levels of Service, Option 1

Year 2030 with Option 1 AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 7-5 that are analyzed in this traffic study are summarized in Table 7-2. Actual turn volumes, lane geometrics and ICU calculation worksheets for Year 2030 Without Project and Year 2030 With 2012 Modified Project Option 1 are included in Appendix 7.1 and 7.2. Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that seven intersections exceed adopted impact thresholds with the 2012 Modified Project Option 1. Table 7-3 identifies the 2030 Project impact locations for Option 1.

**Table 7-3**

**Year 2030 Intersection ICU LOS with 2012 Modified Project**
**Option 1 Impact Locations**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS |
| 54. Browning Ave. & Irvine Blvd. | AM | 1.00 | E | 1.03 | F |
| 228. Culver Dr. & Barranca Pkwy. | AM | 0.91 | E | 0.93 | E |
| 290. Jeffrey Rd. & Barranca Pkwy. | AM | 0.90 | D | 0.92 | E |
| 303. Sand Canyon & I-5 NB Ramp/Marine | PM | 0.83 | D | 0.94 | E |
| 306. Sand Canyon Ave. & Oak Canyon | PM | 0.91 | E | 0.94 | E |
| 366. Bake Pkwy. & Rockfield Blvd. | PM | 0.98 | E | 1.01 | F |
| 424. Los Alisos Blvd. & Rockfield Blvd. | AM | 0.92 | E | 0.94 | E |

EXHIBIT 7-5 (1 OF 2)

# YEAR 2030 INTERSECTION LOCATION MAP
# WEST STUDY AREA

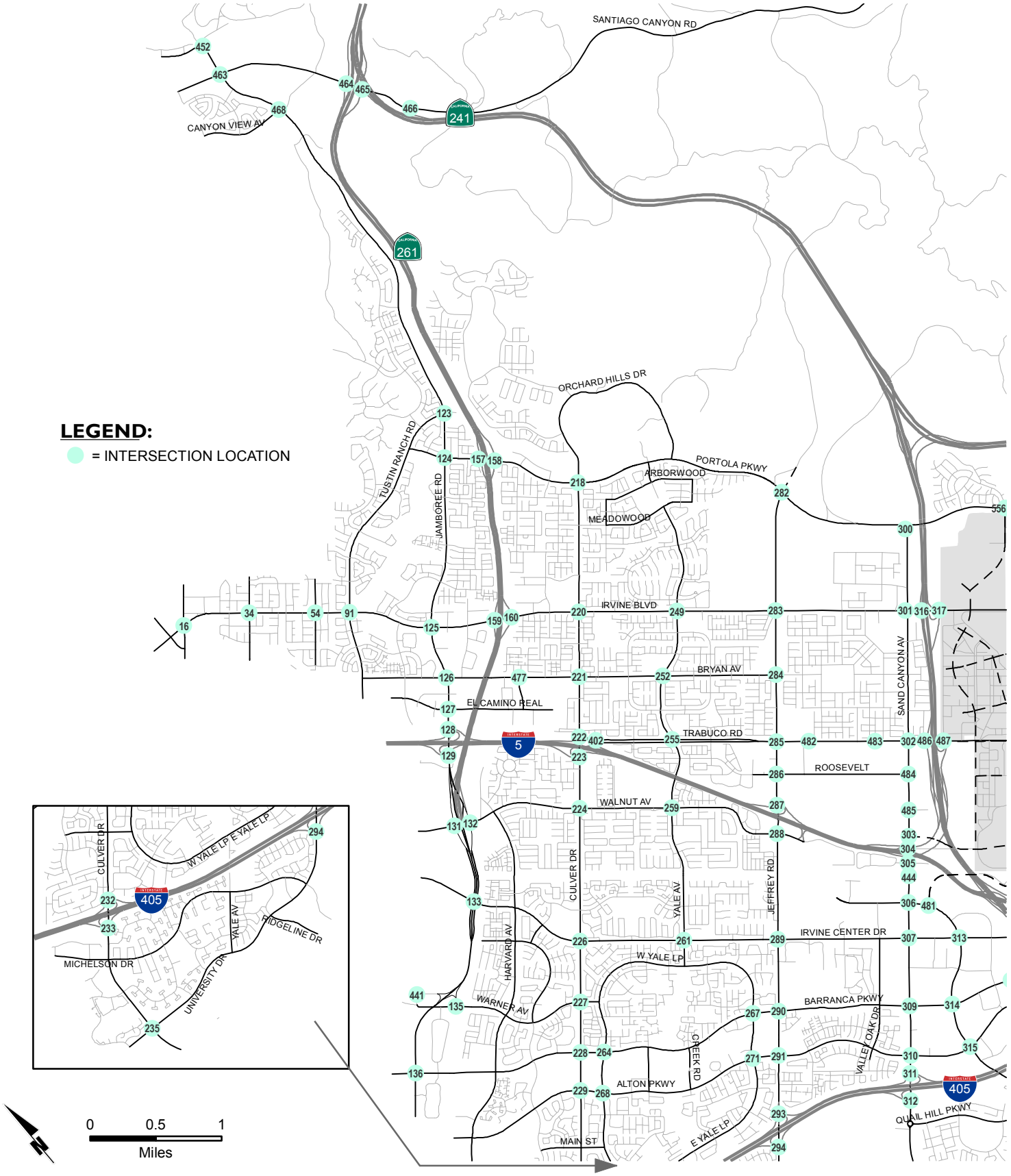
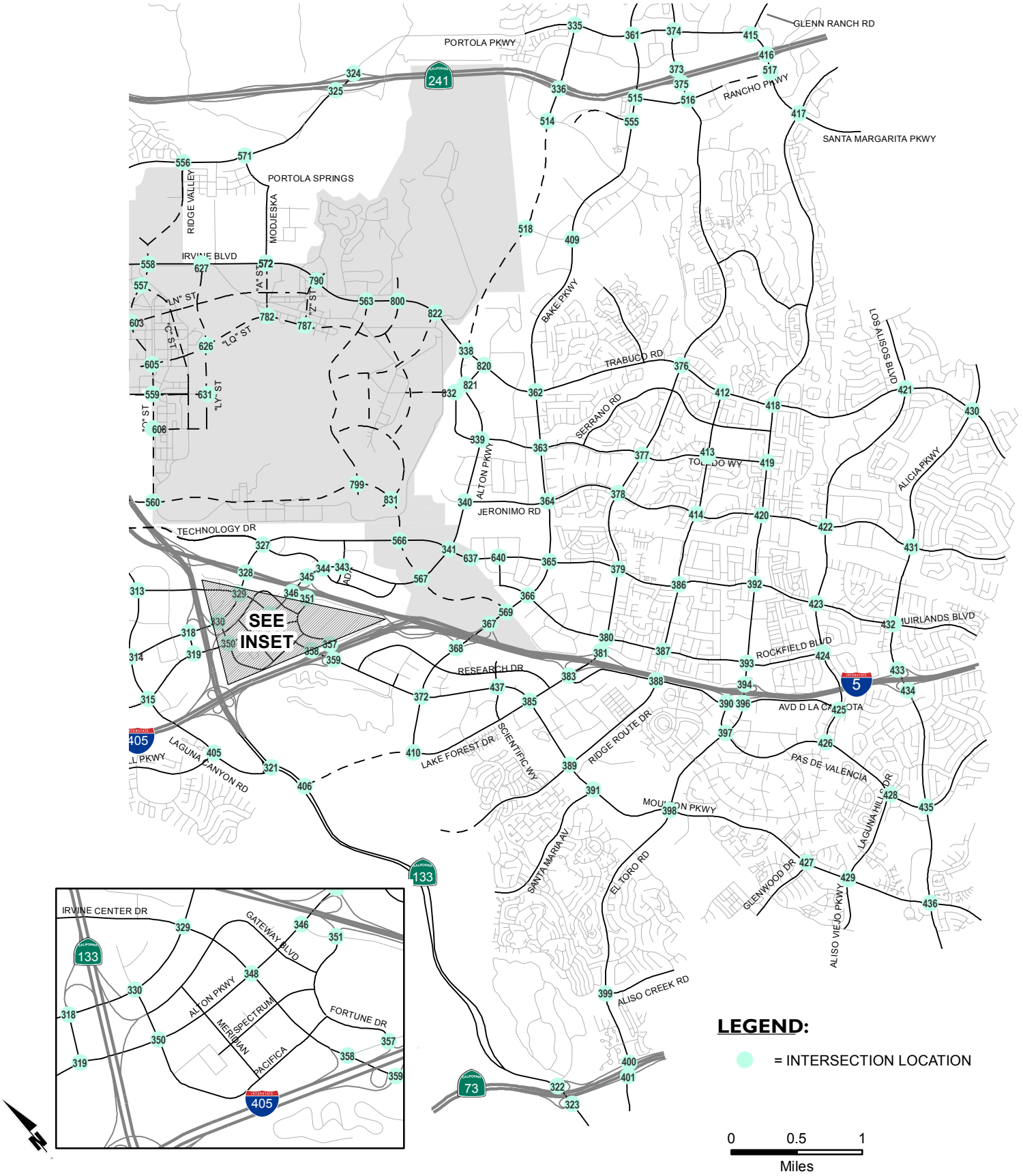


EXHIBIT 7-5 (2 OF 2)

# YEAR 2030 INTERSECTION LOCATION MAP
# EAST STUDY AREA



## Table 7-2

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | 2011 Approved Project | | | | 2012 Modified Proejct | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.81 | D | **0.92** | **E** | 0.78 | C | **0.93** | **E** |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | Yes | | 0.75 | C | 0.85 | D | 0.76 | C | 0.85 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **1.00** | **E** | 0.88 | D | **1.03** | **F** | 0.89 | D |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | Yes | | 0.81 | D | 0.87 | D | 0.81 | D | 0.85 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | 0.74 | C | 0.66 | B | 0.78 | C | 0.67 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.67 | B | 0.62 | B | 0.71 | C | 0.63 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | Yes | 0.81 | D | 0.75 | C | 0.84 | D | 0.76 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.72 | C | 0.62 | B | 0.72 | C | 0.63 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.72 | C | 0.68 | B | 0.72 | C | 0.68 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.67 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.67 | B | 0.65 | B | 0.69 | B | 0.65 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.47 | A | 0.56 | A | 0.46 | A | 0.57 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.50 | A | 0.74 | C | 0.50 | A | 0.73 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.51 | A | 0.69 | B | 0.50 | A | 0.67 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.42 | A | 0.41 | A | 0.43 | A | 0.42 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.90 | D | 0.96 | E | 0.89 | D | 0.97 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.43 | A | 0.49 | A | 0.44 | A | 0.50 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.45 | A | 0.41 | A | 0.48 | A | 0.42 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.62 | B | 0.54 | A | 0.60 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.71 | C | 0.66 | B | 0.73 | C | 0.65 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.71 | C | 0.67 | B | 0.73 | C | 0.69 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.79 | C | 0.88 | D | 0.81 | D | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.89 | D | 0.74 | C | 0.90 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | 0.77 | C | 0.78 | C | 0.77 | C | 0.77 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | 0.60 | A | 0.68 | B | 0.61 | B | 0.69 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | | | 0.82 | D | 0.87 | D | 0.84 | D | 0.88 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.77 | C | 0.74 | C | 0.78 | C | 0.74 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.80 | C | 0.63 | B | 0.82 | D | 0.64 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | | | **0.91** | **E** | 0.78 | C | **0.93** | **E** | 0.78 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.83 | D | 0.86 | D | 0.85 | D | 0.88 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.83 | D | 0.73 | C | 0.84 | D | 0.73 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.62 | B | 0.66 | B | 0.62 | B | 0.67 | B |
| 235 | Culver Dr at University | Irv | **F** | | | 0.71 | C | 0.82 | D | 0.72 | C | 0.82 | D |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | 0.74 | C | 0.88 | D | 0.76 | C | 0.89 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.48 | A | 0.44 | A | 0.49 | A | 0.44 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.62 | B | 0.52 | A | 0.63 | B | 0.52 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.60 | A | 0.71 | C | 0.64 | B | 0.73 | C |
| 261 | Yale Av at ICD | Irv | | | | 0.70 | B | 0.69 | B | 0.69 | B | 0.67 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.65 | B | 0.62 | B | 0.67 | B | 0.63 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.71 | C | 0.67 | B | 0.72 | C | 0.67 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.65 | B | 0.63 | B | 0.67 | B | 0.65 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.76 | C | 0.70 | B | 0.75 | C | 0.70 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.63 | B | 0.61 | B | 0.62 | B | 0.59 | A |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.68 | B | 0.67 | B | 0.69 | B | 0.68 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.70 | B | 0.64 | B | 0.71 | C | 0.65 | B |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.65 | B | 0.72 | C | 0.63 | B | 0.73 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.86 | D | 0.85 | D | 0.89 | D | 0.85 | D |

## Table 7-2 Cont.

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | 2011 Approved Project | | | | 2012 Modified Proejct | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.68 | B | 0.79 | C | 0.70 | B | 0.80 | C |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | 0.76 | C | 0.77 | C | 0.76 | C | 0.78 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | | | 0.83 | D | 0.77 | C | 0.83 | D | 0.78 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | | | 0.90 | D | 0.80 | C | **0.92** | **E** | 0.78 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | | **0.93** | **E** | 0.79 | C | **0.94** | **E** | 0.84 | D |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | 0.74 | C | 0.88 | D | 0.75 | C | 0.88 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.63 | B | 0.70 | B | 0.64 | B | 0.70 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.40 | A | 0.56 | A | 0.42 | A | 0.56 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.74 | C | 0.75 | C | 0.73 | C | 0.73 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | | 0.76 | C | 0.78 | C | 0.77 | C | 0.77 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | 0.84 | D | 0.83 | D | 0.90 | D | **0.94** | **E** |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | 0.83 | D | 0.81 | D | 0.84 | D | 0.84 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | 0.79 | C | **0.91** | **E** | 0.78 | C | **0.94** | **E** |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.60 | A | 0.62 | B | 0.59 | A | 0.63 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.55 | A | 0.57 | A | 0.55 | A | 0.58 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | 0.66 | B | 0.73 | C | 0.67 | B | 0.72 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | 0.59 | A | 0.42 | A | 0.59 | A | 0.42 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.87 | D | 0.61 | B | 0.87 | D | 0.62 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.36 | A | 0.42 | A | 0.36 | A | 0.42 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.41 | A | 0.42 | A | 0.42 | A | 0.41 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.56 | A | 0.59 | A | 0.56 | A | 0.60 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.55 | A | 0.61 | B | 0.55 | A | 0.61 | B |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.75 | C | 0.72 | C | 0.69 | B | 0.76 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.66 | B | 0.52 | A | 0.69 | B | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.58 | A | 0.55 | A | 0.58 | A | 0.55 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | 0.87 | D | 0.77 | C | 0.87 | D | 0.79 | C |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | 0.99 | E | 0.65 | B | 0.97 | E | 0.65 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.35 | A | 0.41 | A | 0.36 | A | 0.40 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.19 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.27 | A | 0.31 | A | 0.27 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | 0.59 | A | 0.82 | D | 0.60 | A | 0.80 | C |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.66 | B | 0.44 | A | 0.64 | B | 0.43 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.68 | B | 0.67 | B | 0.67 | B | 0.68 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.60 | A | 0.76 | C | 0.59 | A | 0.76 | C |
| 333 | Pacifica at Gateway | Irv | | | Yes | 0.71 | C | 0.76 | C | 0.70 | B | 0.78 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.49 | A | 0.36 | A | 0.49 | A | 0.36 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | 0.68 | B | 0.58 | A | 0.67 | B | 0.59 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | Yes | **1.04** | **F** | 0.98 | E | **1.03** | **F** | 0.95 | E |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.70 | B | 0.61 | B | 0.80 | C | 0.66 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.70 | B | 0.56 | A | 0.71 | C | 0.55 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.60 | A | 0.77 | C | 0.60 | A | 0.74 | C |
| 343 | Alton Pw at Ada | Irv | | | | 0.48 | A | 0.71 | C | 0.52 | A | 0.73 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | 0.58 | A | 0.85 | D | 0.59 | A | 0.84 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | Yes | 0.88 | D | 0.51 | A | 0.87 | D | 0.52 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.71 | C | 0.75 | C | 0.70 | B | 0.78 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | Yes | 0.73 | C | 0.78 | C | 0.72 | C | 0.79 | C |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.59 | A | 0.55 | A | 0.60 | A | 0.55 | A |

## Table 7-2 Cont.

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | 2011 Approved Project | | | | 2012 Modified Proejct | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.47 | A | 0.77 | C | 0.49 | A | 0.77 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.49 | A | 0.51 | A | 0.49 | A | 0.50 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | Yes | 0.67 | B | 0.55 | A | 0.68 | B | 0.55 | A |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | Yes | 0.61 | B | 0.57 | A | 0.61 | B | 0.57 | A |
| 361 | Bake Pw at Portola Pw | LF | | | | 0.63 | B | 0.89 | D | 0.61 | B | 0.89 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | Yes | 0.83 | D | 0.89 | D | 0.83 | D | 0.90 | D |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.84 | D | 0.68 | B | 0.83 | D | 0.67 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | 0.86 | D | 0.70 | B | 0.85 | D | 0.69 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.74 | C | **0.91** | **E** | 0.73 | C | 0.90 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.78 | C | **0.98** | **E** | 0.77 | C | **1.01** | **F** |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.83 | D | 0.61 | B | 0.81 | D | 0.62 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | Yes | 0.81 | D | 0.89 | D | 0.81 | D | 0.90 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | 0.52 | A | 0.83 | D | 0.54 | A | 0.84 | D |
| 372 | Bake Pw at ICD | Irv | | | | 0.57 | A | 0.57 | A | 0.57 | A | 0.56 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.34 | A | 0.44 | A | 0.33 | A | 0.43 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.63 | B | 0.89 | D | 0.62 | B | 0.88 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.57 | A | 0.53 | A | 0.55 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.84 | D | 0.89 | D | 0.83 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.62 | B | 0.59 | A | 0.63 | B | 0.59 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | 0.77 | C | **0.92** | **E** | 0.73 | C | **0.93** | **E** |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | 0.75 | C | 0.84 | D | 0.73 | C | 0.84 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | 0.83 | D | **0.93** | **E** | 0.82 | D | **0.93** | **E** |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | 0.71 | C | 0.74 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | | Yes | 0.65 | B | 0.82 | D | 0.66 | B | 0.81 | D |
| 385 | Lake Forest Dr at ICD | Irv | | | Yes | 0.52 | A | 0.76 | C | 0.53 | A | 0.75 | C |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.68 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | 0.40 | A | 0.73 | C | 0.40 | A | 0.73 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.58 | A | 0.72 | C | 0.57 | A | 0.72 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.81 | D | **0.95** | **E** | 0.81 | D | **0.95** | **E** |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | 0.67 | B | 0.80 | C | 0.65 | B | 0.79 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.76 | C | 0.87 | D | 0.77 | C | 0.87 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.61 | B | 0.74 | C | 0.60 | A | 0.73 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | Yes | 0.82 | D | 0.85 | D | 0.83 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | Yes | 0.74 | C | **0.96** | **E** | 0.74 | C | **0.96** | **E** |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | 0.66 | B | 0.84 | D | 0.68 | B | 0.83 | D |
| 398 | El Toro Rd at Moulton Pw | LW | | | Yes | 0.85 | D | **0.96** | **E** | 0.85 | D | **0.95** | **E** |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | 0.57 | A | 0.69 | B | 0.57 | A | 0.70 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.65 | B | 0.61 | B | 0.66 | B | 0.62 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | Yes | 0.43 | A | 0.64 | B | 0.43 | A | 0.64 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.63 | B | 0.65 | B | 0.61 | B | 0.67 | B |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.44 | A | 0.37 | A | 0.43 | A | 0.38 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | 0.81 | D | 0.74 | C | 0.81 | D | 0.74 | C |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.66 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.57 | A | 0.70 | B | 0.56 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.42 | A | 0.40 | A | 0.43 | A | 0.39 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.50 | A | 0.66 | B | 0.52 | A | 0.66 | B |

## Table 7-2 Cont.

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | 2011 Approved Project | | | | 2012 Modified Proejct | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.65 | B | 0.67 | B | 0.64 | B | 0.67 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.51 | A | 0.67 | B | 0.51 | A | 0.67 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.82 | D | **1.01** | **F** | 0.82 | D | **1.00** | **E** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.78 | C | 0.78 | C | 0.78 | C | 0.78 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.56 | A | 0.63 | B | 0.58 | A | 0.63 | B |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | 0.77 | C | 0.78 | C | 0.76 | C | 0.78 | C |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | 0.78 | C | 0.71 | C | 0.76 | C | 0.71 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | 0.89 | D | 0.89 | D | 0.90 | D | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | **1.01** | **F** | **1.06** | **F** | **0.97** | **E** | **1.05** | **F** |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | **0.92** | **E** | **0.92** | **E** | **0.94** | **E** | **0.92** | **E** |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | 0.61 | B | 0.70 | B | 0.62 | B | 0.70 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | 0.59 | A | 0.73 | C | 0.59 | A | 0.72 | C |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | 0.72 | C | 0.71 | C | 0.71 | C | 0.70 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | 0.74 | C | 0.77 | C | 0.74 | C | 0.77 | C |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | 0.82 | D | 0.82 | D | 0.81 | D | 0.81 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.74 | C | 0.73 | C | 0.74 | C | 0.74 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.77 | C | 0.77 | C | 0.79 | C | 0.77 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | 0.72 | C | 0.88 | D | 0.73 | C | 0.88 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | 0.45 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.70 | B | 0.76 | C | 0.69 | B | 0.76 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.67 | B | 0.76 | C | 0.68 | B | 0.76 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | 0.74 | C | 0.79 | C | 0.74 | C | 0.79 | C |
| 437 | Scientific Wy at ICD | Irv | | | | 0.34 | A | 0.42 | A | 0.34 | A | 0.41 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | 0.27 | A | 0.19 | A | 0.28 | A | 0.19 | A |
| 444 | Sand Canyon Av at Burt Rd | Irv | | | | 0.81 | D | 0.80 | C | 0.84 | D | 0.82 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.52 | A | 0.52 | A | 0.60 | A | 0.57 | A |
| 463 | Jamboree Rd at Chapman Av | Ora | | | | 0.71 | C | 0.73 | C | 0.70 | B | 0.73 | C |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.65 | B | 0.62 | B | 0.61 | B | 0.60 | A |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.59 | A | 0.70 | B | 0.61 | B | 0.63 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | 0.54 | A | 0.62 | B | 0.57 | A | 0.61 | B |
| 468 | Jamboree Rd at Canyon View | Ora | | | | 0.65 | B | 0.39 | A | 0.58 | A | 0.39 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.44 | A | 0.48 | A | 0.43 | A | 0.49 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.45 | A | 0.42 | A | 0.46 | A | 0.43 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.40 | A | 0.33 | A | 0.42 | A | 0.35 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.37 | A | 0.34 | A | 0.39 | A | 0.35 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.65 | B | 0.52 | A | 0.63 | B | 0.52 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | 0.73 | C | 0.60 | A | 0.73 | C | 0.59 | A |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | 0.55 | A | 0.57 | A | 0.57 | A | 0.58 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | 0.52 | A | 0.65 | B | 0.55 | A | 0.65 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.69 | B | 0.76 | C | 0.69 | B | 0.75 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.66 | B | 0.86 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | **0.93** | **E** | **1.16** | **F** | **0.91** | **E** | **1.17** | **F** |
| 517 | Portola Pw at Rancho Pw | LF | | | | 0.63 | B | 0.70 | B | 0.62 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | 0.63 | B | 0.76 | C | 0.62 | B | 0.76 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | 0.70 | B | 0.73 | C | 0.69 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.52 | A | 0.54 | A | 0.53 | A | 0.52 | A |
| 557 | O St at C St | Irv | | | | 0.39 | A | 0.36 | A | 0.37 | A | 0.35 | A |

## Table 7-2 Cont.

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | 2011 Approved Project | | | | 2012 Modified Proejct | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 558 | O St at Irvine Bl | Irv | | | | 0.65 | B | 0.76 | C | 0.63 | B | 0.74 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.73 | C | 0.69 | B | 0.78 | C | 0.67 | B |
| 560 | O St at Marine Wy | Irv | | | | 0.44 | A | 0.61 | B | 0.52 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | 0.40 | A | 0.46 | A | 0.48 | A | 0.44 | A |
| 563 | B St. at Irvine Bl | Irv | | | | 0.69 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | 0.47 | A | 0.58 | A | 0.65 | B | 0.64 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | 0.67 | B | 0.63 | B | 0.64 | B | 0.61 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.62 | B | 0.62 | B | 0.67 | B | 0.60 | A |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | 0.69 | B | 0.54 | A | 0.43 | A | 0.39 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | 0.64 | B | 0.65 | B | 0.77 | C | 0.72 | C |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | 0.56 | A | 0.48 | A | 0.56 | A | 0.48 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.67 | B | 0.73 | C | 0.66 | B | 0.74 | C |
| 603 | O St at LN St | Irv | | | | 0.40 | A | 0.33 | A | 0.37 | A | 0.31 | A |
| 605 | O St at LQ St | Irv | | | | 0.57 | A | 0.54 | A | 0.53 | A | 0.48 | A |
| 608 | O St at LV St | Irv | | | | 0.35 | A | 0.32 | A | 0.33 | A | 0.32 | A |
| 626 | LY St at LQ St | Irv | | | | 0.39 | A | 0.38 | A | 0.44 | A | 0.42 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.54 | A | 0.59 | A | 0.53 | A | 0.60 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.11 | A | 0.15 | A | 0.13 | A | 0.18 | A |
| 633 | Sterling at Rockfield Bl | Irv | | | | 0.28 | A | 0.35 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.34 | A | 0.41 | A | 0.34 | A | 0.41 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.26 | A | 0.36 | A | 0.26 | A | 0.38 | A |
| 782 | A St at LQ St | Irv | | | | 0.31 | A | 0.29 | A | 0.32 | A | 0.33 | A |
| 787 | Z St at LQ St | Irv | | | | 0.30 | A | 0.28 | A | 0.27 | A | 0.27 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.72 | C | 0.70 | B | 0.70 | B | 0.70 | B |
| 798 | B St at LQ St | Irv | | | | 0.48 | A | 0.38 | A | 0.35 | A | 0.38 | A |
| 799 | "B" Street at Marine Way | Irv | | | | 0.48 | A | 0.56 | A | 0.73 | C | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.80 | C | 0.74 | C | 0.76 | C | 0.72 | C |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.72 | C | 0.78 | C | 0.73 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | 0.54 | A | 0.55 | A | 0.68 | B | 0.72 | C |
| 822 | "F" Street at Irvine Bl. | Irv | | | | Not Applicable | | | | 0.70 | B | 0.73 | C |
| 831 | "G" Street at Marine Way | Irv | | | | Not Applicable | | | | 0.54 | A | 0.57 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | 0.14 | A | 0.17 | A | 0.54 | A | 0.58 | A |

**Bold** = Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting 2030 without Project and 2012 Modified Project peak hour levels of service based on the HCM methodology are summarized in Table 7-4 (HCM intersection LOS calculation worksheets are included in Appendix 7.3). The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 7-5 summarizes the longest 95$^{th}$ percentile queue length at each off-ramp under Year 2030 with Option 1 peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 7.4). The results of the HCM analysis shows LOS “E” conditions with or without the 2012 Modified Project at the I-5 NB Ramp /Sand Canyon intersection, and a modified lane configuration is suggested on the eastbound approach to the I-5 SB Ramp intersection to avoid vehicle queues backing onto the freeway mainline. The ultimate lane configuration is subject to coordination and agreement between the City and Caltrans.

### 7.1.3 Year 2030 Peak Hour Freeway/Tollway Ramp Levels of Service, Option 1

Exhibit 7-6 illustrates the interchange locations where freeway/tollway ramps were analyzed based on Year 2030 conditions. 2011 Approved Project (baseline) and 2012

**Table 7-4**

**Year 2030 Caltrans Ramp Intersection LOS Summary (HCM Methodology)**
**Adjacent Intersections With 2012 Modified Project, Option 1**

| Intersection | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | | | | |
| - AM Peak Hour | 51.7 | D | **70.1** | **E[1]** |
| - PM Peak Hour | **61.3** | **E[1]** | **73.6** | **E[1]** |
| 305. Sand Canyon & I-5 SB Ramps [2] | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | | | | |
| - AM Peak Hour | 37.1 | D[3] | 38.4 | D[3] |
| - PM Peak Hour | 35.5 | D[3] | 45.0 | D[3] |
| Alternative Configuration (EB Dual Right Lanes) | | | | |
| - AM Peak Hour | 35.1 | D[3] | 37.3 | D[3] |
| - PM Peak Hour | 37.0 | D[3] | 49.7 | D[3] |
| 316. SR-133 SB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 13.4 | B | 14.1 | B |
| - PM Peak Hour | 10.2 | B | 11.5 | B |
| 317. SR-133 NB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.7 | B | 10.9 | B |
| - PM Peak Hour | 17.2 | B | 20.2 | C |
| 486. SR-133 SB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 16.8 | B | 16.7 | B |
| - PM Peak Hour | 17.1 | B | 16.8 | B |
| 487. SR-133 NB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 12.8 | B | 12.7 | B |
| - PM Peak Hour | 17.0 | B | 16.3 | B |

[1] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with northbound left turns during AM and PM peak hours). This intersection V/C result differs from the ICU calculation, which is less than 1.00 as indicated in Table 7-2. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

[3] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of northbound through vehicles during the AM and PM peak hours). This intersection V/C result differs from the ICU calculation for this intersection, which is less than 1.00 as indicated in Table 7-2. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

**Table 7-5**

**Year 2030 With 2012 Modified Project Option 1 HCM**
**Freeway Ramp Queuing Analysis Summary**

| Intersection | Total Ramp Length | Highest Queue Length | Peak Hour | Does the Queue Exceed the Ramp Length?[1] |
|---|---|---|---|---|
| 303. I-5 Northbound Off-Ramp at Sand Canyon Av | 1,180 feet | 432 feet | (AM) | No |
| 305. I-5 Southbound Off-Ramp at Sand Canyon Av[2] | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | 810 feet | 879 feet | (AM) | Yes |
| Alternative Configuration (EB Dual Right Lanes) | 810 feet | 673 feet | (AM) | No |

[1] If the maximum queue length does not exceed the total length of the off-ramp, then the traffic queue on the ramp is not expected to back up onto the freeway mainline during the peak hours.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes

EXHIBIT 7-6 (1 OF 2)

# YEAR 2030 FREEWAY INTERCHANGE LOCATIONS
# WEST STUDY AREA

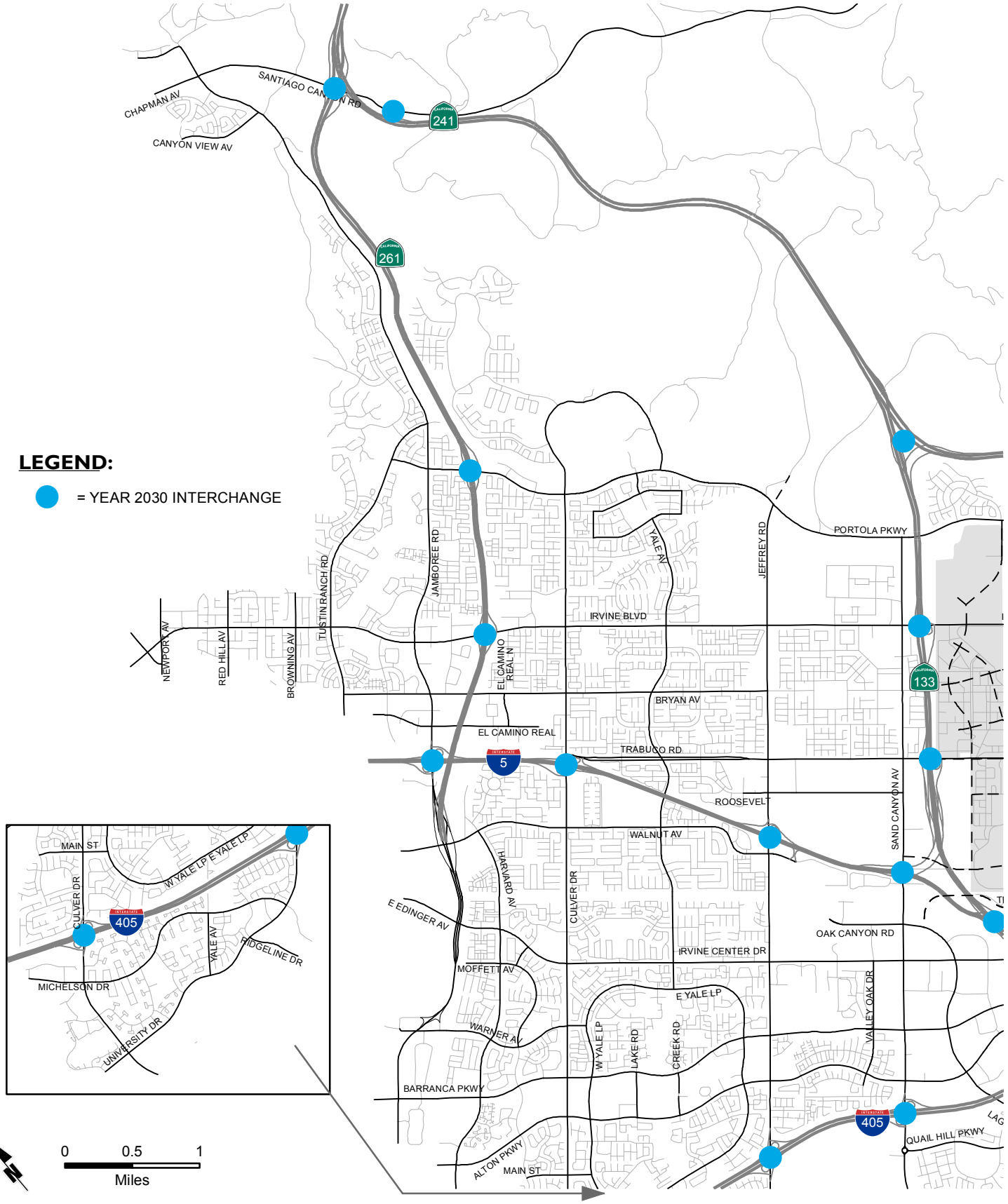
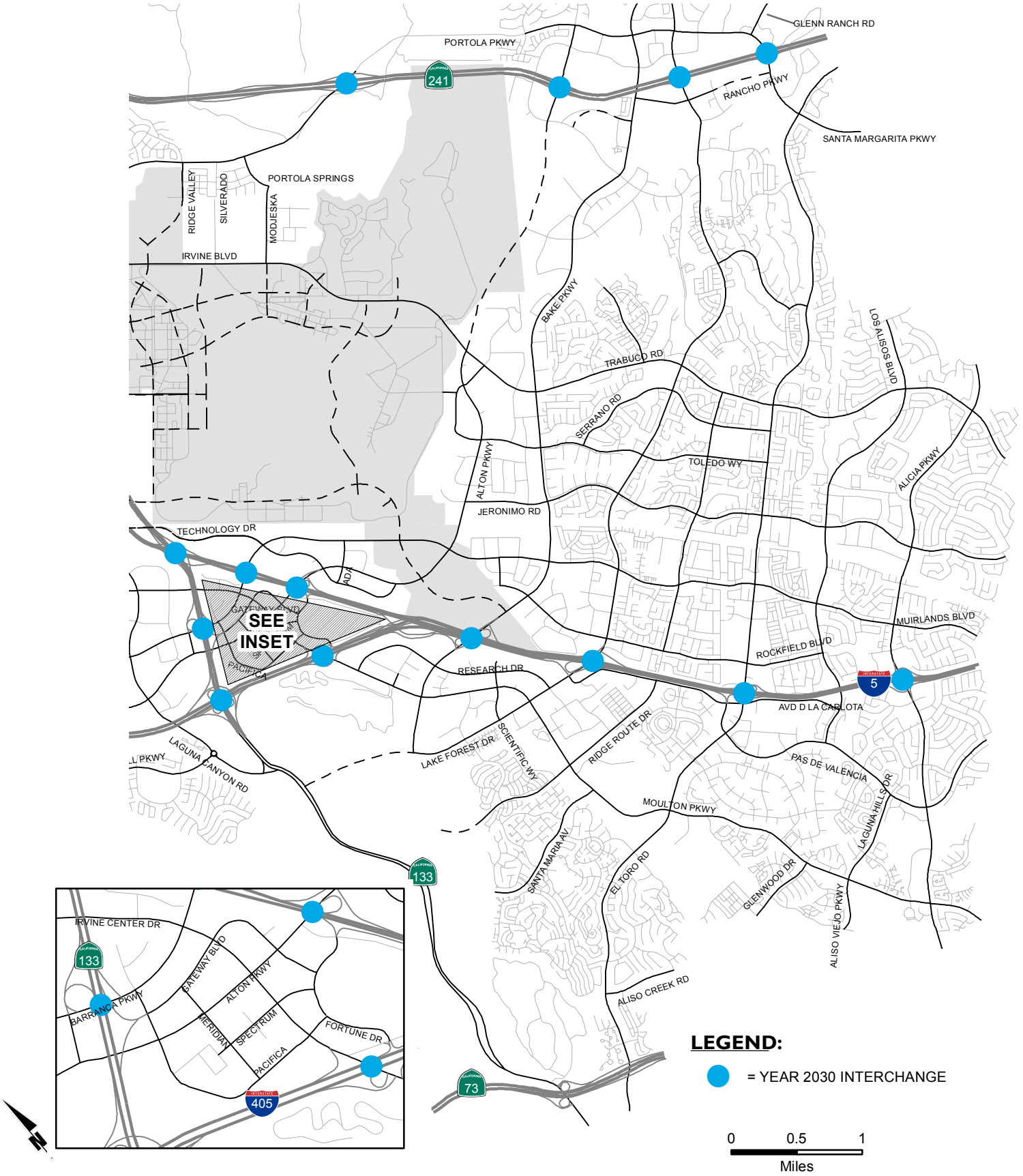


EXHIBIT 7-6 (2 OF 2)

# YEAR 2030 FREEWAY INTERCHANGE LOCATIONS
# EAST STUDY AREA



Modified Project Option 1 AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 7-6. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, the I-5 Northbound off-ramps to Jamboree is forecast to exceed adopted impact thresholds with the 2012 Modified Project Option 1 based on Year 2030 conditions.

### 7.1.4 Year 2030 Peak Hour Freeway/Tollway Mainline Levels of Service, Option 1

2011 Approved Project (baseline) and 2012 Modified Project Option 1 AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 7-7. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, the following three (3) freeway mainline segments are forecast to exceed adopted impact thresholds with Option 1 based on Year 2030 conditions:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

## 7.2 Year 2030 Traffic Impacts with 2012 Modified Project, with Option 2

The following sub-sections summarize the resulting 2011 Approved Project (baseline) and 2012 Modified Project Option 2 traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline segments and freeway/tollway ramps.

### 7.2.1 Year 2030 Circulation System and Average Daily Traffic Volumes, Option 2

The Year 2030 circulation system in the study area was previously illustrated in Chapter 4.0 and only improvements committed for construction (i.e., public agency capital improvement programs, state transportation improvement program, etc.) or would be constructed as part of previously entitled development by the year 2030 are assumed.

The Year 2030 with Option 2 average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 7-7 and 7-8, respectively.

## Table 7-6

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 407 | 0.27 | A | 1,110 | 0.74 | C | 428 | 0.29 | A | 1,100 | 0.73 | C |
| | SB Loop On | 1 | 1,080 | 519 | 0.48 | A | 450 | 0.42 | A | 519 | 0.48 | A | 470 | 0.44 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 690 | 0.64 | B | 670 | 0.62 | B | 730 | 0.68 | B |
| | SB Off | 1 | 1,500 | 1,428 | 0.95 | E | 1,439 | 0.96 | E | 1,428 | 0.95 | E | 1,479 | 0.99 | E |
| | NB Off | 1 | 1,500 | 1,573 | **1.05** | **F** | 1,272 | 0.85 | D | 1,599 | **1.07** | **F** | 1,284 | 0.86 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 340 | 0.38 | A | 230 | 0.26 | A | 330 | 0.37 | A | 220 | 0.24 | A |
| | NB Direct On | 1 | 900 | 727 | 0.81 | D | 180 | 0.20 | A | 730 | 0.81 | D | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,120 | 0.75 | C | 590 | 0.39 | A | 1,090 | 0.73 | C | 600 | 0.40 | A |
| | SB Off | 2 | 2,250 | 958 | 0.43 | A | 2,163 | 0.96 | E | 950 | 0.42 | A | 2,198 | 0.98 | E |
| | NB Off | 1 | 1,500 | 313 | 0.21 | A | 447 | 0.30 | A | 333 | 0.22 | A | 434 | 0.29 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,216 | **1.13** | **F** | 749 | 0.69 | B | 1,175 | **1.09** | **F** | 751 | 0.70 | B |
| | NB Direct On | 1 | 1,080 | 700 | 0.65 | B | 220 | 0.20 | A | 760 | 0.70 | B | 230 | 0.21 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 989 | 0.66 | B | 609 | 0.41 | A | 1,018 | 0.68 | B |
| | NB Off | 2 | 2,250 | 912 | 0.41 | A | 1,437 | 0.64 | B | 907 | 0.40 | A | 1,425 | 0.63 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 640 | 0.43 | A | 730 | 0.49 | A | 670 | 0.45 | A | 720 | 0.48 | A |
| | NB On | 1 | 1,500 | 760 | 0.51 | A | 1,500 | 1.00 | E | 959 | 0.64 | B | 1,483 | 0.99 | E |
| | SB Off | 1 | 1,500 | 1,804 | **1.20** | **F** | 850 | 0.57 | A | 1,714 | **1.14** | **F** | 921 | 0.61 | B |
| | NB Off | 2 | 2,250 | 681 | 0.30 | A | 700 | 0.31 | A | 680 | 0.30 | A | 699 | 0.31 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 20 | 0.01 | A | 200 | 0.13 | A | 20 | 0.01 | A | 190 | 0.13 | A |
| | SB Off | 1 | 1,500 | 308 | 0.21 | A | 101 | 0.07 | A | 259 | 0.17 | A | 91 | 0.06 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 341 | 0.23 | A | 580 | 0.39 | A | 349 | 0.23 | A | 610 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 250 | 0.14 | A | 1,172 | 0.65 | B | 270 | 0.15 | A | 1,170 | 0.65 | B |
| | NB Loop On | 1 | 1,500 | 562 | 0.37 | A | 157 | 0.10 | A | 566 | 0.38 | A | 151 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,103 | 0.93 | E | 940 | 0.42 | A | 2,096 | 0.93 | E | 954 | 0.42 | A |
| | NB Off | 2 | 2,250 | 1,151 | 0.51 | A | 319 | 0.14 | A | 1,140 | 0.51 | A | 310 | 0.14 | A |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 103 | 0.07 | A | 134 | 0.09 | A | 111 | 0.07 | A | 129 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 351 | 0.33 | A | 848 | 0.79 | C | 391 | 0.36 | A | 827 | 0.77 | C |
| | NB Direct On | 2 | 3,400 | 1,876 | 0.55 | A | 1,643 | 0.48 | A | 1,915 | 0.56 | A | 1,624 | 0.48 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,993 | 1.00 | E | 2,438 | 0.81 | D | 2,992 | 1.00 | E | 2,440 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,427 | 0.48 | A | 589 | 0.20 | A | 1,322 | 0.44 | A | 579 | 0.19 | A |

## Table 7-6 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 329 | 0.22 | A | 862 | 0.57 | A | 330 | 0.22 | A | 851 | 0.57 | A |
| | SB Loop On | 1 | 1,080 | 406 | 0.38 | A | 658 | 0.61 | B | 407 | 0.38 | A | 642 | 0.59 | A |
| | NB On | 2 | 1,800 | 1,340 | 0.74 | C | 1,040 | 0.58 | A | 1,332 | 0.74 | C | 1,059 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,325 | 0.78 | C | 1,761 | 0.59 | A | 2,326 | 0.78 | C |
| | NB Off | 1 | 1,500 | 1,510 | **1.01** | **F** | 730 | 0.49 | A | 1,505 | 1.00 | E | 733 | 0.49 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 139 | 0.13 | A | 136 | 0.13 | A | 152 | 0.14 | A | 139 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 455 | 0.30 | A | 519 | 0.35 | A | 443 | 0.30 | A | 515 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,437 | 0.96 | E | 1,101 | 0.73 | C | 1,497 | 1.00 | E | 1,107 | 0.74 | C |
| | NB Loop On | 1 | 1,500 | 1,240 | 0.83 | D | 1,260 | 0.84 | D | 1,289 | 0.86 | D | 1,270 | 0.85 | D |
| | SB Off | 1 | 2,250 | 2,773 | **1.23** | **F** | 2,814 | **1.25** | **F** | 2,785 | **1.24** | **F** | 2,800 | **1.24** | **F** |
| | NB Off | 1 | 1,500 | 1,330 | 0.89 | D | 1,210 | 0.81 | D | 1,331 | 0.89 | D | 1,210 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 202 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 801 | 0.53 | A | 750 | 0.50 | A | 804 | 0.54 | A | 749 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,296 | 0.86 | D | 880 | 0.59 | A | 1,334 | 0.89 | D | 890 | 0.59 | A |
| | NB Loop On | 1 | 1,500 | 1,427 | 0.95 | E | 870 | 0.58 | A | 1,414 | 0.94 | E | 870 | 0.58 | A |
| | SB Off | 1 | 3,000 | 2,097 | 0.70 | B | 2,199 | 0.73 | C | 2,097 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 311 | 0.21 | A | 1,070 | 0.71 | C | 310 | 0.21 | A | 1,069 | 0.71 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 230 | 0.15 | A | 560 | 0.37 | A | 240 | 0.16 | A | 580 | 0.39 | A |
| | SB Loop On | 1 | 900 | 250 | 0.28 | A | 340 | 0.38 | A | 250 | 0.28 | A | 340 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 670 | 0.45 | A | 930 | 0.62 | B | 680 | 0.45 | A |
| | NB Loop On | 1 | 1,500 | 690 | 0.46 | A | 490 | 0.33 | A | 690 | 0.46 | A | 480 | 0.32 | A |
| | SB Off | 2 | 3,000 | 924 | 0.31 | A | 1,490 | 0.50 | A | 933 | 0.31 | A | 1,500 | 0.50 | A |
| | NB Off | 1 | 1,500 | 1,378 | 0.92 | E | 1,279 | 0.85 | D | 1,393 | 0.93 | E | 1,262 | 0.84 | D |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,020 | 0.68 | B | 1,210 | 0.81 | D | 1,020 | 0.68 | B | 1,190 | 0.79 | C |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 290 | 0.32 | A | 360 | 0.40 | A | 280 | 0.31 | A |
| | NB Direct On | 1 | 1,500 | 1,342 | 0.89 | D | 650 | 0.43 | A | 1,352 | 0.90 | D | 640 | 0.43 | A |
| | NB Loop On | 1 | 900 | 361 | 0.40 | A | 110 | 0.12 | A | 351 | 0.39 | A | 110 | 0.12 | A |
| | SB Off | 1 | 1,500 | 645 | 0.43 | A | 812 | 0.54 | A | 644 | 0.43 | A | 813 | 0.54 | A |
| | NB Off | 1 | 2,250 | 1,257 | 0.56 | A | 1,873 | 0.83 | D | 1,248 | 0.55 | A | 1,860 | 0.83 | D |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 941 | 0.63 | B | 360 | 0.24 | A | 510 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,210 | 0.81 | D | 1,343 | 0.90 | D | 1,250 | 0.83 | D | 1,340 | 0.89 | D |
| | NB Loop On | 1 | 1,500 | 630 | 0.42 | A | 371 | 0.25 | A | 640 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,846 | **1.23** | **F** | 1,031 | 0.69 | B | 1,816 | **1.21** | **F** | 1,051 | 0.70 | B |
| | NB Off | 1 | 1,500 | 627 | 0.42 | A | 497 | 0.33 | A | 619 | 0.41 | A | 508 | 0.34 | A |

## Table 7-6 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 240 | 0.27 | A | 380 | 0.42 | A | 240 | 0.27 | A | 380 | 0.42 | A |
| | NB Direct On | 1 | 1,500 | 223 | 0.15 | A | 558 | 0.37 | A | 266 | 0.18 | A | 558 | 0.37 | A |
| | NB Loop On | 1 | 1,500 | 249 | 0.17 | A | 1,238 | 0.83 | D | 249 | 0.17 | A | 1,214 | 0.81 | D |
| | SB Off | 1 | 2,250 | 2,093 | 0.93 | E | 1,472 | 0.65 | B | 2,101 | 0.93 | E | 1,512 | 0.67 | B |
| | NB Off | 1 | 3,000 | 1,210 | 0.40 | A | 410 | 0.14 | A | 1,210 | 0.40 | A | 421 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 809 | 0.20 | A | 2,428 | 0.61 | B | 803 | 0.20 | A | 2,418 | 0.60 | A |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,079 | 0.77 | C | 1,350 | 0.34 | A | 3,055 | 0.76 | C | 1,369 | 0.34 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,844 | 0.46 | A | 2,877 | 0.72 | C | 1,945 | 0.49 | A | 2,883 | 0.72 | C |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,377 | 0.84 | D | 1,918 | 0.48 | A | 3,374 | 0.84 | D | 1,970 | 0.49 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 290 | 0.19 | A | 280 | 0.19 | A | 295 | 0.20 | A | 270 | 0.18 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 290 | 0.19 | A | 260 | 0.17 | A | 260 | 0.17 | A |
| | NB Loop On | 1 | 1,500 | 140 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 438 | 0.19 | A | 309 | 0.14 | A | 440 | 0.20 | A | 329 | 0.15 | A |
| | NB Off | 1 | 1,500 | 171 | 0.11 | A | 469 | 0.31 | A | 140 | 0.09 | A | 491 | 0.33 | A |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 740 | 0.49 | A | 680 | 0.45 | A | 780 | 0.52 | A | 670 | 0.45 | A |
| | NB On | 1 | 1,500 | 180 | 0.12 | A | 480 | 0.32 | A | 170 | 0.11 | A | 480 | 0.32 | A |
| | SB Off | 1 | 1,500 | 620 | 0.41 | A | 380 | 0.25 | A | 602 | 0.40 | A | 380 | 0.25 | A |
| | NB Off | 1 | 1,500 | 827 | 0.55 | A | 930 | 0.62 | B | 797 | 0.53 | A | 941 | 0.63 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,161 | 0.58 | A | 1,539 | 0.77 | C | 1,175 | 0.59 | A | 1,561 | 0.78 | C |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,681 | 0.84 | D | 1,197 | 0.60 | A | 1,676 | 0.84 | D | 1,211 | 0.61 | B |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,451 | 0.73 | C | 699 | 0.35 | A | 1,476 | 0.74 | C | 733 | 0.37 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 789 | 0.39 | A | 1,453 | 0.73 | C | 775 | 0.39 | A | 1,467 | 0.73 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,046 | 0.51 | A | 1,726 | 0.43 | A | 2,057 | 0.51 | A | 1,764 | 0.44 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,142 | 0.54 | A | 2,136 | 0.53 | A | 2,111 | 0.53 | A | 2,134 | 0.53 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 149 | 0.14 | A | 1,200 | **1.11** | **F** | 150 | 0.14 | A | 1,194 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 180 | 0.17 | A | 610 | 0.56 | A | 153 | 0.14 | A | 602 | 0.56 | A |
| | NB Loop On | 1 | 1,080 | 440 | 0.41 | A | 1,499 | **1.39** | **F** | 450 | 0.42 | A | 1,491 | **1.38** | **F** |
| | SB Off | 2 | 3,000 | 2,130 | 0.71 | C | 581 | 0.19 | A | 2,125 | 0.71 | C | 559 | 0.19 | A |
| | NB Off | 2 | 2,250 | 1,535 | 0.68 | B | 432 | 0.19 | A | 1,506 | 0.67 | B | 469 | 0.21 | A |

## Table 7-6 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 1,010 | 0.51 | A | 926 | 0.46 | A | 1,024 | 0.51 | A | 928 | 0.46 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 60 | 0.03 | A | 88 | 0.04 | A | 59 | 0.03 | A | 79 | 0.04 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 815 | 0.20 | A | 587 | 0.15 | A | 867 | 0.22 | A | 596 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,234 | 0.31 | A | 924 | 0.23 | A | 1,278 | 0.32 | A | 917 | 0.23 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,689 | 0.84 | D | 1,530 | 0.77 | C | 1,648 | 0.82 | D | 1,594 | 0.80 | C |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 555 | 0.28 | A | 608 | 0.30 | A | 557 | 0.28 | A | 633 | 0.32 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 292 | 0.15 | A | 346 | 0.17 | A | 205 | 0.10 | A | 205 | 0.10 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 970 | 0.54 | A | 291 | 0.16 | A | 946 | 0.53 | A | 273 | 0.15 | A |
| | NB On | 1 | 1,500 | 479 | 0.32 | A | 470 | 0.31 | A | 450 | 0.30 | A | 290 | 0.19 | A |
| | SB Off | 1 | 1,500 | 947 | 0.63 | B | 501 | 0.33 | A | 477 | 0.32 | A | 440 | 0.29 | A |
| | NB Off | 1 | 1,500 | 648 | 0.43 | A | 984 | 0.66 | B | 728 | 0.49 | A | 961 | 0.64 | B |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 349 | 0.23 | A | 410 | 0.27 | A | 342 | 0.23 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 20 | 0.01 | A | 30 | 0.02 | A | 20 | 0.01 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 29 | 0.02 | A | 61 | 0.04 | A | 39 | 0.03 | A | 71 | 0.05 | A |
| | NB Off | 1 | 1,500 | 664 | 0.44 | A | 384 | 0.26 | A | 664 | 0.44 | A | 364 | 0.24 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 430 | 0.29 | A | 1,150 | 0.77 | C | 452 | 0.30 | A | 1,110 | 0.74 | C |
| | NB On | 1 | 1,500 | 460 | 0.31 | A | 630 | 0.42 | A | 433 | 0.29 | A | 619 | 0.41 | A |
| | SB Off | 1 | 1,500 | 730 | 0.49 | A | 460 | 0.31 | A | 693 | 0.46 | A | 452 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,110 | 0.49 | A | 630 | 0.28 | A | 1,020 | 0.45 | A | 628 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 220 | 0.10 | A | 870 | 0.39 | A | 223 | 0.10 | A | 851 | 0.38 | A |
| | SB Off | 1 | 1,500 | 820 | 0.55 | A | 420 | 0.28 | A | 804 | 0.54 | A | 412 | 0.27 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 330 | 0.22 | A | 1,430 | 0.95 | E | 331 | 0.22 | A | 1,423 | 0.95 | E |
| | NB On | 2 | 2,250 | 830 | 0.37 | A | 440 | 0.20 | A | 817 | 0.36 | A | 429 | 0.19 | A |
| | SB Off | 1 | 1,500 | 530 | 0.35 | A | 620 | 0.41 | A | 527 | 0.35 | A | 609 | 0.41 | A |
| | NB Off | 2 | 2,250 | 2,190 | 0.97 | E | 580 | 0.26 | A | 2,173 | 0.97 | E | 584 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 1,010 | 0.67 | B | 250 | 0.17 | A | 990 | 0.66 | B | 300 | 0.20 | A |
| | NB Off | 1 | 1,500 | 91 | 0.06 | A | 778 | 0.52 | A | 110 | 0.07 | A | 777 | 0.52 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 160 | 0.11 | A | 100 | 0.07 | A | 160 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 460 | 0.31 | A | 250 | 0.17 | A | 480 | 0.32 | A | 230 | 0.15 | A |
| | SB Off | 1 | 1,500 | 111 | 0.07 | A | 282 | 0.19 | A | 100 | 0.07 | A | 292 | 0.19 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A |

## Table 7-6 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-261 at Irvine | SB On | 1 | 1,500 | 860 | 0.57 | A | 320 | 0.21 | A | 861 | 0.57 | A | 330 | 0.22 | A |
| | NB On | 1 | 1,500 | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 151 | 0.10 | A | 120 | 0.08 | A | 130 | 0.09 | A | 121 | 0.08 | A |
| | NB Off | 1 | 1,500 | 223 | 0.15 | A | 223 | 0.15 | A | 233 | 0.16 | A | 233 | 0.16 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 7-7

## Year 2030 Freeway Mainline LOS Summary
## With 2012 Modified Project - Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,774 | **1.36** | **F** | 12,399 | **1.07** | **F** | 16,109 | **1.39** | **F** | 12,445 | **1.07** | **F** |
| | | SB | 5+1H | 11,600 | 9,920 | 0.86 | D | 10,649 | 0.92 | E | 9,857 | 0.85 | D | 10,830 | 0.93 | E |
| | n/o Red Hill | NB | 5+1H | 11,600 | 15,046 | **1.30** | **F** | 11,806 | **1.02** | **F** | 15,383 | **1.33** | **F** | 11,832 | **1.02** | **F** |
| | | SB | 5+1H | 11,600 | 12,035 | **1.04** | **F** | 12,756 | **1.10** | **F** | 11,900 | **1.03** | **F** | 13,007 | **1.12** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,703 | **1.35** | **F** | 12,384 | **1.07** | **F** | 16,060 | **1.38** | **F** | 12,409 | **1.07** | **F** |
| | | SB | 5+1H | 11,600 | 12,695 | **1.09** | **F** | 13,383 | **1.15** | **F** | 12,568 | **1.08** | **F** | 13,666 | **1.18** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 15,215 | **1.31** | **F** | 12,043 | **1.04** | **F** | 15,581 | **1.34** | **F** | 12,074 | **1.04** | **F** |
| | | SB | 5+1H | 11,600 | 12,349 | **1.06** | **F** | 12,904 | **1.11** | **F** | 12,238 | **1.06** | **F** | 13,180 | **1.14** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 15,330 | **1.32** | **F** | 11,931 | **1.03** | **F** | 15,730 | **1.36** | **F** | 11,932 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 11,933 | **1.03** | **F** | 12,855 | **1.11** | **F** | 11,836 | **1.02** | **F** | 13,102 | **1.13** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 13,367 | **1.15** | **F** | 11,093 | 0.96 | E | 13,768 | **1.19** | **F** | 11,090 | 0.96 | E |
| | | SB | 5+1H | 11,600 | 11,539 | 0.99 | E | 11,487 | 0.99 | E | 11,441 | 0.99 | E | 11,686 | **1.01** | **F** |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 13,252 | **1.14** | **F** | 11,263 | 0.97 | E | 13,586 | **1.17** | **F** | 11,228 | 0.97 | E |
| | | SB | 5+1H | 11,600 | 12,118 | **1.26** | **F** | 11,765 | **1.23** | **F** | 11,950 | **1.24** | **F** | 11,942 | **1.24** | **F** |
| | n/o Alton | NB | 4+1H | 9,600 | 10,666 | **1.11** | **F** | 8,788 | 0.92 | E | 10,809 | **1.13** | **F** | 8,764 | 0.91 | E |
| | | SB | 4+1H | 9,600 | 9,272 | 0.97 | E | 9,496 | 0.99 | E | 9,272 | 0.97 | E | 9,569 | 1.00 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 11,163 | **1.16** | **F** | 7,818 | 0.81 | D | 11,272 | **1.17** | **F** | 7,812 | 0.81 | D |
| | | SB | 4+1H | 9,600 | 7,715 | 0.36 | A | 9,788 | 0.46 | A | 7,739 | 0.36 | A | 9,840 | 0.46 | A |
| | n/o Bake | NB | 9+2H | 21,500 | 22,371 | **1.04** | **F** | 14,430 | 0.67 | B | 22,601 | **1.05** | **F** | 14,465 | 0.67 | B |
| | | SB | 9+2H | 21,500 | 11,840 | 0.61 | B | 16,842 | 0.86 | D | 11,894 | 0.61 | B | 16,950 | 0.87 | D |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 21,751 | **1.12** | **F** | 12,868 | 0.66 | B | 21,821 | **1.12** | **F** | 12,913 | 0.66 | B |
| | | SB | 8+2H | 19,500 | 12,130 | 0.90 | D | 17,471 | **1.29** | **F** | 12,231 | 0.91 | E | 17,558 | **1.30** | **F** |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,752 | **1.54** | **F** | 12,040 | 0.89 | D | 20,826 | **1.54** | **F** | 12,069 | 0.89 | D |
| | | SB | 5+2H | 13,500 | 10,007 | **1.04** | **F** | 16,041 | **1.67** | **F** | 10,114 | **1.05** | **F** | 16,056 | **1.67** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 17,648 | **1.84** | **F** | 10,161 | **1.06** | **F** | 17,613 | **1.83** | **F** | 10,177 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,712 | 0.80 | C | 13,095 | **1.36** | **F** | 7,798 | 0.81 | D | 13,126 | **1.37** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,547 | **1.41** | **F** | 7,620 | 0.79 | C | 13,496 | **1.41** | **F** | 7,623 | 0.79 | C |
| | | SB | 4+1H | 9,600 | 6,371 | 0.66 | B | 10,731 | **1.12** | **F** | 6,463 | 0.67 | B | 10,718 | **1.12** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,809 | **1.33** | **F** | 9,128 | 0.95 | E | 13,127 | **1.37** | **F** | 9,145 | 0.95 | E |
| | | SB | 4+1H | 9,600 | 9,178 | 0.96 | E | 10,596 | **1.10** | **F** | 9,134 | 0.95 | E | 10,853 | **1.13** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,935 | **1.35** | **F** | 9,478 | 0.99 | E | 13,237 | **1.38** | **F** | 9,489 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 9,378 | 0.98 | E | 10,532 | **1.10** | **F** | 9,329 | 0.97 | E | 10,764 | **1.12** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,661 | **1.32** | **F** | 8,490 | 0.88 | D | 12,914 | **1.35** | **F** | 8,511 | 0.89 | D |
| | | SB | 4+1H | 9,600 | 8,257 | 0.86 | D | 9,934 | **1.03** | **F** | 8,236 | 0.86 | D | 10,136 | **1.06** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,904 | **1.14** | **F** | 7,325 | 0.76 | C | 11,061 | **1.15** | **F** | 7,334 | 0.76 | C |
| | | SB | 4+1H | 9,600 | 7,083 | 0.74 | C | 8,810 | 0.92 | E | 7,114 | 0.74 | C | 8,916 | 0.93 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,864 | 0.82 | D | 4,131 | 0.43 | A | 8,002 | 0.83 | D | 4,146 | 0.43 | A |
| | | SB | 4+1H | 9,600 | 6,119 | 0.76 | C | 8,587 | **1.07** | **F** | 6,145 | 0.77 | C | 8,649 | **1.08** | **F** |

## Table 7-7 Cont.

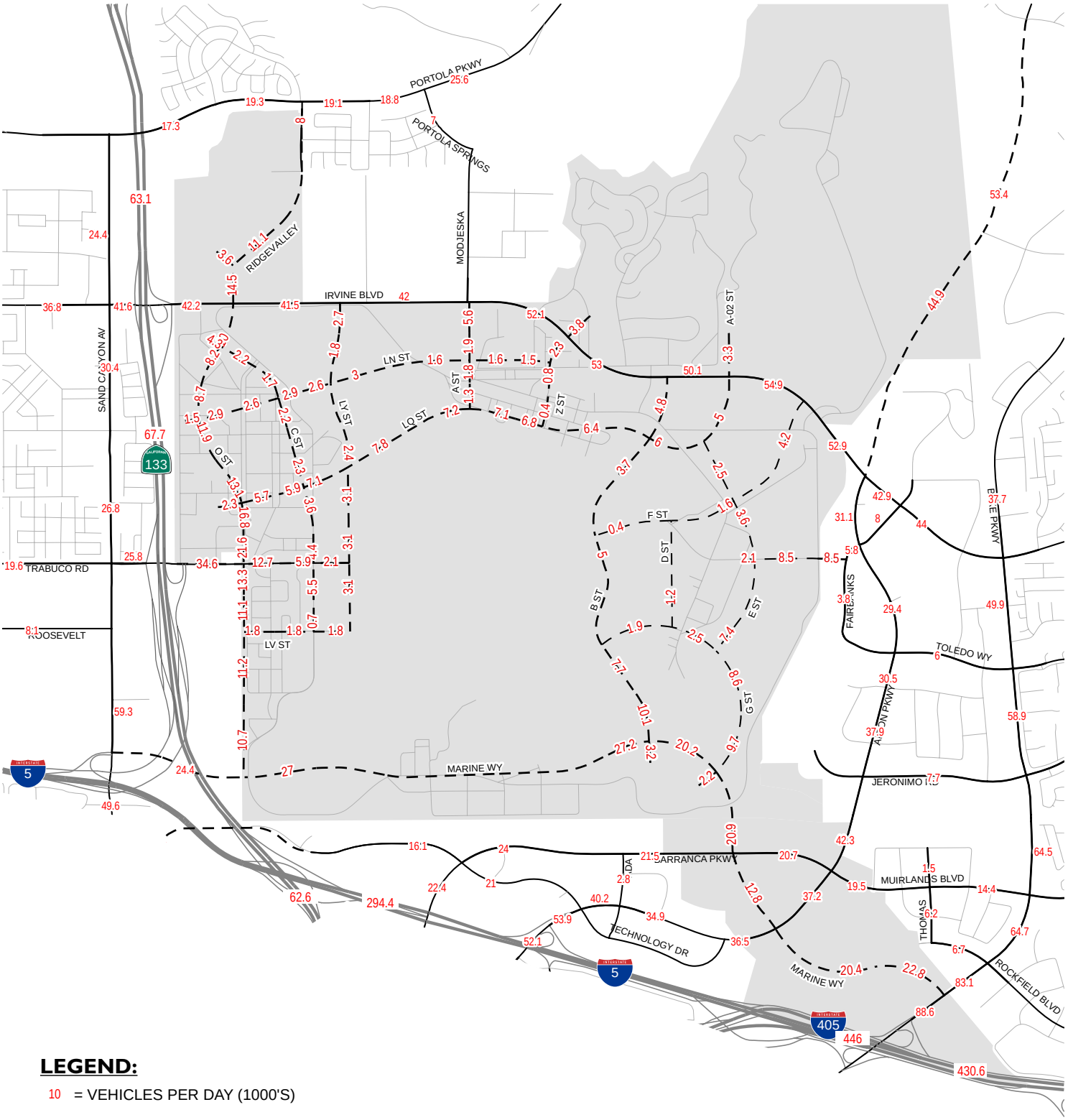
### Year 2030 Freeway Mainline LOS Summary
### With 2012 Modified Project - Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,652 | 0.33 | A | 5,305 | 0.66 | B | 2,748 | 0.34 | A | 5,301 | 0.66 | B |
| | | SB | 4 | 8,000 | 6,456 | **1.08** | **F** | 3,268 | 0.54 | A | 6,430 | **1.07** | **F** | 3,338 | 0.56 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 2,347 | 0.39 | A | 4,979 | 0.83 | D | 2,358 | 0.39 | A | 5,032 | 0.84 | D |
| | | SB | 3 | 6,000 | 5,764 | 0.96 | E | 2,957 | 0.49 | A | 5,786 | 0.96 | E | 2,999 | 0.50 | A |
| | n/o I-5 | NB | 3 | 6,000 | 2,175 | 0.36 | A | 4,498 | 0.75 | C | 2,187 | 0.36 | A | 4,556 | 0.76 | C |
| | | SB | 3 | 6,000 | 3,697 | 0.62 | B | 1,884 | 0.31 | A | 3,735 | 0.62 | B | 1,892 | 0.32 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,188 | 0.53 | A | 4,571 | 0.76 | C | 3,131 | 0.52 | A | 4,600 | 0.77 | C |
| | | SB | 3 | 6,000 | 4,796 | 0.80 | C | 3,085 | 0.51 | A | 4,866 | 0.81 | D | 3,108 | 0.52 | A |
| | n/o I-405 | NB | 3 | 6,000 | 3,933 | 0.66 | B | 3,467 | 0.58 | A | 3,866 | 0.64 | B | 3,555 | 0.59 | A |
| | | SB | 3 | 6,000 | 5,733 | 0.96 | E | 4,791 | 0.80 | C | 5,687 | 0.95 | E | 4,896 | 0.82 | D |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 5,294 | 0.88 | D | 4,934 | 0.82 | D | 5,472 | 0.91 | E | 4,910 | 0.82 | D |
| | | SB | 3 | 6,000 | 5,733 | 0.72 | C | 4,791 | 0.60 | A | 5,687 | 0.71 | C | 4,896 | 0.61 | B |
| | n/o Portola (West) | NB | 4 | 8,000 | 6,530 | 0.82 | D | 3,407 | 0.43 | A | 6,582 | 0.82 | D | 3,396 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,165 | 0.40 | A | 5,301 | 0.66 | B | 3,115 | 0.39 | A | 5,344 | 0.67 | B |
| | n/o Alton | NB | 4 | 8,000 | 7,143 | 0.89 | D | 3,812 | 0.48 | A | 7,163 | 0.90 | D | 3,782 | 0.47 | A |
| | | SB | 4 | 8,000 | 3,720 | 0.47 | A | 5,839 | 0.73 | C | 3,656 | 0.46 | A | 5,856 | 0.73 | C |
| | n/o Lake Forest | NB | 4 | 8,000 | 7,563 | 0.95 | E | 3,416 | 0.43 | A | 7,530 | 0.94 | E | 3,397 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,113 | 0.52 | A | 6,075 | **1.01** | **F** | 3,108 | 0.52 | A | 6,059 | **1.01** | **F** |
| SR-261 | n/o Portola | NB | 3 | 6,000 | 1,289 | 0.21 | A | 3,002 | 0.50 | A | 1,316 | 0.22 | A | 3,039 | 0.51 | A |
| | | SB | 3 | 6,000 | 3,738 | 0.62 | B | 1,380 | 0.23 | A | 3,816 | 0.64 | B | 1,434 | 0.24 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 534 | 0.09 | A | 2,380 | 0.40 | A | 543 | 0.09 | A | 2,438 | 0.41 | A |
| | | SB | 3 | 6,000 | 3,104 | 0.52 | A | 795 | 0.13 | A | 3,198 | 0.53 | A | 842 | 0.14 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 780 | 0.13 | A | 3,097 | 0.52 | A | 799 | 0.13 | A | 3,187 | 0.53 | A |
| | | SB | 3 | 6,000 | 3,749 | 0.62 | B | 1,130 | 0.19 | A | 3,869 | 0.64 | B | 1,187 | 0.20 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 5,574 | 0.93 | E | 6,892 | **1.15** | **F** | 5,644 | 0.94 | E | 6,751 | **1.13** | **F** |
| | | SB | 3 | 6,000 | 8,614 | **1.44** | **F** | 5,181 | 0.86 | D | 8,208 | **1.37** | **F** | 5,181 | 0.86 | D |

**Bold** Deficient Segment

EXHIBIT 7-7 (1 OF 3)

# YEAR 2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 2, PROJECT AREA




**LEGEND:**

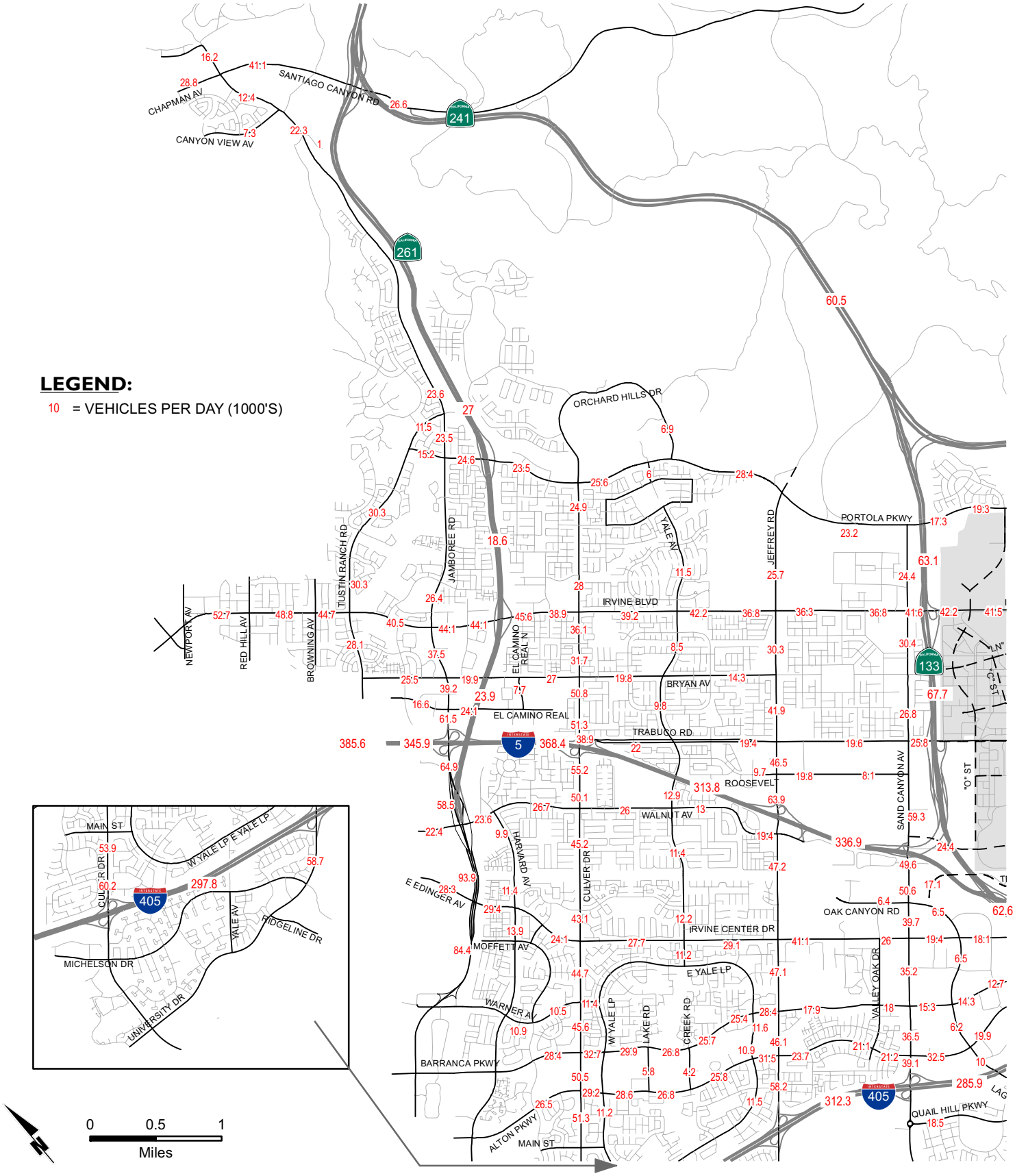
10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 7-7 (2 OF 3)

# YEAR 2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 2, WEST STUDY AREA



# YEAR 2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 2, EAST STUDY AREA

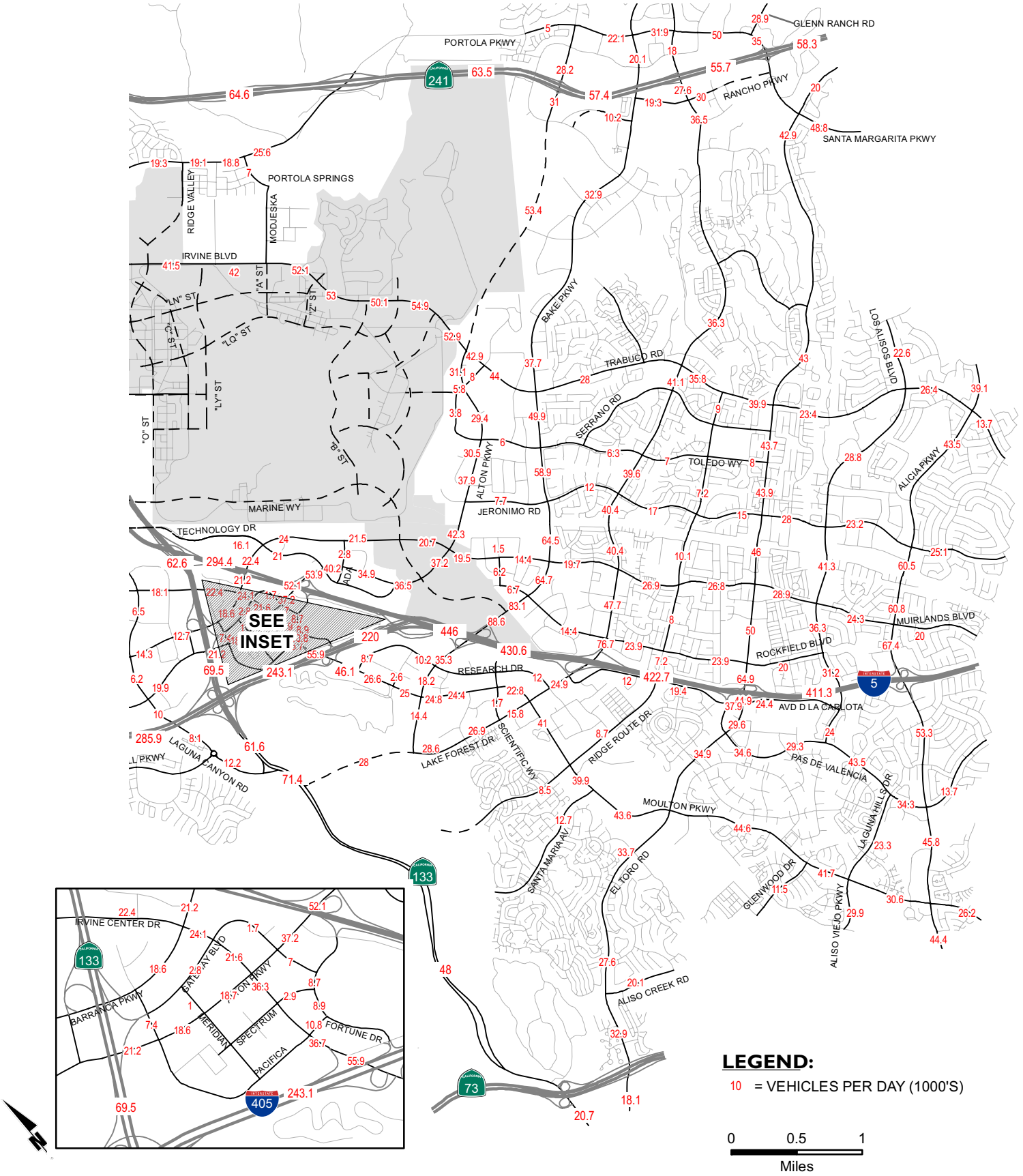
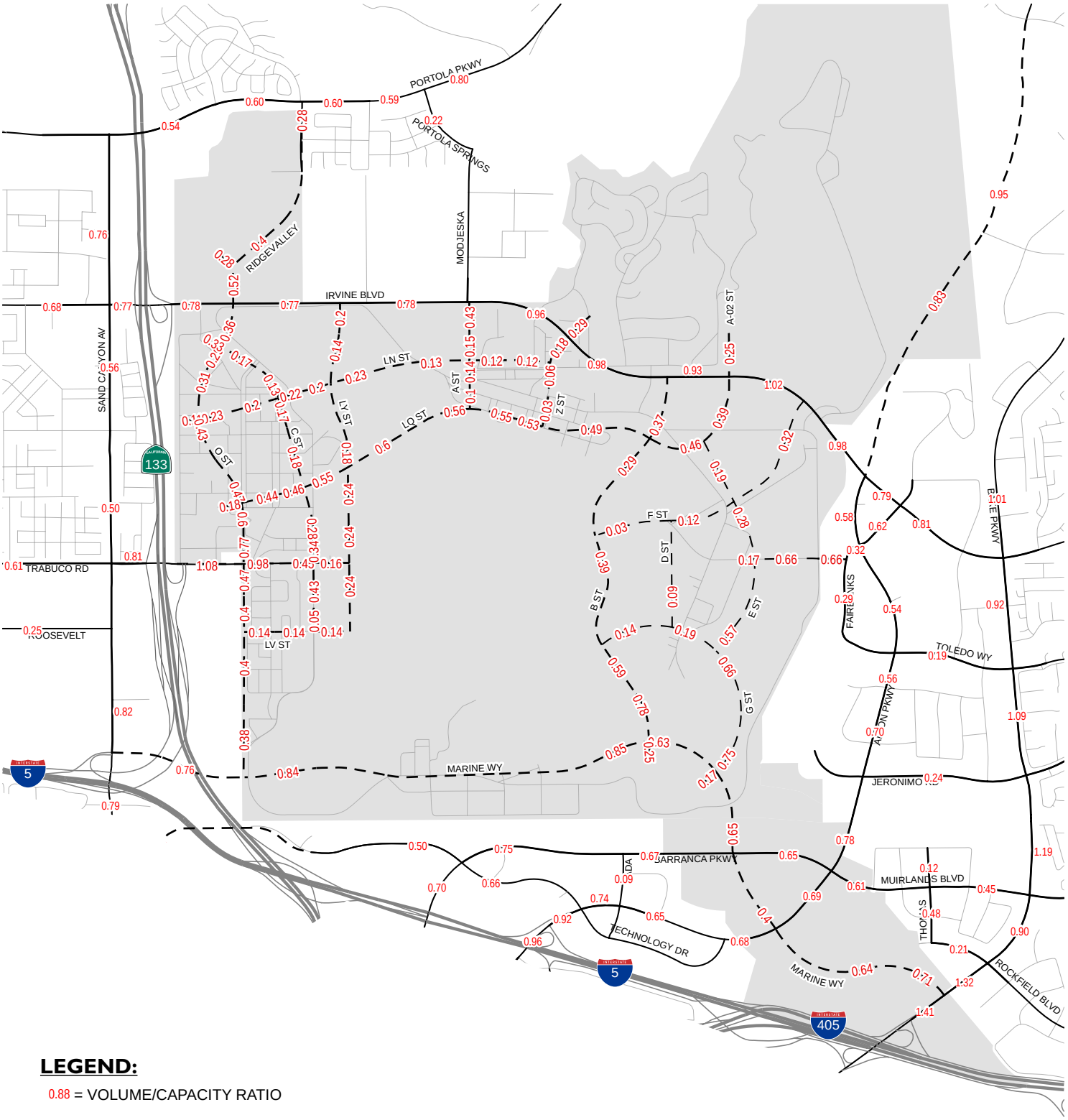


EXHIBIT 7-8 (1 OF 3)

# YEAR 2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 2, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

# YEAR 2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 2, WEST STUDY AREA

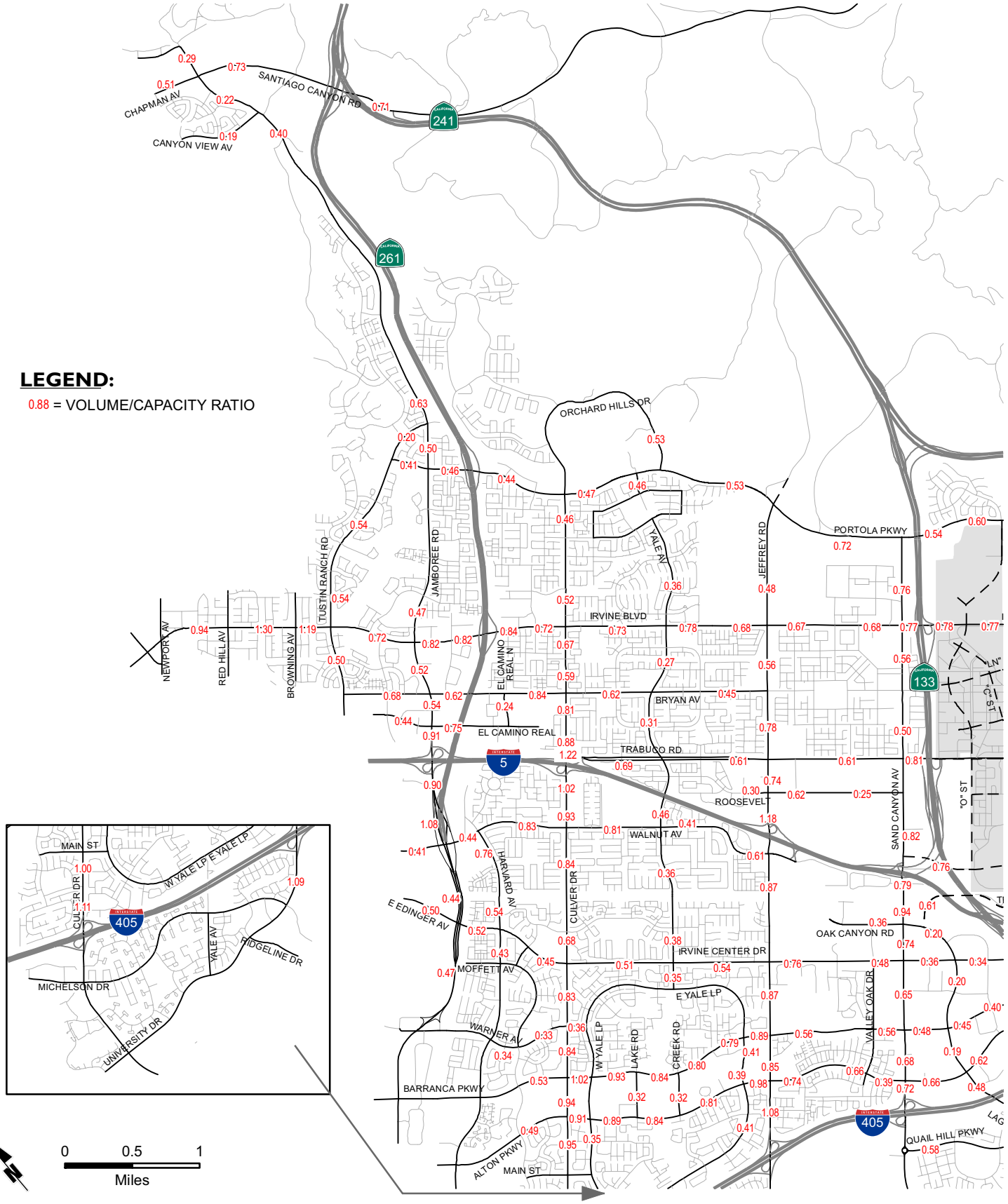
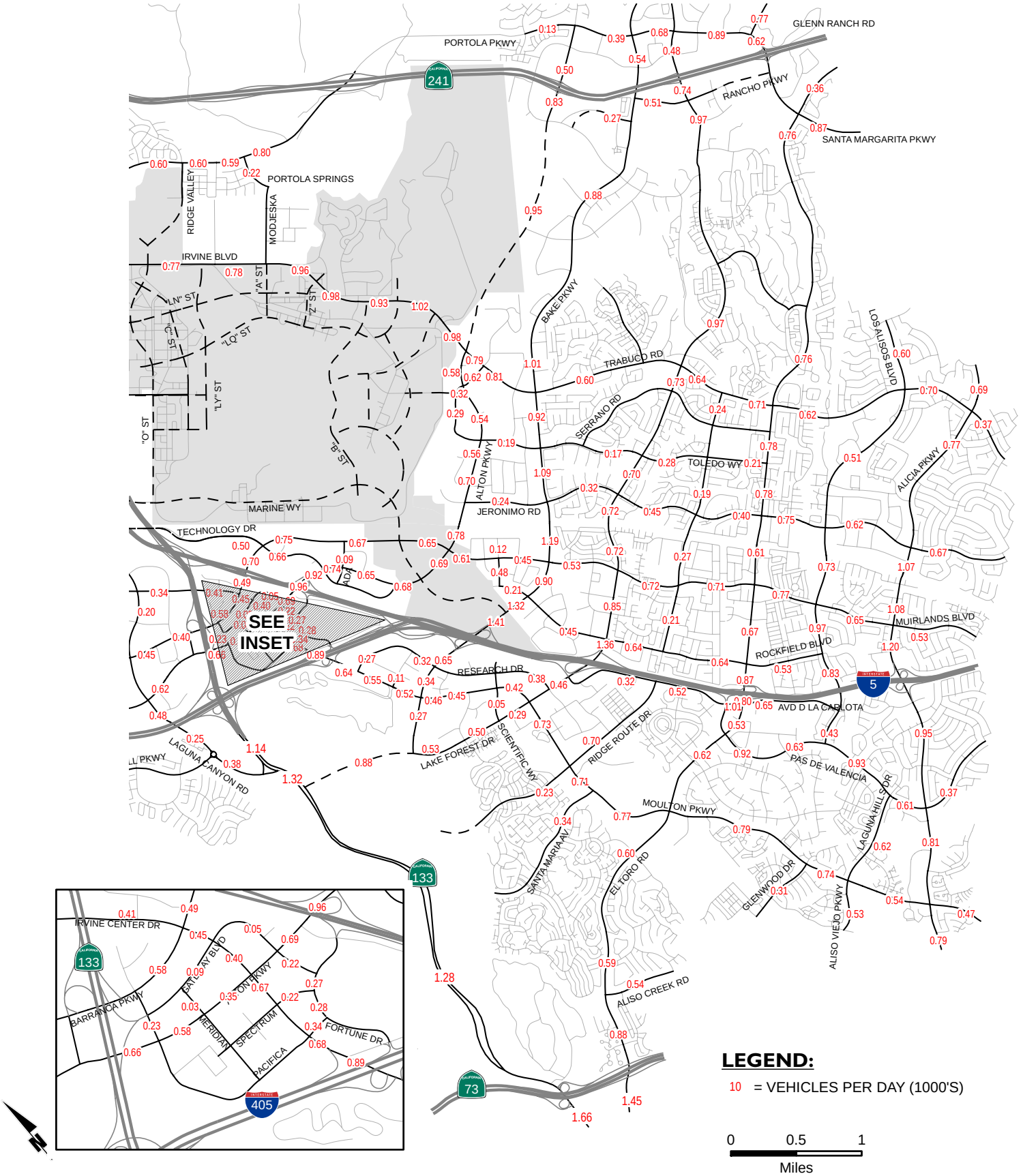


EXHIBIT 7-8 (3 OF 3)

# YEAR 2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 2, EAST STUDY AREA



Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following five (5) arterial roadway segments are potentially impacted by the Proposed Project:

- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Irvine Bl (b/w A St and Z St)
- Irvine Bl (b/w Z St and B St)
- Trabuco Rd (e/o Culver Dr)
- Alton Pkwy (e/o Culver Dr)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under year 2030 with Option 2 conditions are summarized in Table 7-8. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

**TABLE 7-8**

**Year 2030 Arterial Roadway Peak Hour Analysis**
**With 2012 Modified Project, Option 2**

| | | | | | 2030 with 2012 Modified Project Option 2 | | | |
|---|---|---|---|---|---|---|---|---|
| Segment | Segment Limits | Juris | # of Lanes | Peak Hour Capacity | Refined ADT | Highest Peak Volume | Peak Hour V/C | Peak Hour LOS |
| Bake Pkwy. | b/w Rockfield Bl. & Marine Wy. | Irv | 8D | 6,400 | 83,100 | 4,036 AM NB | 0.63 | B |
| Irvine Bl. | b/w A St. & Z St. | Irv | 6D | 4,800 | 52,100 | 3,005 PM WB | 0.63 | B |
| Irvine Bl. | b/w Z St. & B St. | Irv | 6D | 4,800 | 53,000 | 3,060 PM WB | 0.64 | B |
| Trabuco Rd. | e/o Culver Dr. | Irv | 4D | 3,200 | 38,900 | 1,929 PM EB | 0.60 | A |
| Alton Pkwy. | e/o Culver Dr. | Irv | 4D | 3,200 | 29,200 | 1,730 AM WB | 0.54 | A |

### 7.2.2 Year 2030 Peak Hour Intersection Levels of Service, Option 2

Year 2030 with Option 2 AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 7-5 that are analyzed in this traffic study are summarized in Table 7-9. Actual turn volumes, lane geometrics and ICU calculation worksheets for Year 2030 with Option 2 are included in Appendix 7.5. Based on the peak hour intersection performance criteria and impact thresholds discussed in Chapter

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | 2011 Approved Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.81 | D | **0.92** | **E** | 0.80 | C | **0.95** | **E** |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | Yes | | 0.75 | C | 0.85 | D | 0.76 | C | 0.85 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **1.00** | **E** | 0.88 | D | **1.02** | **F** | 0.88 | D |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | Yes | | 0.81 | D | 0.87 | D | 0.81 | D | 0.86 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | 0.74 | C | 0.66 | B | 0.78 | C | 0.67 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.67 | B | 0.62 | B | 0.71 | C | 0.64 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | Yes | 0.81 | D | 0.75 | C | 0.84 | D | 0.77 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.72 | C | 0.62 | B | 0.72 | C | 0.64 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.72 | C | 0.68 | B | 0.72 | C | 0.70 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.67 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.67 | B | 0.65 | B | 0.69 | B | 0.65 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.47 | A | 0.56 | A | 0.46 | A | 0.57 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.50 | A | 0.74 | C | 0.48 | A | 0.73 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.51 | A | 0.69 | B | 0.50 | A | 0.67 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.42 | A | 0.41 | A | 0.43 | A | 0.42 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.90 | D | 0.96 | E | 0.89 | D | 0.97 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.43 | A | 0.49 | A | 0.44 | A | 0.50 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.45 | A | 0.41 | A | 0.48 | A | 0.42 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.62 | B | 0.54 | A | 0.60 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.71 | C | 0.66 | B | 0.73 | C | 0.66 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.71 | C | 0.67 | B | 0.74 | C | 0.69 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.79 | C | 0.88 | D | 0.80 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.89 | D | 0.74 | C | **0.91** | **E** | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | 0.77 | C | 0.78 | C | 0.78 | C | 0.77 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | 0.60 | A | 0.68 | B | 0.61 | B | 0.68 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | | | 0.82 | D | 0.87 | D | 0.84 | D | 0.87 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.77 | C | 0.74 | C | 0.78 | C | 0.74 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.80 | C | 0.63 | B | 0.82 | D | 0.64 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | | | **0.91** | **E** | 0.78 | C | **0.93** | **E** | 0.78 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.83 | D | 0.86 | D | 0.85 | D | 0.88 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.83 | D | 0.73 | C | 0.84 | D | 0.73 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.62 | B | 0.66 | B | 0.62 | B | 0.67 | B |
| 235 | Culver Dr at University | Irv | **F** | | | 0.71 | C | 0.82 | D | 0.71 | C | 0.82 | D |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | 0.74 | C | 0.88 | D | 0.76 | C | 0.90 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.48 | A | 0.44 | A | 0.49 | A | 0.45 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.62 | B | 0.52 | A | 0.62 | B | 0.51 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.60 | A | 0.71 | C | 0.64 | B | 0.73 | C |
| 261 | Yale Av at ICD | Irv | | | | 0.70 | B | 0.69 | B | 0.70 | B | 0.67 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.65 | B | 0.62 | B | 0.67 | B | 0.63 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.71 | C | 0.67 | B | 0.72 | C | 0.68 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.65 | B | 0.63 | B | 0.67 | B | 0.64 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.76 | C | 0.70 | B | 0.75 | C | 0.69 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.63 | B | 0.61 | B | 0.62 | B | 0.60 | A |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.68 | B | 0.67 | B | 0.69 | B | 0.68 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.70 | B | 0.64 | B | 0.71 | C | 0.65 | B |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.65 | B | 0.72 | C | 0.65 | B | 0.73 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.86 | D | 0.85 | D | 0.89 | D | 0.85 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.68 | B | 0.79 | C | 0.70 | B | 0.80 | C |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | 0.76 | C | 0.77 | C | 0.76 | C | 0.77 | C |

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | 2011 Approved Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 289 | Jeffrey Rd at ICD | Irv | **F** | | | 0.83 | D | 0.77 | C | 0.83 | D | 0.78 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | | | 0.90 | D | 0.80 | C | **0.91** | **E** | 0.78 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | | **0.93** | **E** | 0.79 | C | **0.94** | **E** | 0.79 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | 0.74 | C | 0.88 | D | 0.75 | C | 0.89 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.63 | B | 0.70 | B | 0.64 | B | 0.70 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.40 | A | 0.56 | A | 0.42 | A | 0.56 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.74 | C | 0.75 | C | 0.73 | C | 0.73 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | | 0.76 | C | 0.78 | C | 0.77 | C | 0.78 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | 0.84 | D | 0.83 | D | 0.90 | D | **0.94** | **E** |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | 0.83 | D | 0.81 | D | 0.85 | D | 0.85 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | 0.79 | C | **0.91** | **E** | 0.78 | C | **0.93** | **E** |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.60 | A | 0.62 | B | 0.59 | A | 0.64 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.55 | A | 0.57 | A | 0.55 | A | 0.58 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | 0.66 | B | 0.73 | C | 0.67 | B | 0.72 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | 0.59 | A | 0.42 | A | 0.59 | A | 0.41 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.87 | D | 0.61 | B | 0.87 | D | 0.62 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.36 | A | 0.42 | A | 0.36 | A | 0.42 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.41 | A | 0.42 | A | 0.42 | A | 0.41 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.56 | A | 0.59 | A | 0.57 | A | 0.60 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.55 | A | 0.61 | B | 0.55 | A | 0.61 | B |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.75 | C | 0.72 | C | 0.69 | B | 0.75 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.66 | B | 0.52 | A | 0.68 | B | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.58 | A | 0.55 | A | 0.59 | A | 0.55 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | 0.87 | D | 0.77 | C | 0.87 | D | 0.79 | C |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | 0.99 | E | 0.65 | B | 0.98 | E | 0.65 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.35 | A | 0.41 | A | 0.36 | A | 0.40 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.19 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.27 | A | 0.31 | A | 0.27 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | 0.59 | A | 0.82 | D | 0.60 | A | 0.80 | C |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.66 | B | 0.44 | A | 0.64 | B | 0.44 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.68 | B | 0.67 | B | 0.67 | B | 0.68 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.60 | A | 0.76 | C | 0.60 | A | 0.76 | C |
| 333 | Pacifica at Gateway | Irv | | | Yes | 0.71 | C | 0.76 | C | 0.70 | B | 0.78 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.49 | A | 0.36 | A | 0.49 | A | 0.36 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | 0.68 | B | 0.58 | A | 0.67 | B | 0.59 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | Yes | **1.04** | **F** | 0.98 | E | **1.03** | **F** | 0.95 | E |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.70 | B | 0.61 | B | 0.80 | C | 0.64 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.70 | B | 0.56 | A | 0.71 | C | 0.55 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.60 | A | 0.77 | C | 0.60 | A | 0.74 | C |
| 343 | Alton Pw at Ada | Irv | | | | 0.48 | A | 0.71 | C | 0.52 | A | 0.73 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | 0.58 | A | 0.85 | D | 0.59 | A | 0.84 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | Yes | 0.88 | D | 0.51 | A | 0.87 | D | 0.52 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.71 | C | 0.75 | C | 0.70 | B | 0.78 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | Yes | 0.73 | C | 0.78 | C | 0.72 | C | 0.79 | C |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.59 | A | 0.55 | A | 0.61 | B | 0.55 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.47 | A | 0.77 | C | 0.51 | A | 0.77 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.49 | A | 0.51 | A | 0.49 | A | 0.50 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | Yes | 0.67 | B | 0.55 | A | 0.68 | B | 0.55 | A |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | Yes | 0.61 | B | 0.57 | A | 0.61 | B | 0.58 | A |

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | 2011 Approved Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 361 | Bake Pw at Portola Pw | LF | | | | 0.63 | B | 0.89 | D | 0.61 | B | 0.89 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | Yes | 0.83 | D | 0.89 | D | 0.83 | D | 0.90 | D |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.84 | D | 0.68 | B | 0.83 | D | 0.68 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | 0.86 | D | 0.70 | B | 0.85 | D | 0.70 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.74 | C | **0.91** | **E** | 0.72 | C | 0.90 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.78 | C | **0.98** | **E** | 0.76 | C | **1.01** | **F** |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.83 | D | 0.61 | B | 0.81 | D | 0.62 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | Yes | 0.81 | D | 0.89 | D | 0.81 | D | 0.90 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | 0.52 | A | 0.83 | D | 0.53 | A | 0.84 | D |
| 372 | Bake Pw at ICD | Irv | | | | 0.57 | A | 0.57 | A | 0.56 | A | 0.56 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.34 | A | 0.44 | A | 0.33 | A | 0.43 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.63 | B | 0.89 | D | 0.62 | B | 0.89 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.57 | A | 0.53 | A | 0.55 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.84 | D | 0.89 | D | 0.84 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.62 | B | 0.59 | A | 0.64 | B | 0.59 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | 0.77 | C | **0.92** | **E** | 0.76 | C | **0.93** | **E** |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | 0.75 | C | 0.84 | D | 0.74 | C | 0.84 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | 0.83 | D | **0.93** | **E** | 0.83 | D | **0.93** | **E** |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | 0.71 | C | 0.74 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | | Yes | 0.65 | B | 0.82 | D | 0.64 | B | 0.80 | C |
| 385 | Lake Forest Dr at ICD | Irv | | | Yes | 0.52 | A | 0.76 | C | 0.52 | A | 0.76 | C |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.68 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | 0.40 | A | 0.73 | C | 0.39 | A | 0.73 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.58 | A | 0.72 | C | 0.57 | A | 0.72 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.81 | D | **0.95** | **E** | 0.81 | D | **0.95** | **E** |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | 0.67 | B | 0.80 | C | 0.65 | B | 0.79 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.76 | C | 0.87 | D | 0.78 | C | 0.87 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.61 | B | 0.74 | C | 0.60 | A | 0.73 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | Yes | 0.82 | D | 0.85 | D | 0.82 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | Yes | 0.74 | C | 0.96 | E | 0.74 | C | 0.96 | E |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | 0.66 | B | 0.84 | D | 0.66 | B | 0.84 | D |
| 398 | El Toro Rd at Moulton Pw | LW | | | Yes | 0.85 | D | 0.96 | E | 0.87 | D | 0.96 | E |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | 0.57 | A | 0.69 | B | 0.57 | A | 0.70 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.65 | B | 0.61 | B | 0.66 | B | 0.62 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | Yes | 0.43 | A | 0.64 | B | 0.43 | A | 0.65 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.63 | B | 0.65 | B | 0.61 | B | 0.66 | B |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.44 | A | 0.37 | A | 0.43 | A | 0.39 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | 0.81 | D | 0.74 | C | 0.80 | C | 0.75 | C |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.66 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.57 | A | 0.70 | B | 0.56 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.42 | A | 0.40 | A | 0.42 | A | 0.39 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.50 | A | 0.66 | B | 0.52 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.65 | B | 0.67 | B | 0.64 | B | 0.67 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.51 | A | 0.67 | B | 0.51 | A | 0.66 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.82 | D | **1.01** | **F** | 0.82 | D | **1.00** | **E** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.78 | C | 0.78 | C | 0.77 | C | 0.78 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.56 | A | 0.63 | B | 0.58 | A | 0.63 | B |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | 0.77 | C | 0.78 | C | 0.76 | C | 0.78 | C |

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | 2011 Approved Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | 0.78 | C | 0.71 | C | 0.77 | C | 0.71 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | P | | | 0.89 | D | 0.89 | D | 0.90 | D | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | P | | | **1.01** | **F** | **1.06** | **F** | **0.98** | **E** | **1.05** | **F** |
| 424 | Los Alisos Bl at Rockfield Bl | LF | P | | | **0.92** | **E** | **0.92** | **E** | **0.93** | **E** | **0.92** | **E** |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | 0.61 | B | 0.70 | B | 0.61 | B | 0.70 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | 0.59 | A | 0.73 | C | 0.58 | A | 0.73 | C |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | 0.72 | C | 0.71 | C | 0.71 | C | 0.70 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | 0.74 | C | 0.77 | C | 0.73 | C | 0.77 | C |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | 0.82 | D | 0.82 | D | 0.82 | D | 0.82 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.74 | C | 0.73 | C | 0.74 | C | 0.74 | **C** |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.77 | C | 0.77 | C | 0.77 | C | 0.77 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | P | | | 0.72 | C | 0.88 | D | 0.72 | C | 0.88 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | 0.45 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.70 | B | 0.76 | C | 0.70 | B | 0.76 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.67 | B | 0.76 | C | 0.67 | B | 0.76 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | 0.74 | C | 0.79 | C | 0.75 | C | 0.79 | C |
| 437 | Scientific Wy at ICD | Irv | | | | 0.34 | A | 0.42 | A | 0.34 | A | 0.41 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | 0.27 | A | 0.19 | A | 0.28 | A | 0.19 | A |
| 444 | Sand Canyon Av at Burt Rd | Irv | | | | 0.81 | D | 0.80 | C | 0.84 | D | 0.82 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.52 | A | 0.52 | A | 0.59 | A | 0.59 | A |
| 463 | Jamboree Rd at Chapman Av | Ora | | | | 0.71 | C | 0.73 | C | 0.70 | B | 0.74 | C |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.65 | B | 0.62 | B | 0.61 | B | 0.60 | A |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.59 | A | 0.70 | B | 0.61 | B | 0.64 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | 0.54 | A | 0.62 | B | 0.56 | A | 0.62 | B |
| 468 | Jamboree Rd at Canyon View | Ora | | | | 0.65 | B | 0.39 | A | 0.58 | A | 0.39 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.44 | A | 0.48 | A | 0.43 | A | 0.49 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.45 | A | 0.42 | A | 0.46 | A | 0.43 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.40 | A | 0.33 | A | 0.42 | A | 0.35 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.37 | A | 0.34 | A | 0.39 | A | 0.35 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.65 | B | 0.52 | A | 0.64 | B | 0.52 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | 0.73 | C | 0.60 | A | 0.73 | C | 0.60 | A |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | 0.55 | A | 0.57 | A | 0.57 | A | 0.59 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | 0.52 | A | 0.65 | B | 0.55 | A | 0.66 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.69 | B | 0.76 | C | 0.69 | B | 0.75 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.66 | B | 0.86 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | **0.93** | **E** | **1.16** | **F** | **0.92** | **E** | **1.17** | **F** |
| 517 | Portola Pw at Rancho Pw | LF | | | | 0.63 | B | 0.70 | B | 0.63 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | 0.63 | B | 0.76 | C | 0.62 | B | 0.76 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | 0.70 | B | 0.73 | C | 0.70 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.52 | A | 0.54 | A | 0.53 | A | 0.52 | A |
| 557 | O St at C St | Irv | | | | 0.39 | A | 0.36 | A | 0.38 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | 0.65 | B | 0.76 | C | 0.63 | B | 0.75 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.73 | C | 0.69 | B | 0.79 | C | 0.66 | B |
| 560 | O St at Marine Wy | Irv | | | | 0.44 | A | 0.61 | B | 0.51 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | 0.40 | A | 0.46 | A | 0.49 | A | 0.44 | A |
| 563 | B St. at Irvine Bl | Irv | | | | 0.69 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | 0.47 | A | 0.58 | A | 0.65 | B | 0.64 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | 0.67 | B | 0.63 | B | 0.64 | B | 0.61 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.62 | B | 0.62 | B | 0.66 | B | 0.60 | A |

## Year 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | 2011 Approved Project | | | | 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | 0.69 | B | 0.54 | A | 0.43 | A | 0.39 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | 0.64 | B | 0.65 | B | 0.78 | C | 0.72 | C |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | 0.56 | A | 0.48 | A | 0.56 | A | 0.47 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.67 | B | 0.73 | C | 0.66 | B | 0.74 | C |
| 603 | O St at LN St | Irv | | | | 0.40 | A | 0.33 | A | 0.37 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | 0.57 | A | 0.54 | A | 0.54 | A | 0.50 | A |
| 608 | O St at LV St | Irv | | | | 0.35 | A | 0.32 | A | 0.33 | A | 0.34 | A |
| 626 | LY St at LQ St | Irv | | | | 0.39 | A | 0.38 | A | 0.45 | A | 0.42 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.54 | A | 0.59 | A | 0.53 | A | 0.60 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.11 | A | 0.15 | A | 0.13 | A | 0.18 | A |
| 633 | Sterling at Rockfield Bl | Irv | | | | 0.28 | A | 0.35 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.34 | A | 0.41 | A | 0.35 | A | 0.41 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.26 | A | 0.36 | A | 0.26 | A | 0.38 | A |
| 782 | A St at LQ St | Irv | | | | 0.31 | A | 0.29 | A | 0.32 | A | 0.33 | A |
| 787 | Z St at LQ St | Irv | | | | 0.30 | A | 0.28 | A | 0.27 | A | 0.27 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.72 | C | 0.70 | B | 0.70 | B | 0.71 | C |
| 798 | B St at LQ St | Irv | | | | 0.48 | A | 0.38 | A | 0.35 | A | 0.39 | A |
| 799 | "B" Street at Marine Way | Irv | | | | 0.48 | A | 0.56 | A | 0.73 | C | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.80 | C | 0.74 | C | 0.76 | C | 0.72 | C |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.72 | C | 0.78 | C | 0.73 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | 0.54 | A | 0.55 | A | 0.68 | B | 0.72 | C |
| 822 | "F" Street at Irvine Bl. | Irv | | | | Not Applicable | | | | 0.70 | B | 0.72 | C |
| 831 | "G" Street at Marine Way | Irv | | | | Not Applicable | | | | 0.53 | A | 0.57 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | 0.14 | A | 0.17 | A | 0.54 | A | 0.57 | A |

**Bold** = Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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2.0, the following intersections as shown in Table 7-10 exceed adopted impact thresholds with Option 2 on Year 2030 conditions:

**Table 7-10**

**Year 2030 Intersection ICU LOS with 2012 Modified Project**
**Option 2 Impact Locations**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS |
| 16. Newport Ave. at Irvine Blvd. | PM | 0.92 | E | 0.95 | E |
| 54. Browning Ave. at Irvine Blvd. | AM | 1.00 | E | 1.02 | F |
| 221. Culver Dr. at Bryan Ave. | AM | 0.89 | D | 0.91 | E |
| 228. Culver Dr. at Barranca Pkwy. | AM | 0.91 | E | 0.93 | E |
| 290. Jeffrey Rd. at Barranca Pkwy. | AM | 0.90 | D | 0.91 | E |
| 303. Sand Canyon at I-5 NB Ramp/Marine | PM | 0.83 | D | 0.94 | E |
| 306. Sand Canyon Ave. at Oak Canyon | PM | 0.91 | E | 0.93 | E |
| 366. Bake Pkwy. at Rockfield Blvd. | PM | 0.98 | E | 1.01 | F |

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting 2011 Approved Project (baseline) and 2012 Modified Project Option 2 peak hour levels of service based on the HCM methodology are summarized in Table 7-11 (HCM intersection LOS calculation worksheets are included in Appendix 7.6). The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was

**Table 7-11**

**Year 2030 Caltrans Ramp Intersection LOS Summary (HCM Methodology)**
**Adjacent Intersections With 2012 Modified Project, Option 2**

| Intersection | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | | | | |
| - AM Peak Hour | 51.7 | D | **70.2** | **E[1]** |
| - PM Peak Hour | **61.3** | **E[1]** | **61.6** | **E[1]** |
| 305. Sand Canyon & I-5 SB Ramps[2] | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | | | | |
| - AM Peak Hour | 37.1 | D[3] | 36.4 | D[3] |
| - PM Peak Hour | 35.5 | D[3] | 45.5 | D[3] |
| Alternative Configuration (EB Dual Right Lanes) | | | | |
| - AM Peak Hour | 35.1 | D[3] | 34.8 | C[3] |
| - PM Peak Hour | 37.0 | D[3] | 50.2 | D[3] |
| 316. SR-133 SB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 13.4 | B | 14.1 | B |
| - PM Peak Hour | 10.2 | B | 10.8 | B |
| 317. SR-133 NB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.7 | B | 10.9 | B |
| - PM Peak Hour | 17.2 | B | 17.8 | B |
| 486. SR-133 SB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 16.8 | B | 16.7 | B |
| - PM Peak Hour | 17.1 | B | 17.3 | B |
| 487. SR-133 NB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 12.8 | B | 12.7 | B |
| - PM Peak Hour | 17.0 | B | 17.3 | B |

[1] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with northbound left turns during AM and PM peak hours). This intersection V/C result differs from the ICU calculation, which is less than 1.00 as indicated in Table 7-9. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

[3] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of northbound through vehicles during the AM and PM peak hours). This intersection V/C result differs from the ICU calculation for this intersection, which is less than 1.00 as indicated in Table 7-9. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 7-12 summarizes the longest 95$^{th}$ percentile queue length at each off-ramp under Year 2030 with Option 2 peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 7.7). The results of the HCM analysis shows LOS "E" conditions with or without the 2012 Modified Project at the I-5 NB Ramp /Sand Canyon intersection, and a modified lane configuration is suggested on the eastbound approach to the I-5 SB Ramp intersection to avoid vehicle queues backing onto the freeway mainline. The ultimate lane configuration is subject to coordination and agreement between the City and Caltrans.

### 7.2.3 Year 2030 Peak Hour Freeway/Tollway Ramp Levels of Service, Option 2

Exhibit 7-6 illustrates the interchange locations where freeway/tollway ramps were analyzed based on Year 2030 conditions. 2011 Approved Project (baseline) and 2012 Modified Project Option 2 AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 7-13. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, none of the freeway ramps are forecast to exceed adopted impact thresholds with the Option 2 based on Year 2030 conditions.

### 7.2.4 Year 2030 Peak Hour Freeway/Tollway Mainline Levels of Service, Option 2

2011 Approved Project (baseline) and 2012 Modified Project Option 2 AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 7-14. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, the following three (3) freeway mainline segments are forecast to exceed adopted impact thresholds with Option 2 based on Year 2030 conditions:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

**Table 7-12**

**Year 2030 With 2012 Modified Project Option 2 HCM**
**Freeway Ramp Queuing Analysis**

| Intersection | Total Ramp Length | Highest Queue Length | Peak Hour | Does the Queue Exceed the Ramp Length?[1] |
|---|---|---|---|---|
| 303. I-5 Northbound Off-Ramp at Sand Canyon Av | 1,180 feet | 431 feet | (AM) | No |
| 305. I-5 Southbound Off-Ramp at Sand Canyon Av | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | 810 feet | 881 feet | (AM) | Yes |
| Alternative Configuration (EB Dual Right Lanes) | 810 feet | 676 feet | (AM) | No |

[1] If the maximum queue length does not exceed the total length of the off-ramp, then the traffic queue on the ramp is not expected to back up onto the freeway mainline during the peak hours.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes

## Table 7-13

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Project Modified | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 407 | 0.27 | A | 1,110 | 0.74 | C | 429 | 0.29 | A | 1,102 | 0.73 | C |
| | SB Loop On | 1 | 1,080 | 519 | 0.48 | A | 450 | 0.42 | A | 521 | 0.48 | A | 471 | 0.44 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 690 | 0.64 | B | 670 | 0.62 | B | 730 | 0.68 | B |
| | SB Off | 1 | 1,500 | 1,428 | 0.95 | E | 1,439 | 0.96 | E | 1,428 | 0.95 | E | 1,479 | 0.99 | E |
| | NB Off | 1 | 1,500 | 1,573 | **1.05** | **F** | 1,272 | 0.85 | D | 1,596 | **1.06** | **F** | 1,284 | 0.86 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 340 | 0.38 | A | 230 | 0.26 | A | 320 | 0.36 | A | 220 | 0.24 | A |
| | NB Direct On | 1 | 900 | 727 | 0.81 | D | 180 | 0.20 | A | 724 | 0.80 | C | 180 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,120 | 0.75 | C | 590 | 0.39 | A | 1,130 | 0.75 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 958 | 0.43 | A | 2,163 | 0.96 | E | 969 | 0.43 | A | 2,187 | 0.97 | E |
| | NB Off | 1 | 1,500 | 313 | 0.21 | A | 447 | 0.30 | A | 325 | 0.22 | A | 435 | 0.29 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,216 | **1.13** | **F** | 749 | 0.69 | B | 1,165 | **1.08** | **F** | 770 | 0.71 | C |
| | NB Direct On | 1 | 1,080 | 700 | 0.65 | B | 220 | 0.20 | A | 760 | 0.70 | B | 230 | 0.21 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 989 | 0.66 | B | 610 | 0.41 | A | 1,030 | 0.69 | B |
| | NB Off | 2 | 2,250 | 912 | 0.41 | A | 1,437 | 0.64 | B | 918 | 0.41 | A | 1,422 | 0.63 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 640 | 0.43 | A | 730 | 0.49 | A | 670 | 0.45 | A | 721 | 0.48 | A |
| | NB On | 1 | 1,500 | 760 | 0.51 | A | 1,500 | 1.00 | E | 960 | 0.64 | B | 1,491 | 0.99 | E |
| | SB Off | 1 | 1,500 | 1,804 | **1.20** | **F** | 850 | 0.57 | A | 1,704 | **1.14** | **F** | 920 | 0.61 | B |
| | NB Off | 2 | 2,250 | 681 | 0.30 | A | 700 | 0.31 | A | 681 | 0.30 | A | 699 | 0.31 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 20 | 0.01 | A | 200 | 0.13 | A | 20 | 0.01 | A | 190 | 0.13 | A |
| | SB Off | 1 | 1,500 | 308 | 0.21 | A | 101 | 0.07 | A | 258 | 0.17 | A | 92 | 0.06 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 341 | 0.23 | A | 580 | 0.39 | A | 320 | 0.21 | A | 611 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 250 | 0.14 | A | 1,172 | 0.65 | B | 270 | 0.15 | A | 1,170 | 0.65 | B |
| | NB Loop On | 1 | 1,500 | 562 | 0.37 | A | 157 | 0.10 | A | 566 | 0.38 | A | 155 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,103 | 0.93 | E | 940 | 0.42 | A | 2,091 | 0.93 | E | 954 | 0.42 | A |
| | NB Off | 2 | 2,250 | 1,151 | 0.51 | A | 319 | 0.14 | A | 1,143 | 0.51 | A | 310 | 0.14 | A |

## Table 7-13 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Project Modified | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 103 | 0.07 | A | 134 | 0.09 | A | 110 | 0.07 | A | 128 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 351 | 0.33 | A | 848 | 0.79 | C | 390 | 0.36 | A | 827 | 0.77 | C |
| | NB Direct On | 2 | 3,400 | 1,876 | 0.55 | A | 1,643 | 0.48 | A | 1,921 | 0.57 | A | 1,623 | 0.48 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,993 | 1.00 | E | 2,438 | 0.81 | D | 3,012 | 1.00 | E | 2,440 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,427 | 0.48 | A | 589 | 0.20 | A | 1,331 | 0.44 | A | 570 | 0.19 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 329 | 0.22 | A | 862 | 0.57 | A | 330 | 0.22 | A | 853 | 0.57 | A |
| | SB Loop On | 1 | 1,080 | 406 | 0.38 | A | 658 | 0.61 | B | 405 | 0.38 | A | 640 | 0.59 | A |
| | NB On | 2 | 1,800 | 1,340 | 0.74 | C | 1,040 | 0.58 | A | 1,405 | 0.78 | C | 1,053 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,325 | 0.78 | C | 1,759 | 0.59 | A | 2,326 | 0.78 | C |
| | NB Off | 1 | 1,500 | 1,510 | **1.01** | **F** | 730 | 0.49 | A | 1,505 | 1.00 | E | 732 | 0.49 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 139 | 0.13 | A | 136 | 0.13 | A | 155 | 0.14 | A | 136 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 455 | 0.30 | A | 519 | 0.35 | A | 441 | 0.29 | A | 515 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,437 | 0.96 | E | 1,101 | 0.73 | C | 1,439 | 0.96 | E | 1,111 | 0.74 | C |
| | NB Loop On | 1 | 1,500 | 1,240 | 0.83 | D | 1,260 | 0.84 | D | 1,304 | 0.87 | D | 1,268 | 0.85 | D |
| | SB Off | 1 | 2,250 | 2,773 | **1.23** | **F** | 2,814 | **1.25** | **F** | 2,773 | **1.23** | **F** | 2,790 | **1.24** | **F** |
| | NB Off | 1 | 1,500 | 1,330 | 0.89 | D | 1,210 | 0.81 | D | 1,343 | 0.90 | D | 1,210 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 203 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 801 | 0.53 | A | 750 | 0.50 | A | 805 | 0.54 | A | 753 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,296 | 0.86 | D | 880 | 0.59 | A | 1,326 | 0.88 | D | 881 | 0.59 | A |
| | NB Loop On | 1 | 1,500 | 1,427 | 0.95 | E | 870 | 0.58 | A | 1,427 | 0.95 | E | 871 | 0.58 | A |
| | SB Off | 1 | 3,000 | 2,097 | 0.70 | B | 2,199 | 0.73 | C | 2,097 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 311 | 0.21 | A | 1,070 | 0.71 | C | 311 | 0.21 | A | 1,070 | 0.71 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 230 | 0.15 | A | 560 | 0.37 | A | 230 | 0.15 | A | 590 | 0.39 | A |
| | SB Loop On | 1 | 900 | 250 | 0.28 | A | 340 | 0.38 | A | 250 | 0.28 | A | 340 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 670 | 0.45 | A | 930 | 0.62 | B | 680 | 0.45 | A |
| | NB Loop On | 1 | 1,500 | 690 | 0.46 | A | 490 | 0.33 | A | 690 | 0.46 | A | 480 | 0.32 | A |
| | SB Off | 2 | 3,000 | 924 | 0.31 | A | 1,490 | 0.50 | A | 934 | 0.31 | A | 1,510 | 0.50 | A |
| | NB Off | 1 | 1,500 | 1,378 | 0.92 | E | 1,279 | 0.85 | D | 1,400 | 0.93 | E | 1,260 | 0.84 | D |

## Table 7-13 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Project Modified | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,020 | 0.68 | B | 1,210 | 0.81 | D | 1,022 | 0.68 | B | 1,192 | 0.79 | C |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 290 | 0.32 | A | 361 | 0.40 | A | 280 | 0.31 | A |
| | NB Direct On | 1 | 1,500 | 1,342 | 0.89 | D | 650 | 0.43 | A | 1,350 | 0.90 | D | 640 | 0.43 | A |
| | NB Loop On | 1 | 900 | 361 | 0.40 | A | 110 | 0.12 | A | 350 | 0.39 | A | 110 | 0.12 | A |
| | SB Off | 1 | 1,500 | 645 | 0.43 | A | 812 | 0.54 | A | 644 | 0.43 | A | 823 | 0.55 | A |
| | NB Off | 1 | 2,250 | 1,257 | 0.56 | A | 1,873 | 0.83 | D | 1,240 | 0.55 | A | 1,870 | 0.83 | D |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 941 | 0.63 | B | 360 | 0.24 | A | 500 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,210 | 0.81 | D | 1,343 | 0.90 | D | 1,250 | 0.83 | D | 1,340 | 0.89 | D |
| | NB Loop On | 1 | 1,500 | 630 | 0.42 | A | 371 | 0.25 | A | 640 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,846 | **1.23** | **F** | 1,031 | 0.69 | B | 1,816 | **1.21** | **F** | 1,055 | 0.70 | B |
| | NB Off | 1 | 1,500 | 627 | 0.42 | A | 497 | 0.33 | A | 609 | 0.41 | A | 499 | 0.33 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 240 | 0.27 | A | 380 | 0.42 | A | 240 | 0.27 | A | 371 | 0.41 | A |
| | NB Direct On | 1 | 1,500 | 223 | 0.15 | A | 558 | 0.37 | A | 258 | 0.17 | A | 549 | 0.37 | A |
| | NB Loop On | 1 | 1,500 | 249 | 0.17 | A | 1,238 | 0.83 | D | 250 | 0.17 | A | 1,225 | 0.82 | D |
| | SB Off | 1 | 2,250 | 2,093 | 0.93 | E | 1,472 | 0.65 | B | 2,067 | 0.92 | E | 1,499 | 0.67 | B |
| | NB Off | 1 | 3,000 | 1,210 | 0.40 | A | 410 | 0.14 | A | 1,211 | 0.40 | A | 421 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 809 | 0.20 | A | 2,428 | 0.61 | B | 803 | 0.20 | A | 2,437 | 0.61 | B |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,079 | 0.77 | C | 1,350 | 0.34 | A | 3,044 | 0.76 | C | 1,355 | 0.34 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,844 | 0.46 | A | 2,877 | 0.72 | C | 1,949 | 0.49 | A | 2,877 | 0.72 | C |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,377 | 0.84 | D | 1,918 | 0.48 | A | 3,380 | 0.85 | D | 1,975 | 0.49 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 290 | 0.19 | A | 280 | 0.19 | A | 295 | 0.20 | A | 270 | 0.18 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 290 | 0.19 | A | 260 | 0.17 | A | 250 | 0.17 | A |
| | NB Loop On | 1 | 1,500 | 140 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 438 | 0.19 | A | 309 | 0.14 | A | 440 | 0.20 | A | 319 | 0.14 | A |
| | NB Off | 1 | 1,500 | 171 | 0.11 | A | 469 | 0.31 | A | 140 | 0.09 | A | 481 | 0.32 | A |

## Table 7-13 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Project Modified | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 740 | 0.49 | A | 680 | 0.45 | A | 780 | 0.52 | A | 670 | 0.45 | A |
| | NB On | 1 | 1,500 | 180 | 0.12 | A | 480 | 0.32 | A | 170 | 0.11 | A | 482 | 0.32 | A |
| | SB Off | 1 | 1,500 | 620 | 0.41 | A | 380 | 0.25 | A | 602 | 0.40 | A | 380 | 0.25 | A |
| | NB Off | 1 | 1,500 | 827 | 0.55 | A | 930 | 0.62 | B | 796 | 0.53 | A | 949 | 0.63 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,161 | 0.58 | A | 1,539 | 0.77 | C | 1,177 | 0.59 | A | 1,672 | 0.84 | D |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,681 | 0.84 | D | 1,197 | 0.60 | A | 1,697 | 0.85 | D | 1,158 | 0.58 | A |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,451 | 0.73 | C | 699 | 0.35 | A | 1,458 | 0.73 | C | 446 | 0.22 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 789 | 0.39 | A | 1,453 | 0.73 | C | 773 | 0.39 | A | 1,411 | 0.71 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,046 | 0.51 | A | 1,726 | 0.43 | A | 2,064 | 0.52 | A | 1,819 | 0.45 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,142 | 0.54 | A | 2,136 | 0.53 | A | 2,126 | 0.53 | A | 2,153 | 0.54 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 149 | 0.14 | A | 1,200 | **1.11** | **F** | 139 | 0.13 | A | 1,194 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 180 | 0.17 | A | 610 | 0.56 | A | 153 | 0.14 | A | 618 | 0.57 | A |
| | NB Loop On | 1 | 1,080 | 440 | 0.41 | A | 1,499 | **1.39** | **F** | 449 | 0.42 | A | 1,485 | **1.38** | **F** |
| | SB Off | 2 | 3,000 | 2,130 | 0.71 | C | 581 | 0.19 | A | 2,125 | 0.71 | C | 559 | 0.19 | A |
| | NB Off | 2 | 2,250 | 1,535 | 0.68 | B | 432 | 0.19 | A | 1,505 | 0.67 | B | 471 | 0.21 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 1,010 | 0.51 | A | 926 | 0.46 | A | 1,015 | 0.51 | A | 923 | 0.46 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 60 | 0.03 | A | 88 | 0.04 | A | 59 | 0.03 | A | 82 | 0.04 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 815 | 0.20 | A | 587 | 0.15 | A | 870 | 0.22 | A | 604 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,234 | 0.31 | A | 924 | 0.23 | A | 1,273 | 0.32 | A | 918 | 0.23 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,689 | 0.84 | D | 1,530 | 0.77 | C | 1,652 | 0.83 | D | 1,613 | 0.81 | D |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 555 | 0.28 | A | 608 | 0.30 | A | 549 | 0.27 | A | 637 | 0.32 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 292 | 0.15 | A | 346 | 0.17 | A | 289 | 0.14 | A | 205 | 0.10 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 970 | 0.54 | A | 291 | 0.16 | A | 950 | 0.53 | A | 275 | 0.15 | A |
| | NB On | 1 | 1,500 | 479 | 0.32 | A | 470 | 0.31 | A | 450 | 0.30 | A | 290 | 0.19 | A |
| | SB Off | 1 | 1,500 | 947 | 0.63 | B | 501 | 0.33 | A | 477 | 0.32 | A | 440 | 0.29 | A |
| | NB Off | 1 | 1,500 | 648 | 0.43 | A | 984 | 0.66 | B | 734 | 0.49 | A | 980 | 0.65 | B |

## Table 7-13 Cont.

### Year 2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Project Modified | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 349 | 0.23 | A | 410 | 0.27 | A | 342 | 0.23 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 20 | 0.01 | A | 30 | 0.02 | A | 20 | 0.01 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 29 | 0.02 | A | 61 | 0.04 | A | 39 | 0.03 | A | 71 | 0.05 | A |
| | NB Off | 1 | 1,500 | 664 | 0.44 | A | 384 | 0.26 | A | 664 | 0.44 | A | 364 | 0.24 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 430 | 0.29 | A | 1,150 | 0.77 | C | 452 | 0.30 | A | 1,110 | 0.74 | C |
| | NB On | 1 | 1,500 | 460 | 0.31 | A | 630 | 0.42 | A | 433 | 0.29 | A | 619 | 0.41 | A |
| | SB Off | 1 | 1,500 | 730 | 0.49 | A | 460 | 0.31 | A | 698 | 0.47 | A | 451 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,110 | 0.49 | A | 630 | 0.28 | A | 1,025 | 0.46 | A | 628 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 220 | 0.10 | A | 870 | 0.39 | A | 222 | 0.10 | A | 851 | 0.38 | A |
| | SB Off | 1 | 1,500 | 820 | 0.55 | A | 420 | 0.28 | A | 798 | 0.53 | A | 413 | 0.28 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 330 | 0.22 | A | 1,430 | 0.95 | E | 331 | 0.22 | A | 1,423 | 0.95 | E |
| | NB On | 2 | 2,250 | 830 | 0.37 | A | 440 | 0.20 | A | 809 | 0.36 | A | 429 | 0.19 | A |
| | SB Off | 1 | 1,500 | 530 | 0.35 | A | 620 | 0.41 | A | 526 | 0.35 | A | 606 | 0.40 | A |
| | NB Off | 2 | 2,250 | 2,190 | 0.97 | E | 580 | 0.26 | A | 2,175 | 0.97 | E | 581 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 1,010 | 0.67 | B | 250 | 0.17 | A | 990 | 0.66 | B | 302 | 0.20 | A |
| | NB Off | 1 | 1,500 | 91 | 0.06 | A | 778 | 0.52 | A | 109 | 0.07 | A | 777 | 0.52 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 160 | 0.11 | A | 100 | 0.07 | A | 160 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 460 | 0.31 | A | 250 | 0.17 | A | 480 | 0.32 | A | 230 | 0.15 | A |
| | SB Off | 1 | 1,500 | 111 | 0.07 | A | 282 | 0.19 | A | 100 | 0.07 | A | 292 | 0.19 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 100 | 0.07 | A | 101 | 0.07 | A | 100 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 860 | 0.57 | A | 320 | 0.21 | A | 870 | 0.58 | A | 331 | 0.22 | A |
| | NB On | 1 | 1,500 | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 151 | 0.10 | A | 120 | 0.08 | A | 131 | 0.09 | A | 120 | 0.08 | A |
| | NB Off | 1 | 1,500 | 223 | 0.15 | A | 223 | 0.15 | A | 233 | 0.16 | A | 233 | 0.16 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

## Table 7-14

### Year 2030 Freeway Mainline LOS Summary
### With 2012 Modified Project - Option 2

| | Location | Direction | Lanes | Capacity | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,774 | **1.36** | **F** | 12,399 | **1.07** | **F** | 16,101 | **1.39** | **F** | 12,424 | **1.07** | **F** |
| | | SB | 5+1H | 11,600 | 9,920 | 0.86 | D | 10,649 | 0.92 | E | 9,888 | 0.85 | D | 10,806 | 0.93 | E |
| | n/o Red Hill | NB | 5+1H | 11,600 | 15,046 | **1.30** | **F** | 11,806 | **1.02** | **F** | 15,381 | **1.33** | **F** | 11,809 | **1.02** | **F** |
| | | SB | 5+1H | 11,600 | 12,035 | **1.04** | **F** | 12,756 | **1.10** | **F** | 11,892 | **1.03** | **F** | 13,001 | **1.12** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,703 | **1.35** | **F** | 12,384 | **1.07** | **F** | 16,057 | **1.38** | **F** | 12,389 | **1.07** | **F** |
| | | SB | 5+1H | 11,600 | 12,695 | **1.09** | **F** | 13,383 | **1.15** | **F** | 12,561 | **1.08** | **F** | 13,647 | **1.18** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 15,215 | **1.31** | **F** | 12,043 | **1.04** | **F** | 15,591 | **1.34** | **F** | 12,054 | **1.04** | **F** |
| | | SB | 5+1H | 11,600 | 12,349 | **1.06** | **F** | 12,904 | **1.11** | **F** | 12,239 | **1.06** | **F** | 13,166 | **1.14** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 15,330 | **1.32** | **F** | 11,931 | **1.03** | **F** | 15,719 | **1.36** | **F** | 11,928 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 11,933 | **1.03** | **F** | 12,855 | **1.11** | **F** | 11,843 | **1.02** | **F** | 13,094 | **1.13** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 13,367 | **1.15** | **F** | 11,093 | 0.96 | E | 13,747 | **1.19** | **F** | 11,085 | 0.96 | E |
| | | SB | 5+1H | 11,600 | 11,539 | 0.99 | E | 11,487 | 0.99 | E | 11,431 | 0.99 | E | 11,696 | **1.01** | **F** |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 13,252 | **1.14** | **F** | 11,263 | 0.97 | E | 13,566 | **1.17** | **F** | 11,223 | 0.97 | E |
| | | SB | 5+1H | 11,600 | 12,118 | **1.04** | **F** | 11,765 | **1.01** | **F** | 11,934 | **1.03** | **F** | 11,955 | **1.03** | **F** |
| | n/o Alton | NB | 4+1H | 9,600 | 10,666 | **1.11** | **F** | 8,788 | 0.92 | E | 10,806 | **1.13** | **F** | 8,764 | 0.91 | E |
| | | SB | 4+1H | 9,600 | 9,272 | 0.97 | E | 9,496 | 0.99 | E | 9,286 | 0.97 | E | 9,580 | 1.00 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 11,163 | **1.16** | **F** | 7,818 | 0.81 | D | 11,275 | **1.17** | **F** | 7,812 | 0.81 | D |
| | | SB | 4+1H | 9,600 | 7,715 | 0.80 | C | 9,788 | **1.02** | **F** | 7,746 | 0.81 | D | 9,846 | **1.03** | **F** |
| | n/o Bake | NB | 9+2H | 21,500 | 22,371 | **1.04** | **F** | 14,430 | 0.67 | B | 22,596 | **1.05** | **F** | 14,459 | 0.67 | B |
| | | SB | 9+2H | 21,500 | 11,840 | 0.55 | A | 16,842 | 0.78 | C | 11,891 | 0.55 | A | 16,936 | 0.79 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 21,751 | **1.12** | **F** | 12,868 | 0.66 | B | 21,831 | **1.12** | **F** | 12,908 | 0.66 | B |
| | | SB | 8+2H | 19,500 | 12,130 | 0.62 | B | 17,471 | 0.90 | D | 12,227 | 0.63 | B | 17,538 | 0.90 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,752 | **1.54** | **F** | 12,040 | 0.89 | D | 20,762 | **1.54** | **F** | 12,069 | 0.89 | D |
| | | SB | 5+2H | 13,500 | 10,007 | 0.74 | C | 16,041 | **1.19** | **F** | 10,107 | 0.75 | C | 16,012 | **1.19** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 17,648 | **1.84** | **F** | 10,161 | **1.06** | **F** | 17,604 | **1.83** | **F** | 10,173 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,712 | 0.80 | C | 13,095 | **1.36** | **F** | 7,801 | 0.81 | D | 13,089 | **1.36** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,547 | **1.41** | **F** | 7,620 | 0.79 | C | 13,482 | **1.40** | **F** | 7,628 | 0.79 | C |
| | | SB | 4+1H | 9,600 | 6,371 | 0.66 | B | 10,731 | **1.12** | **F** | 6,473 | 0.67 | B | 10,732 | **1.12** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,809 | **1.33** | **F** | 9,128 | 0.95 | E | 13,131 | **1.37** | **F** | 9,148 | 0.95 | E |
| | | SB | 4+1H | 9,600 | 9,178 | 0.96 | E | 10,596 | **1.10** | **F** | 9,132 | 0.95 | E | 10,868 | **1.13** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,935 | **1.35** | **F** | 9,478 | 0.99 | E | 13,238 | **1.38** | **F** | 9,495 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 9,378 | 0.98 | E | 10,532 | **1.10** | **F** | 9,329 | 0.97 | E | 10,776 | **1.12** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,661 | **1.32** | **F** | 8,490 | 0.88 | D | 12,901 | **1.34** | **F** | 8,515 | 0.89 | D |
| | | SB | 4+1H | 9,600 | 8,257 | 0.86 | D | 9,934 | **1.03** | **F** | 8,237 | 0.86 | D | 10,132 | **1.06** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,904 | **1.14** | **F** | 7,325 | 0.76 | C | 11,046 | **1.15** | **F** | 7,329 | 0.76 | C |
| | | SB | 4+1H | 9,600 | 7,083 | 0.74 | C | 8,810 | 0.92 | E | 7,109 | 0.74 | C | 8,888 | 0.93 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,864 | 0.82 | D | 4,131 | 0.43 | A | 7,950 | 0.83 | D | 4,144 | 0.43 | A |
| | | SB | 4+1H | 9,600 | 6,119 | 0.64 | B | 8,587 | 0.89 | D | 6,168 | 0.64 | B | 8,635 | 0.90 | D |

## Table 7-14 Cont.

### Year 2030 Freeway Mainline LOS Summary
### With 2012 Modified Project - Option 2

| | Location | Direction | Lanes | Capacity | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,652 | 0.33 | A | 5,305 | 0.66 | B | 2,753 | 0.34 | A | 5,313 | 0.66 | B |
| | | SB | 4 | 8,000 | 6,456 | 0.81 | D | 3,268 | 0.41 | A | 6,424 | 0.80 | C | 3,330 | 0.42 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 2,347 | 0.39 | A | 4,979 | 0.83 | D | 2,353 | 0.39 | A | 5,048 | 0.84 | D |
| | | SB | 3 | 6,000 | 5,764 | 0.96 | E | 2,957 | 0.49 | A | 5,774 | 0.96 | E | 2,992 | 0.50 | A |
| | n/o I-5 | NB | 3 | 6,000 | 2,175 | 0.36 | A | 4,498 | 0.75 | C | 2,181 | 0.36 | A | 4,569 | 0.76 | C |
| | | SB | 3 | 6,000 | 3,697 | 0.62 | B | 1,884 | 0.31 | A | 3,748 | 0.62 | B | 1,904 | 0.32 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,188 | 0.53 | A | 4,571 | 0.76 | C | 3,143 | 0.52 | A | 4,622 | 0.77 | C |
| | | SB | 3 | 6,000 | 4,796 | 0.80 | C | 3,085 | 0.51 | A | 4,863 | 0.81 | D | 3,110 | 0.52 | A |
| | n/o I-405 | NB | 3 | 6,000 | 3,933 | 0.66 | B | 3,467 | 0.58 | A | 3,878 | 0.65 | B | 3,572 | 0.60 | A |
| | | SB | 3 | 6,000 | 3,255 | 0.54 | A | 3,146 | 0.52 | A | 3,320 | 0.55 | A | 3,178 | 0.53 | A |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 5,294 | 0.88 | D | 4,934 | 0.82 | D | 5,476 | 0.91 | E | 4,919 | 0.82 | D |
| | | SB | 3 | 6,000 | 5,733 | 0.96 | E | 4,791 | 0.80 | C | 5,689 | 0.95 | E | 4,890 | 0.82 | D |
| | n/o Portola (West) | NB | 4 | 8,000 | 6,530 | 0.82 | D | 3,407 | 0.43 | A | 6,571 | 0.82 | D | 3,397 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,165 | 0.40 | A | 5,301 | 0.66 | B | 3,112 | 0.39 | A | 5,351 | 0.67 | B |
| | n/o Alton | NB | 4 | 8,000 | 7,143 | 0.89 | D | 3,812 | 0.48 | A | 7,158 | 0.89 | D | 3,782 | 0.47 | A |
| | | SB | 4 | 8,000 | 3,720 | 0.47 | A | 5,839 | 0.73 | C | 3,652 | 0.46 | A | 5,862 | 0.73 | C |
| | n/o Lake Forest | NB | 4 | 8,000 | 7,563 | 0.95 | E | 3,416 | 0.43 | A | 7,528 | 0.94 | E | 3,396 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,113 | 0.39 | A | 6,075 | 0.76 | C | 3,101 | 0.39 | A | 6,066 | 0.76 | C |
| SR-261 | n/o Portola | NB | 3 | 6,000 | 1,289 | 0.21 | A | 3,002 | 0.50 | A | 1,313 | 0.22 | A | 3,039 | 0.51 | A |
| | | SB | 3 | 6,000 | 3,738 | 0.62 | B | 1,380 | 0.23 | A | 3,819 | 0.64 | B | 1,432 | 0.24 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 534 | 0.09 | A | 2,380 | 0.40 | A | 545 | 0.09 | A | 2,437 | 0.41 | A |
| | | SB | 3 | 6,000 | 3,104 | 0.52 | A | 795 | 0.13 | A | 3,201 | 0.53 | A | 840 | 0.14 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 780 | 0.13 | A | 3,097 | 0.52 | A | 800 | 0.13 | A | 3,177 | 0.53 | A |
| | | SB | 3 | 6,000 | 3,749 | 0.62 | B | 1,130 | 0.19 | A | 3,869 | 0.64 | B | 1,187 | 0.20 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 5,574 | 0.93 | E | 6,892 | 1.15 | F | 5,642 | 0.94 | E | 6,751 | 1.13 | F |
| | | SB | 3 | 6,000 | 8,614 | 1.44 | F | 5,181 | 0.86 | D | 8,211 | 1.37 | F | 5,181 | 0.86 | D |

**Bold** = Deficient Segment

## 7.3 Year 2030 Mitigation Measures

In this section, mitigation measures are presented for the intersections identified as being impacted by the 2012 Modified Project based on Year 2030 conditions. It should be noted that the City of Irvine has established the NITM Program to implement and expedite circulation mitigation measures in previous certified CEQA documents. The NITM Program provides a funding mechanism for the coordinated and phased installation of required traffic and transportation improvements established in connection with land use entitlements for the City of Irvine Planning Areas 1, 5, 6, 8, 9, 30, 40 and 51. As established by City Ordinance No. 03-20, the Heritage Fields / Great Park Neighborhood project is included in this program and, as such, is required to pay its fair share toward the List of NITM Improvements included within the established NITM Program. This NITM fee will be updated in accordance with the NITM Ordinance after approval of the 2012 Modified Project.

In addition to the PA 30 and 51 NITM Program fair share fees addressed above, the following discusses the specific mitigation measures proposed for the impacts identified earlier in this chapter. The mitigation measures are designed to address the Project's impacts by improving the LOS at each impacted location.

**Option 1 Impact Locations**

The following seven intersections exceed adopted impact thresholds in Year 2030 with the 2012 Modified Project with Option 1:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Sand Canyon Ave. & I-5 NB Ramp/Marine Way
- Sand Canyon Ave. & Oak Canyon
- Bake Pkwy. & Rockfield Blvd.
- Los Alisos Blvd. & Rockfield Blvd.

Because existing occupied land uses along Irvine Boulevard at the Browning Avenue intersection constrain the construction of additional east-west through travel lanes which are consistent with the

City of Tustin General Plan and County MPAH, the Project mitigation identifies ATMS at this location to optimize signal performance, at the discretion of the City of Tustin.

At the intersection of Culver / Barranca Parkway, the Project is responsible for NITM fair share participation towards the improvement (conversion of the westbound defacto right-turn lane to through lane) as mitigation to the Project impact. Planning Area 1/9 GPA/ZC has previously been identified as funding the balance of the fair share NITM Program improvement.

At the intersection of Jeffrey Road / Barranca Parkway, the Project is responsible for advancing the previously identified ATMS mitigation applied in Post-2030.

The project mitigation at Sand Canyon/I-5 NB ramps/Marine is the conversion of the northbound defacto right turn lane to a standard right turn lane with right turn overlap signal operation. An alternative is to designate LOS "E" acceptable at this location and satisfy the requirements through TMSOS/ATMS participation. The level of TMSOS/ATMS participation shall be consistent with that applied in the NITM Program.

The project mitigation at Sand Canyon Avenue / Oak Canyon is fair share responsibility for a previously identified PA40/12 mitigation that converts the westbound shared through/right lane to a single through lane and converts the westbound right-turn lane into a free-right turn lane.. If pending projects are approved, this mitigation improvement is no longer needed.

At the Bake Parkway / Rockfield Boulevard intersection, the Project is responsible for the conversion of a westbound through lane to a 3$^{rd}$ left turn lane.

At the Los Alisos Boulevard / Rockfield Boulevard intersection, Project participation in the NITM improvement (addition of a southbound right turn lane) mitigates the impact.

The 2012 Modified Project with Option 1 exceeds the adopted impact threshold for 2030 conditions at the I-5 Northbound off-ramp to Jamboree Road. The proposed mitigation at this location is participation in the fair share funded NITM improvements to add a second drop lane from the I-5 to the Jamboree Road off-ramp.

Table 7-15 contains the analysis of these seven intersections and one freeway ramp with the proposed mitigation:

**Table 7-15**

**Year 2030 LOS with 2012 Modified Project**
**Option 1 Impact Locations with Proposed Mitigation**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | | With Improvement | |
|---|---|---|---|---|---|---|---|
| | | ICU or V/C Ratio | LOS | ICU or V/C Ratio | LOS | ICU or V/C Ratio | LOS |
| 54. Browning Ave. & Irvine Blvd. | AM | 1.00 | E | 1.03 | F | 0.98[2] | E |
| 228. Culver Dr. & Barranca Pkwy. | AM | 0.91 | E | 0.93 | E | 0.90 | D |
| 290. Jeffrey Rd. & Barranca Pkwy. | AM | 0.90 | D | 0.92 | E | 0.87[2] | D |
| 303. Sand Canyon & I-5 NB Ramp / Marine Wy.[1] | PM | 0.83 | D | 0.94 | E | 0.89 | D |
| 306. Sand Canyon Ave. & Oak Canyon | PM | 0.91 | E | 0.94 | E | 0.74 | C |
| 366. Bake Pkwy. & Rockfield Blvd. | PM | 0.98 | E | 1.01 | F | 0.90 | D |
| 424. Los Alisos Blvd. & Rockfield Blvd. | AM | 0.92 | E | 0.94 | E | 0.75 | C |
| Ramp | | | | | | | |
| I-5 NB Off-Ramp to Jamboree[3] | AM | 1.05 | F | 1.07 | F | 0.71 | C |

[1] Assuming LOS "E" not acceptable.

[2] ATMS credit (0.05) has been applied.

[3] Improvement Capacity = 2,250, PM peak hour V/C = 0.57 (LOS A)

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose lane at the following three segments mitigates the Project Option 1 contribution to a cumulative impact:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

**Option 2 Impact Locations**

Six of the seven intersections impacted by the 2012 Modified Project with Option 1 are also impacted with Option 2. At these six locations, the Option 1 mitigation measures (described above) also mitigate Option 2 impacts:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Sand Canyon Ave. & I-5 NB Ramp/Marine Way
- Sand Canyon Ave. & Oak Canyon
- Bake Pkwy. & Rockfield Blvd.

For 2030 conditions with the 2012 Modified Project with Option 2, the following two additional intersections are also impacted:

- Newport Ave. & Irvine Blvd.
- Culver Dr. & Bryan Ave

The mitigation to the Project Option 2 impact at Newport Drive/Irvine Boulevard is a signal modification – northbound right turn overlap phase. If pending projects are approved, this mitigation improvement is no longer needed.

The mitigation to the Project Option 2 impact at Culver Drive/Bryan Avenue is the addition of a westbound defacto right-turn lane. If pending projects are approved, this mitigation improvement is no longer needed.

Table 7-16 contains the analysis of the Option 2 impacted locations with the proposed mitigation:

**Table 7-16**

**Year 2030 LOS with 2012 Modified Project**
**Option 2 Impact Locations with Proposed Mitigation**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | | With Improvement | |
|---|---|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS | ICU | LOS |
| 16. Newport Ave. at Irvine Blvd. | PM | 0.92 | E | 0.95 | E | 0.91 | E |
| 54. Browning Ave. at Irvine Blvd. | AM | 1.00 | E | 1.02 | F | 0.97[2] | E |
| 221. Culver Dr. at Bryan Ave. | AM | 0.89 | D | 0.91 | E | 0.88 | D |
| 228. Culver Dr. at Barranca Pkwy. | AM | 0.91 | E | 0.93 | E | 0.90 | D |
| 290. Jeffrey Rd. at Barranca Pkwy. | AM | 0.90 | D | 0.91 | E | 0.86[2] | D |
| 303. Sand Canyon at I-5 NB Ramp / Marine Wy.[1] | PM | 0.83 | D | 0.94 | E | 0.89 | D |
| 306. Sand Canyon Ave. at Oak Canyon | PM | 0.91 | E | 0.93 | E | 0.74 | C |
| 366. Bake Pkwy. at Rockfield Blvd. | PM | 0.98 | E | 1.01 | F | 0.91 | E |

[1] Assuming LOS "E" not acceptable.

[2] ATMS credit (0.05) has been applied.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose lane at the following three segments mitigates the Project Option 2 contribution to a cumulative impact:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

# 8.0 GENERAL PLAN BUILDOUT (POST-2030) ANALYSIS

This chapter analyzes the impacts of the 2012 Modified Project on Post-2030 traffic conditions in the traffic analysis study area. The potential traffic impacts of the Project are assessed based on a comparison of 2011 Approved Project (baseline) and Post-2030 With 2012 Modified Project conditions.

The 2012 Modified Project includes 9,500 dwelling units within the 8.1 zoning, consisting of 3,625 previously approved dwelling units and 1,269 previously approved density bonus units, plus 3,412 dwelling units and 1,194 density bonus units (35% of 3,412). The maximum non-residential intensities for the 2012 Modified Project in 8.1 zoning would be revised to 1,318,200 square feet of Multi-Use (a category which includes previously approved 11,000 square feet of Child Care and 25,000 square feet of Church), 3,364,000 square feet of Medical and Science (R&D), and 220,000 square feet of Community Commercial. The 220,000 square feet of Community Commercial was previously approved and allocated per the master plans for District 1 North and District 4.

The 2012 Modified Project would also amend the General Plan, Objective B-1, Policy (c) regarding LOS "E" consideration as follows: In conjunction with traffic studies for development proposed in Planning Area 51, a LOS "E" standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35, 39 and a portion of 51 south of Marine Way. LOS "E" would be acceptable subject to the following:

1. Preparation, submittal, processing and approval of a traffic study.
2. Level of Service "E" will only be considered acceptable for an intersection that does not contain a residential quadrant, unless the residential development has a net density of 30 dwelling units per acre or greater. No Level of Service "E" will be acceptable along Sand Canyon except at the Sand Canyon/I-5 Interchange Ramps/Intersections.
3. Participation/funding to an upgraded traffic signal system as defined in the Traffic Management Systems Operations Study (TMSOS) and/or an Advance Traffic Management System (ATMS), which may be in place at the time of processing of the individual traffic studies. The City, in conjunction with specific traffic studies, shall determine the level of participation/funding using criteria and a process developed concurrently.

The Project includes a 2,600 student high school in District 5, which is included in the Post-2030 scenario. The Great Park Neighborhoods/Heritage Fields tentative tract map land uses in Districts 1 North, 1 South, 4, 7, and 8 are assumed to be as approved for all horizon years with the following exceptions:

Option 1 - Includes the conversion of Institutional (Education) and Office land uses to Multi-Use (Non-Residential) or Medical and Science (R&D) in District 1 North.

Option 2 – In addition to the Option 1 conversions in District 1 North, this option includes a relocation of Multi-Use and Retail from District 1 North to District 1 South as well as changes in Districts 1 North to accommodate approved residential units displaced from a portion of District 1 South.

The Irvine Transportation Analysis Model (ITAM) version 8.4-10 Post 2030 is used for conducting this analysis, including transportation analysis zone (TAZ) and network refinements necessary for representation of the 2012 Modified Project options. The modeling methodology and post processing procedures are consistent with those used in the April 2003 NITM Program Traffic Study.

For the portion of the study area within the City of Lake Forest, the intersection and link analyses for future options will incorporate project-related volume changes (from ITAM) for build-out Post-2030 conditions as an overlay to the City of Lake Forest's traffic model (LFTAM)-based data.

The results of the Post-2030 traffic impact analysis are summarized in the first part of this chapter, and then mitigation measures are presented for the locations on the study area circulation system that are impacted by the 2012 Modified Project under Post-2030 conditions.

## 8.1 Post-2030 Traffic Impacts with 2012 Modified Project, with Option 1

The following sub-sections summarize the resulting 2011 Approved Project (baseline) and 2012 Modified Project traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline segments and freeway/tollway ramps.

### 8.1.1 Post-2030 Circulation System and Average Daily Traffic Volumes, Option 1

The Post-2030 circulation system in the study area was previously illustrated in Chapter 4.0. The 2011 Approved Project (baseline) and 2012 Modified Project average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 8-1 through 8-4, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, three arterial roadway segments are potentially impacted by Option 1:

- Alton Pkwy (b/w Culver Dr and W. Yale Loop)
- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Jeffrey Rd (b/w Roosevelt and I-5 NB Ramps)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Post-2030 with Option 1 conditions are summarized in Table 8-1. As the summary table indicates, the arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore the arterial segments do not exceed adopted thresholds.

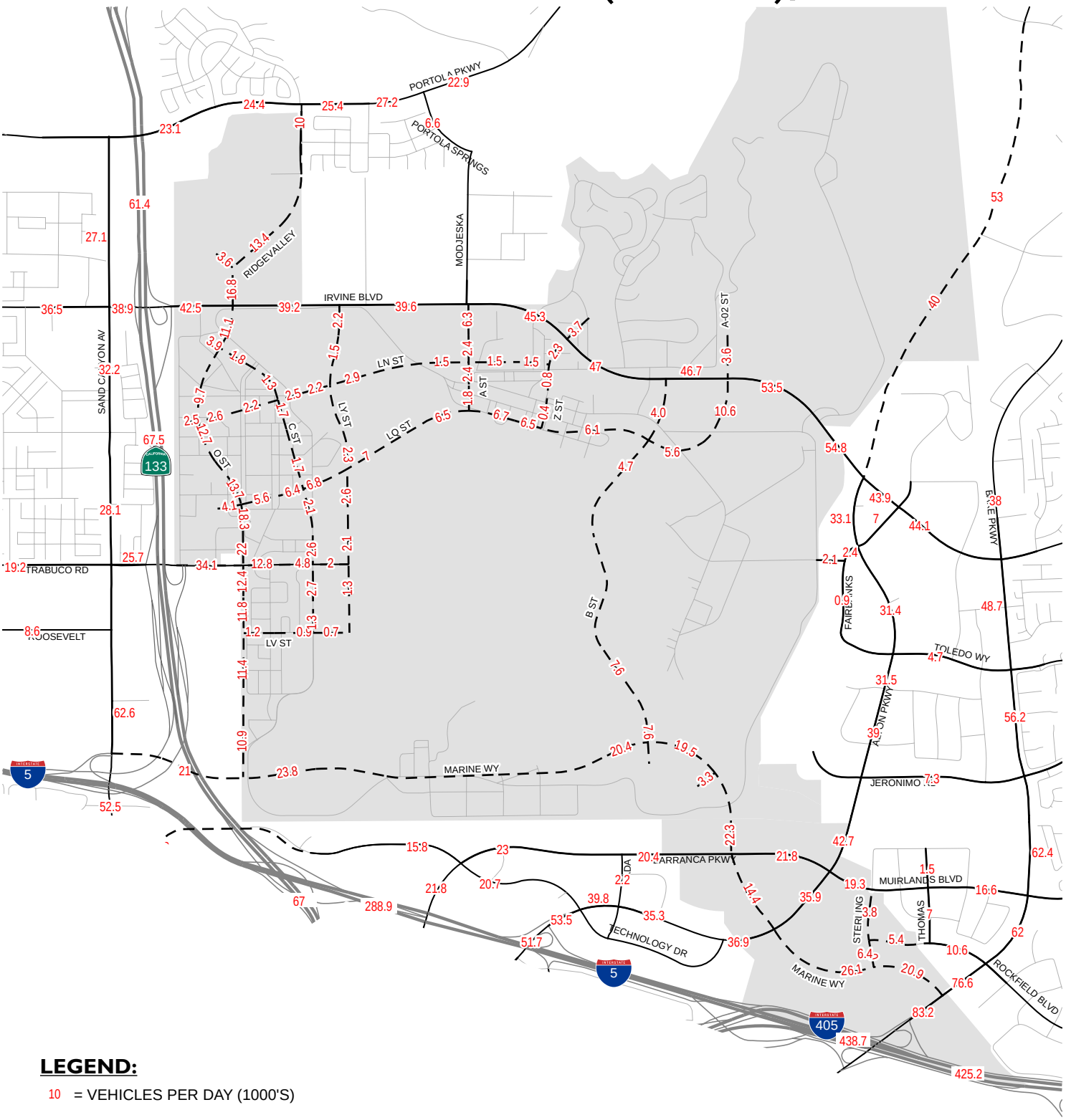
**TABLE 8-1**

**Post-2030 Arterial Roadway Peak Hour Analysis**
**With 2012 Modified Project, Option 1**

| | | | | | P2030 With 2012 Modified Project Option 1 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Arterial** | **ADT Segment Limits** | **Juris** | **# of Lanes** | **Peak Hour Capacity** | **Refined ADT** | **Highest Peak Volume** | | **Peak Hour V/C** | **Peak Hour LOS** |
| Alton Pkwy. | b/w Culver Dr. and W. Yale Loop | Irv | 4D | 3200 | 29,300 | 1,729 | (AM Westbound) | 0.54 | A |
| Bake Pkwy. | b/w Rockfield Bl. and Marine Wy. | Irv | 8D | 6400 | 79,300 | 4,141 | (AM Northbound) | 0.65 | B |
| Jeffrey Rd. | b/w Roosevelt and I-5 NB Ramps | Irv | 6D | 4800 | 69,700 | 3,484 | (AM Southbound) | 0.73 | C |

EXHIBIT 8-1 (1 OF 3)

# POST-2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 8-1 (2 OF 3)

# POST-2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA

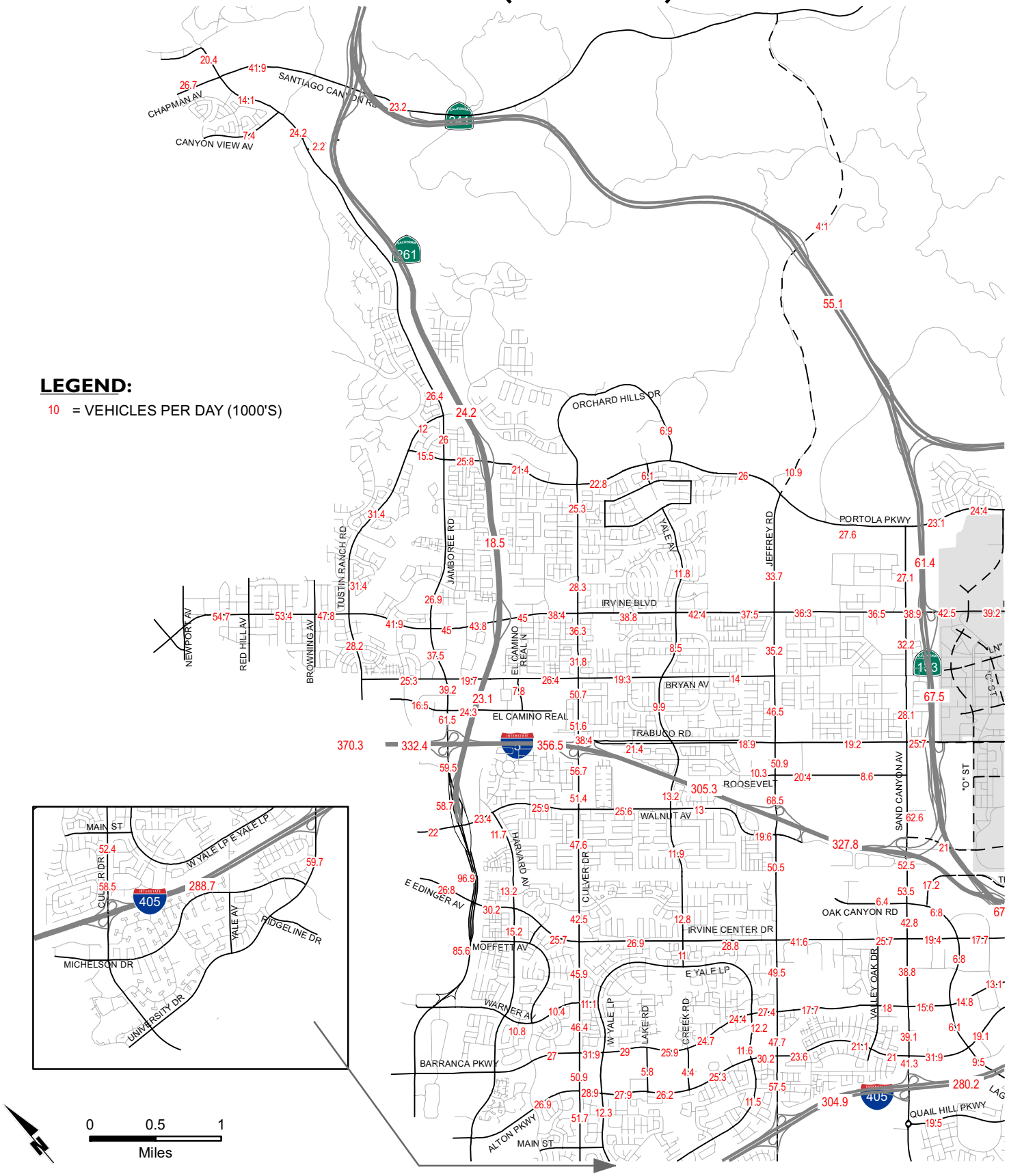
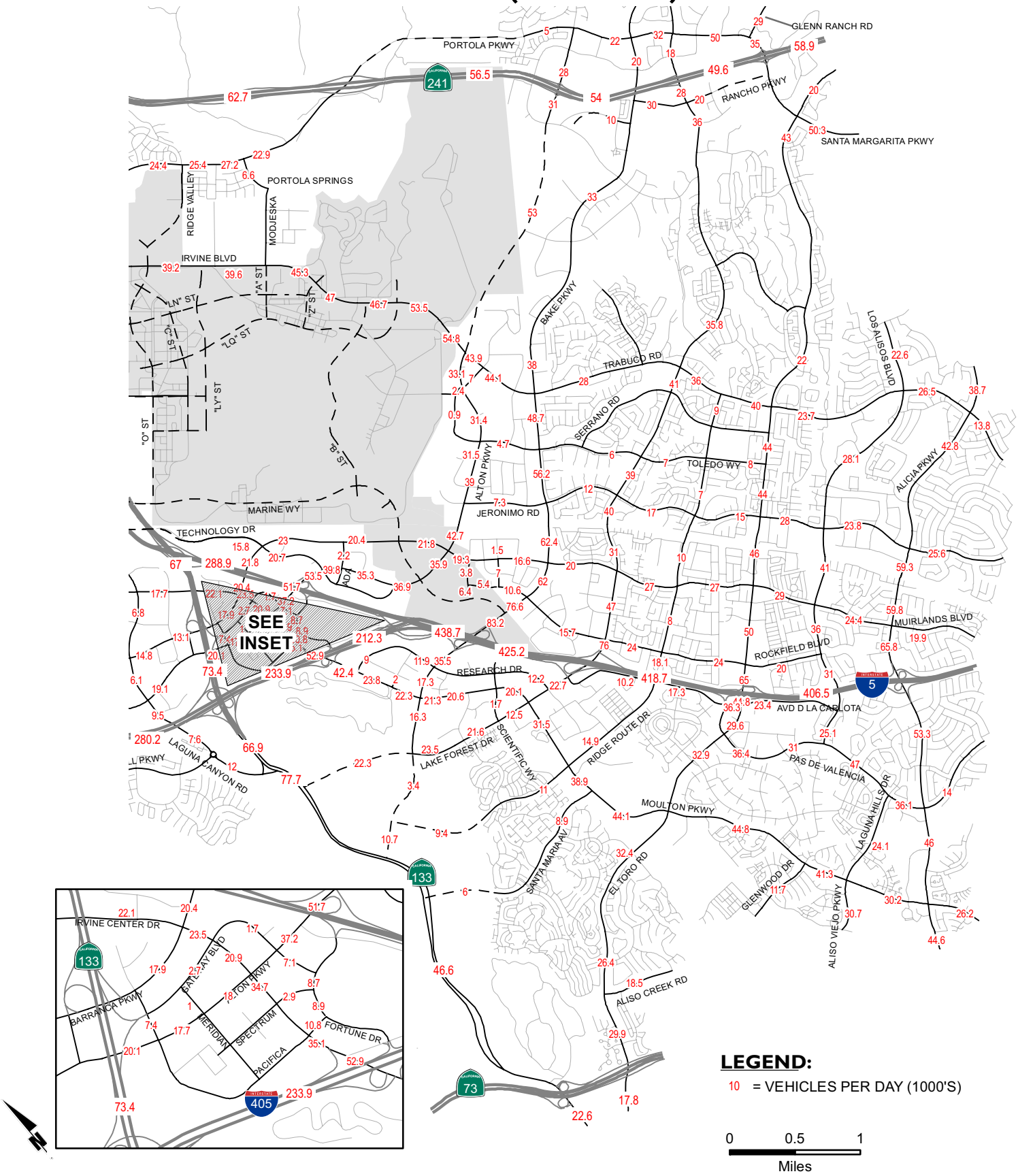
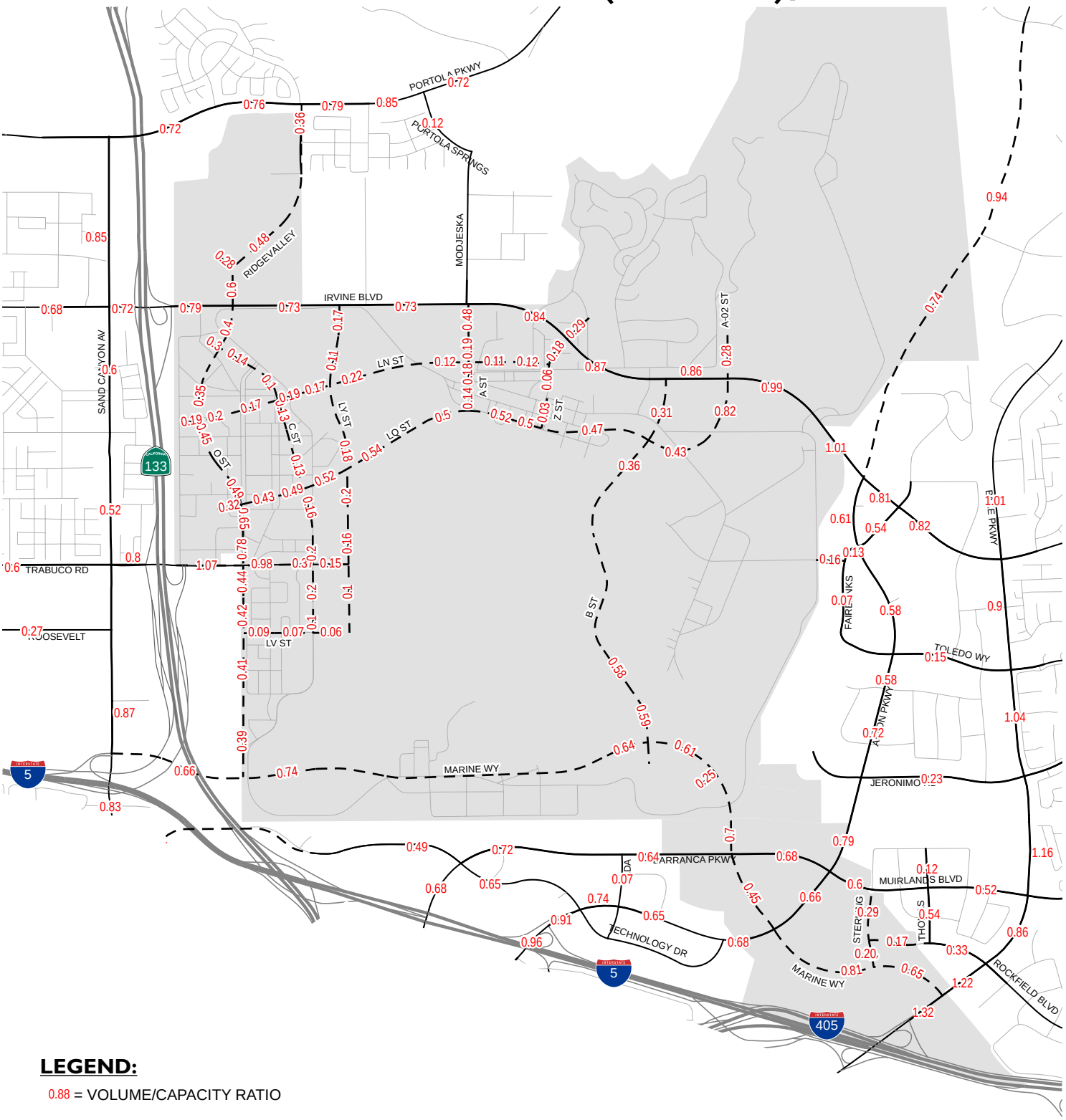


EXHIBIT 8-1 (3 OF 3)

# POST-2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA



# POST-2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

EXHIBIT 8-2 (2 OF 3)

# POST-2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA

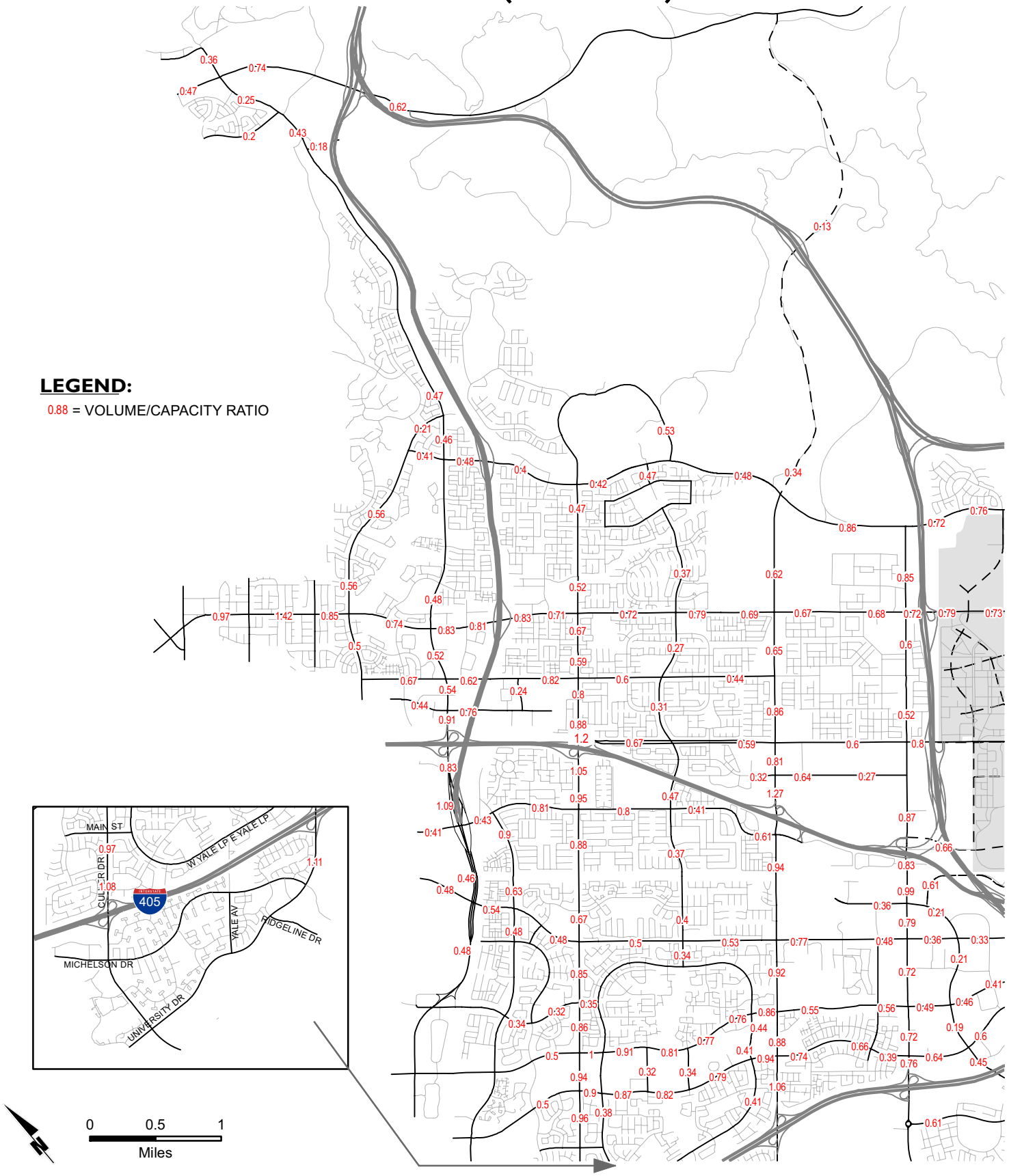
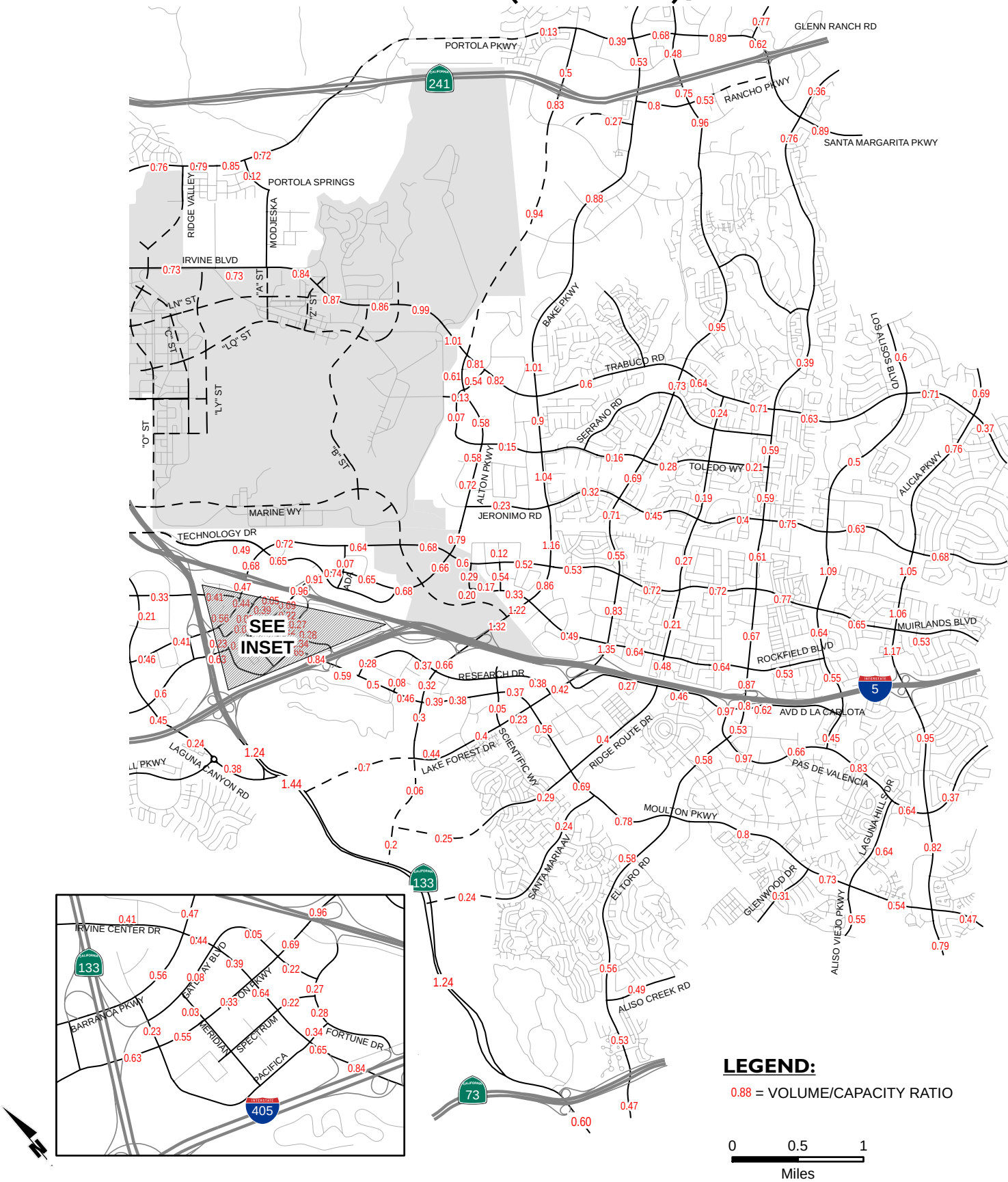
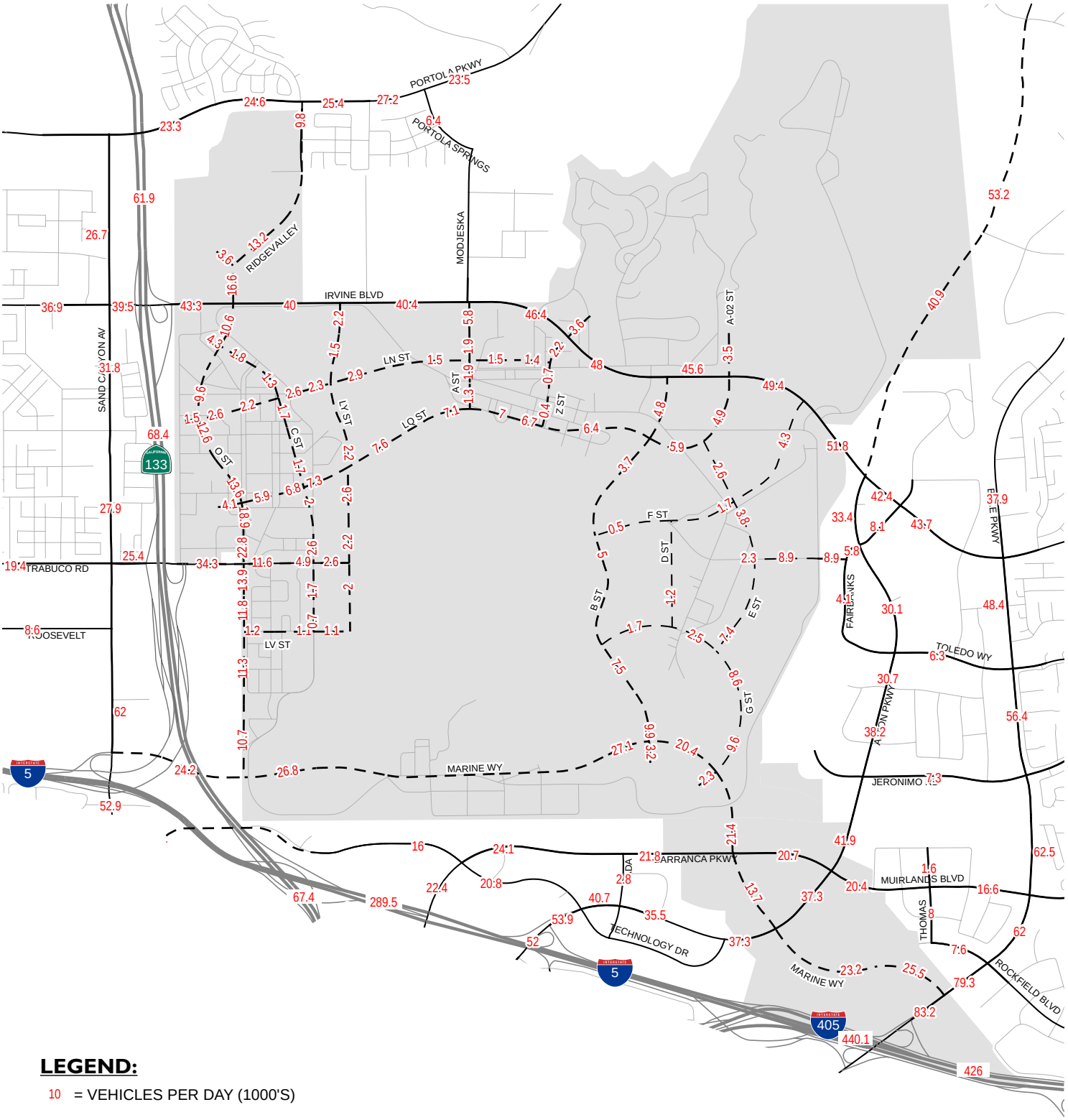


EXHIBIT 8-2 (3 OF 3)

# POST-2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA



# POST-2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 1, PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 8-3 (2 OF 3)

# POST-2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 1, WEST STUDY AREA

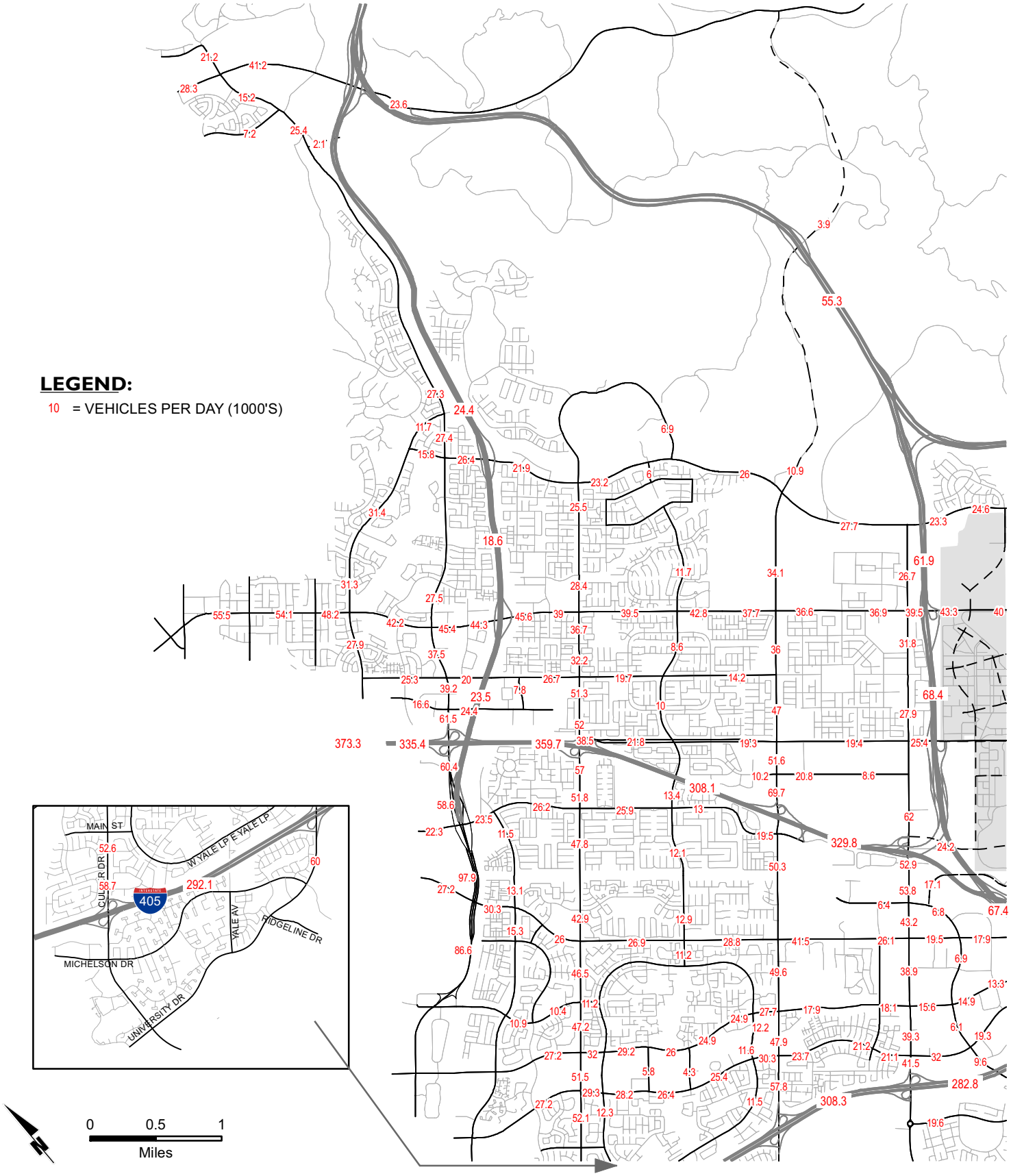
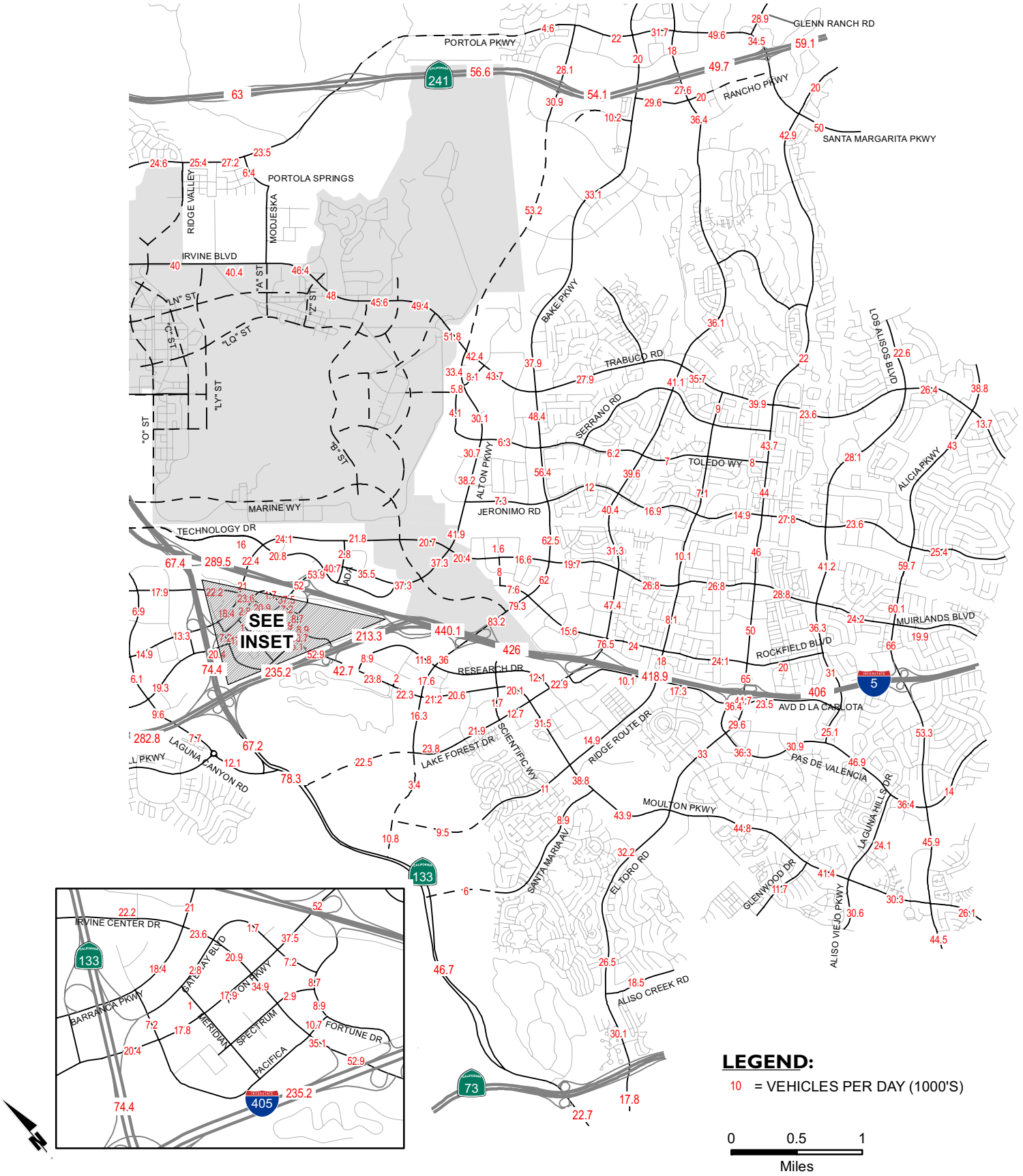


EXHIBIT 8-3 (3 OF 3)

# POST-2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 1, EAST STUDY AREA

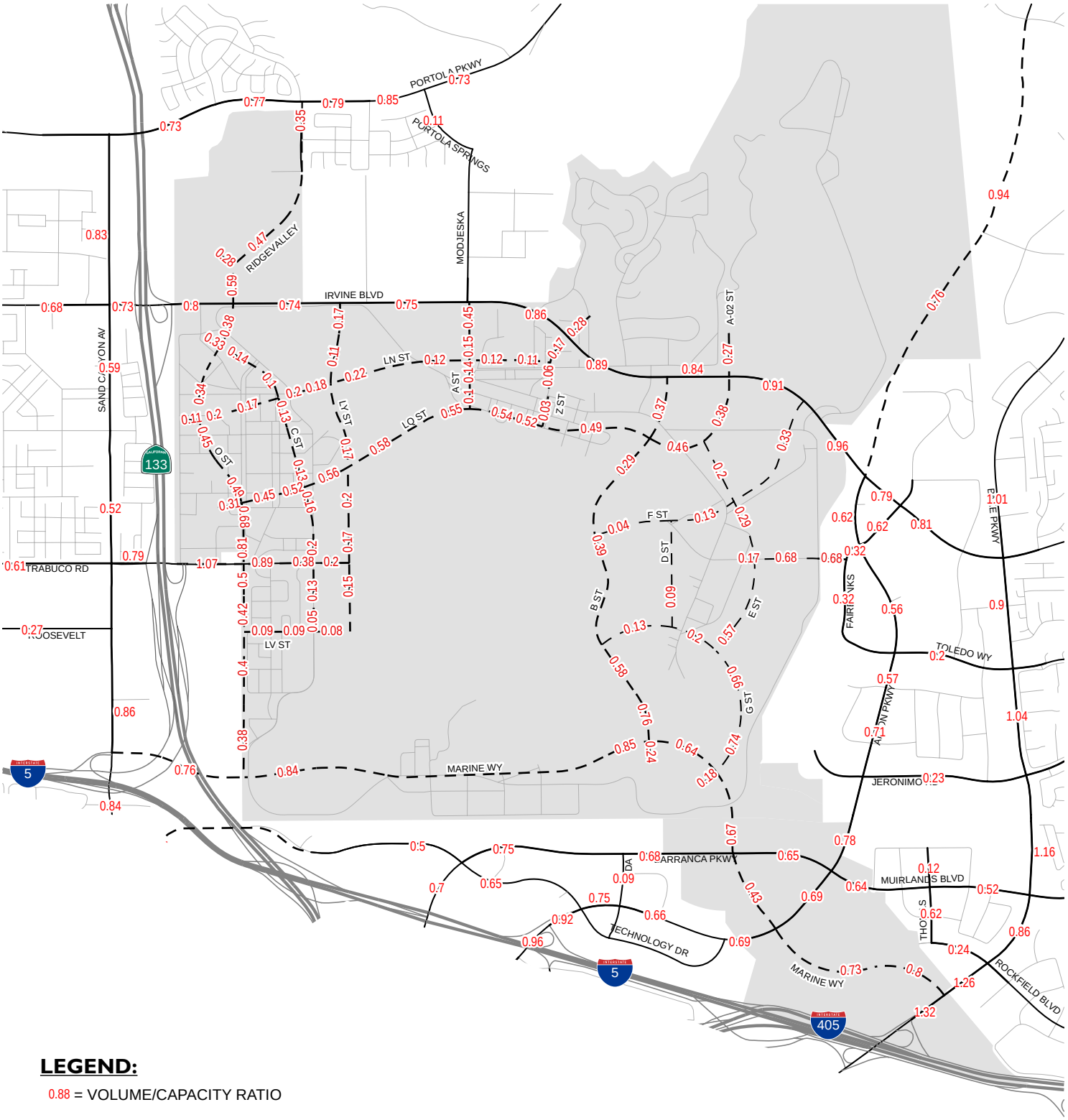



*Heritage Fields Project 2012 - GPA/ZC Traffic Study*
*City of Irvine, CA (JN - 07151:p2030-adt_option1_east.mxd)*

URBAN CROSSROADS

EXHIBIT 8-4 (1 OF 3)

# POST-2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 1, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

# POST-2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 1, WEST STUDY AREA

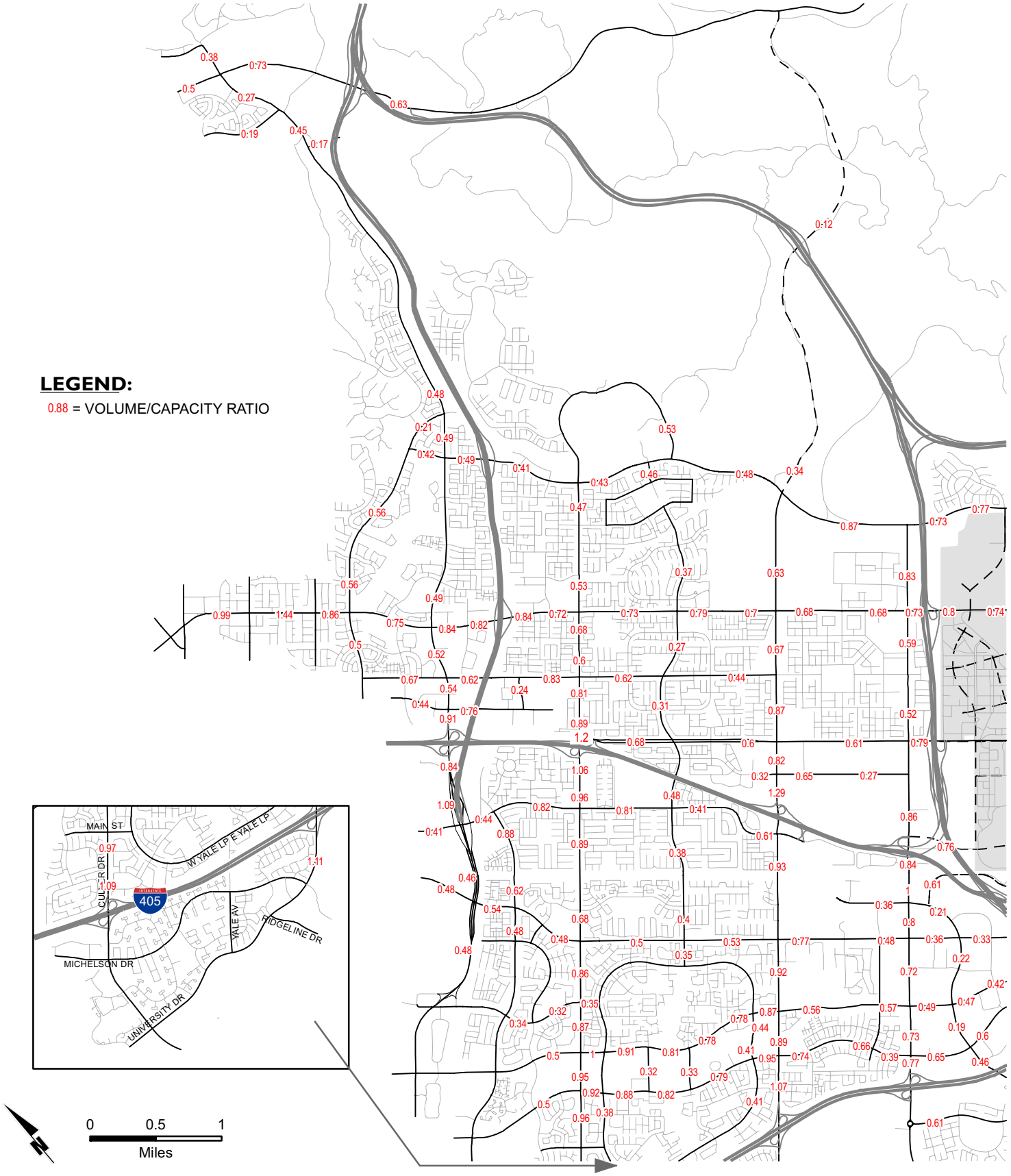
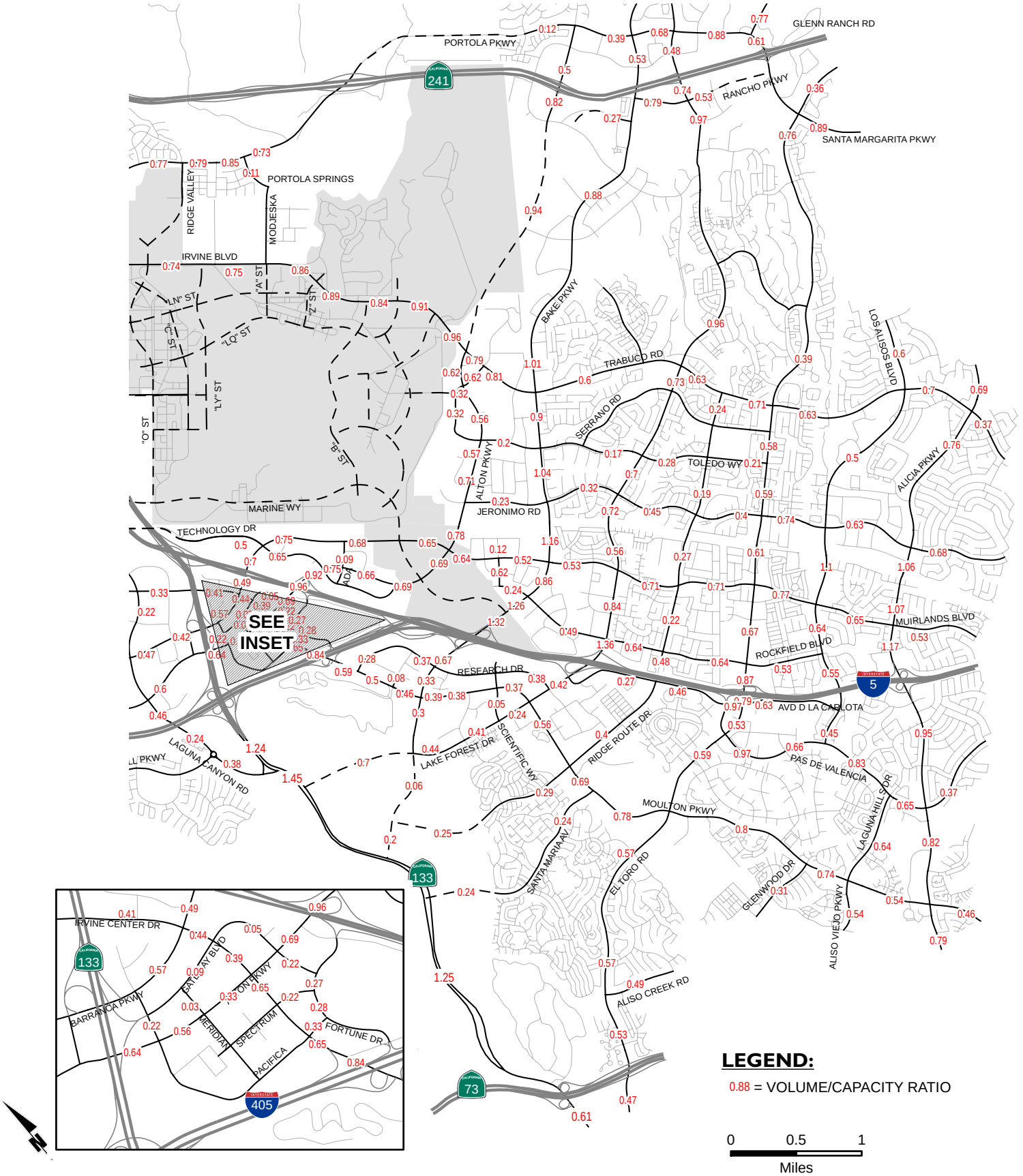


EXHIBIT 8-4 (3 OF 3)

# POST-2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 1, EAST STUDY AREA



### 8.1.2 Post-2030 Peak Hour Intersection Levels of Service, Option 1

Post-2030 with Option 1 AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 8-5 that are analyzed in this traffic study are summarized in Table 8-2. Actual turn volumes, lane geometrics and ICU calculation worksheets for 2011 Approved Project (baseline) and 2012 Modified Project Option 1 are included in Appendix 8.1 and 8.2. Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that three intersections exceed adopted impact thresholds with Option 1. Table 8-3 identifies the Project impact locations for Option 1.

**Table 8-3**

**Post-2030 Intersection ICU LOS with 2012 Modified Project**
**Option 1 Impact Locations**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS |
| 286. Jeffrey Rd. & Roosevelt | AM | 0.89 | D | 0.91 | E |
| 291. Jeffrey Rd. & Alton Pkwy. | AM | 0.90 | D | 0.91 | E |
| 321. Laguna Cyn. & Old Laguna Cyn. | AM | 0.92 | E | 0.94 | E |

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, SR-133/Trabuco Road interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting 2011 Approved Project (baseline) and 2012 Modified Project Option 1 peak hour levels of service based on the HCM methodology are summarized in Table 8-4 (HCM intersection LOS calculation worksheets are included in Appendix 8.3). The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

EXHIBIT 8-5 (1 OF 2)

# POST-2030 INTERSECTION LOCATION MAP
# WEST STUDY AREA

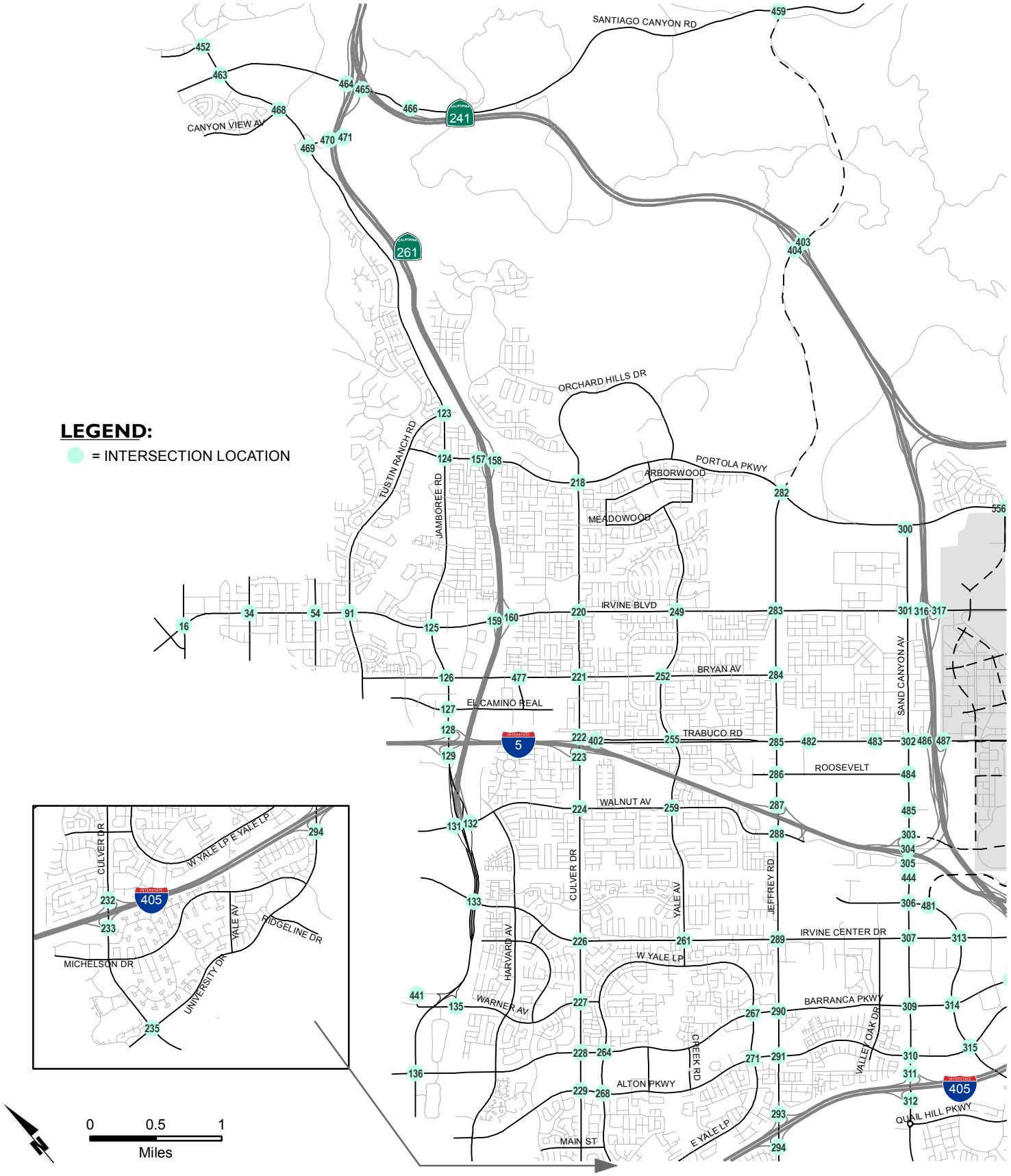
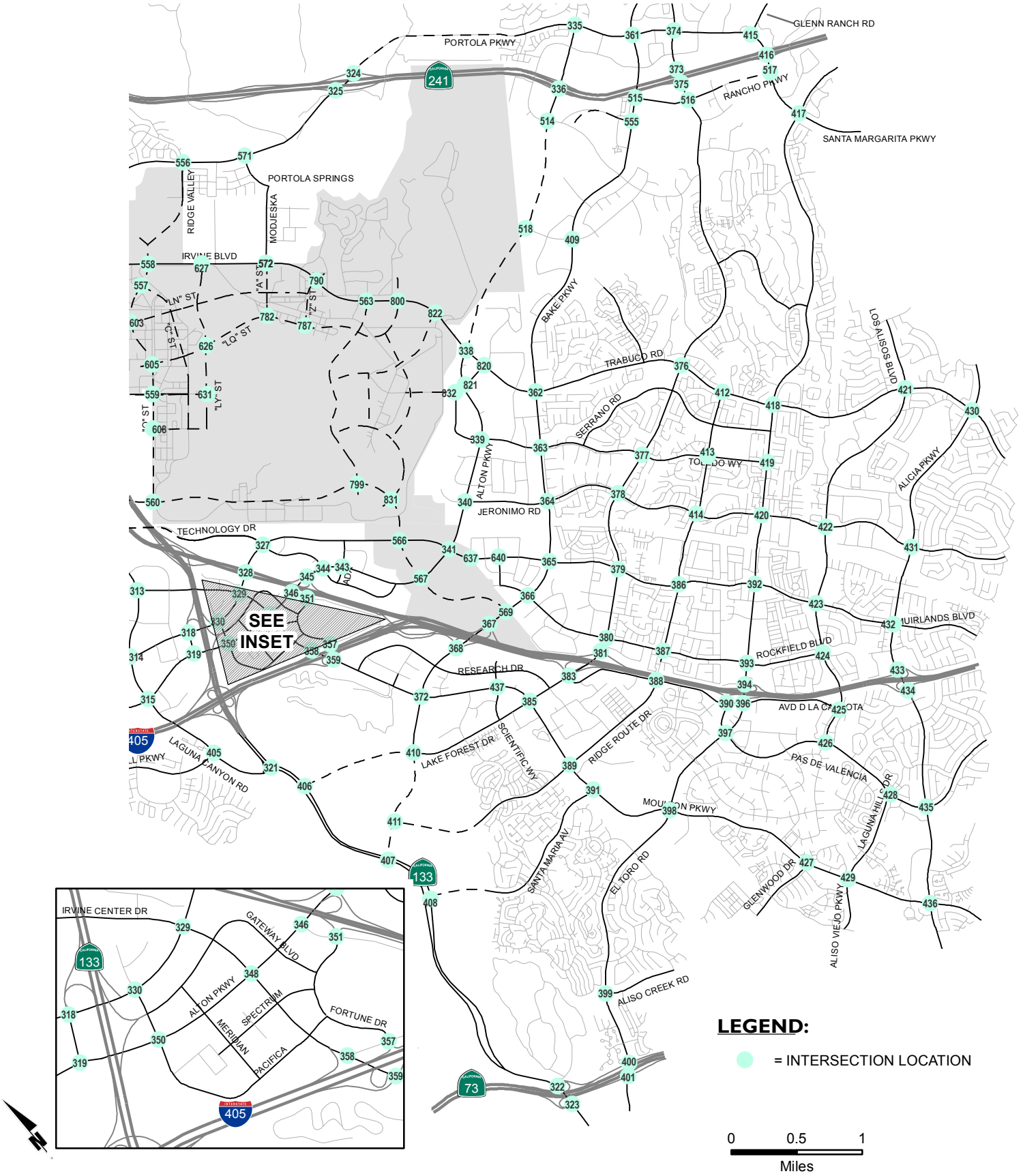


EXHIBIT 8-5 (2 OF 2)

# POST-2030 INTERSECTION LOCATION MAP
# EAST STUDY AREA



## Table 8-2

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | Yes | Yes | | 0.78 | C | 0.88 | D | 0.80 | C | 0.89 | D |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | F | Yes | Yes | | 0.76 | C | 0.85 | D | 0.77 | C | 0.85 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | | 0.85 | D | 0.75 | C | 0.86 | D | 0.77 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | F | Yes | Yes | | 0.78 | C | 0.85 | D | 0.80 | C | 0.85 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | P | | | | 0.63 | B | 0.54 | A | 0.66 | B | 0.55 | A |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | | 0.73 | C | 0.69 | B | 0.76 | C | 0.70 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | F | | | Yes | 0.81 | D | 0.80 | C | 0.82 | D | 0.81 | D |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | | 0.69 | B | 0.62 | B | 0.70 | B | 0.63 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | | 0.71 | C | 0.70 | B | 0.71 | C | 0.70 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | | 0.63 | B | 0.71 | C | 0.64 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | | 0.63 | B | 0.63 | B | 0.63 | B | 0.64 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | | 0.47 | A | 0.59 | A | 0.47 | A | 0.58 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | | 0.54 | A | 0.76 | C | 0.53 | A | 0.74 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | | Yes | 0.50 | A | 0.70 | B | 0.51 | A | 0.70 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | Yes | | | 0.39 | A | 0.43 | A | 0.40 | A | 0.45 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | | Yes | 0.84 | D | 0.95 | E | 0.85 | D | 0.95 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | | 0.46 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | | 0.46 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | | 0.58 | A | 0.52 | A | 0.57 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | | 0.70 | B | 0.63 | B | 0.71 | C | 0.63 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | | 0.70 | B | 0.67 | B | 0.71 | C | 0.67 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | | 0.80 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | | 0.88 | D | 0.74 | C | 0.90 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | F | | | | 0.76 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | F | | | | 0.59 | A | 0.65 | B | 0.60 | A | 0.67 | B |
| 224 | Culver Dr at Walnut Av | Irv | F | Yes | | | 0.80 | C | 0.87 | D | 0.82 | D | 0.88 | D |
| 226 | Culver Dr at ICD | Irv | | Yes | | | 0.77 | C | 0.70 | B | 0.77 | C | 0.72 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | | 0.81 | D | 0.65 | B | 0.82 | D | 0.66 | B |
| 228 | Culver Dr at Barranca Pw | Irv | P | Yes | | | 0.89 | D | 0.79 | C | 0.89 | D | 0.80 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | Yes | | | 0.85 | D | 0.88 | D | 0.87 | D | 0.89 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | | 0.78 | C | 0.72 | C | 0.80 | C | 0.72 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | | 0.57 | A | 0.62 | B | 0.57 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | F | Yes | | | 0.63 | B | 0.76 | C | 0.63 | B | 0.77 | C |
| 249 | Yale Av at Irvine Bl | Irv | F | | | | 0.74 | C | 0.88 | D | 0.75 | C | 0.89 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | | 0.46 | A | 0.45 | A | 0.48 | A | 0.45 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | | 0.61 | B | 0.51 | A | 0.62 | B | 0.51 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | | 0.60 | A | 0.73 | C | 0.60 | A | 0.73 | C |
| 261 | Yale Av at ICD | Irv | | | | | 0.69 | B | 0.68 | B | 0.67 | B | 0.69 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | | 0.64 | B | 0.62 | B | 0.64 | B | 0.62 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | | 0.68 | B | 0.65 | B | 0.69 | B | 0.65 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | | 0.67 | B | 0.68 | B | 0.70 | B | 0.68 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | | 0.75 | C | 0.67 | B | 0.74 | C | 0.68 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | | 0.69 | B | 0.64 | B | 0.68 | B | 0.64 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | Yes | | | 0.74 | C | 0.71 | C | 0.76 | C | 0.72 | C |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |

## Table 8-2 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | Yes | | | 0.66 | B | 0.74 | C | 0.65 | B | 0.75 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | | 0.89 | D | 0.89 | D | **0.91** | **E** | 0.89 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | | 0.73 | C | 0.82 | D | 0.73 | C | 0.82 | D |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | | 0.79 | C | 0.80 | C | 0.79 | C | 0.80 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | Yes | | | 0.82 | D | 0.79 | C | 0.84 | D | 0.79 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | Yes | | | 0.85 | D | 0.75 | C | 0.84 | D | 0.74 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | Yes | | 0.90 | D | 0.81 | D | **0.91** | **E** | 0.80 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | | 0.68 | B | 0.79 | C | 0.69 | B | 0.79 | C |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | | 0.67 | B | 0.70 | B | 0.68 | B | 0.71 | C |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | | 0.48 | A | 0.59 | A | 0.48 | A | 0.60 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | | 0.74 | C | 0.76 | C | 0.73 | C | 0.75 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | Yes | | 0.76 | C | 0.77 | C | 0.76 | C | 0.77 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | | 0.80 | C | 0.83 | D | 0.85 | D | 0.87 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | | 0.88 | D | 0.83 | D | 0.90 | D | 0.87 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | | 0.88 | D | 0.77 | C | 0.86 | D | 0.79 | C |
| 307 | Sand Canyon Av at ICD | Irv | | | | | 0.60 | A | 0.65 | B | 0.60 | A | 0.67 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | | 0.58 | A | 0.61 | B | 0.56 | A | 0.61 | B |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | | 0.65 | B | 0.74 | C | 0.62 | B | 0.75 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | | 0.66 | B | 0.47 | A | 0.66 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | | 0.80 | C | 0.54 | A | 0.80 | C | 0.55 | A |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | | 0.34 | A | 0.42 | A | 0.33 | A | 0.43 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | | 0.45 | A | 0.45 | A | 0.44 | A | 0.45 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | | 0.52 | A | 0.57 | A | 0.53 | A | 0.58 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | | 0.54 | A | 0.58 | A | 0.54 | A | 0.58 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | | 0.77 | C | 0.76 | C | 0.71 | C | 0.81 | D |
| 318 | Banting at Barranca Pkwy | Irv | | | | | 0.70 | B | 0.55 | A | 0.72 | C | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | | 0.57 | A | 0.53 | A | 0.58 | A | 0.53 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | | **0.92** | **E** | 0.81 | D | **0.94** | **E** | 0.81 | D |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | | Yes | 0.93 | E | 0.62 | B | 0.93 | E | 0.62 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | | Yes | 0.40 | A | 0.45 | A | 0.40 | A | 0.45 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | | 0.59 | A | 0.39 | A | 0.58 | A | 0.39 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | | 0.44 | A | 0.43 | A | 0.43 | A | 0.44 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | | 0.58 | A | 0.70 | B | 0.60 | A | 0.69 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | | Yes | 0.66 | B | 0.45 | A | 0.64 | B | 0.43 | A |
| 329 | Barranca Pw at ICD | Irv | | | | Yes | 0.67 | B | 0.67 | B | 0.68 | B | 0.66 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | | Yes | 0.59 | A | 0.77 | C | 0.59 | A | 0.77 | C |
| 333 | Pacifica at Gateway | Irv | | | | Yes | 0.66 | B | 0.75 | C | 0.68 | B | 0.76 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | | 0.55 | A | 0.47 | A | 0.55 | A | 0.48 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | | 0.68 | B | 0.58 | A | 0.66 | B | 0.58 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | | Yes | 0.92 | E | 0.90 | D | 0.93 | E | 0.88 | D |
| 339 | Alton Pw at Toledo Wy | Irv | | | | | 0.69 | B | 0.63 | B | 0.79 | C | 0.67 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | | 0.66 | B | 0.54 | A | 0.66 | B | 0.54 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | | 0.58 | A | 0.73 | C | 0.57 | A | 0.74 | C |
| 343 | Alton Pw at Ada | Irv | | | | | 0.47 | A | 0.73 | C | 0.51 | A | 0.77 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | | 0.58 | A | 0.88 | D | 0.59 | A | 0.87 | D |

## Table 8-2 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | | Yes | 0.90 | D | 0.52 | A | 0.88 | D | 0.52 | A |
| 346 | Alton Pw at Enterprise | Irv | | | | Yes | 0.72 | C | 0.76 | C | 0.70 | B | 0.78 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | | Yes | 0.57 | A | 0.75 | C | 0.57 | A | 0.75 | C |
| 350 | Alton Pw at Pacifica | Irv | | | | Yes | 0.56 | A | 0.55 | A | 0.58 | A | 0.56 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | | Yes | 0.49 | A | 0.79 | C | 0.49 | A | 0.77 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | | Yes | 0.49 | A | 0.50 | A | 0.49 | A | 0.49 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | | Yes | 0.63 | B | 0.50 | A | 0.64 | B | 0.52 | A |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | | Yes | 0.57 | A | 0.53 | A | 0.58 | A | 0.53 | A |
| 361 | Bake Pw at Portola Pw | LF | | | | | 0.56 | A | 0.82 | D | 0.55 | A | 0.81 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | | Yes | 0.81 | D | 0.89 | D | 0.81 | D | 0.91 | E |
| 363 | Bake Pw at Toledo Wy | Irv | | | | | 0.78 | C | 0.66 | B | 0.77 | C | 0.66 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | | 0.82 | D | 0.67 | B | 0.81 | D | 0.67 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | | 0.75 | C | **0.91** | **E** | 0.74 | C | **0.91** | **E** |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | | 0.71 | C | 0.86 | D | 0.70 | B | 0.88 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | | Yes | 0.84 | D | 0.59 | A | 0.82 | D | 0.59 | A |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | | Yes | 0.81 | D | 0.85 | D | 0.81 | D | 0.87 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | | 0.57 | A | 0.81 | D | 0.57 | A | 0.81 | D |
| 372 | Bake Pw at ICD | Irv | | | | | 0.53 | A | 0.52 | A | 0.54 | A | 0.52 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | | 0.33 | A | 0.44 | A | 0.33 | A | 0.42 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | | 0.63 | B | 0.89 | D | 0.62 | B | 0.89 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | | 0.57 | A | 0.53 | A | 0.56 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | | 0.84 | D | 0.89 | D | 0.84 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | | 0.62 | B | 0.59 | A | 0.65 | B | 0.59 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | | 0.73 | C | 0.86 | D | 0.73 | C | 0.86 | D |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | | 0.75 | C | 0.84 | D | 0.74 | C | 0.85 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | | 0.86 | D | 0.87 | D | 0.85 | D | 0.86 | D |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | | 0.71 | C | 0.74 | C | 0.70 | B | 0.75 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | Yes | | Yes | 0.63 | B | 0.79 | C | 0.63 | B | 0.79 | C |
| 385 | Lake Forest Dr at ICD | Irv | | | | Yes | 0.43 | A | 0.55 | A | 0.43 | A | 0.56 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.69 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | | 0.52 | A | 0.73 | C | 0.51 | A | 0.74 | C |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | | 0.53 | A | 0.68 | B | 0.53 | A | 0.68 | B |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | | 0.53 | A | 0.77 | C | 0.53 | A | 0.77 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | | 0.79 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | | 0.50 | A | 0.74 | C | 0.50 | A | 0.75 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | | 0.71 | C | 0.85 | D | 0.70 | B | 0.84 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | | 0.61 | B | 0.74 | C | 0.61 | B | 0.73 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | | Yes | 0.82 | D | 0.85 | D | 0.82 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | | Yes | 0.60 | A | 0.87 | D | 0.59 | A | 0.87 | D |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | | 0.68 | B | 0.84 | D | 0.68 | B | 0.85 | D |
| 398 | El Toro Rd at Moulton Pw | LW | | | | Yes | 0.85 | D | 0.93 | E | 0.84 | D | 0.92 | E |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | | 0.53 | A | 0.63 | B | 0.53 | A | 0.64 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | | Yes | 0.58 | A | 0.57 | A | 0.58 | A | 0.58 | A |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | | Yes | 0.44 | A | 0.61 | B | 0.44 | A | 0.61 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | | 0.63 | B | 0.64 | B | 0.62 | B | 0.66 | B |

## Table 8-2 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 403 | SR-241 NB Ramps at Jeffery Rd | OC | | | | | 0.35 | A | 0.25 | A | 0.34 | A | 0.26 | A |
| 404 | SR-241 SB Ramps at Jeffery Rd | OC | | | | | 0.27 | A | 0.21 | A | 0.27 | A | 0.21 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | | 0.42 | A | 0.38 | A | 0.43 | A | 0.38 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | | 0.66 | B | 0.54 | A | 0.66 | B | 0.55 | A |
| 407 | Laguna Canyon Rd at Bake Pw | LF | **F** | | | | 0.75 | C | 0.66 | B | 0.76 | C | 0.67 | B |
| 408 | Laguna Canyon Rd at Santa Maria Dr | LF | | | | | 0.80 | C | 0.59 | A | 0.80 | C | 0.60 | A |
| 409 | Bake Pw at Commercentre Dr | LF | | | | | 0.66 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 410 | Bake Pw at Lake Forest Dr | Irv | | | | | 0.46 | A | 0.45 | A | 0.48 | A | 0.45 | A |
| 411 | Bake Pw at Ridge Route | Irv | | | | | 0.51 | A | 0.45 | A | 0.51 | A | 0.46 | A |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | | 0.42 | A | 0.40 | A | 0.43 | A | 0.39 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | | 0.50 | A | 0.66 | B | 0.52 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | | 0.65 | B | 0.67 | B | 0.64 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | | 0.51 | A | 0.67 | B | 0.51 | A | 0.66 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | | 0.82 | D | **1.01** | **F** | 0.83 | D | **0.99** | **E** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | | Yes | 0.77 | C | 0.78 | C | 0.76 | C | 0.77 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | | 0.52 | A | 0.52 | A | 0.53 | A | 0.52 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | | 0.73 | C | 0.67 | B | 0.72 | C | 0.67 | B |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | | 0.76 | C | 0.70 | B | 0.76 | C | 0.72 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | | 0.89 | D | 0.89 | D | 0.89 | D | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | | 0.86 | D | 0.84 | D | 0.85 | D | 0.84 | D |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | | 0.63 | B | 0.79 | C | 0.64 | B | 0.80 | C |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | | 0.52 | A | 0.60 | A | 0.52 | A | 0.60 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | | 0.60 | A | 0.84 | D | 0.60 | A | 0.84 | D |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | | 0.73 | C | 0.69 | B | 0.72 | C | 0.68 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | | 0.75 | C | 0.83 | D | 0.75 | C | 0.83 | D |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | | 0.82 | D | 0.84 | D | 0.82 | D | 0.83 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | | 0.72 | C | 0.73 | C | 0.72 | C | 0.73 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | | 0.78 | C | 0.77 | C | 0.78 | C | 0.76 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | | 0.68 | B | 0.83 | D | 0.67 | B | 0.82 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | | 0.44 | A | 0.68 | B | 0.43 | A | 0.69 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | | 0.67 | B | 0.75 | C | 0.67 | B | 0.75 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | | 0.68 | B | 0.78 | C | 0.68 | B | 0.79 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | | 0.75 | C | 0.78 | C | 0.74 | C | 0.77 | C |
| 437 | Scientific Wy at ICD | Irv | | | | | 0.32 | A | 0.38 | A | 0.33 | A | 0.38 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | | 0.27 | A | 0.18 | A | 0.27 | A | 0.18 | A |
| 444 | Sand Canyon Av at Burt Rd | OC | | | | | 0.87 | D | 0.88 | D | 0.90 | D | 0.89 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Irv | | | | | 0.67 | B | 0.67 | B | 0.74 | C | 0.70 | B |
| 459 | Jeffrey at Santiago Canyon Rd | Ora | | | | | 0.29 | A | 0.26 | A | 0.29 | A | 0.27 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | | 0.77 | C | 0.84 | D | 0.77 | C | 0.84 | D |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | Ora | | | | | 0.69 | B | 0.64 | B | 0.66 | B | 0.63 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | | 0.58 | A | 0.69 | B | 0.60 | A | 0.61 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | | 0.56 | A | 0.63 | B | 0.60 | A | 0.64 | B |
| 468 | Jamboree Rd at Canyon View | OC | | | | | 0.65 | B | 0.41 | A | 0.65 | B | 0.42 | A |
| 469 | Jamboree Rd at Handy Creek Rd | Ora | | | | | 0.55 | A | 0.51 | A | 0.55 | A | 0.52 | A |

## Table 8-2 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 470 | SR-261 SB Ramps at Handy Creek Rd | Ora | | | | | 0.34 | A | 0.15 | A | 0.33 | A | 0.14 | A |
| 471 | SR-261 NB Ramps at Handy Creek Rd | OC | | | | | 0.14 | A | 0.29 | A | 0.15 | A | 0.29 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | | 0.43 | A | 0.47 | A | 0.43 | A | 0.47 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | | 0.45 | A | 0.43 | A | 0.46 | A | 0.43 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | | 0.38 | A | 0.32 | A | 0.40 | A | 0.34 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | | 0.37 | A | 0.34 | A | 0.37 | A | 0.34 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | | 0.68 | B | 0.54 | A | 0.68 | B | 0.54 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | | 0.80 | C | 0.61 | B | 0.77 | C | 0.61 | B |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | | 0.56 | A | 0.60 | A | 0.58 | A | 0.60 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | | 0.55 | A | 0.68 | B | 0.54 | A | 0.69 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | | 0.64 | B | 0.76 | C | 0.63 | B | 0.77 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | | 0.66 | B | 0.86 | D | 0.66 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | | 0.67 | B | 0.83 | D | 0.67 | B | 0.84 | D |
| 517 | Portola Pw at Rancho Pw | LF | | | | | 0.63 | B | 0.70 | B | 0.62 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | | 0.63 | B | 0.76 | C | 0.62 | B | 0.76 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | | 0.70 | B | 0.73 | C | 0.69 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | | 0.71 | C | 0.68 | B | 0.70 | B | 0.67 | B |
| 557 | O St at C St | Irv | | | | | 0.40 | A | 0.36 | A | 0.37 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | | 0.64 | B | 0.80 | C | 0.62 | B | 0.80 | C |
| 559 | O St at Trabuco Rd | Irv | | | | | 0.72 | C | 0.69 | B | 0.75 | C | 0.67 | B |
| 560 | O St at Marine Wy | Irv | | | | | 0.46 | A | 0.61 | B | 0.48 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | | 0.42 | A | 0.69 | B | 0.53 | A | 0.71 | C |
| 563 | B St. at Irvine Bl | Irv | | | | | 0.68 | B | 0.70 | B | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | | 0.46 | A | 0.59 | A | 0.62 | B | 0.63 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | | 0.64 | B | 0.63 | B | 0.63 | B | 0.62 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | | 0.62 | B | 0.65 | B | 0.65 | B | 0.61 | B |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | | 0.70 | B | 0.59 | A | 0.46 | A | 0.42 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | | 0.68 | B | 0.64 | B | 0.76 | C | 0.72 | C |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | | 0.70 | B | 0.59 | A | 0.70 | B | 0.58 | A |
| 572 | Modjeska / A St at Irvine Bl | Irv | | | | | 0.67 | B | 0.73 | C | 0.66 | B | 0.72 | C |
| 603 | O St at LN St | Irv | | | | | 0.39 | A | 0.32 | A | 0.36 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | | 0.56 | A | 0.52 | A | 0.58 | A | 0.54 | A |
| 608 | O St at LV St | Irv | | | | | 0.36 | A | 0.33 | A | 0.34 | A | 0.33 | A |
| 626 | LY St at LQ St | Irv | | | | | 0.37 | A | 0.36 | A | 0.41 | A | 0.41 | A |
| 627 | LY St at Irvine Bl | Irv | | | | | 0.53 | A | 0.59 | A | 0.52 | A | 0.59 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | | 0.12 | A | 0.13 | A | 0.12 | A | 0.16 | A |
| 633 | Sterling at Rockfield Bl | Irv | | | | | 0.24 | A | 0.31 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | | 0.35 | A | 0.39 | A | 0.35 | A | 0.47 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | | 0.26 | A | 0.40 | A | 0.26 | A | 0.43 | A |
| 782 | A St at LQ St | Irv | | | | | 0.32 | A | 0.28 | A | 0.31 | A | 0.31 | A |
| 787 | Z St at LQ St | Irv | | | | | 0.30 | A | 0.27 | A | 0.25 | A | 0.26 | A |
| 790 | Z St at Irvine Bl | Irv | | | | | 0.71 | C | 0.69 | B | 0.69 | B | 0.70 | B |
| 798 | B St at LQ St | Irv | | | | | 0.47 | A | 0.38 | A | 0.33 | A | 0.38 | A |
| 799 | "B" Street at Marine Way | Irv | | | | | 0.47 | A | 0.55 | A | 0.68 | B | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | | 0.82 | D | 0.72 | C | 0.77 | C | 0.71 | C |

## Table 8-2 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 1

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | | 0.70 | B | 0.80 | C | 0.71 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | | 0.55 | A | 0.56 | A | 0.66 | B | 0.69 | B |
| 822 | "F" Street at Irvine Bl. | Irv | | | | | Not Applicable | | | | 0.69 | B | 0.73 | C |
| 831 | "G" Street at Marine Way | Irv | | | | | Not Applicable | | | | 0.55 | A | 0.59 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | | 0.14 | A | 0.17 | A | 0.54 | A | 0.58 | A |

**Bold** = Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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**Table 8-4**

**Post-2030 Caltrans Ramp Intersection LOS Summary (HCM Methodology)**
**Adjacent Intersections With 2012 Modified Project, Option 1**

| Intersection | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | | | | |
| - AM Peak Hour | 49.1 | D | **63.3** | **E[1]** |
| - PM Peak Hour | **55.1** | **E[1]** | **65.4** | **E[1]** |
| 305. Sand Canyon & I-5 SB Ramps [2] | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | | | | |
| - AM Peak Hour | 52.8 | D[3] | **56.0** | **E[3]** |
| - PM Peak Hour | 42.1 | D[3] | 52.3 | D[3] |
| Alternative Configuration (EB Dual Right Lanes) | | | | |
| - AM Peak Hour | 48.7 | D[3] | 52.1 | D[3] |
| - PM Peak Hour | 44.0 | D[3] | **59.6** | **E[3]** |
| 316. SR-133 SB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.4 | B | 14.9 | B |
| - PM Peak Hour | 8.9 | A | 9.2 | A |
| 317. SR-133 NB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.7 | B | 11.0 | B |
| - PM Peak Hour | 24.9 | C | 26.1 | C |
| 486. SR-133 SB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 18.2 | B | 17.6 | B |
| - PM Peak Hour | 17.4 | B | 17.0 | B |
| 483. SR-133 NB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 12.9 | B | 12.8 | B |
| - PM Peak Hour | 17.4 | B | 16.9 | B |

[1] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with northbound left turns during AM and PM peak hours). This intersection V/C result differs from the ICU calculation, which is less than 1.00 as indicated in Table 8-2. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

[3] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of northbound through vehicles during the AM and PM peak hours). This intersection V/C result differs from the ICU calculation for this intersection, which is less than 1.00 as indicated in Table 8-2. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard ramp intersections and SR-133/Trabuco Road based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 8-5 summarizes the longest 95$^{th}$ percentile queue length at each off-ramp under Year 2030 with Option 1 peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 8.4). The results of the HCM analysis show LOS "E" conditions with or without the 2012 Modified Project at the I-5 NB Ramp /Sand Canyon intersection, and a modified lane configuration is suggested on the eastbound approach to the I-5 SB Ramp intersection to avoid vehicle queues backing onto the freeway mainline. LOS "E" conditions also occur at the I-5 SB Ramp /Sand Canyon intersection with the 2012 Modified Project. The ultimate lane configuration is subject to coordination and agreement between the City and Caltrans.

### 8.1.3 Post-2030 Peak Hour Freeway/Tollway Ramp Levels of Service, Option 1

Exhibit 8-6 illustrates the interchange locations where freeway/tollway ramps were analyzed based on Post-2030 conditions. 2011 Approved Project (baseline) and 2012 Modified Project Option 1 AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 8-6. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, none of the freeway ramps are forecast exceed adopted impact thresholds with Option 1 based on Post-2030 conditions.

### 8.1.4 Post-2030 Peak Hour Freeway/Tollway Mainline Levels of Service, Option 1

2011 Approved Project (baseline) and 2012 Modified Project Option 1 AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 8-7. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, one freeway mainline segment (I-405 northbound, north of Jeffrey) is forecast to exceed adopted impact thresholds with Option 1 based on Post-2030 conditions.

EXHIBIT 8-6 (1 OF 2)

# POST-2030 FREEWAY INTERCHANGE LOCATIONS
# WEST STUDY AREA

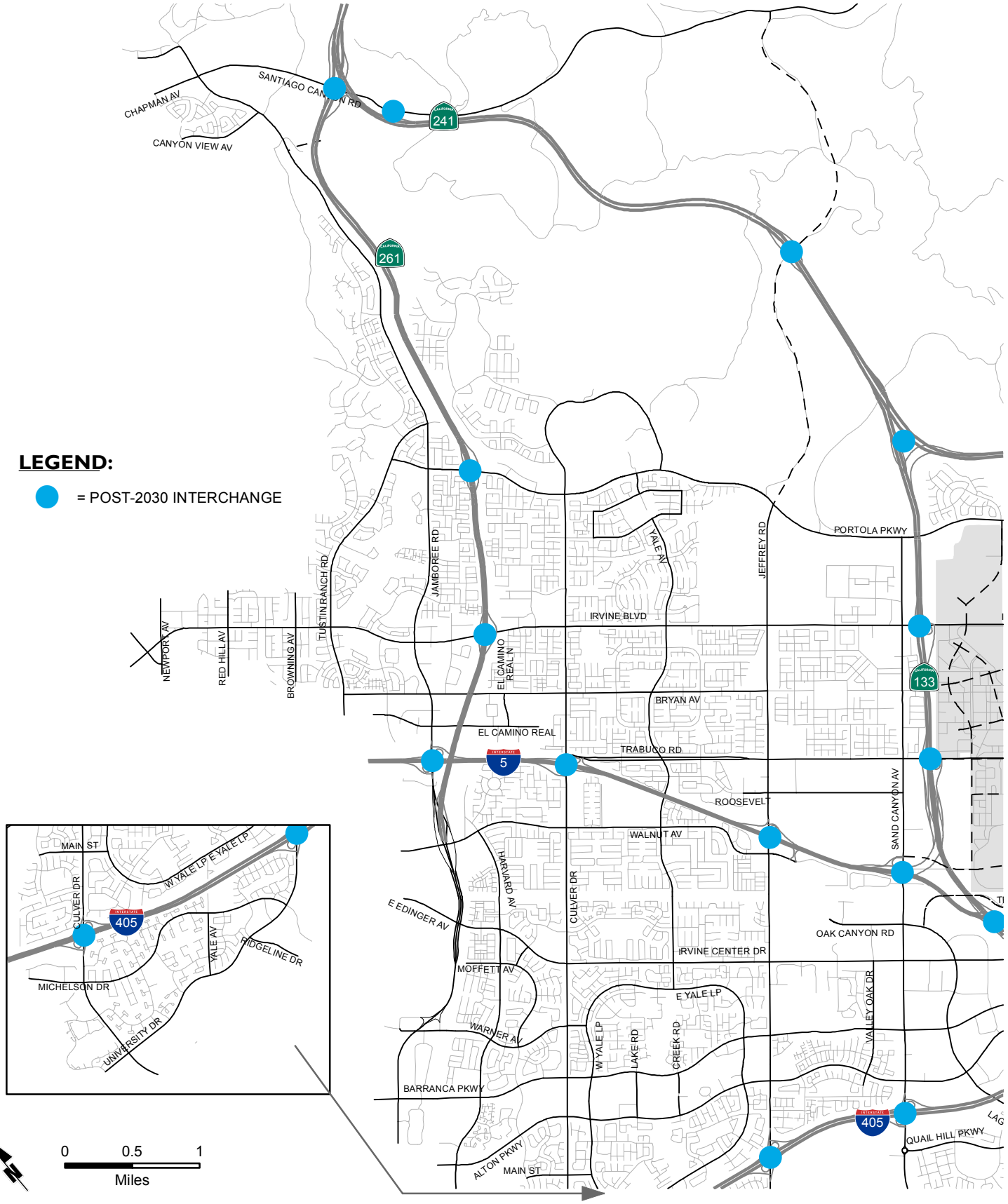


EXHIBIT 8-6 (2 OF 2)

# POST-2030 FREEWAY INTERCHANGE LOCATIONS
# EAST STUDY AREA

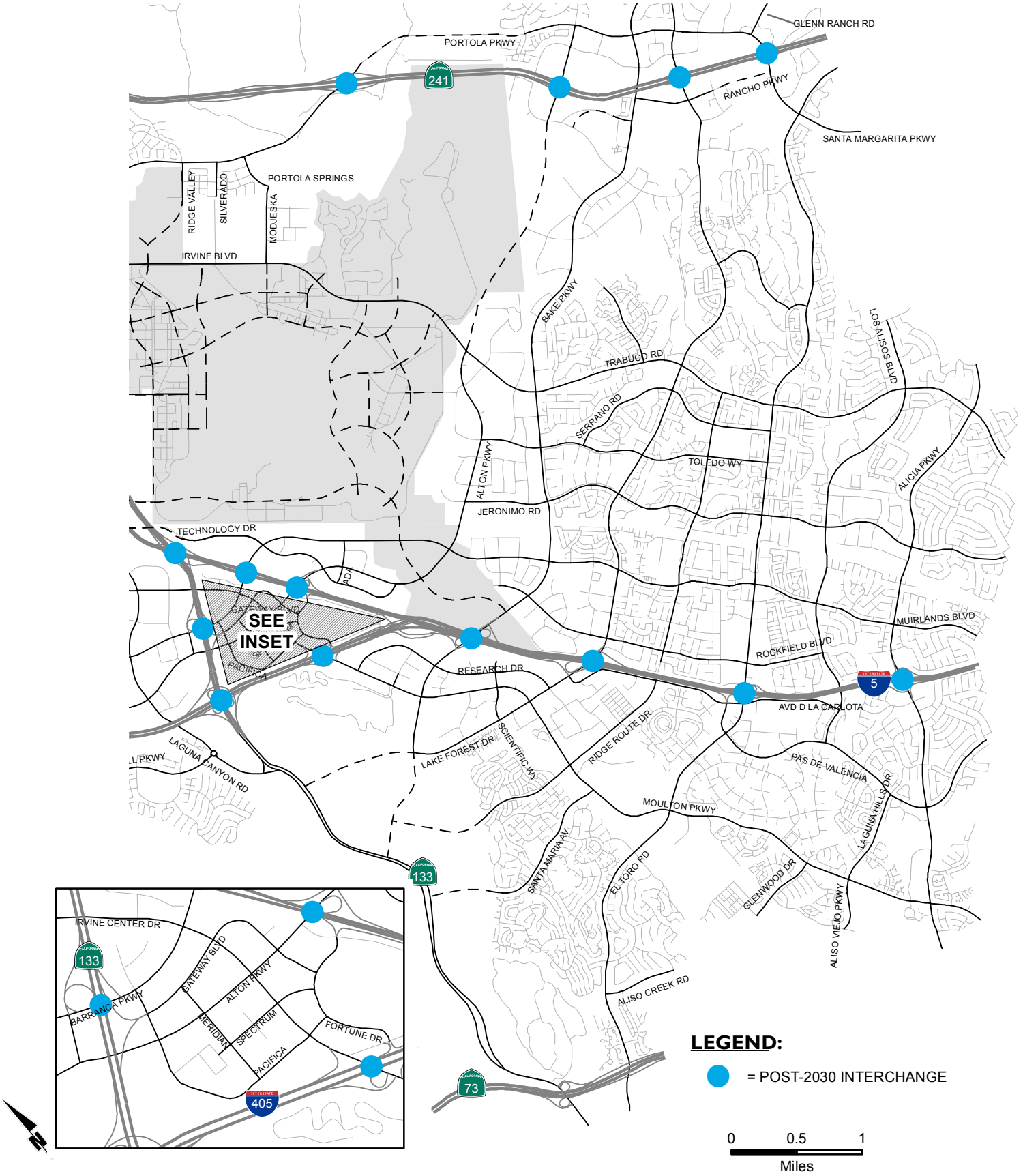


**Table 8-5**

**Post-2030 With 2012 Modified Project Option 1 HCM**
**Freeway Ramp Queuing Analysis**

| Intersection | Total Ramp Length | Highest Queue Length | Peak Hour | Does the Queue Exceed the Ramp Length?[1] |
|---|---|---|---|---|
| 303. I-5 Northbound Off-Ramp at Sand Canyon Av | 1,180 feet | 312 feet | (PM) | No |
| 305. I-5 Southbound Off-Ramp at Sand Canyon Av | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | 810 feet | 939 feet | (AM) | Yes |
| Alternative Configuration (EB Dual Right Lanes) | 810 feet | 740 feet | (AM) | No |

[1] If the maximum queue length does not exceed the total length of the off-ramp, then the traffic queue on the ramp is not expected to back up onto the freeway mainline during the peak hours.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes

## Table 8-6

### Post-2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 414 | 0.28 | A | 1,140 | 0.76 | C | 416 | 0.28 | A | 1,130 | 0.75 | C |
| | SB Loop On | 1 | 1,080 | 556 | 0.51 | A | 480 | 0.44 | A | 568 | 0.53 | A | 490 | 0.45 | A |
| | NB Direct On | 1 | 1,080 | 476 | 0.44 | A | 480 | 0.44 | A | 474 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 678 | 0.63 | B | 660 | 0.61 | B | 676 | 0.63 | B | 690 | 0.64 | B |
| | SB Off | 1 | 1,500 | 1,428 | 0.95 | E | 1,435 | 0.96 | E | 1,429 | 0.95 | E | 1,460 | 0.97 | E |
| | NB Off | 1 | 1,500 | 1,559 | **1.04** | **F** | 1,314 | 0.88 | D | 1,569 | **1.05** | **F** | 1,325 | 0.88 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 350 | 0.39 | A | 250 | 0.28 | A | 340 | 0.38 | A | 240 | 0.27 | A |
| | NB Direct On | 1 | 900 | 714 | 0.79 | C | 179 | 0.20 | A | 712 | 0.79 | C | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,080 | 0.72 | C | 590 | 0.39 | A | 1,120 | 0.75 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 935 | 0.42 | A | 2,033 | 0.90 | D | 933 | 0.41 | A | 2,060 | 0.92 | E |
| | NB Off | 1 | 1,500 | 333 | 0.22 | A | 490 | 0.33 | A | 332 | 0.22 | A | 480 | 0.32 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,269 | **1.18** | **F** | 829 | 0.77 | C | 1,264 | **1.17** | **F** | 841 | 0.78 | C |
| | NB Direct On | 1 | 1,080 | 610 | 0.56 | A | 240 | 0.22 | A | 670 | 0.62 | B | 260 | 0.24 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 280 | 0.19 | A | 250 | 0.17 | A | 280 | 0.19 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 1,111 | 0.74 | C | 609 | 0.41 | A | 1,119 | 0.75 | C |
| | NB Off | 2 | 2,250 | 940 | 0.42 | A | 1,433 | 0.64 | B | 940 | 0.42 | A | 1,420 | 0.63 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 631 | 0.42 | A | 750 | 0.50 | A | 630 | 0.42 | A | 750 | 0.50 | A |
| | NB On | 1 | 1,500 | 751 | 0.50 | A | 1,600 | **1.07** | **F** | 940 | 0.63 | B | 1,590 | **1.06** | **F** |
| | SB Off | 1 | 1,500 | 1,855 | **1.24** | **F** | 828 | 0.55 | A | 1,775 | **1.18** | **F** | 899 | 0.60 | A |
| | NB Off | 2 | 2,250 | 711 | 0.32 | A | 709 | 0.32 | A | 702 | 0.31 | A | 711 | 0.32 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 30 | 0.02 | A | 240 | 0.16 | A | 30 | 0.02 | A | 210 | 0.14 | A |
| | SB Off | 1 | 1,500 | 299 | 0.20 | A | 111 | 0.07 | A | 268 | 0.18 | A | 102 | 0.07 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 341 | 0.23 | A | 581 | 0.39 | A | 361 | 0.24 | A | 610 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 270 | 0.15 | A | 1,280 | 0.71 | C | 300 | 0.17 | A | 1,260 | 0.70 | B |
| | NB Loop On | 1 | 1,500 | 582 | 0.39 | A | 151 | 0.10 | A | 565 | 0.38 | A | 149 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,198 | 0.98 | E | 970 | 0.43 | A | 2,160 | 0.96 | E | 974 | 0.43 | A |
| | NB Off | 2 | 2,250 | 1,161 | 0.52 | A | 320 | 0.14 | A | 1,141 | 0.51 | A | 310 | 0.14 | A |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 90 | 0.06 | A | 142 | 0.09 | A | 98 | 0.07 | A | 131 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 371 | 0.34 | A | 907 | 0.84 | D | 403 | 0.37 | A | 866 | 0.80 | C |
| | NB Direct On | 2 | 3,400 | 1,335 | 0.39 | A | 1,199 | 0.35 | A | 1,369 | 0.40 | A | 1,189 | 0.35 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,992 | 1.00 | E | 2,433 | 0.81 | D | 2,991 | 1.00 | E | 2,436 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,502 | 0.50 | A | 625 | 0.21 | A | 1,397 | 0.47 | A | 616 | 0.21 | A |

## Table 8-6 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 303 | 0.20 | A | 875 | 0.58 | A | 307 | 0.20 | A | 868 | 0.58 | A |
| | SB Loop On | 1 | 1,080 | 412 | 0.38 | A | 687 | 0.64 | B | 416 | 0.39 | A | 686 | 0.64 | B |
| | NB On | 2 | 1,800 | 1,340 | 0.74 | C | 1,040 | 0.58 | A | 1,379 | 0.77 | C | 1,055 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,323 | 0.77 | C | 1,759 | 0.59 | A | 2,324 | 0.77 | C |
| | NB Off | 1 | 1,500 | 1,510 | **1.01** | **F** | 730 | 0.49 | A | 1,495 | 1.00 | E | 725 | 0.48 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 167 | 0.15 | A | 143 | 0.13 | A | 248 | 0.23 | A | 143 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 423 | 0.28 | A | 502 | 0.33 | A | 427 | 0.28 | A | 501 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,525 | **1.02** | **F** | 1,118 | 0.75 | C | 1,545 | **1.03** | **F** | 1,117 | 0.74 | C |
| | NB Loop On | 1 | 1,500 | 1,240 | 0.83 | D | 1,260 | 0.84 | D | 1,241 | 0.83 | D | 1,264 | 0.84 | D |
| | SB Off | 2 | 2,250 | 2,910 | **1.29** | **F** | 2,959 | **1.32** | **F** | 2,911 | **1.29** | **F** | 2,998 | **1.33** | **F** |
| | NB Off | 1 | 1,500 | 1,330 | 0.89 | D | 1,210 | 0.81 | D | 1,344 | 0.90 | D | 1,213 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 203 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 821 | 0.55 | A | 753 | 0.50 | A | 826 | 0.55 | A | 752 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 890 | 0.59 | A | 1,230 | 0.82 | D | 901 | 0.60 | A |
| | NB Loop On | 1 | 1,500 | 1,320 | 0.88 | D | 840 | 0.56 | A | 1,290 | 0.86 | D | 831 | 0.55 | A |
| | SB Off | 2 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,097 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 310 | 0.21 | A | 1,091 | 0.73 | C | 311 | 0.21 | A | 1,089 | 0.73 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 262 | 0.17 | A | 736 | 0.49 | A | 273 | 0.18 | A | 734 | 0.49 | A |
| | SB Loop On | 1 | 900 | 252 | 0.28 | A | 332 | 0.37 | A | 252 | 0.28 | A | 342 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 660 | 0.44 | A | 930 | 0.62 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 590 | 0.39 | A | 400 | 0.27 | A | 580 | 0.39 | A | 400 | 0.27 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,380 | 0.46 | A | 831 | 0.28 | A | 1,380 | 0.46 | A |
| | NB Off | 1 | 1,500 | 1,293 | 0.86 | D | 1,286 | 0.86 | D | 1,322 | 0.88 | D | 1,278 | 0.85 | D |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,060 | 0.71 | C | 1,120 | 0.75 | C | 1,050 | 0.70 | B | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 300 | 0.33 | A | 280 | 0.31 | A | 290 | 0.32 | A |
| | NB Direct On | 1 | 1,500 | 1,320 | 0.88 | D | 600 | 0.40 | A | 1,340 | 0.89 | D | 601 | 0.40 | A |
| | NB Loop On | 1 | 900 | 330 | 0.37 | A | 110 | 0.12 | A | 320 | 0.36 | A | 100 | 0.11 | A |
| | SB Off | 1 | 1,500 | 613 | 0.41 | A | 754 | 0.50 | A | 614 | 0.41 | A | 776 | 0.52 | A |
| | NB Off | 2 | 2,250 | 1,478 | 0.66 | B | 1,923 | 0.85 | D | 1,459 | 0.65 | B | 1,900 | 0.84 | D |

## Table 8-6 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Sand Canyon | SB Direct On | 1 | 1,500 | 310 | 0.21 | A | 230 | 0.15 | A | 300 | 0.20 | A | 231 | 0.15 | A |
| | SB Loop On | 1 | 1,500 | 190 | 0.13 | A | 440 | 0.29 | A | 190 | 0.13 | A | 421 | 0.28 | A |
| | NB Direct On | 1 | 1,500 | 1,202 | 0.80 | C | 1,360 | 0.91 | E | 1,260 | 0.84 | D | 1,360 | 0.91 | E |
| | NB Loop On | 1 | 1,500 | 641 | 0.43 | A | 370 | 0.25 | A | 640 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,977 | **1.32** | **F** | 1,035 | 0.69 | B | 1,947 | **1.30** | **F** | 1,105 | 0.74 | C |
| | NB Off | 1 | 1,500 | 728 | 0.49 | A | 528 | 0.35 | A | 699 | 0.47 | A | 517 | 0.34 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 260 | 0.29 | A | 410 | 0.46 | A | 260 | 0.29 | A | 410 | 0.46 | A |
| | NB Direct On | 1 | 1,500 | 249 | 0.17 | A | 584 | 0.59 | A | 251 | 0.17 | A | 580 | 0.39 | A |
| | NB Loop On | 1 | 1,500 | 252 | 0.17 | A | 1,230 | 0.82 | D | 255 | 0.17 | A | 1,209 | 0.81 | D |
| | SB Off | 2 | 2,250 | 2,012 | 0.89 | D | 1,419 | 0.63 | B | 2,033 | 0.90 | D | 1,469 | 0.65 | B |
| | NB Off | 2 | 3,000 | 1,201 | 0.40 | A | 410 | 0.14 | A | 1,189 | 0.40 | A | 420 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 569 | 0.14 | A | 2,383 | 0.60 | A | 576 | 0.14 | A | 2,376 | 0.59 | A |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,117 | 0.78 | C | 989 | 0.25 | A | 3,133 | 0.78 | C | 964 | 0.24 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,864 | 0.47 | A | 3,356 | 0.84 | D | 1,992 | 0.50 | A | 3,351 | 0.84 | D |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 4,058 | **1.01** | **F** | 1,892 | 0.47 | A | 4,035 | **1.01** | **F** | 1,969 | 0.49 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 384 | 0.26 | A | 330 | 0.22 | A | 408 | 0.27 | A | 320 | 0.21 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 300 | 0.20 | A | 251 | 0.17 | A | 270 | 0.18 | A |
| | NB Loop On | 1 | 1,500 | 130 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 441 | 0.20 | A | 200 | 0.09 | A | 440 | 0.20 | A | 210 | 0.09 | A |
| | NB Off | 1 | 1,500 | 200 | 0.13 | A | 598 | 0.40 | A | 180 | 0.12 | A | 617 | 0.41 | A |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 760 | 0.51 | A | 680 | 0.45 | A | 750 | 0.50 | A | 670 | 0.45 | A |
| | NB On | 1 | 1,500 | 140 | 0.09 | A | 570 | 0.38 | A | 160 | 0.11 | A | 560 | 0.37 | A |
| | SB Off | 1 | 1,500 | 700 | 0.47 | A | 280 | 0.19 | A | 701 | 0.47 | A | 290 | 0.19 | A |
| | NB Off | 1 | 1,500 | 857 | 0.57 | A | 952 | 0.63 | B | 816 | 0.54 | A | 970 | 0.65 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,072 | 0.54 | A | 1,672 | 0.84 | D | 1,121 | 0.56 | A | 1,701 | 0.85 | D |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,961 | 0.98 | E | 1,176 | 0.59 | A | 2,001 | 1.00 | E | 1,188 | 0.59 | A |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,309 | 0.65 | B | 458 | 0.23 | A | 1,319 | 0.66 | B | 453 | 0.23 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 616 | 0.31 | A | 1,400 | 0.70 | B | 608 | 0.30 | A | 1,409 | 0.70 | B |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,083 | 0.52 | A | 1,800 | 0.45 | A | 2,121 | 0.53 | A | 1,800 | 0.45 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,222 | 0.56 | A | 2,149 | 0.54 | A | 2,245 | 0.56 | A | 2,166 | 0.54 | A |

## Table 8-6 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 141 | 0.13 | A | 1,223 | **1.13** | **F** | 150 | 0.14 | A | 1,200 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 198 | 0.18 | A | 623 | 0.58 | A | 173 | 0.16 | A | 617 | 0.57 | A |
| | NB Loop On | 1 | 1,080 | 411 | 0.38 | A | 1,516 | **1.40** | **F** | 430 | 0.40 | A | 1,490 | **1.38** | **F** |
| | SB Off | 2 | 3,000 | 2,340 | 0.78 | C | 620 | 0.21 | A | 2,330 | 0.78 | C | 592 | 0.20 | A |
| | NB Off | 2 | 2,250 | 1,516 | 0.67 | B | 370 | 0.16 | A | 1,506 | 0.67 | B | 400 | 0.18 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 953 | 0.48 | A | 993 | 0.50 | A | 936 | 0.47 | A | 999 | 0.50 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 50 | 0.03 | A | 28 | 0.01 | A | 48 | 0.02 | A | 24 | 0.01 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 1,117 | 0.28 | A | 586 | 0.15 | A | 1,178 | 0.29 | A | 602 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,313 | 0.33 | A | 1,037 | 0.26 | A | 1,370 | 0.34 | A | 1,016 | 0.25 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,650 | 0.83 | D | 1,654 | 0.83 | D | 1,621 | 0.81 | D | 1,720 | 0.86 | D |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 621 | 0.31 | A | 687 | 0.34 | A | 613 | 0.31 | A | 704 | 0.35 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 203 | 0.10 | A | 258 | 0.13 | A | 205 | 0.10 | A | 255 | 0.13 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 1,104 | 0.61 | B | 468 | 0.26 | A | 1,080 | 0.60 | A | 432 | 0.24 | A |
| | NB On | 1 | 1,500 | 480 | 0.32 | A | 402 | 0.27 | A | 440 | 0.29 | A | 215 | 0.14 | A |
| | SB Off | 1 | 1,500 | 1,050 | 0.70 | B | 540 | 0.36 | A | 550 | 0.37 | A | 472 | 0.31 | A |
| | NB Off | 1 | 1,500 | 807 | 0.54 | A | 1,153 | 0.77 | C | 910 | 0.61 | B | 1,164 | 0.78 | C |
| SR-241 at Jeffrey | SB On | 1 | 1,500 | 37 | 0.02 | A | 23 | 0.02 | A | 38 | 0.03 | A | 16 | 0.01 | A |
| | NB On | 1 | 1,500 | 400 | 0.27 | A | 340 | 0.23 | A | 400 | 0.27 | A | 350 | 0.23 | A |
| | SB Off | 1 | 1,500 | 522 | 0.35 | A | 394 | 0.26 | A | 522 | 0.35 | A | 395 | 0.26 | A |
| | NB Off | 1 | 1,500 | 22 | 0.01 | A | 71 | 0.05 | A | 22 | 0.01 | A | 71 | 0.05 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 170 | 0.11 | A | 410 | 0.27 | A | 170 | 0.11 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 120 | 0.08 | A | 33 | 0.02 | A | 122 | 0.08 | A | 33 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 136 | 0.09 | A | 49 | 0.03 | A | 151 | 0.10 | A |
| | NB Off | 1 | 1,500 | 590 | 0.39 | A | 209 | 0.14 | A | 589 | 0.39 | A | 209 | 0.14 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 430 | 0.29 | A | 1,150 | 0.77 | C | 456 | 0.30 | A | 1,113 | 0.74 | C |
| | NB On | 1 | 1,500 | 460 | 0.31 | A | 630 | 0.42 | A | 435 | 0.29 | A | 605 | 0.40 | A |
| | SB Off | 1 | 1,500 | 730 | 0.49 | A | 460 | 0.31 | A | 656 | 0.46 | A | 443 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,100 | 0.49 | A | 630 | 0.28 | A | 1,006 | 0.45 | A | 627 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 220 | 0.10 | A | 870 | 0.39 | A | 220 | 0.10 | A | 840 | 0.37 | A |
| | SB Off | 1 | 1,500 | 820 | 0.55 | A | 420 | 0.28 | A | 823 | 0.55 | A | 419 | 0.28 | A |

## Table 8-6 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary
### With 2012 Modified Project - Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 330 | 0.22 | A | 1,430 | 0.95 | E | 331 | 0.22 | A | 1,417 | 0.94 | E |
| | NB On | 2 | 2,250 | 830 | 0.37 | A | 440 | 0.20 | A | 827 | 0.37 | A | 432 | 0.19 | A |
| | SB Off | 1 | 1,500 | 530 | 0.35 | A | 620 | 0.41 | A | 529 | 0.35 | A | 619 | 0.41 | A |
| | NB Off | 2 | 2,250 | 2,190 | 0.97 | E | 580 | 0.26 | A | 2,172 | 0.97 | E | 583 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 920 | 0.61 | B | 240 | 0.16 | A | 900 | 0.60 | A | 250 | 0.17 | A |
| | NB Off | 1 | 1,500 | 140 | 0.09 | A | 712 | 0.47 | A | 150 | 0.10 | A | 691 | 0.46 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 174 | 0.12 | A | 100 | 0.07 | A | 175 | 0.12 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 210 | 0.14 | A | 140 | 0.09 | A | 210 | 0.14 | A | 140 | 0.09 | A |
| | SB Off | 1 | 1,500 | 102 | 0.07 | A | 89 | 0.06 | A | 102 | 0.07 | A | 89 | 0.06 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 106 | 0.07 | A | 101 | 0.07 | A | 106 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 790 | 0.53 | A | 320 | 0.21 | A | 790 | 0.53 | A | 340 | 0.23 | A |
| | NB On | 1 | 1,500 | 230 | 0.15 | A | 160 | 0.11 | A | 220 | 0.15 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 81 | 0.05 | A | 71 | 0.05 | A | 80 | 0.05 | A | 70 | 0.05 | A |
| | NB Off | 1 | 1,500 | 212 | 0.14 | A | 372 | 0.25 | A | 222 | 0.15 | A | 393 | 0.26 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

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## Table 8-7

### Post 2030 Freeway Mainline LOS Summary
### 2012 Modified Project - Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 14,869 | **1.28** | **F** | 11,906 | **1.03** | **F** | 15,119 | **1.30** | **F** | 11,912 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 9,609 | 0.83 | D | 9,886 | 0.85 | D | 9,574 | 0.83 | D | 10,073 | 0.87 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,127 | **1.22** | **F** | 11,321 | 0.98 | E | 14,371 | **1.24** | **F** | 11,313 | 0.98 | E |
| | | SB | 5+1H | 11,600 | 11,604 | 1.00 | E | 11,898 | **1.03** | **F** | 11,520 | 0.99 | E | 12,106 | **1.04** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 14,719 | **1.27** | **F** | 11,978 | **1.03** | **F** | 15,001 | **1.29** | **F** | 11,957 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,338 | **1.06** | **F** | 12,585 | **1.08** | **F** | 12,265 | **1.06** | **F** | 12,813 | **1.10** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,379 | **1.24** | **F** | 11,695 | **1.01** | **F** | 14,662 | **1.26** | **F** | 11,680 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 12,041 | **1.04** | **F** | 12,258 | **1.06** | **F** | 11,976 | **1.03** | **F** | 12,480 | **1.08** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,562 | **1.26** | **F** | 11,676 | **1.01** | **F** | 14,896 | **1.28** | **F** | 11,640 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 11,761 | **1.01** | **F** | 12,325 | **1.06** | **F** | 11,658 | **1.01** | **F** | 12,514 | **1.08** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,742 | **1.10** | **F** | 10,925 | 0.94 | E | 13,057 | **1.13** | **F** | 10,896 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 11,418 | 0.98 | E | 11,150 | 0.96 | E | 11,320 | 0.98 | E | 11,291 | 0.97 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,738 | **1.10** | **F** | 11,048 | 0.95 | E | 13,002 | **1.12** | **F** | 10,975 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,922 | **1.03** | **F** | 11,439 | 0.99 | E | 11,786 | **1.02** | **F** | 11,596 | 1.00 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 10,150 | **1.06** | **F** | 8,803 | 0.92 | E | 10,240 | **1.07** | **F** | 8,780 | 0.91 | E |
| | | SB | 4+1H | 9,600 | 9,445 | 0.98 | E | 9,169 | 0.96 | E | 9,424 | 0.98 | E | 9,257 | 0.96 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,637 | **1.11** | **F** | 7,686 | 0.80 | C | 10,684 | **1.11** | **F** | 7,687 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 7,764 | 0.81 | D | 9,441 | 0.98 | E | 7,782 | 0.81 | D | 9,504 | 0.99 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 20,941 | 0.97 | E | 14,080 | 0.65 | B | 21,053 | 0.98 | E | 14,103 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 11,837 | 0.55 | A | 16,140 | 0.75 | C | 11,832 | 0.55 | A | 16,186 | 0.75 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 20,952 | **1.07** | **F** | 13,034 | 0.67 | B | 20,911 | **1.07** | **F** | 13,062 | 0.67 | B |
| | | SB | 8+2H | 19,500 | 12,132 | 0.62 | B | 16,829 | 0.86 | D | 12,167 | 0.62 | B | 16,828 | 0.86 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,016 | **1.48** | **F** | 12,128 | 0.90 | D | 19,921 | **1.48** | **F** | 12,135 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,076 | 0.75 | C | 15,465 | **1.15** | **F** | 10,129 | 0.75 | C | 15,457 | **1.14** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 17,012 | **1.77** | **F** | 10,138 | **1.06** | **F** | 16,884 | **1.76** | **F** | 10,144 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,863 | 0.82 | D | 12,290 | **1.28** | **F** | 7,943 | 0.83 | D | 12,179 | **1.27** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,115 | **1.37** | **F** | 7,629 | 0.79 | C | 13,024 | **1.36** | **F** | 7,632 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,360 | 0.66 | B | 10,338 | **1.08** | **F** | 6,416 | 0.67 | B | 10,312 | **1.07** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,039 | **1.25** | **F** | 9,000 | 0.94 | E | 12,352 | **1.29** | **F** | 9,018 | 0.94 | E |
| | | SB | 4+1H | 9,600 | 9,134 | 0.95 | E | 10,181 | **1.06** | **F** | 9,096 | 0.95 | E | 10,414 | **1.08** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,428 | **1.29** | **F** | 9,446 | 0.98 | E | 12,708 | **1.32** | **F** | 9,446 | 0.98 | E |
| | | SB | 4+1H | 9,600 | 9,342 | 0.97 | E | 10,085 | **1.05** | **F** | 9,267 | 0.97 | E | 10,289 | **1.07** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,249 | **1.28** | **F** | 8,481 | 0.88 | D | 12,446 | **1.30** | **F** | 8,461 | 0.88 | D |
| | | SB | 4+1H | 9,600 | 8,200 | 0.85 | D | 9,628 | 1.00 | E | 8,152 | 0.85 | D | 9,757 | **1.02** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,023 | **1.04** | **F** | 7,113 | 0.74 | C | 10,099 | **1.05** | **F** | 7,098 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,932 | 0.72 | C | 8,308 | 0.87 | D | 6,900 | 0.72 | C | 8,357 | 0.87 | D |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,326 | 0.76 | C | 4,076 | 0.42 | A | 7,338 | 0.76 | C | 4,074 | 0.42 | A |
| | | SB | 4+1H | 9,600 | 6,074 | 0.63 | B | 8,171 | 0.85 | D | 6,021 | 0.63 | B | 8,167 | 0.85 | D |

## Table 8-7 Cont.

### Post 2030 Freeway Mainline LOS Summary
### 2012 Modified Project - Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4+1H | 9,600 | 2,434 | 0.25 | A | 5,740 | 0.60 | A | 2,568 | 0.27 | A | 5,728 | 0.60 | A |
| | | SB | 4+1H | 9,600 | 7,176 | 0.75 | C | 2,882 | 0.30 | A | 7,168 | 0.75 | C | 2,934 | 0.31 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 2,166 | 0.29 | A | 5,517 | 0.73 | C | 2,221 | 0.29 | A | 5,556 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,591 | 0.87 | D | 2,730 | 0.36 | A | 6,657 | 0.88 | D | 2,766 | 0.36 | A |
| | n/o I-5 | NB | 3+1H | 7,600 | 2,023 | 0.27 | A | 4,953 | 0.65 | B | 2,062 | 0.27 | A | 5,000 | 0.66 | B |
| | | SB | 3+1H | 7,600 | 4,604 | 0.61 | B | 1,995 | 0.26 | A | 4,661 | 0.61 | B | 2,029 | 0.27 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,407 | 0.57 | A | 4,977 | 0.83 | D | 3,388 | 0.56 | A | 5,019 | 0.84 | D |
| | | SB | 3 | 6,000 | 5,463 | 0.91 | E | 3,295 | 0.55 | A | 5,512 | 0.92 | E | 3,305 | 0.55 | A |
| | n/o I-405 | NB | 3 | 6,000 | 4,143 | 0.69 | B | 3,785 | 0.63 | B | 4,120 | 0.69 | B | 3,878 | 0.65 | B |
| | | SB | 3 | 6,000 | 3,700 | 0.62 | B | 3,333 | 0.56 | A | 3,768 | 0.63 | B | 3,347 | 0.56 | A |
| SR-241 | n/o SR-133 | NB | 3+1H | 7,600 | 5,531 | 0.73 | C | 5,638 | 0.74 | C | 5,748 | 0.76 | C | 5,617 | 0.74 | C |
| | | SB | 3+1H | 7,600 | 6,598 | 0.87 | D | 4,896 | 0.64 | B | 6,522 | 0.86 | D | 5,025 | 0.66 | B |
| | n/o Portola (West) | NB | 4+1H | 9,600 | 6,783 | 0.71 | C | 3,270 | 0.34 | A | 6,889 | 0.72 | C | 3,229 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,110 | 0.32 | A | 5,388 | 0.56 | A | 3,063 | 0.32 | A | 5,431 | 0.57 | A |
| | n/o Alton | NB | 4+1H | 9,600 | 6,905 | 0.72 | C | 3,354 | 0.35 | A | 6,986 | 0.73 | C | 3,308 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,233 | 0.34 | A | 5,528 | 0.58 | A | 3,180 | 0.33 | A | 5,549 | 0.58 | A |
| | n/o Lake Forest | NB | 4+1H | 9,600 | 7,670 | 0.80 | C | 3,103 | 0.32 | A | 7,682 | 0.80 | C | 3,080 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 2,777 | 0.29 | A | 5,979 | 0.62 | B | 2,784 | 0.29 | A | 5,979 | 0.62 | B |
| SR-261 | n/o Portola | NB | 3+1H | 7,600 | 1,191 | 0.16 | A | 3,141 | 0.41 | A | 1,192 | 0.16 | A | 3,164 | 0.42 | A |
| | | SB | 3+1H | 7,600 | 3,961 | 0.52 | A | 1,292 | 0.17 | A | 4,042 | 0.53 | A | 1,303 | 0.17 | A |
| | n/o irvine Blvd | NB | 3+1H | 7,600 | 692 | 0.09 | A | 2,804 | 0.37 | A | 686 | 0.09 | A | 2,839 | 0.37 | A |
| | | SB | 3+1H | 7,600 | 3,654 | 0.48 | A | 910 | 0.12 | A | 3,752 | 0.49 | A | 923 | 0.12 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 976 | 0.13 | A | 3,547 | 0.47 | A | 984 | 0.13 | A | 3,603 | 0.47 | A |
| | | SB | 3+1H | 7,600 | 4,297 | 0.57 | A | 1,299 | 0.17 | A | 4,408 | 0.58 | A | 1,326 | 0.17 | A |
| | n/o Chapman/Sant. Cyn | NB | 3+1H | 7,600 | 6,062 | 0.80 | C | 8,242 | **1.08** | **F** | 6,133 | 0.81 | D | 8,002 | **1.05** | **F** |
| | | SB | 3+1H | 7,600 | 10,422 | **1.37** | **F** | 5,655 | 0.74 | C | 9,962 | **1.31** | **F** | 5,650 | 0.74 | C |

**Bold** = Deficient Segment

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## 8.2 Post-2030 Traffic Impacts with 2012 Modified Project, with Option 2

The following sub-sections summarize the resulting 2011 Approved Project (baseline) and 2012 Modified Project Option 2 traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline segments and freeway/tollway ramps.

### 8.2.1 Post-2030 Circulation System and Average Daily Traffic Volumes, Option 2

The Post-2030 circulation system in the study area was previously illustrated in Chapter 4.0. The Post-2030 with Option 2 average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 8-7 and 8-8, respectively.

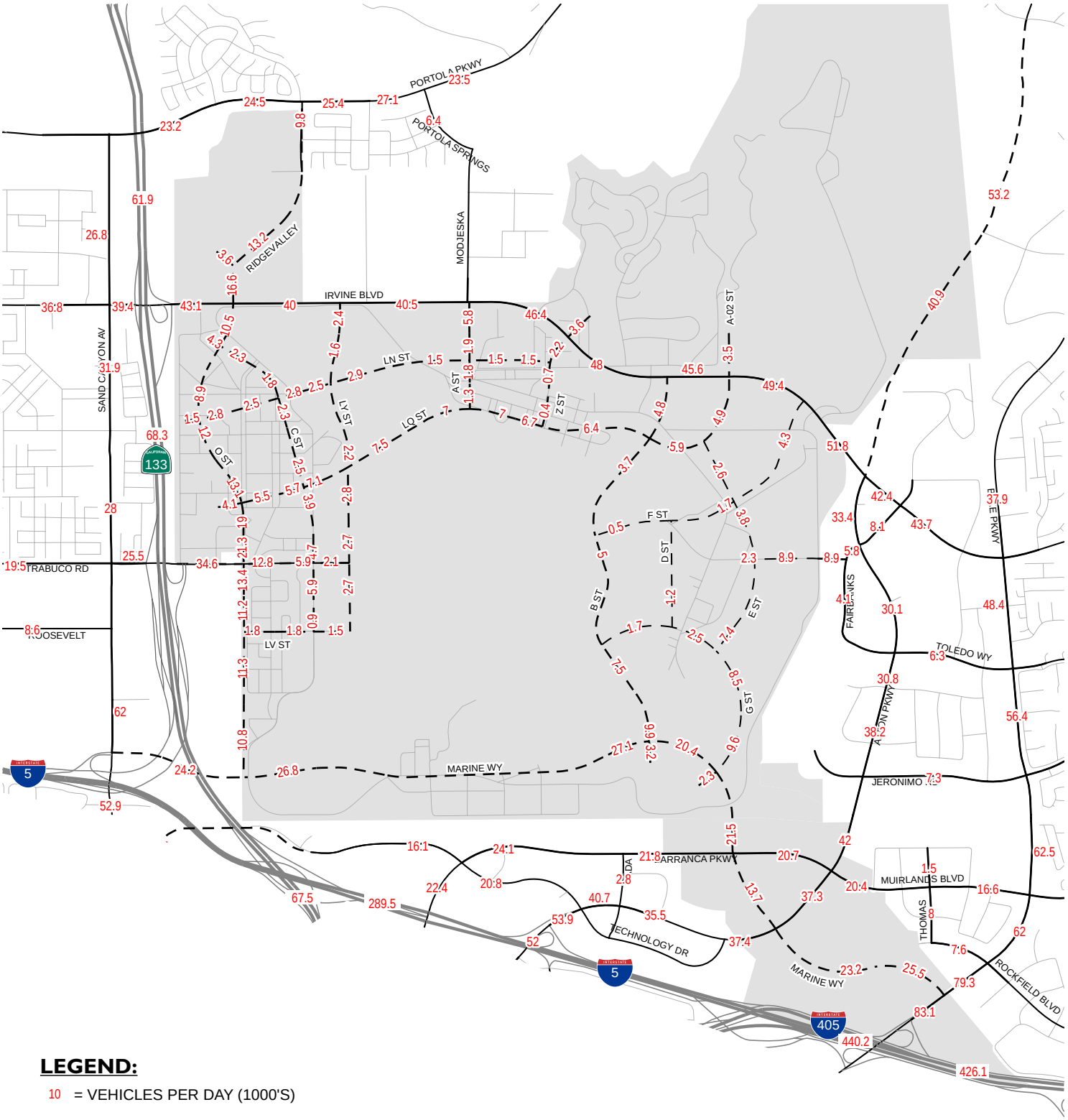
Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following three (3) arterial roadway segments are potentially impacted by Option 2:

- Alton Pkwy (b/w Culver Dr and W Yale Loop)
- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Jeffrey Rd (b/w Roosevelt and I-5 NB Ramps)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Option 2 conditions are summarized in Table 8-8. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

EXHIBIT 8-7 (1 OF 3)

# POST-2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 2, PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 8-7 (2 OF 3)

# POST-2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT, OPTION 2, WEST STUDY AREA

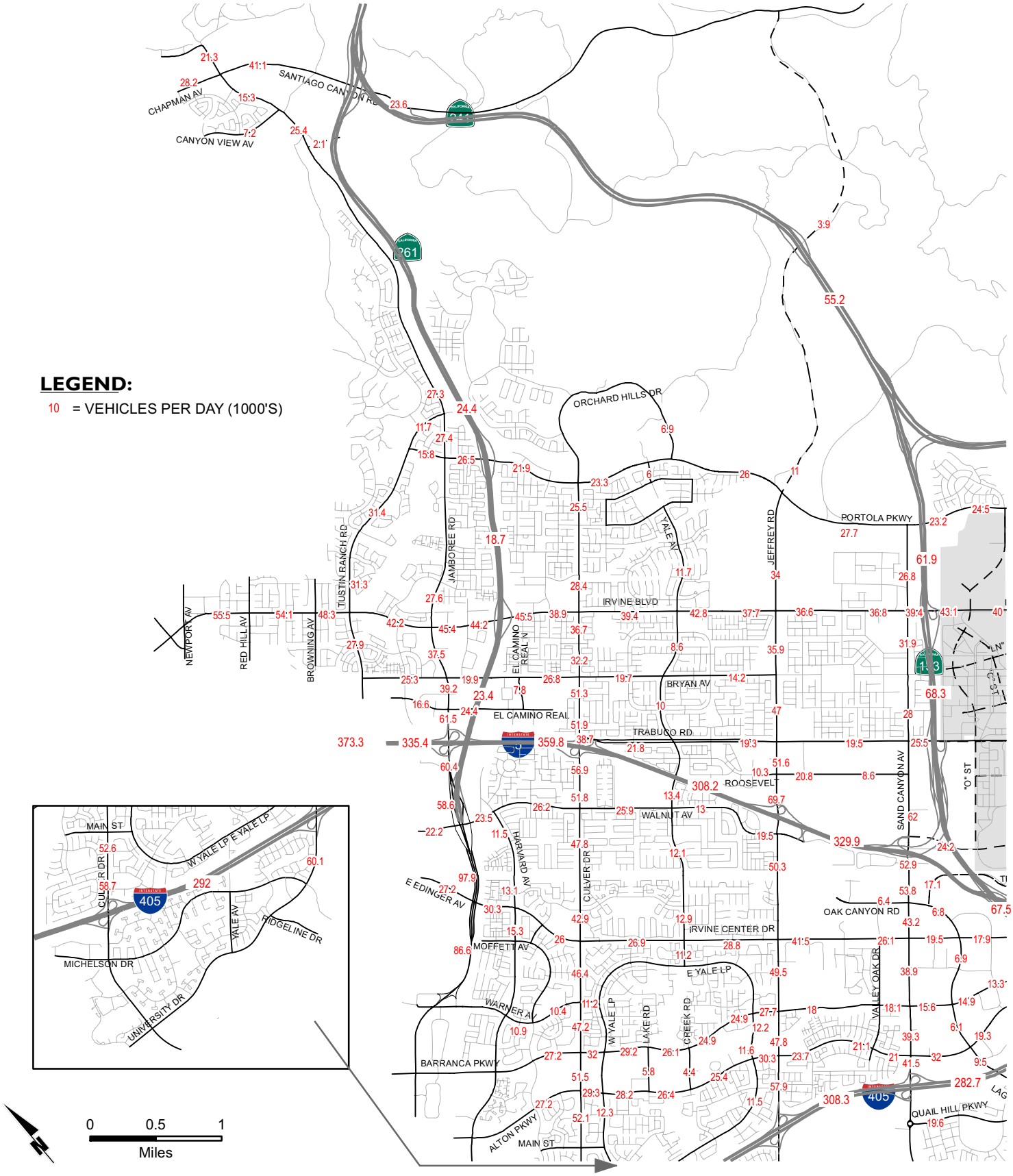
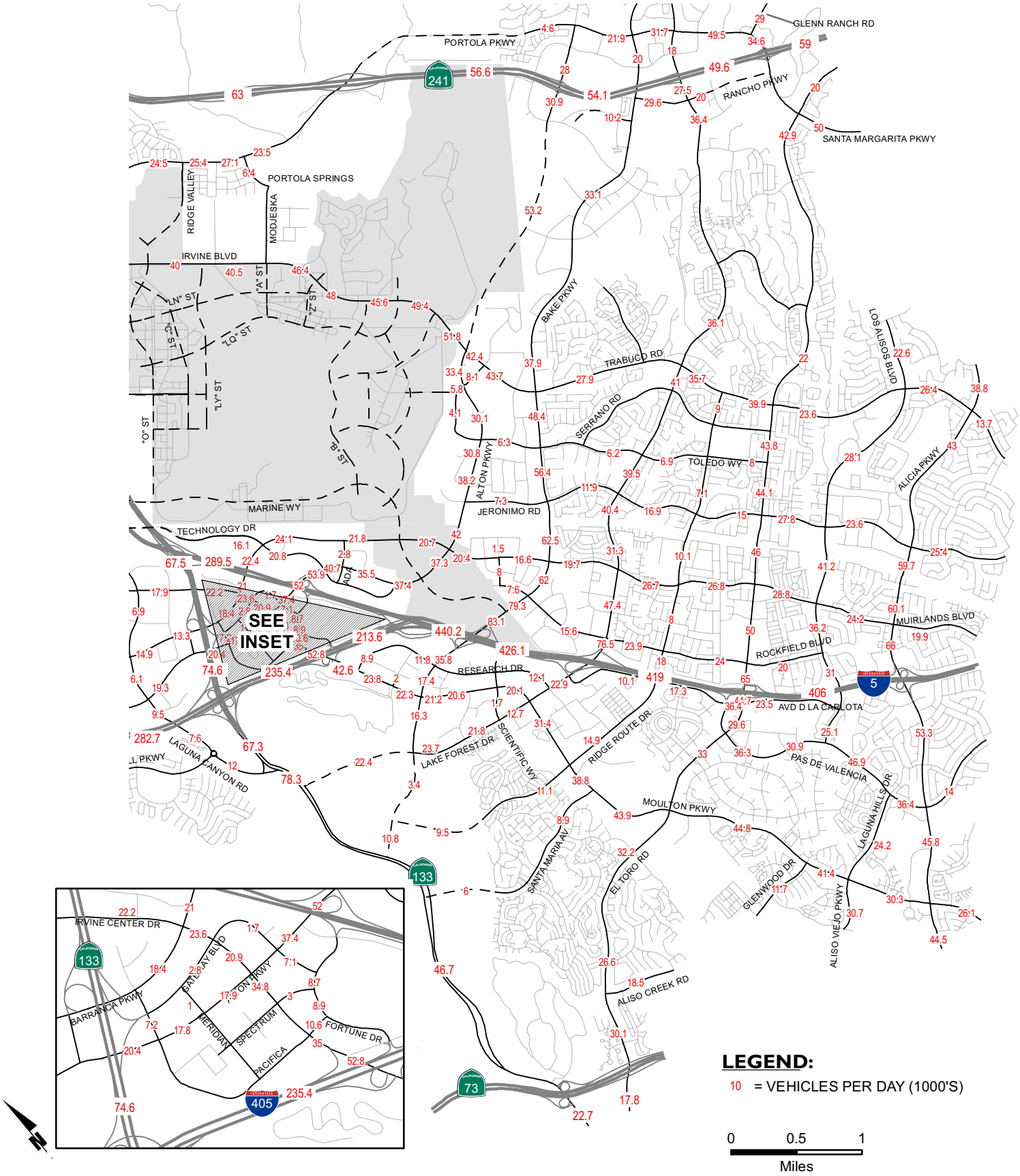
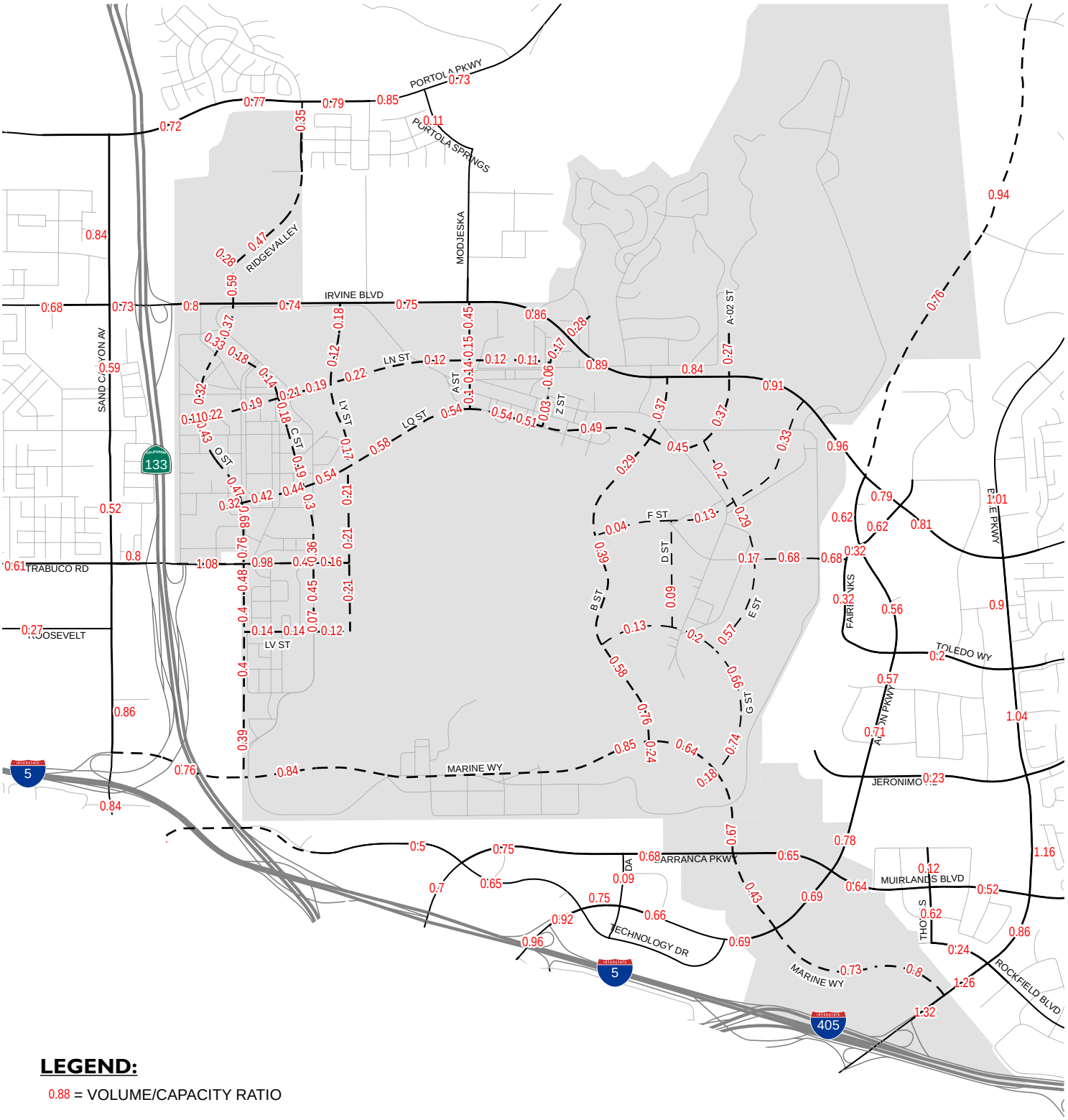


EXHIBIT 8-7 (3 OF 3)

# POST-2030 ADT VOLUMES WITH 2012 MODIFIED PROJECT OPTION 2, EAST STUDY AREA



# POST-2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 2, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

# POST-2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT, OPTION 2, WEST STUDY AREA

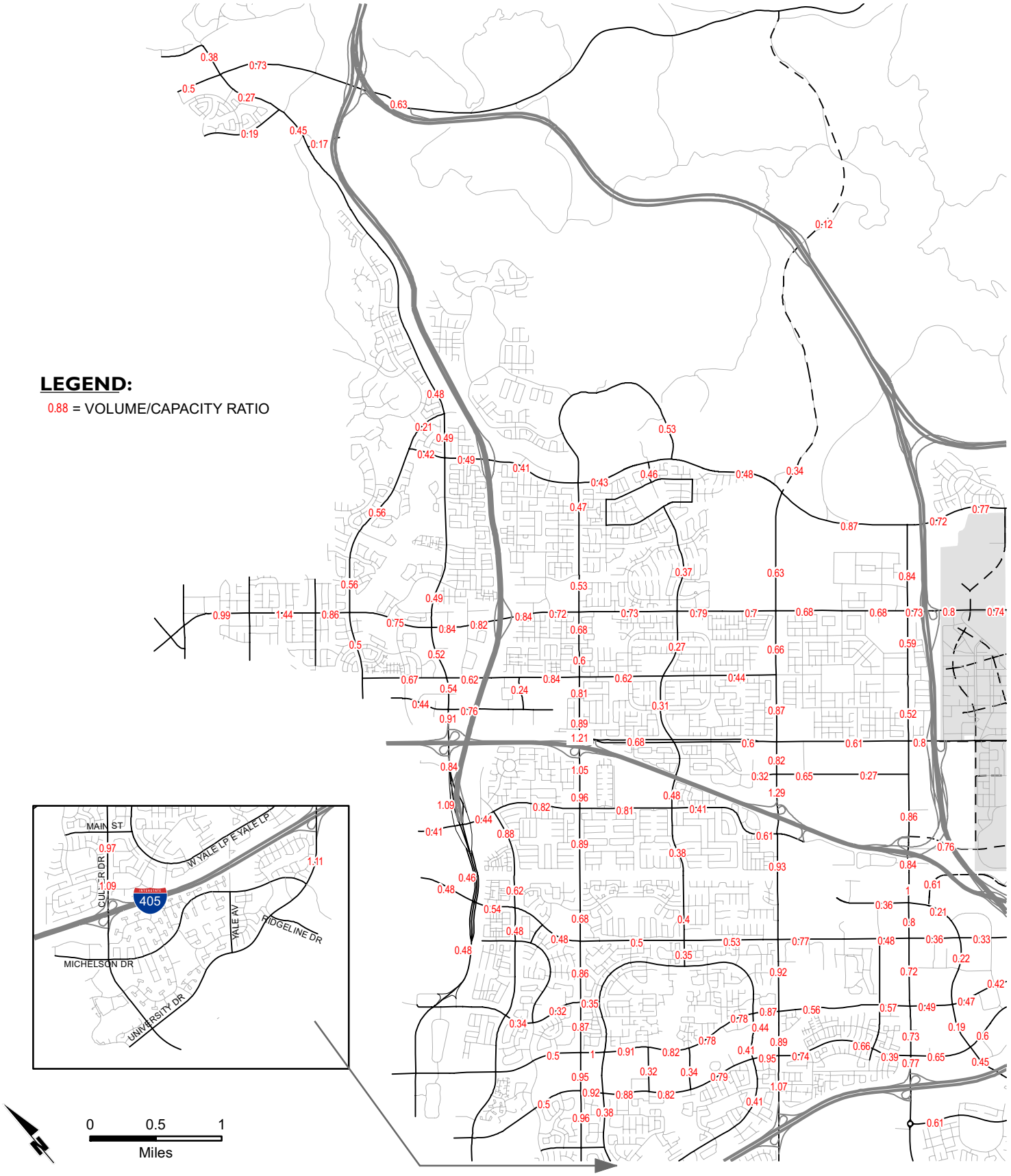
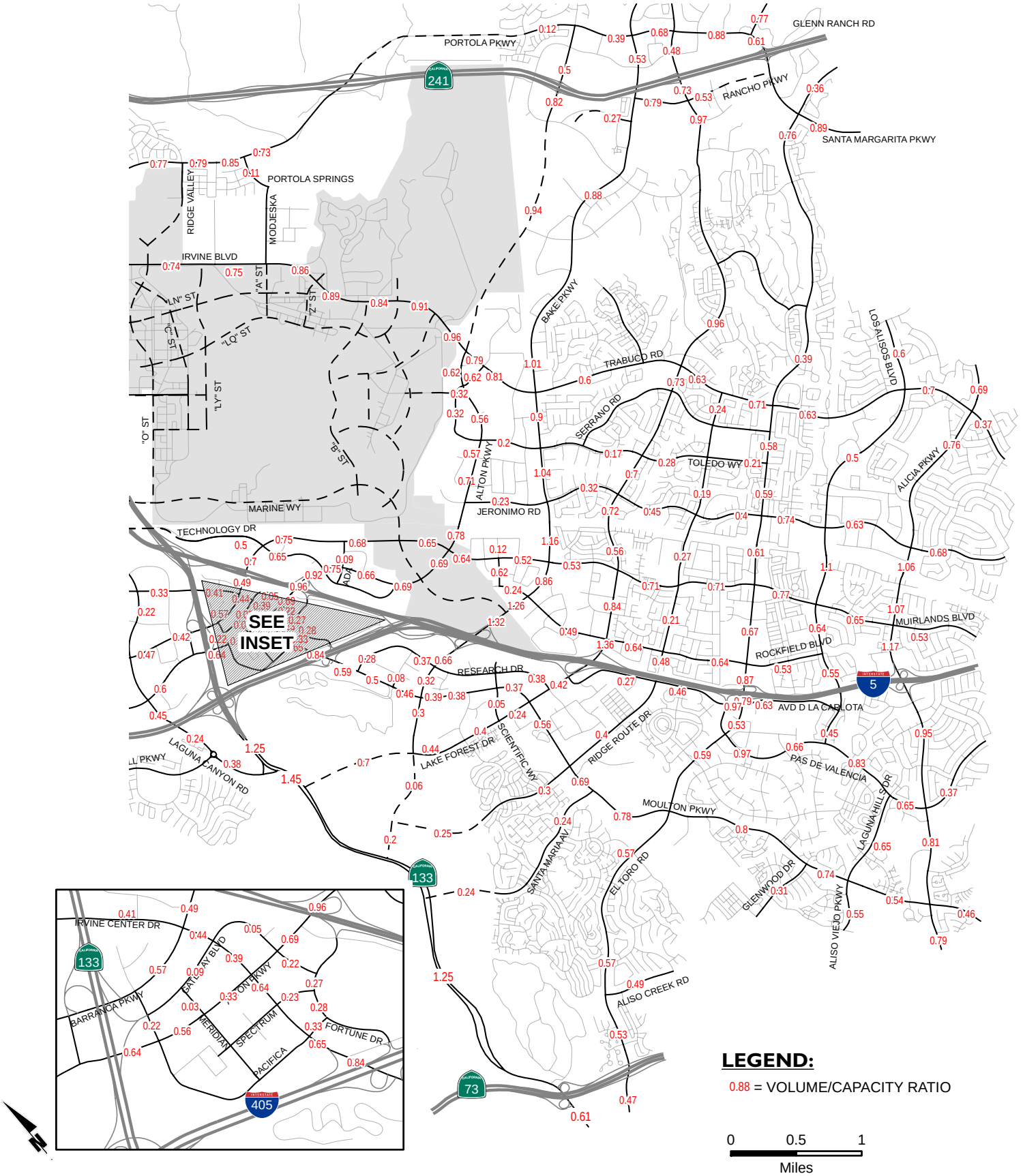


EXHIBIT 8-8 (3 OF 3)

# POST-2030 ADT V/C RATIOS WITH 2012 MODIFIED PROJECT OPTION 2, EAST STUDY AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 0.5 1

Miles

**TABLE 8-8**

**Post-2030 Arterial Roadway Peak Hour Analysis**
**With 2012 Modified Project, Option 2**

| Arterial | ADT Segment Limits | Juris | # of Lanes | Peak Hour Capacity | P2030 With 2012 Modified Project Option 2 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Refined ADT | Highest Peak Volume | Peak Hour V/C | Peak Hour LOS |
| Alton Pkwy. | b/w Culver Dr. and W. Yale Loop | Irv | 4D | 3200 | 29,300 | 1,719 AM WB | 0.54 | A |
| Bake Pkwy. | b/w Rockfield Bl. and Marine Wy. | Irv | 8D | 6400 | 79,300 | 4,139 AM NB | 0.65 | B |
| Jeffrey Rd. | b/w Roosevelt and I-5 NB Ramps | Irv | 6D | 4800 | 69,700 | 3,498 AM SB | 0.73 | C |

8.2.2 Post-2030 Peak Hour Intersection Levels of Service, Option 2

Post-2030 with Option 2 AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 8-5 that are analyzed in this traffic study are summarized in Table 8-9. Actual turn volumes, lane geometrics and ICU calculation worksheets for Post-2030 with Option 2 are included in Appendix 8.5. Based on the peak hour intersection performance criteria and impact thresholds discussed in Chapter 2.0, three intersections exceed adopted impact thresholds with Option 2 based on Post-2030 conditions.

**Table 8-10**

**Post-2030 Intersection ICU LOS with 2012 Modified Project**
**Option 2 Impact Locations**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS |
| 286. Jeffrey Rd. & Roosevelt | AM | 0.89 | D | 0.92 | E |
| 291. Jeffrey Rd. & Alton Pkwy. | AM | 0.90 | D | 0.93 | E |
| 321. Laguna Cyn. & Old Laguna Cyn. | AM | 0.92 | E | 0.94 | E |

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Project, the freeway ramp intersections at

## Table 8-9

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | Yes | Yes | | 0.78 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | Yes | Yes | | 0.76 | C | 0.85 | D | 0.77 | C | 0.85 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | | 0.85 | D | 0.75 | C | 0.87 | D | 0.75 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | Yes | Yes | | 0.78 | C | 0.85 | D | 0.80 | C | 0.85 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | | 0.63 | B | 0.54 | A | 0.65 | B | 0.55 | A |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | | 0.73 | C | 0.69 | B | 0.76 | C | 0.70 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | | Yes | 0.81 | D | 0.80 | C | 0.82 | D | 0.80 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | | 0.69 | B | 0.62 | B | 0.70 | B | 0.63 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | | 0.71 | C | 0.70 | B | 0.71 | C | 0.70 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | | 0.63 | B | 0.71 | C | 0.64 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | | 0.63 | B | 0.63 | B | 0.63 | B | 0.63 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | | 0.47 | A | 0.59 | A | 0.47 | A | 0.58 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | | 0.54 | A | 0.76 | C | 0.52 | A | 0.75 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | | Yes | 0.50 | A | 0.70 | B | 0.51 | A | 0.69 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | Yes | | | 0.39 | A | 0.43 | A | 0.41 | A | 0.45 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | | Yes | 0.84 | D | 0.95 | E | 0.84 | D | 0.95 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | | 0.46 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | | 0.46 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | | 0.58 | A | 0.52 | A | 0.57 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | | 0.70 | B | 0.63 | B | 0.71 | C | 0.63 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | | 0.70 | B | 0.67 | B | 0.73 | C | 0.67 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | | 0.80 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | | 0.88 | D | 0.74 | C | 0.90 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | | 0.76 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | | 0.59 | A | 0.65 | B | 0.60 | A | 0.67 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | Yes | | | 0.80 | C | 0.87 | D | 0.82 | D | 0.88 | D |
| 226 | Culver Dr at ICD | Irv | | Yes | | | 0.77 | C | 0.70 | B | 0.77 | C | 0.72 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | | 0.81 | D | 0.65 | B | 0.82 | D | 0.66 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | Yes | | | 0.89 | D | 0.79 | C | 0.89 | D | 0.80 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | Yes | | | 0.85 | D | 0.88 | D | 0.86 | D | 0.89 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | | 0.78 | C | 0.72 | C | 0.79 | C | 0.72 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | | 0.57 | A | 0.62 | B | 0.57 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | **F** | Yes | | | 0.63 | B | 0.76 | C | 0.63 | B | 0.77 | C |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | | 0.74 | C | 0.88 | D | 0.75 | C | 0.88 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | | 0.46 | A | 0.45 | A | 0.47 | A | 0.45 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | | 0.61 | B | 0.51 | A | 0.62 | B | 0.51 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | | 0.60 | A | 0.73 | C | 0.60 | A | 0.74 | C |
| 261 | Yale Av at ICD | Irv | | | | | 0.69 | B | 0.68 | B | 0.67 | B | 0.69 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | | 0.64 | B | 0.62 | B | 0.64 | B | 0.62 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | | 0.68 | B | 0.65 | B | 0.69 | B | 0.65 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | | 0.67 | B | 0.68 | B | 0.70 | B | 0.68 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | | 0.75 | C | 0.67 | B | 0.74 | C | 0.68 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | | 0.69 | B | 0.64 | B | 0.68 | B | 0.64 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | Yes | | | 0.74 | C | 0.71 | C | 0.75 | C | 0.71 | C |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.68 | B |

## Table 8-9 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | Yes | | | 0.66 | B | 0.74 | C | 0.65 | B | 0.75 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | | 0.89 | D | 0.89 | D | **0.92** | **E** | 0.88 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | | 0.73 | C | 0.82 | D | 0.74 | C | 0.82 | D |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | | 0.79 | C | 0.80 | C | 0.79 | C | 0.80 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | Yes | | | 0.82 | D | 0.79 | C | 0.84 | D | 0.79 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | Yes | | | 0.85 | D | 0.75 | C | 0.85 | D | 0.74 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | Yes | | 0.90 | D | 0.81 | D | **0.92** | **E** | 0.79 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | | 0.68 | B | 0.79 | C | 0.69 | B | 0.78 | C |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | | 0.67 | B | 0.70 | B | 0.68 | B | 0.71 | C |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | | 0.48 | A | 0.59 | A | 0.48 | A | 0.60 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | | 0.74 | C | 0.76 | C | 0.73 | C | 0.76 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | Yes | | 0.76 | C | 0.77 | C | 0.76 | C | 0.77 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | | 0.80 | C | 0.83 | D | 0.85 | D | 0.87 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | | 0.88 | D | 0.83 | D | 0.90 | D | 0.87 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | | 0.88 | D | 0.77 | C | 0.86 | D | 0.79 | C |
| 307 | Sand Canyon Av at ICD | Irv | | | | | 0.60 | A | 0.65 | B | 0.60 | A | 0.67 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | | 0.58 | A | 0.61 | B | 0.57 | A | 0.60 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | | 0.65 | B | 0.74 | C | 0.62 | B | 0.75 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | | 0.66 | B | 0.47 | A | 0.66 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | | 0.80 | C | 0.54 | A | 0.80 | C | 0.54 | A |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | | 0.34 | A | 0.42 | A | 0.33 | A | 0.43 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | | 0.45 | A | 0.45 | A | 0.45 | A | 0.45 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | | 0.52 | A | 0.57 | A | 0.52 | A | 0.58 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | | 0.54 | A | 0.58 | A | 0.54 | A | 0.58 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | | 0.77 | C | 0.76 | C | 0.71 | C | 0.80 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | | 0.70 | B | 0.55 | A | 0.73 | C | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | | 0.57 | A | 0.53 | A | 0.58 | A | 0.53 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | | **0.92** | **E** | 0.81 | D | **0.94** | **E** | 0.81 | D |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | Irv | | | | Yes | 0.93 | E | 0.62 | B | 0.93 | E | 0.62 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | | Yes | 0.40 | A | 0.45 | A | 0.40 | A | 0.45 | A |
| 324 | Portola Pw at SR-241 NB Ramps | LB | | | | | 0.59 | A | 0.39 | A | 0.59 | A | 0.39 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | | 0.44 | A | 0.43 | A | 0.43 | A | 0.44 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | | 0.58 | A | 0.70 | B | 0.60 | A | 0.69 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | | Yes | 0.66 | B | 0.45 | A | 0.64 | B | 0.43 | A |
| 329 | Barranca Pw at ICD | Irv | | | | Yes | 0.67 | B | 0.67 | B | 0.68 | B | 0.68 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | | Yes | 0.59 | A | 0.77 | C | 0.59 | A | 0.77 | C |
| 333 | Pacifica at Gateway | Irv | | | | Yes | 0.66 | B | 0.75 | C | 0.68 | B | 0.76 | C |
| 335 | Alton Pw at Portola Pw | Irv | | | | | 0.55 | A | 0.47 | A | 0.55 | A | 0.76 | C |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | | 0.68 | B | 0.58 | A | 0.66 | B | 0.58 | A |
| 338 | Alton Pw at Irvine Bl | LF | **F** | | | Yes | 0.92 | E | 0.90 | D | 0.93 | E | 0.88 | D |
| 339 | Alton Pw at Toledo Wy | Irv | | | | | 0.69 | B | 0.63 | B | 0.79 | C | 0.67 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | | 0.66 | B | 0.54 | A | 0.66 | B | 0.54 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | | 0.58 | A | 0.73 | C | 0.57 | A | 0.73 | C |
| 343 | Alton Pw at Ada | Irv | | | | | 0.47 | A | 0.73 | C | 0.51 | A | 0.76 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | | 0.58 | A | 0.88 | D | 0.59 | A | 0.87 | D |

## Table 8-9 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | | Yes | 0.90 | D | 0.52 | A | 0.89 | D | 0.52 | A |
| 346 | Alton Pw at Enterprise | Irv | | | | Yes | 0.72 | C | 0.76 | C | 0.70 | B | 0.77 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | | Yes | 0.57 | A | 0.75 | C | 0.57 | A | 0.75 | C |
| 350 | Alton Pw at Pacifica | Irv | | | | Yes | 0.56 | A | 0.55 | A | 0.57 | A | 0.56 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | | Yes | 0.49 | A | 0.79 | C | 0.50 | A | 0.78 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | | Yes | 0.49 | A | 0.50 | A | 0.50 | A | 0.50 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | | Yes | 0.63 | B | 0.50 | A | 0.64 | B | 0.52 | A |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | | Yes | 0.57 | A | 0.53 | A | 0.57 | A | 0.53 | A |
| 361 | Bake Pw at Portola Pw | LF | | | | | 0.56 | A | 0.82 | D | 0.55 | A | 0.82 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | | Yes | 0.81 | D | 0.89 | D | 0.81 | D | 0.91 | E |
| 363 | Bake Pw at Toledo Wy | Irv | | | | | 0.78 | C | 0.66 | B | 0.77 | C | 0.66 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | | 0.82 | D | 0.67 | B | 0.81 | D | 0.67 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | | 0.75 | C | **0.91** | **E** | 0.74 | C | 0.90 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | | 0.71 | C | 0.86 | D | 0.70 | B | 0.88 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | | Yes | 0.84 | D | 0.59 | A | 0.82 | D | 0.59 | A |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | | Yes | 0.81 | D | 0.85 | D | 0.81 | D | 0.87 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | | 0.57 | A | 0.81 | D | 0.58 | A | 0.81 | D |
| 372 | Bake Pw at ICD | Irv | | | | | 0.53 | A | 0.52 | A | 0.53 | A | 0.51 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | | 0.33 | A | 0.44 | A | 0.33 | A | 0.42 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | | 0.63 | B | 0.89 | D | 0.62 | B | 0.89 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | | 0.57 | A | 0.53 | A | 0.54 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | | 0.84 | D | 0.89 | D | 0.84 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | | 0.62 | B | 0.59 | A | 0.64 | B | 0.59 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | | 0.73 | C | 0.86 | D | 0.73 | C | 0.86 | D |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | | 0.75 | C | 0.84 | D | 0.74 | C | 0.84 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | | 0.86 | D | 0.87 | D | 0.85 | D | 0.88 | D |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | | 0.71 | C | 0.74 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | Yes | | Yes | 0.63 | B | 0.79 | C | 0.64 | B | 0.79 | C |
| 385 | Lake Forest Dr at ICD | Irv | | | | Yes | 0.43 | A | 0.55 | A | 0.44 | A | 0.56 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.69 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | | 0.52 | A | 0.73 | C | 0.51 | A | 0.73 | C |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | | 0.53 | A | 0.68 | B | 0.53 | A | 0.68 | B |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | | 0.53 | A | 0.77 | C | 0.52 | A | 0.77 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | | 0.79 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | | 0.50 | A | 0.74 | C | 0.50 | A | 0.75 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | | 0.71 | C | 0.85 | D | 0.70 | B | 0.85 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | | 0.61 | B | 0.74 | C | 0.61 | B | 0.74 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | | Yes | 0.82 | D | 0.85 | D | 0.82 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | | Yes | 0.60 | A | 0.87 | D | 0.59 | A | 0.87 | D |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | | 0.68 | B | 0.84 | D | 0.69 | B | 0.84 | D |
| 398 | El Toro Rd at Moulton Pw | LW | | | | Yes | 0.85 | D | 0.93 | E | 0.84 | D | 0.93 | E |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | | 0.53 | A | 0.63 | B | 0.53 | A | 0.64 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | | Yes | 0.58 | A | 0.57 | A | 0.58 | A | 0.58 | A |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | | Yes | 0.44 | A | 0.61 | B | 0.44 | A | 0.61 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | | 0.63 | B | 0.64 | B | 0.62 | B | 0.66 | B |

## Table 8-9 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 403 | SR-241 NB Ramps at Jeffery Rd | OC | | | | | 0.35 | A | 0.25 | A | 0.34 | A | 0.26 | A |
| 404 | SR-241 SB Ramps at Jeffery Rd | OC | | | | | 0.27 | A | 0.21 | A | 0.28 | A | 0.22 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | | 0.42 | A | 0.38 | A | 0.42 | A | 0.38 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | | 0.66 | B | 0.54 | A | 0.67 | B | 0.55 | A |
| 407 | Laguna Canyon Rd at Bake Pw | Irv | **F** | | | | 0.75 | C | 0.66 | B | 0.76 | C | 0.67 | B |
| 408 | Laguna Canyon Rd at Santa Maria Dr | OC | | | | | 0.80 | C | 0.59 | A | 0.80 | C | 0.60 | A |
| 409 | Bake Pw at Commercentre Dr | LF | | | | | 0.66 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 410 | Bake Pw at Lake Forest Dr | Irv | | | | | 0.46 | A | 0.45 | A | 0.46 | A | 0.45 | A |
| 411 | Bake Pw at Ridge Route | Irv | | | | | 0.51 | A | 0.45 | A | 0.52 | A | 0.46 | A |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | | 0.42 | A | 0.40 | A | 0.43 | A | 0.39 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | | 0.50 | A | 0.66 | B | 0.52 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | | 0.65 | B | 0.67 | B | 0.64 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | | 0.51 | A | 0.67 | B | 0.51 | A | 0.67 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | | 0.82 | D | **1.01** | **F** | 0.82 | D | **0.99** | **E** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | | Yes | 0.77 | C | 0.78 | C | 0.76 | C | 0.77 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | | 0.52 | A | 0.52 | A | 0.53 | A | 0.52 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | | 0.73 | C | 0.67 | B | 0.72 | C | 0.67 | B |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | | 0.76 | C | 0.70 | B | 0.76 | C | 0.72 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | | 0.89 | D | 0.89 | D | 0.89 | D | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | | 0.86 | D | 0.84 | D | 0.86 | D | 0.84 | D |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | | 0.63 | B | 0.79 | C | 0.64 | B | 0.80 | C |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | | 0.52 | A | 0.60 | A | 0.53 | A | 0.60 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | | 0.60 | A | 0.84 | D | 0.60 | A | 0.84 | D |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | | 0.73 | C | 0.69 | B | 0.72 | C | 0.69 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | | 0.75 | C | 0.83 | D | 0.75 | C | 0.83 | D |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | | 0.82 | D | 0.84 | D | 0.82 | D | 0.82 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | | 0.72 | C | 0.73 | C | 0.71 | C | 0.73 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | | 0.78 | C | 0.77 | C | 0.78 | C | 0.76 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | | 0.68 | B | 0.83 | D | 0.67 | B | 0.82 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | | 0.44 | A | 0.68 | B | 0.44 | A | 0.69 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | | 0.67 | B | 0.75 | C | 0.67 | B | 0.75 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | | 0.68 | B | 0.78 | C | 0.68 | B | 0.79 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | | 0.75 | C | 0.78 | C | 0.74 | C | 0.77 | C |
| 437 | Scientific Wy at ICD | Irv | | | | | 0.32 | A | 0.38 | A | 0.33 | A | 0.38 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | | 0.27 | A | 0.18 | A | 0.27 | A | 0.18 | A |
| 444 | Sand Canyon Av at Burt Rd | OC | | | | | 0.87 | D | 0.88 | D | 0.90 | D | 0.90 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Irv | | | | | 0.67 | B | 0.67 | B | 0.74 | C | 0.70 | B |
| 459 | Jeffrey at Santiago Canyon Rd | Ora | | | | | 0.29 | A | 0.26 | A | 0.29 | A | 0.27 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | | 0.77 | C | 0.84 | D | 0.78 | C | 0.84 | D |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | Ora | | | | | 0.69 | B | 0.64 | B | 0.66 | B | 0.63 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | | 0.58 | A | 0.69 | B | 0.60 | A | 0.61 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | | 0.56 | A | 0.63 | B | 0.60 | A | 0.64 | B |
| 468 | Jamboree Rd at Canyon View | OC | | | | | 0.65 | B | 0.41 | A | 0.64 | B | 0.42 | A |
| 469 | Jamboree Rd at Handy Creek Rd | Ora | | | | | 0.55 | A | 0.51 | A | 0.55 | A | 0.52 | A |

## Table 8-9 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 470 | SR-261 SB Ramps at Handy Creek Rd | Ora | | | | | 0.34 | A | 0.15 | A | 0.33 | A | 0.14 | A |
| 471 | SR-261 NB Ramps at Handy Creek Rd | OC | | | | | 0.14 | A | 0.29 | A | 0.15 | A | 0.29 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | | 0.43 | A | 0.47 | A | 0.43 | A | 0.47 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | | 0.45 | A | 0.43 | A | 0.45 | A | 0.42 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | | 0.38 | A | 0.32 | A | 0.40 | A | 0.34 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | | 0.37 | A | 0.34 | A | 0.37 | A | 0.34 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | | 0.68 | B | 0.54 | A | 0.69 | B | 0.54 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | | 0.80 | C | 0.61 | B | 0.77 | C | 0.61 | B |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | | 0.56 | A | 0.60 | A | 0.57 | A | 0.60 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | | 0.55 | A | 0.68 | B | 0.54 | A | 0.68 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | | 0.64 | B | 0.76 | C | 0.63 | B | 0.77 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | | 0.66 | B | 0.86 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | | 0.67 | B | 0.83 | D | 0.67 | B | 0.84 | D |
| 517 | Portola Pw at Rancho Pw | LF | | | | | 0.63 | B | 0.70 | B | 0.62 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | | 0.63 | B | 0.76 | C | 0.62 | B | 0.78 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | | 0.70 | B | 0.73 | C | 0.70 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | | 0.71 | C | 0.68 | B | 0.69 | B | 0.67 | B |
| 557 | O St at C St | Irv | | | | | 0.40 | A | 0.36 | A | 0.38 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | | 0.64 | B | 0.80 | C | 0.62 | B | 0.80 | C |
| 559 | O St at Trabuco Rd | Irv | | | | | 0.72 | C | 0.69 | B | 0.76 | C | 0.67 | B |
| 560 | O St at Marine Wy | Irv | | | | | 0.46 | A | 0.61 | B | 0.48 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | | 0.42 | A | 0.69 | B | 0.53 | A | 0.71 | C |
| 563 | B St. at Irvine Bl | Irv | | | | | 0.68 | B | 0.70 | B | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | | 0.46 | A | 0.59 | A | 0.62 | B | 0.63 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | | 0.64 | B | 0.63 | B | 0.63 | B | 0.62 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | | 0.62 | B | 0.65 | B | 0.65 | B | 0.61 | B |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | | 0.70 | B | 0.59 | A | 0.46 | A | 0.42 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | | 0.68 | B | 0.64 | B | 0.77 | C | 0.72 | C |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | | 0.70 | B | 0.59 | A | 0.70 | B | 0.58 | A |
| 572 | Modjeska / A St at Irvine Bl | Irv | | | | | 0.67 | B | 0.73 | C | 0.66 | B | 0.72 | C |
| 603 | O St at LN St | Irv | | | | | 0.39 | A | 0.32 | A | 0.36 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | | 0.56 | A | 0.52 | A | 0.57 | A | 0.54 | A |
| 608 | O St at LV St | Irv | | | | | 0.36 | A | 0.33 | A | 0.34 | A | 0.35 | A |
| 626 | LY St at LQ St | Irv | | | | | 0.37 | A | 0.36 | A | 0.41 | A | 0.39 | A |
| 627 | LY St at Irvine Bl | Irv | | | | | 0.53 | A | 0.59 | A | 0.52 | A | 0.59 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | | 0.12 | A | 0.13 | A | 0.13 | A | 0.16 | A |
| 633 | Sterling at Rockfield Bl | Irv | | | | | 0.24 | A | 0.31 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | | 0.35 | A | 0.39 | A | 0.35 | A | 0.47 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | | 0.26 | A | 0.40 | A | 0.26 | A | 0.43 | A |
| 782 | A St at LQ St | Irv | | | | | 0.32 | A | 0.28 | A | 0.30 | A | 0.31 | A |
| 787 | Z St at LQ St | Irv | | | | | 0.30 | A | 0.27 | A | 0.24 | A | 0.26 | A |
| 790 | Z St at Irvine Bl | Irv | | | | | 0.71 | C | 0.69 | B | 0.69 | B | 0.70 | B |
| 798 | B St at LQ St | Irv | | | | | 0.47 | A | 0.38 | A | 0.32 | A | 0.38 | A |
| 799 | "B" Street at Marine Way | Irv | | | | | 0.47 | A | 0.55 | A | 0.68 | B | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | | 0.82 | D | 0.72 | C | 0.77 | C | 0.71 | C |

## Table 8-9 Cont.

## Post 2030 Intersection LOS Summary (ICU Methodology)
## With 2012 Modified Project, Option 2

| | | | | | | | Post 2030 With 2011 Approved Project | | | | Post 2030 With 2012 Modified Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | | 0.70 | B | 0.80 | C | 0.71 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | | 0.55 | A | 0.56 | A | 0.66 | B | 0.69 | B |
| 822 | "F" Street at Irvine Bl. | Irv | | | | | Not Applicable | | | | 0.69 | B | 0.72 | C |
| 831 | "G" Street at Marine Way | Irv | | | | | Not Applicable | | | | 0.55 | A | 0.58 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | | 0.14 | A | 0.17 | A | 0.54 | A | 0.58 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road interchanges have been analyzed using the Highway Capacity Manual (HCM) methodology in addition to the ICU methodology. The resulting 2011 Approved Project (baseline) and 2012 Modified Project Option 2 peak hour levels of service based on the HCM methodology are summarized in Table 8-11 (HCM intersection LOS calculation worksheets are included in Appendix 8.6). The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 8-12 summarizes the longest 95$^{th}$ percentile queue length at each off-ramp under Post-2030 with 2012 Modified Project peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 8.7). The results of the HCM analysis show LOS “E” conditions with or without the 2012 Modified Project at the I-5 NB Ramp /Sand Canyon intersection, and a modified lane configuration is suggested on the eastbound approach to the I-5 SB Ramp intersection to avoid vehicle queues backing onto the freeway mainline. LOS “E” conditions also occur at the I-5 SB Ramp /Sand Canyon intersection with the 2012 Modified Project. The ultimate lane configuration is subject to coordination and agreement between the City and Caltrans.

### 8.2.3 Post-2030 Peak Hour Freeway/Tollway Ramp Levels of Service, Option 2

Exhibit 8-6 (previously presented) illustrates the interchange locations where freeway/tollway ramps were analyzed based on Post-2030 conditions. 2011 Approved Project (baseline) and 2012 Modified Project Option 2 AM and PM peak hour ramp

**Table 8-11**

**Post-2030 Caltrans Ramp Intersection LOS Summary (HCM Methodology)**
**Adjacent Intersections With 2012 Modified Project, Option 2**

| Intersection | 2011 Approved Project (Baseline) | | 2012 Modified Project | |
|---|---|---|---|---|
| | Avg. Delay (Seconds) | LOS | Avg. Delay (Seconds) | LOS |
| 303. Sand Canyon & I-5 NB Ramps | | | | |
| - AM Peak Hour | 49.1 | D | **62.8** | **E[1]** |
| - PM Peak Hour | **55.1** | **E[1]** | **65.4** | **E[1]** |
| 305. Sand Canyon & I-5 SB Ramps[2] | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | | | | |
| - AM Peak Hour | 52.8 | D[3] | **55.8** | **E[3]** |
| - PM Peak Hour | 42.1 | D[3] | 52.1 | D[3] |
| Alternative Configuration (EB Dual Right Lanes) | | | | |
| - AM Peak Hour | 48.7 | D[3] | 54.6 | D[3] |
| - PM Peak Hour | 44.0 | D[3] | **59.4** | **E[3]** |
| 316. SR-133 SB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.4 | B | 13.5 | B |
| - PM Peak Hour | 8.9 | A | 9.2 | A |
| 317. SR-133 NB Ramps & Irvine Boulevard | | | | |
| - AM Peak Hour | 14.7 | B | 12.2 | B |
| - PM Peak Hour | 24.9 | C | 26.0 | C |
| 486. SR-133 SB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 18.2 | B | 17.5 | B |
| - PM Peak Hour | 17.4 | B | 17.7 | B |
| 487. SR-133 NB Ramps & Trabuco Road | | | | |
| - AM Peak Hour | 12.9 | B | 13.0 | B |
| - PM Peak Hour | 17.4 | B | 17.5 | B |

[1] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with northbound left turns during AM and PM peak hours). This intersection V/C result differs from the ICU calculation, which is less than 1.00 as indicated in Table 8-9. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes.

[3] Per the HCM methodology, a volume-to-capacity (v/c) ratio greater than 1.00 is calculated at this location (associated with the estimated volume of northbound through vehicles during the AM and PM peak hours). This intersection V/C result differs from the ICU calculation for this intersection, which is less than 1.00 as indicated in Table 8-9. The City of Irvine uses the ICU methodology for traffic impact analysis purposes as described in Table 2-4.

**Table 8-12**

**Post-2030 With 2012 Modified Project Option 2 HCM**
**Freeway Ramp Queuing Analysis**

| Intersection | Total Ramp Length | Highest Queue Length | Peak Hour | Does the Queue Exceed the Ramp Length?[1] |
|---|---|---|---|---|
| 303. I-5 Northbound Off-Ramp at Sand Canyon Av | 1,180 feet | 312 feet | (PM) | No |
| 305. I-5 Southbound Off-Ramp at Sand Canyon Av | | | | |
| Currently Proposed Lanes (EB Shared Left-Right Lane) | 810 feet | 943 feet | (AM) | Yes |
| Alternative Configuration (EB Dual Right Lanes) | 810 feet | 735 feet | (AM) | No |

[1] If the maximum queue length does not exceed the total length of the off-ramp, then the traffic queue on the ramp is not expected to back up onto the freeway mainline during the peak hours.

[2] The Sand Canyon/I-5 SB Ramps intersection includes delay and LOS information for two scenarios: "Currently Proposed Lanes (EB Shared Left-Right Turn Lane)" and "Alternative Configuration (EB Dual Right Lanes)". The eastbound (EB) approach lanes for the first scenario consist of two left turn lanes, one shared left-right lane, and one right turn lane. The EB approach lanes for the second scenario consist of two left turn lanes and two right turn lanes

volumes and V/C ratios are summarized in Table 8-13. Option 2 does not exceed adopted impact thresholds at any of the study area freeway interchange ramps.

### 8.2.4 Post-2030 Peak Hour Freeway/Tollway Mainline Levels of Service, Option 2

2011 Approved Project (baseline) and 2012 Modified Project Option 2 AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 8-14. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, one freeway mainline segment (I-405 northbound, north of Jeffrey) is forecast to exceed adopted impact thresholds with Option 2 based on Post-2030 conditions.

## 8.3 Post-2030 Mitigation Measures

In this section, mitigation measures are presented for the intersections identified as being impacted by the 2012 Modified Project based on Post-2030 conditions. It should be noted that the City of Irvine has established the NITM Program to implement and expedite circulation mitigation measures in previous certified CEQA documents. The NITM Program provides a funding mechanism for the coordinated and phased installation of required traffic and transportation improvements established in connection with land use entitlements for the City of Irvine Planning Areas 1, 5, 6, 8, 9, 30, 40 and 51. As established by City Ordinance No. 03-20, the Heritage Fields / Great Park Neighborhoods project is included in this program and, as such, is required to pay its fair share toward the List of NITM Improvements included within the established NITM Program. This NITM fee will be updated in accordance with the NITM Ordinance after approval of the proposed Project.

In addition to the PA 30 and 51 NITM Program fair share fees addressed above, the following discusses the specific mitigation measures proposed for the impacts identified earlier in this chapter. The mitigation measures are designed to address the Project's impacts by improving the LOS at each impacted location.

Three intersections exceed adopted impact thresholds with the 2012 Modified Project with Option 1:

## Table 8-13

### Post-2030 Freeway/Tollway Ramp LOS Summary
### 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 414 | 0.28 | A | 1,140 | 0.76 | C | 416 | 0.28 | A | 1,130 | 0.75 | C |
| | SB Loop On | 1 | 1,080 | 556 | 0.51 | A | 480 | 0.44 | A | 569 | 0.53 | A | 490 | 0.45 | A |
| | NB Direct On | 1 | 1,080 | 476 | 0.44 | A | 480 | 0.44 | A | 474 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 678 | 0.63 | B | 660 | 0.61 | B | 676 | 0.63 | B | 690 | 0.64 | B |
| | SB Off | 1 | 1,500 | 1,428 | 0.95 | E | 1,435 | 0.96 | E | 1,429 | 0.95 | E | 1,457 | 0.97 | E |
| | NB Off | 1 | 1,500 | 1,559 | **1.04** | **F** | 1,314 | 0.88 | D | 1,580 | **1.05** | **F** | 1,328 | 0.89 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 350 | 0.39 | A | 250 | 0.28 | A | 340 | 0.38 | A | 240 | 0.27 | A |
| | NB Direct On | 1 | 900 | 714 | 0.79 | C | 179 | 0.20 | A | 714 | 0.79 | C | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,080 | 0.72 | C | 590 | 0.39 | A | 1,100 | 0.73 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 935 | 0.42 | A | 2,033 | 0.90 | D | 931 | 0.41 | A | 2,060 | 0.92 | E |
| | NB Off | 1 | 1,500 | 333 | 0.22 | A | 490 | 0.33 | A | 333 | 0.22 | A | 482 | 0.32 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,269 | **1.18** | **F** | 829 | 0.77 | C | 1,264 | **1.17** | **F** | 841 | 0.78 | C |
| | NB Direct On | 1 | 1,080 | 610 | 0.56 | A | 240 | 0.22 | A | 690 | 0.64 | B | 260 | 0.24 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 280 | 0.19 | A | 250 | 0.17 | A | 280 | 0.19 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 1,111 | 0.74 | C | 610 | 0.41 | A | 1,119 | 0.75 | C |
| | NB Off | 2 | 2,250 | 940 | 0.42 | A | 1,433 | 0.64 | B | 949 | 0.42 | A | 1,422 | 0.63 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 631 | 0.42 | A | 750 | 0.50 | A | 641 | 0.43 | A | 740 | 0.49 | A |
| | NB On | 1 | 1,500 | 751 | 0.50 | A | 1,600 | **1.07** | **F** | 930 | 0.62 | B | 1,590 | **1.06** | **F** |
| | SB Off | 1 | 1,500 | 1,855 | **1.24** | **F** | 828 | 0.55 | A | 1,774 | **1.18** | **F** | 900 | 0.60 | A |
| | NB Off | 2 | 2,250 | 711 | 0.32 | A | 709 | 0.32 | A | 710 | 0.32 | A | 711 | 0.32 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 30 | 0.02 | A | 240 | 0.16 | A | 30 | 0.02 | A | 210 | 0.14 | A |
| | SB Off | 1 | 1,500 | 299 | 0.20 | A | 111 | 0.07 | A | 268 | 0.18 | A | 93 | 0.06 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 341 | 0.23 | A | 581 | 0.39 | A | 360 | 0.24 | A | 610 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 270 | 0.15 | A | 1,280 | 0.71 | C | 311 | 0.17 | A | 1,270 | 0.71 | C |
| | NB Loop On | 1 | 1,500 | 582 | 0.39 | A | 151 | 0.10 | A | 571 | 0.38 | A | 149 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,198 | 0.98 | E | 970 | 0.43 | A | 2,159 | 0.96 | E | 970 | 0.43 | A |
| | NB Off | 2 | 2,250 | 1,161 | 0.52 | A | 320 | 0.14 | A | 1,151 | 0.51 | A | 310 | 0.14 | A |

**Table 8-13 Cont.**

**Post-2030 Freeway/Tollway Ramp LOS Summary**
**2012 Modified Project - Option 2**

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 90 | 0.06 | A | 142 | 0.09 | A | 98 | 0.07 | A | 131 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 371 | 0.34 | A | 907 | 0.84 | D | 401 | 0.37 | A | 874 | 0.81 | D |
| | NB Direct On | 2 | 3,400 | 1,335 | 0.39 | A | 1,199 | 0.35 | A | 1,383 | 0.41 | A | 1,196 | 0.35 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,992 | 1.00 | E | 2,433 | 0.81 | D | 2,993 | 1.00 | E | 2,436 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,502 | 0.50 | A | 625 | 0.21 | A | 1,399 | 0.47 | A | 615 | 0.21 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 303 | 0.20 | A | 875 | 0.58 | A | 307 | 0.20 | A | 865 | 0.58 | A |
| | SB Loop On | 1 | 1,080 | 412 | 0.38 | A | 687 | 0.64 | B | 415 | 0.38 | A | 682 | 0.63 | B |
| | NB On | 2 | 1,800 | 1,340 | 0.74 | C | 1,040 | 0.58 | A | 1,360 | 0.76 | C | 1,055 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,323 | 0.77 | C | 1,760 | 0.59 | A | 2,324 | 0.77 | C |
| | NB Off | 1 | 1,500 | 1,510 | **1.01** | **F** | 730 | 0.49 | A | 1,493 | 1.00 | E | 724 | 0.48 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 167 | 0.15 | A | 143 | 0.13 | A | 164 | 0.15 | A | 141 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 423 | 0.28 | A | 502 | 0.33 | A | 425 | 0.28 | A | 500 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,525 | **1.02** | **F** | 1,118 | 0.75 | C | 1,551 | **1.03** | **F** | 1,121 | 0.75 | C |
| | NB Loop On | 1 | 1,500 | 1,240 | 0.83 | D | 1,260 | 0.84 | D | 1,243 | 0.83 | D | 1,259 | 0.84 | D |
| | SB Off | 2 | 2,250 | 2,910 | **1.29** | **F** | 2,959 | **1.32** | **F** | 2,922 | **1.30** | **F** | 2,979 | **1.32** | **F** |
| | NB Off | 1 | 1,500 | 1,330 | 0.89 | D | 1,210 | 0.81 | D | 1,321 | 0.88 | D | 1,212 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 203 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 821 | 0.55 | A | 753 | 0.50 | A | 824 | 0.55 | A | 752 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 890 | 0.59 | A | 1,230 | 0.82 | D | 900 | 0.60 | A |
| | NB Loop On | 1 | 1,500 | 1,320 | 0.88 | D | 840 | 0.56 | A | 1,300 | 0.87 | D | 840 | 0.56 | A |
| | SB Off | 2 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,097 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 310 | 0.21 | A | 1,091 | 0.73 | C | 312 | 0.21 | A | 1,091 | 0.73 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 262 | 0.17 | A | 736 | 0.49 | A | 273 | 0.18 | A | 723 | 0.48 | A |
| | SB Loop On | 1 | 900 | 252 | 0.28 | A | 332 | 0.37 | A | 252 | 0.28 | A | 341 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 660 | 0.44 | A | 930 | 0.62 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 590 | 0.39 | A | 400 | 0.27 | A | 580 | 0.39 | A | 400 | 0.27 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,380 | 0.46 | A | 830 | 0.28 | A | 1,380 | 0.46 | A |
| | NB Off | 1 | 1,500 | 1,293 | 0.86 | D | 1,286 | 0.86 | D | 1,311 | 0.87 | D | 1,276 | 0.85 | D |

**Table 8-13 Cont.**

**Post-2030 Freeway/Tollway Ramp LOS Summary**
**2012 Modified Project - Option 2**

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,060 | 0.71 | C | 1,120 | 0.75 | C | 1,050 | 0.70 | B | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 300 | 0.33 | A | 280 | 0.31 | A | 310 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,320 | 0.88 | D | 600 | 0.40 | A | 1,340 | 0.89 | D | 600 | 0.40 | A |
| | NB Loop On | 1 | 900 | 330 | 0.37 | A | 110 | 0.12 | A | 320 | 0.36 | A | 100 | 0.11 | A |
| | SB Off | 1 | 1,500 | 613 | 0.41 | A | 754 | 0.50 | A | 614 | 0.41 | A | 783 | 0.52 | A |
| | NB Off | 2 | 2,250 | 1,478 | 0.66 | B | 1,923 | 0.85 | D | 1,471 | 0.65 | B | 1,883 | 0.84 | D |
| I-405 at Sand Canyon | SB Direct On | 1 | 1,500 | 310 | 0.21 | A | 230 | 0.15 | A | 300 | 0.20 | A | 230 | 0.15 | A |
| | SB Loop On | 1 | 1,500 | 190 | 0.13 | A | 440 | 0.29 | A | 190 | 0.13 | A | 420 | 0.28 | A |
| | NB Direct On | 1 | 1,500 | 1,202 | 0.80 | C | 1,360 | 0.91 | E | 1,253 | 0.84 | D | 1,360 | 0.91 | E |
| | NB Loop On | 1 | 1,500 | 641 | 0.43 | A | 370 | 0.25 | A | 641 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,977 | **1.32** | **F** | 1,035 | 0.69 | B | 1,947 | **1.30** | **F** | 1,105 | 0.74 | C |
| | NB Off | 1 | 1,500 | 728 | 0.49 | A | 528 | 0.35 | A | 688 | 0.46 | A | 529 | 0.35 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 260 | 0.29 | A | 410 | 0.46 | A | 260 | 0.29 | A | 410 | 0.46 | A |
| | NB Direct On | 1 | 1,500 | 249 | 0.17 | A | 584 | 0.59 | A | 243 | 0.16 | A | 568 | 0.38 | A |
| | NB Loop On | 1 | 1,500 | 252 | 0.17 | A | 1,230 | 0.82 | D | 255 | 0.17 | A | 1,219 | 0.81 | D |
| | SB Off | 2 | 2,250 | 2,012 | 0.89 | D | 1,419 | 0.63 | B | 2,012 | 0.89 | D | 1,429 | 0.64 | B |
| | NB Off | 2 | 3,000 | 1,201 | 0.40 | A | 410 | 0.14 | A | 1,200 | 0.40 | A | 420 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 569 | 0.14 | A | 2,383 | 0.60 | A | 571 | 0.14 | A | 2,372 | 0.59 | A |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,117 | 0.78 | C | 989 | 0.25 | A | 3,140 | 0.79 | C | 973 | 0.24 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,864 | 0.47 | A | 3,356 | 0.84 | D | 1,984 | 0.50 | A | 3,344 | 0.84 | D |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 4,058 | **1.01** | **F** | 1,892 | 0.47 | A | 4,025 | **1.01** | **F** | 1,978 | 0.49 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 384 | 0.26 | A | 330 | 0.22 | A | 407 | 0.27 | A | 320 | 0.21 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 300 | 0.20 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | NB Loop On | 1 | 1,500 | 130 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 441 | 0.20 | A | 200 | 0.09 | A | 440 | 0.20 | A | 209 | 0.09 | A |
| | NB Off | 1 | 1,500 | 200 | 0.13 | A | 598 | 0.40 | A | 181 | 0.12 | A | 618 | 0.41 | A |

**Table 8-13 Cont.**

**Post-2030 Freeway/Tollway Ramp LOS Summary**
**2012 Modified Project - Option 2**

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 760 | 0.51 | A | 680 | 0.45 | A | 760 | 0.51 | A | 670 | 0.45 | A |
| | NB On | 1 | 1,500 | 140 | 0.09 | A | 570 | 0.38 | A | 160 | 0.11 | A | 560 | 0.37 | A |
| | SB Off | 1 | 1,500 | 700 | 0.47 | A | 280 | 0.19 | A | 700 | 0.47 | A | 290 | 0.19 | A |
| | NB Off | 1 | 1,500 | 857 | 0.57 | A | 952 | 0.63 | B | 828 | 0.55 | A | 970 | 0.65 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,072 | 0.54 | A | 1,672 | 0.84 | D | 1,112 | 0.56 | A | 1,697 | 0.85 | D |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,961 | 0.98 | E | 1,176 | 0.59 | A | 1,962 | 0.98 | E | 1,172 | 0.59 | A |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,309 | 0.65 | B | 458 | 0.23 | A | 1,319 | 0.66 | B | 465 | 0.23 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 616 | 0.31 | A | 1,400 | 0.70 | B | 608 | 0.30 | A | 1,411 | 0.71 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,083 | 0.52 | A | 1,800 | 0.45 | A | 2,126 | 0.53 | A | 1,814 | 0.45 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,222 | 0.56 | A | 2,149 | 0.54 | A | 2,222 | 0.56 | A | 2,165 | 0.54 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 141 | 0.13 | A | 1,223 | **1.13** | **F** | 150 | 0.14 | A | 1,199 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 198 | 0.18 | A | 623 | 0.58 | A | 173 | 0.16 | A | 621 | 0.58 | A |
| | NB Loop On | 1 | 1,080 | 411 | 0.38 | A | 1,516 | **1.40** | **F** | 430 | 0.40 | A | 1,490 | **1.38** | **F** |
| | SB Off | 2 | 3,000 | 2,340 | 0.78 | C | 620 | 0.21 | A | 2,330 | 0.78 | C | 590 | 0.20 | A |
| | NB Off | 2 | 2,250 | 1,516 | 0.67 | B | 370 | 0.66 | A | 1,496 | 0.66 | B | 402 | 0.18 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 953 | 0.48 | A | 993 | 0.50 | A | 969 | 0.48 | A | 1,028 | 0.51 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 50 | 0.03 | A | 28 | 0.01 | A | 48 | 0.02 | A | 22 | 0.01 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 1,117 | 0.28 | A | 586 | 0.15 | A | 1,182 | 0.30 | A | 598 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,313 | 0.33 | A | 1,037 | 0.26 | A | 1,379 | 0.34 | A | 1,017 | 0.25 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,650 | 0.83 | D | 1,654 | 0.83 | D | 1,622 | 0.81 | D | 1,719 | 0.86 | D |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 621 | 0.31 | A | 687 | 0.34 | A | 611 | 0.31 | A | 710 | 0.36 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 203 | 0.10 | A | 258 | 0.13 | A | 205 | 0.10 | A | 258 | 0.13 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 1,104 | 0.61 | B | 468 | 0.26 | A | 1,080 | 0.60 | A | 428 | 0.24 | A |
| | NB On | 1 | 1,500 | 480 | 0.32 | A | 402 | 0.27 | A | 440 | 0.29 | A | 216 | 0.14 | A |
| | SB Off | 1 | 1,500 | 1,050 | 0.70 | B | 540 | 0.36 | A | 551 | 0.37 | A | 469 | 0.31 | A |
| | NB Off | 1 | 1,500 | 807 | 0.54 | A | 1,153 | 0.77 | C | 916 | 0.61 | B | 1,164 | 0.78 | C |
| SR-241 at Jeffrey | SB On | 1 | 1,500 | 37 | 0.02 | A | 23 | 0.02 | A | 37 | 0.02 | A | 17 | 0.01 | A |
| | NB On | 1 | 1,500 | 400 | 0.27 | A | 340 | 0.23 | A | 400 | 0.27 | A | 350 | 0.23 | A |
| | SB Off | 1 | 1,500 | 522 | 0.35 | A | 394 | 0.26 | A | 533 | 0.36 | A | 395 | 0.26 | A |
| | NB Off | 1 | 1,500 | 22 | 0.01 | A | 71 | 0.05 | A | 22 | 0.01 | A | 71 | 0.05 | A |

## Table 8-13 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary
### 2012 Modified Project - Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project (Baseline) | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 170 | 0.11 | A | 410 | 0.27 | A | 170 | 0.11 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 120 | 0.08 | A | 33 | 0.02 | A | 121 | 0.08 | A | 33 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 136 | 0.09 | A | 49 | 0.03 | A | 152 | 0.10 | A |
| | NB Off | 1 | 1,500 | 590 | 0.39 | A | 209 | 0.14 | A | 588 | 0.39 | A | 209 | 0.14 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 430 | 0.29 | A | 1,150 | 0.77 | C | 457 | 0.30 | A | 1,114 | 0.74 | C |
| | NB On | 1 | 1,500 | 460 | 0.31 | A | 630 | 0.42 | A | 435 | 0.29 | A | 607 | 0.40 | A |
| | SB Off | 1 | 1,500 | 730 | 0.49 | A | 460 | 0.31 | A | 696 | 0.46 | A | 444 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,100 | 0.49 | A | 630 | 0.28 | A | 1,003 | 0.45 | A | 627 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 220 | 0.10 | A | 870 | 0.39 | A | 219 | 0.10 | A | 842 | 0.37 | A |
| | SB Off | 1 | 1,500 | 820 | 0.55 | A | 420 | 0.28 | A | 821 | 0.55 | A | 418 | 0.28 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 330 | 0.22 | A | 1,430 | 0.95 | E | 331 | 0.22 | A | 1,417 | 0.94 | E |
| | NB On | 2 | 2,250 | 830 | 0.37 | A | 440 | 0.20 | A | 826 | 0.37 | A | 430 | 0.19 | A |
| | SB Off | 1 | 1,500 | 530 | 0.35 | A | 620 | 0.41 | A | 529 | 0.35 | A | 619 | 0.41 | A |
| | NB Off | 2 | 2,250 | 2,190 | 0.97 | E | 580 | 0.26 | A | 2,173 | 0.97 | E | 583 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 920 | 0.61 | B | 240 | 0.16 | A | 900 | 0.60 | A | 249 | 0.17 | A |
| | NB Off | 1 | 1,500 | 140 | 0.09 | A | 712 | 0.47 | A | 150 | 0.10 | A | 691 | 0.46 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 174 | 0.12 | A | 100 | 0.07 | A | 175 | 0.12 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 210 | 0.14 | A | 140 | 0.09 | A | 210 | 0.14 | A | 140 | 0.09 | A |
| | SB Off | 1 | 1,500 | 102 | 0.07 | A | 89 | 0.06 | A | 102 | 0.07 | A | 89 | 0.06 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 106 | 0.07 | A | 100 | 0.07 | A | 106 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 790 | 0.53 | A | 320 | 0.21 | A | 791 | 0.53 | A | 341 | 0.23 | A |
| | NB On | 1 | 1,500 | 230 | 0.15 | A | 160 | 0.11 | A | 220 | 0.15 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 81 | 0.05 | A | 71 | 0.05 | A | 81 | 0.05 | A | 70 | 0.05 | A |
| | NB Off | 1 | 1,500 | 212 | 0.14 | A | 372 | 0.25 | A | 222 | 0.15 | A | 393 | 0.26 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 8-14

### Post 2030 Freeway Mainline LOS Summary
### 2012 Modified Project - Option 2

| | Location | Direction | Lanes | Capacity | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 14,869 | **1.28** | **F** | 11,906 | **1.03** | **F** | 15,165 | **1.31** | **F** | 11,929 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 9,609 | 0.83 | D | 9,886 | 0.85 | D | 9,577 | 0.83 | D | 10,088 | 0.87 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,127 | **1.22** | **F** | 11,321 | 0.98 | E | 14,403 | **1.24** | **F** | 11,329 | 0.98 | E |
| | | SB | 5+1H | 11,600 | 11,604 | 1.00 | E | 11,898 | **1.03** | **F** | 11,496 | 0.99 | E | 12,126 | **1.05** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 14,719 | **1.27** | **F** | 11,978 | **1.03** | **F** | 15,026 | **1.30** | **F** | 11,971 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,338 | **1.06** | **F** | 12,585 | **1.08** | **F** | 12,248 | **1.06** | **F** | 12,831 | **1.11** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,379 | **1.24** | **F** | 11,695 | **1.01** | **F** | 14,681 | **1.27** | **F** | 11,693 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 12,041 | **1.04** | **F** | 12,258 | **1.06** | **F** | 11,961 | **1.03** | **F** | 12,496 | **1.08** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,562 | **1.26** | **F** | 11,676 | **1.01** | **F** | 14,919 | **1.29** | **F** | 11,658 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 11,761 | **1.01** | **F** | 12,325 | **1.06** | **F** | 11,649 | 1.00 | E | 12,532 | **1.08** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,742 | **1.10** | **F** | 10,925 | 0.94 | E | 13,074 | **1.13** | **F** | 10,907 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 11,418 | 0.98 | E | 11,150 | 0.96 | E | 11,321 | 0.98 | E | 11,311 | 0.98 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,738 | **1.10** | **F** | 11,048 | 0.95 | E | 13,000 | **1.12** | **F** | 10,992 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,922 | **1.03** | **F** | 11,439 | 0.99 | E | 11,790 | **1.02** | **F** | 11,614 | 1.00 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 10,150 | **1.06** | **F** | 8,803 | 0.92 | E | 10,259 | **1.07** | **F** | 8,780 | 0.91 | E |
| | | SB | 4+1H | 9,600 | 9,445 | 0.98 | E | 9,169 | 0.96 | E | 9,388 | 0.98 | E | 9,244 | 0.96 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,637 | **1.11** | **F** | 7,686 | 0.80 | C | 10,695 | **1.11** | **F** | 7,685 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 7,764 | 0.81 | D | 9,441 | 0.98 | E | 7,744 | 0.81 | D | 9,489 | 0.99 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 20,941 | 0.97 | E | 14,080 | 0.65 | B | 21,062 | 0.98 | E | 14,104 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 11,837 | 0.55 | A | 16,140 | 0.75 | C | 11,837 | 0.55 | A | 16,206 | 0.75 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 20,952 | **1.07** | **F** | 13,034 | 0.67 | B | 20,904 | **1.07** | **F** | 13,067 | 0.67 | B |
| | | SB | 8+2H | 19,500 | 12,132 | 0.62 | B | 16,829 | 0.86 | D | 12,174 | 0.62 | B | 16,854 | 0.86 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,016 | **1.48** | **F** | 12,128 | 0.90 | D | 19,932 | **1.48** | **F** | 12,140 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,076 | 0.75 | C | 15,465 | **1.15** | **F** | 10,129 | 0.75 | C | 15,460 | **1.15** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 17,012 | **1.77** | **F** | 10,138 | **1.06** | **F** | 16,889 | **1.76** | **F** | 10,150 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,863 | 0.82 | D | 12,290 | **1.28** | **F** | 7,844 | 0.82 | D | 12,330 | **1.28** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,115 | **1.37** | **F** | 7,629 | 0.79 | C | 13,026 | **1.36** | **F** | 7,639 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,360 | 0.66 | B | 10,338 | **1.08** | **F** | 6,414 | 0.67 | B | 10,320 | **1.08** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,039 | **1.25** | **F** | 9,000 | 0.94 | E | 12,336 | **1.29** | **F** | 9,018 | 0.94 | E |
| | | SB | 4+1H | 9,600 | 9,134 | 0.95 | E | 10,181 | **1.06** | **F** | 9,088 | 0.95 | E | 10,391 | **1.08** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,428 | **1.29** | **F** | 9,446 | 0.98 | E | 12,716 | **1.32** | **F** | 9,426 | 0.98 | E |
| | | SB | 4+1H | 9,600 | 9,342 | 0.97 | E | 10,085 | **1.05** | **F** | 9,262 | 0.96 | E | 10,292 | **1.07** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,249 | **1.28** | **F** | 8,481 | 0.88 | D | 12,443 | **1.30** | **F** | 8,458 | 0.88 | D |
| | | SB | 4+1H | 9,600 | 8,200 | 0.85 | D | 9,628 | 1.00 | E | 8,147 | 0.85 | D | 9,752 | **1.02** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,023 | **1.04** | **F** | 7,113 | 0.74 | C | 10,087 | **1.05** | **F** | 7,101 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,932 | 0.72 | C | 8,308 | 0.87 | D | 6,933 | 0.72 | C | 8,373 | 0.87 | D |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,326 | 0.76 | C | 4,076 | 0.42 | A | 7,424 | 0.77 | C | 4,077 | 0.42 | A |
| | | SB | 4+1H | 9,600 | 6,074 | 0.63 | B | 8,171 | 0.85 | D | 6,072 | 0.63 | B | 8,222 | 0.86 | D |

## Table 8-14 Cont.

### Post 2030 Freeway Mainline LOS Summary
### 2012 Modified Project - Option 2

| | | | | | 2011 Approved Project | | | | | | 2012 Modified Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | Location | Direction | Lanes | Capacity | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4+1H | 9,600 | 2,434 | 0.25 | A | 5,740 | 0.60 | A | 2,556 | 0.27 | A | 5,716 | 0.60 | A |
| | | SB | 4+1H | 9,600 | 7,176 | 0.75 | C | 2,882 | 0.30 | A | 7,165 | 0.75 | C | 2,951 | 0.31 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 2,166 | 0.29 | A | 5,517 | 0.73 | C | 2,211 | 0.29 | A | 5,544 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,591 | 0.87 | D | 2,730 | 0.36 | A | 6,647 | 0.87 | D | 2,783 | 0.37 | A |
| | n/o I-5 | NB | 3+1H | 7,600 | 2,023 | 0.27 | A | 4,953 | 0.65 | B | 2,052 | 0.27 | A | 4,987 | 0.66 | B |
| | | SB | 3+1H | 7,600 | 4,604 | 0.61 | B | 1,995 | 0.26 | A | 4,656 | 0.61 | B | 2,033 | 0.27 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,407 | 0.57 | A | 4,977 | 0.83 | D | 3,371 | 0.56 | A | 5,015 | 0.84 | D |
| | | SB | 3 | 6,000 | 5,463 | 0.91 | E | 3,295 | 0.55 | A | 5,555 | 0.93 | E | 3,339 | 0.56 | A |
| | n/o I-405 | NB | 3 | 6,000 | 4,143 | 0.69 | B | 3,785 | 0.63 | B | 4,100 | 0.68 | B | 3,877 | 0.65 | B |
| | | SB | 3 | 6,000 | 3,700 | 0.62 | B | 3,333 | 0.56 | A | 3,814 | 0.64 | B | 3,389 | 0.56 | A |
| SR-241 | n/o SR-133 | NB | 3+1H | 7,600 | 5,531 | 0.73 | C | 5,638 | 0.74 | C | 5,741 | 0.76 | C | 5,602 | 0.74 | C |
| | | SB | 3+1H | 7,600 | 6,598 | 0.87 | D | 4,896 | 0.64 | B | 6,514 | 0.86 | D | 5,030 | 0.66 | B |
| | n/o Portola (West) | NB | 4+1H | 9,600 | 6,783 | 0.71 | C | 3,270 | 0.34 | A | 6,897 | 0.72 | C | 3,231 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,110 | 0.32 | A | 5,388 | 0.56 | A | 3,061 | 0.32 | A | 5,424 | 0.57 | A |
| | n/o Alton | NB | 4+1H | 9,600 | 6,905 | 0.72 | C | 3,354 | 0.35 | A | 6,993 | 0.73 | C | 3,310 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,233 | 0.34 | A | 5,528 | 0.58 | A | 3,177 | 0.33 | A | 5,537 | 0.58 | A |
| | n/o Lake Forest | NB | 4+1H | 9,600 | 7,670 | 0.80 | C | 3,103 | 0.32 | A | 7,686 | 0.80 | C | 3,079 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 2,777 | 0.29 | A | 5,979 | 0.62 | B | 2,782 | 0.29 | A | 5,968 | 0.62 | B |
| SR-261 | n/o Portola | NB | 3+1H | 7,600 | 1,191 | 0.16 | A | 3,141 | 0.41 | A | 1,191 | 0.16 | A | 3,161 | 0.42 | A |
| | | SB | 3+1H | 7,600 | 3,961 | 0.52 | A | 1,292 | 0.17 | A | 4,039 | 0.53 | A | 1,299 | 0.17 | A |
| | n/o irvine Blvd | NB | 3+1H | 7,600 | 692 | 0.09 | A | 2,804 | 0.37 | A | 686 | 0.09 | A | 2,838 | 0.37 | A |
| | | SB | 3+1H | 7,600 | 3,654 | 0.48 | A | 910 | 0.12 | A | 3,749 | 0.49 | A | 920 | 0.12 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 976 | 0.13 | A | 3,547 | 0.47 | A | 987 | 0.13 | A | 3,598 | 0.47 | A |
| | | SB | 3+1H | 7,600 | 4,297 | 0.57 | A | 1,299 | 0.17 | A | 4,396 | 0.58 | A | 1,324 | 0.17 | A |
| | n/o Chapman/Sant. Cyn | NB | 3+1H | 7,600 | 6,062 | 0.80 | C | 8,242 | **1.08** | **F** | 6,123 | 0.81 | D | 7,990 | **1.05** | **F** |
| | | SB | 3+1H | 7,600 | 10,422 | **1.37** | **F** | 5,655 | 0.74 | C | 9,959 | **1.31** | **F** | 5,647 | 0.74 | C |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_6.12.12.xlsx]8-14

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.
- Laguna Cyn. & Old Laguna Cyn.

At the Jeffrey Road / Roosevelt intersection, the project mitigation is conversion of the eastbound shared through/right lane into a through lane, and addition of a second right turn lane.

At the Jeffrey Road / Alton Parkway Intersection, the project mitigation is provision of an eastbound standard right-turn lane with right-turn overlap phase resulting in an ultimate eastbound lane configuration of 2 left-turn lanes, 2 through lanes, and 1 right-turn lane.

The project mitigation at Laguna Canyon/Old Laguna Canyon identifies ATMS at this location, subject to approval by the Director of Public Works. An alternate physical improvement is the addition of a fourth northbound through lane. If it is desired to utilize one of these improvement options as a substitution to an identified NITM improvement at this location, this request would be subject to approval by the Director of Public Works in consultation with the NITM Committee. If pending projects are approved, the mitigation improvement is no longer needed. Table 8-15 contains the analysis of Post-2030 Option 1 impact locations with the proposed mitigation:

**Table 8-15**

**Post-2030 LOS with 2012 Modified Project**
**Option 1 Impact Locations with Proposed Mitigation**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | | With Improvement | |
|---|---|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS | ICU | LOS |
| 286. Jeffrey Rd. & Roosevelt | AM | 0.89 | D | 0.91 | E | 0.88 | D |
| 291. Jeffrey Rd. & Alton Pkwy. | AM | 0.90[1] | D | 0.91[1] | E | 0.89[1] | D |
| 321. Laguna Cyn. & Old Laguna Cyn. | AM | 0.92 | E | 0.94 | E | 0.89[1] | D |
| - Alternate Physical Improvements | AM | | | | | 0.82 | D |

[1] ATMS credit (0.05) has been applied.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose travel lane at one freeway mainline segment (I-405 northbound, north of Jeffrey) mitigates the Project Option 1 contribution to a cumulative impact.

Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate the same three intersections impacted by the 2012 Modified Project with Option 1 are also impacted with Option 2. At these three locations, the Option 1 mitigation measures (described above) also mitigate Option 2 impacts:

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.
- Laguna Cyn. & Old Laguna Cyn.

Table 8-16 contains the analysis of Post-2030 Option 2 impact locations with the proposed mitigation:

**Table 8-16**

**Post-2030 LOS with 2012 Modified Project**
**Option 2 Impact Locations with Proposed Mitigation**

| Intersection | Peak Hour | 2011 Approved Project (Baseline) | | 2012 Modified Project | | With Improvement | |
|---|---|---|---|---|---|---|---|
| | | ICU | LOS | ICU | LOS | ICU | LOS |
| 286. Jeffrey Rd. & Roosevelt | AM | 0.89 | D | 0.92 | E | 0.88 | D |
| 291. Jeffrey Rd. & Alton Pkwy. | AM | 0.90[1] | D | 0.93[1] | E | 0.89[1] | D |
| 321. Laguna Cyn. & Old Laguna Cyn. | AM | 0.92 | E | 0.94 | E | 0.89[1] | D |
| - Alternate Physical Improvements | AM | | | | | 0.82 | D |

[1] ATMS credit (0.05) has been applied.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose travel lane at one freeway mainline segment (I-405 northbound, north of Jeffrey) mitigates the Project Option 2 contribution to a cumulative impact.

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## 9.0 SPECIAL ISSUES

This chapter summarizes the special issues that are evaluated as part of the traffic analysis for the 2012 Modified Project.

**Pending Projects Sensitivity Analysis** – Six future "pending" scenarios (2015, 2030, and Post 2030, each with the 2012 Modified Project Options 1 and 2) are analyzed to determine if any additional level of service deficiencies are created within the study area with pending development projects and changes to the Master Plan of Arterial Highways.

**Rockfield Boulevard MPAH Network, Sensitivity Analysis –** Buildout conditions for Options 1 and 2 are analyzed to determine if any level of service deficiencies are created within the study area with the buildout of Rockfield Boulevard as currently included on the Orange County Master Plan of Arterial Highways (MPAH).

**Pedestrian and Bicycle Circulation** – Within the Heritage Fields / Great Park Neighborhoods project area, goals of the City's General Plan for effective non-motorized transportation (Objectives B-3 and B-4) are accomplished through enhanced local street connectivity, an extensive network of walkways and bikeways, and the arrangement of land uses for access by various modes.

**Circulation Phasing Report Intersections –** In this section, the Project's potential impact is addressed for intersections in the study area that are identified as locations subject to improvements based on the ICU analysis results presented in the 2008 City of Irvine Circulation Phasing Report.

**Transit –** The transit services and amenities adjacent to the Project site are discussed in this section of the report. A figure showing these transit amenities is included.

**CMP Checklist –** The Congestion Management Program (CMP) checklist is completed, and necessary analysis determined through the checklist is performed.

**Access Study –** The proposed access points along Irvine Boulevard are analyzed to assure that there is adequate distance between signals and that traffic operations will not be adversely impacted in a significant manner. Option 2 is used as the basis for this analysis because it includes changes in District 1

which were not analyzed in prior traffic studies. On-site intersections which are potentially affected by project changes for wither Option 1 or Option 2 are also reviewed in comparison to prior traffic study findings. Table 9-34 includes recommended storage length requirements for the 2012 Modified Project Option 1 or 2.

## 9.1 Pending Projects Sensitivity Analysis

Six future "pending" scenarios (Pending 2015 With Project Option 1, Pending 2015 With Project Option 2, Pending 2030 With Project Option 1, Pending 2030 With Project Option 2, Pending Post-2030 With Project Option 1, and Pending Post-2030 With Project With Option 2) are analyzed to determine if any additional level of service deficiencies are created within the study area with the following pending projects:

- PA 36 IBC Vision Plan-triggered MPAH Amendments for Von Karman Avenue and Alton Parkway
- Removal of Bake Parkway Extension between Laguna Canyon Road and Lake Forest Drive
- Removal of Ridge Route Drive extension between Bake Parkway extension to existing Ridge Route Drive Terminus
- Removal of Santa Maria Avenue extension between Laguna Canyon Road to existing Santa Maria Avenue Terminus
- PA33 GPA/ZC for 1350 apartment dwelling units
- Alton-Milikan project in PA 36
- Montessori project in PA 36

Pending Project scenarios are compared against 2011 Approved Project conditions (with the pending projects) so that any deficiencies on the study area circulation system associated with the pending projects in combination with the 2012 Modified Project can be identified. A determination is then made as to whether any project fair share mitigation is appropriate.

9.1.1 Year 2015 Circulation System and Average Daily Traffic Volumes, with Option 1, with Pending Projects

The Year 2015 circulation system in the study area was previously illustrated in Chapter 4.0. The Without Project, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-1 and 9-2. Year 2015 with 2012 Modified Project Option 1, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-3 and 9-4, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following arterial roadway segments are potentially impacted by the pending-plus-project scenario:

- Irvine Bl (w/o A-02 St)
- Irvine Bl (e/o A-02 St)
- Jeffrey Rd (s/o Roosevelt)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Year 2015 with Option 1, with Pending Projects conditions are summarized in Table 9-1. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

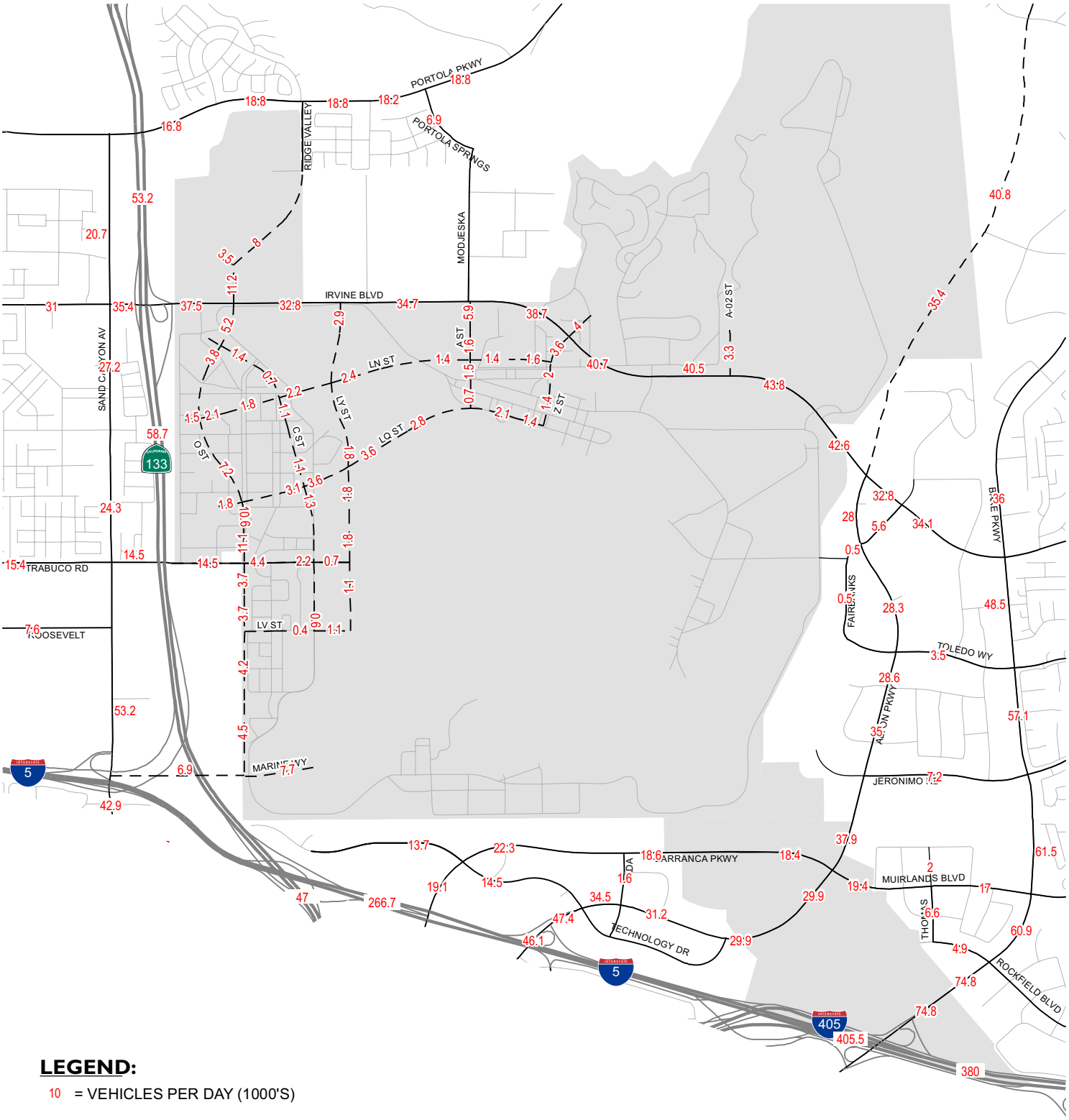
**Table 9-1**

**Pending Year 2015 Arterial Roadway Peak Hour Analysis, Option 1**

| | | | Pending Year 2015 with 2012 Modified Project Option 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Segment** | **Segment Limits** | **Juris** | **# of Lanes** | **Peak Hour Capacity** | **ADT** | **Highest Peak Volume** | | **Peak Hour V/C** | **Peak Hour LOS** |
| Irvine Bl. | w/o "A-02" St. | Irv | 5D | 4,000 | 42,300 | 2,430 | PM WB | 0.61 | B |
| Irvine Bl. | e/o "A-02" St. | Irv | 4D | 3,200 | 45,500 | 2,729 | PM WB | 0.85 | D |
| Jeffrey Rd. | b/w Roosevelt & I-5 NB Ramps | Irv | 6D | 4,800 | 62,500 | 3,210 | PM NB | 0.67 | B |

EXHIBIT 9-1 (1 OF 3)

# PENDING YEAR 2015 ADT VOLUMES WITHOUT PROJECT, PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 9-1 (2 OF 3)

# PENDING YEAR 2015 ADT VOLUMES WITHOUT PROJECT, WEST STUDY AREA

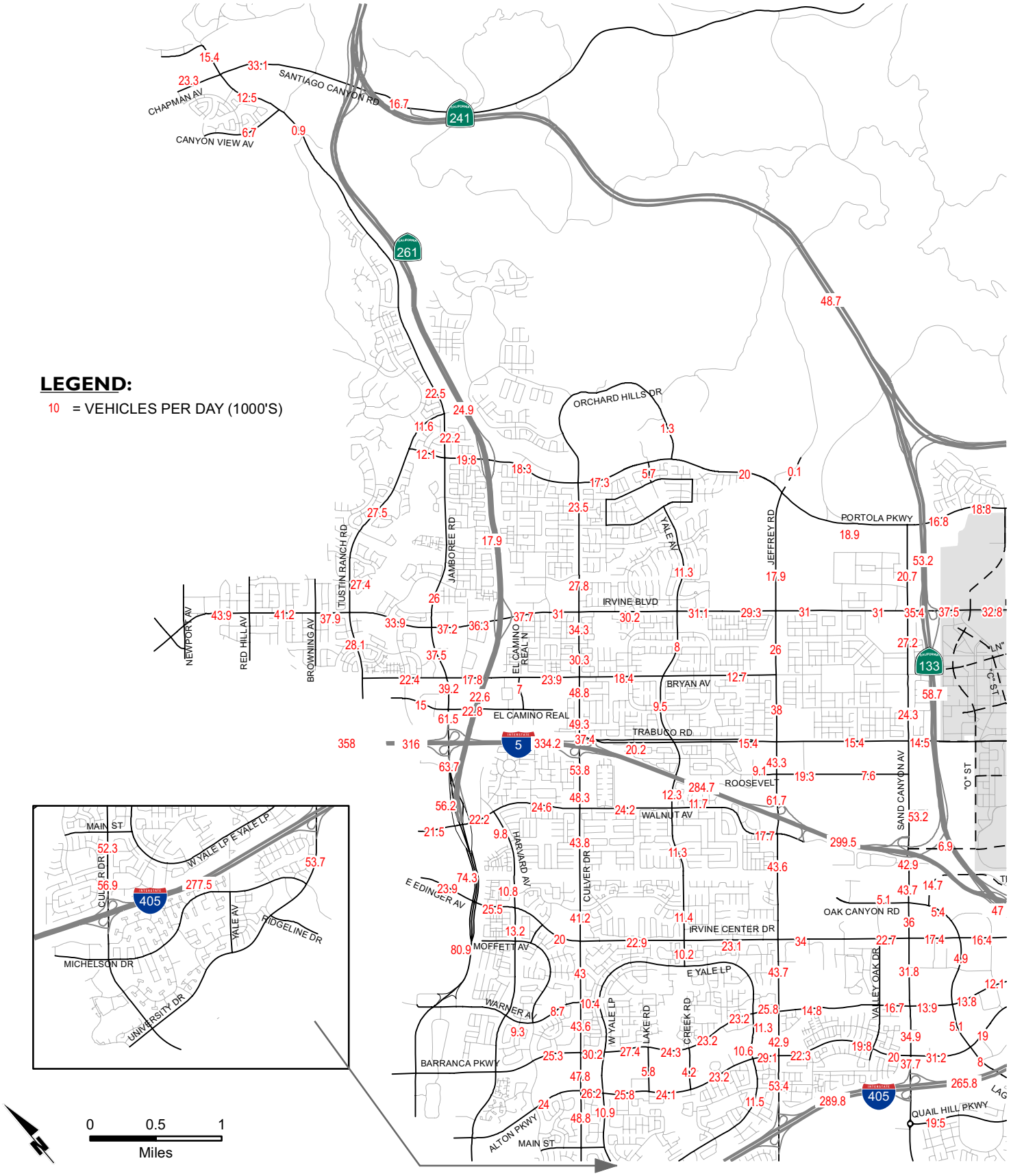


EXHIBIT 9-1 (3 OF 3)

# PENDING YEAR 2015 ADT VOLUMES WITHOUT PROJECT, EAST STUDY AREA

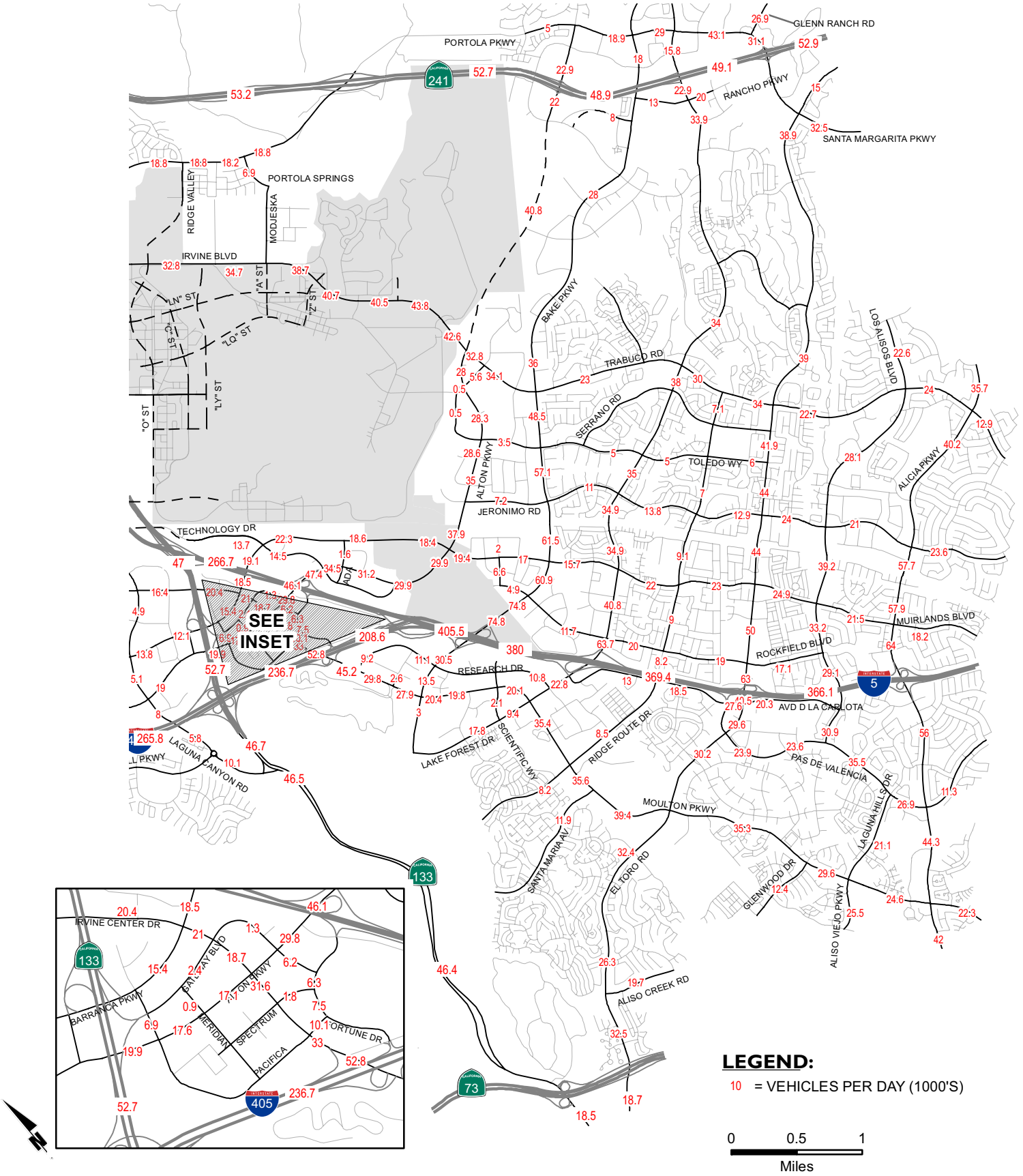
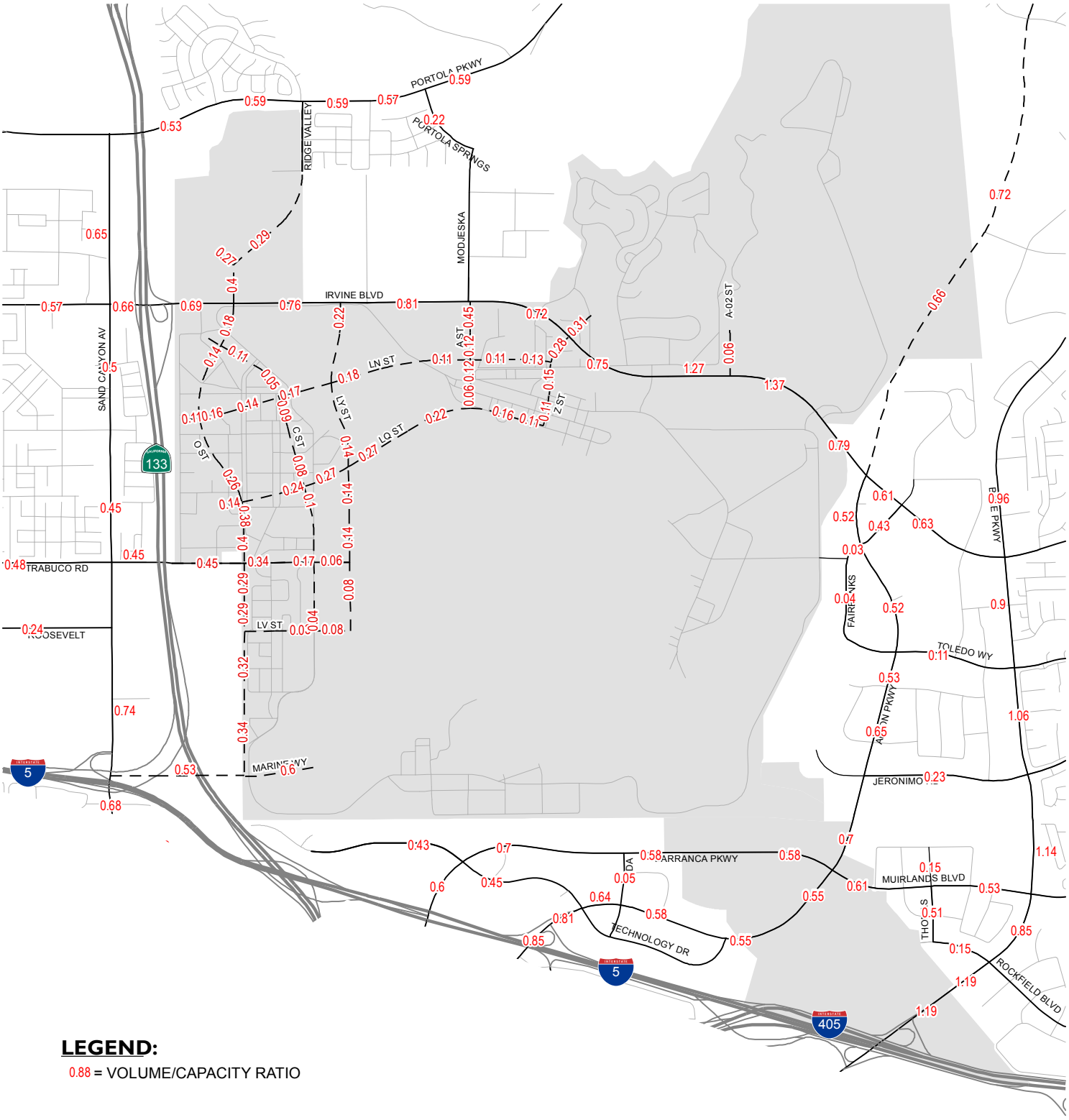


EXHIBIT 9-2 (1 OF 3)

# PENDING YEAR 2015 ADT V/C RATIOS WITHOUT PROJECT, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

EXHIBIT 9-2 (2 OF 3)

# PENDING YEAR 2015 ADT V/C RATIOS WITHOUT PROJECT, WEST STUDY AREA

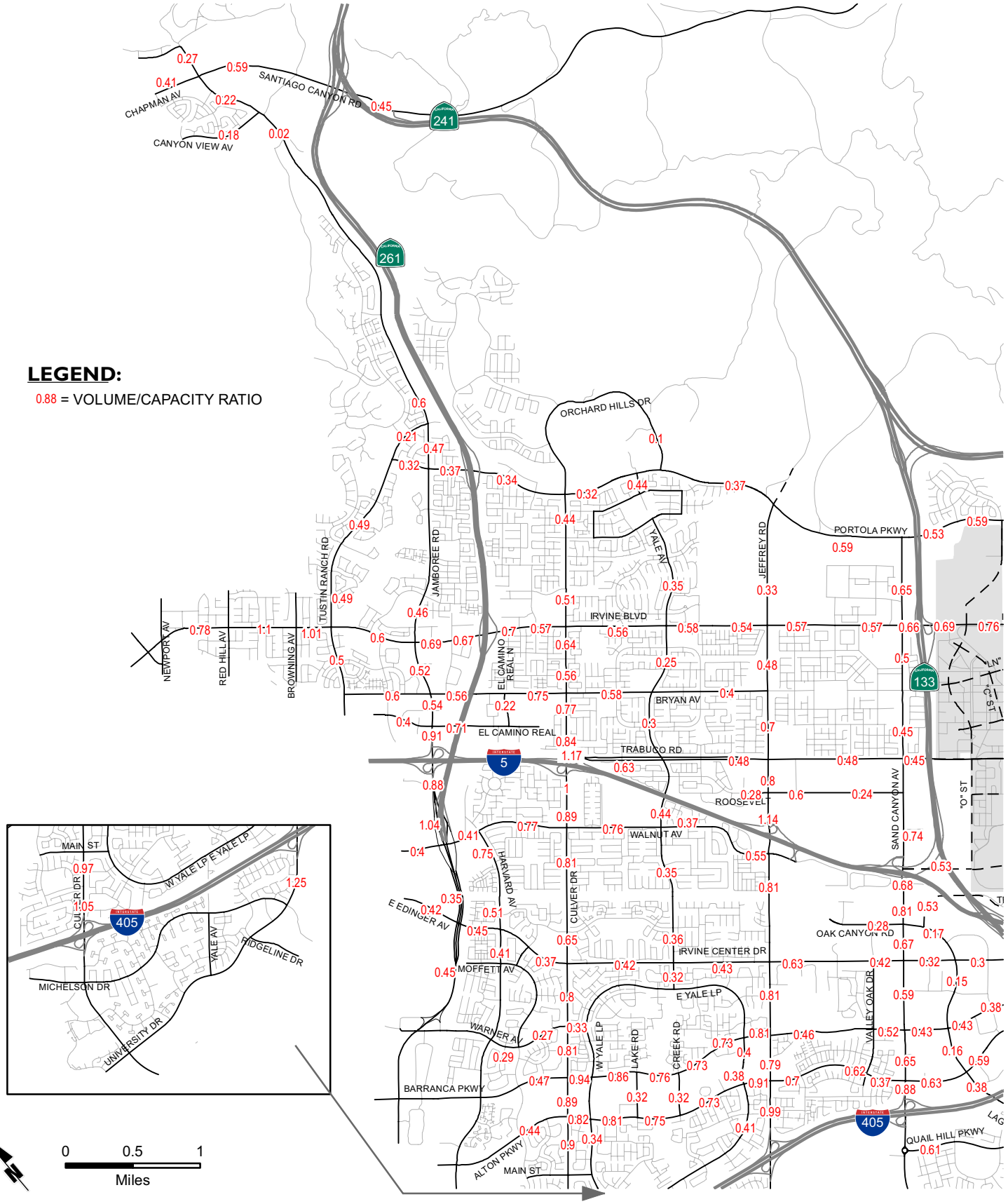
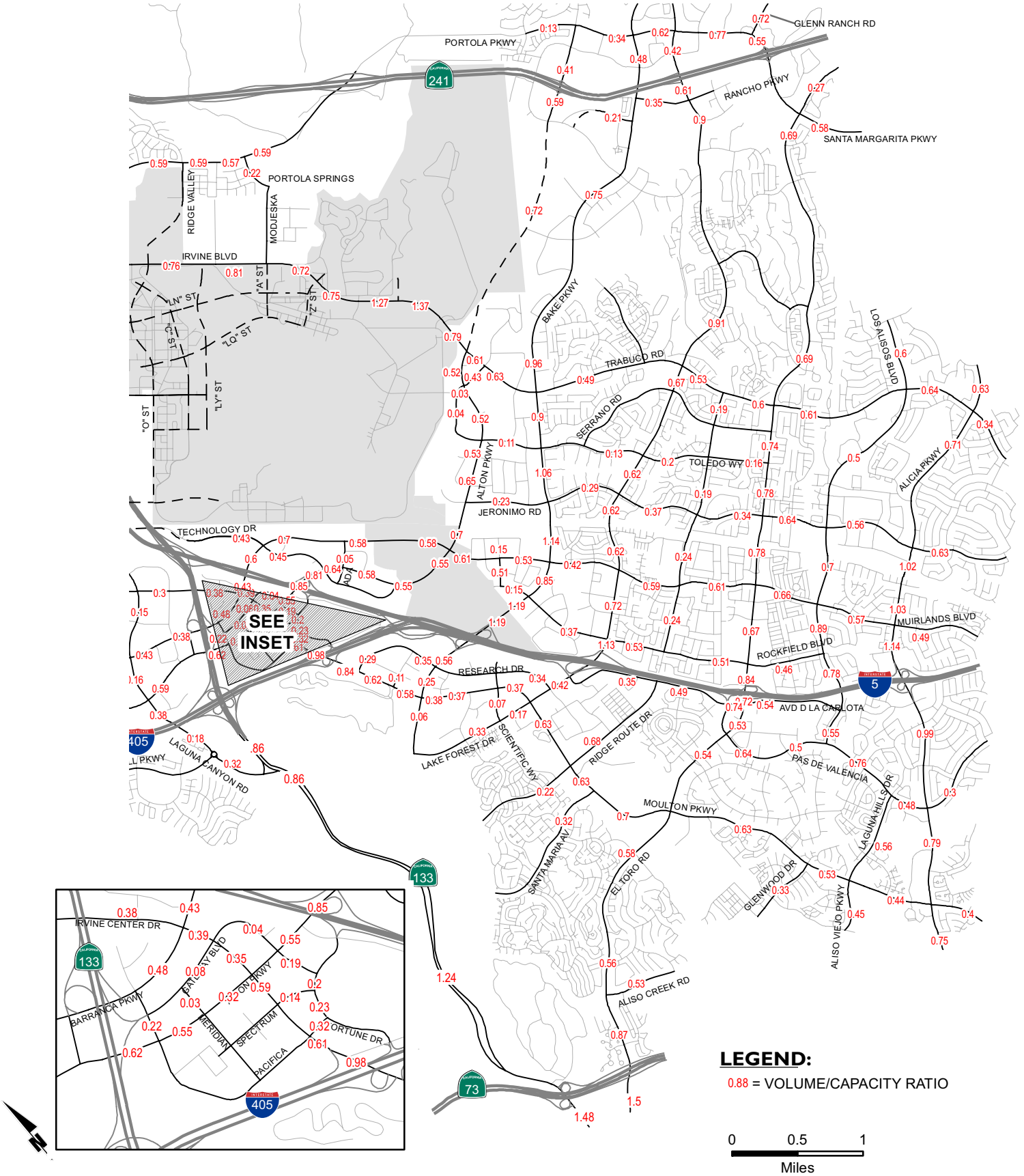
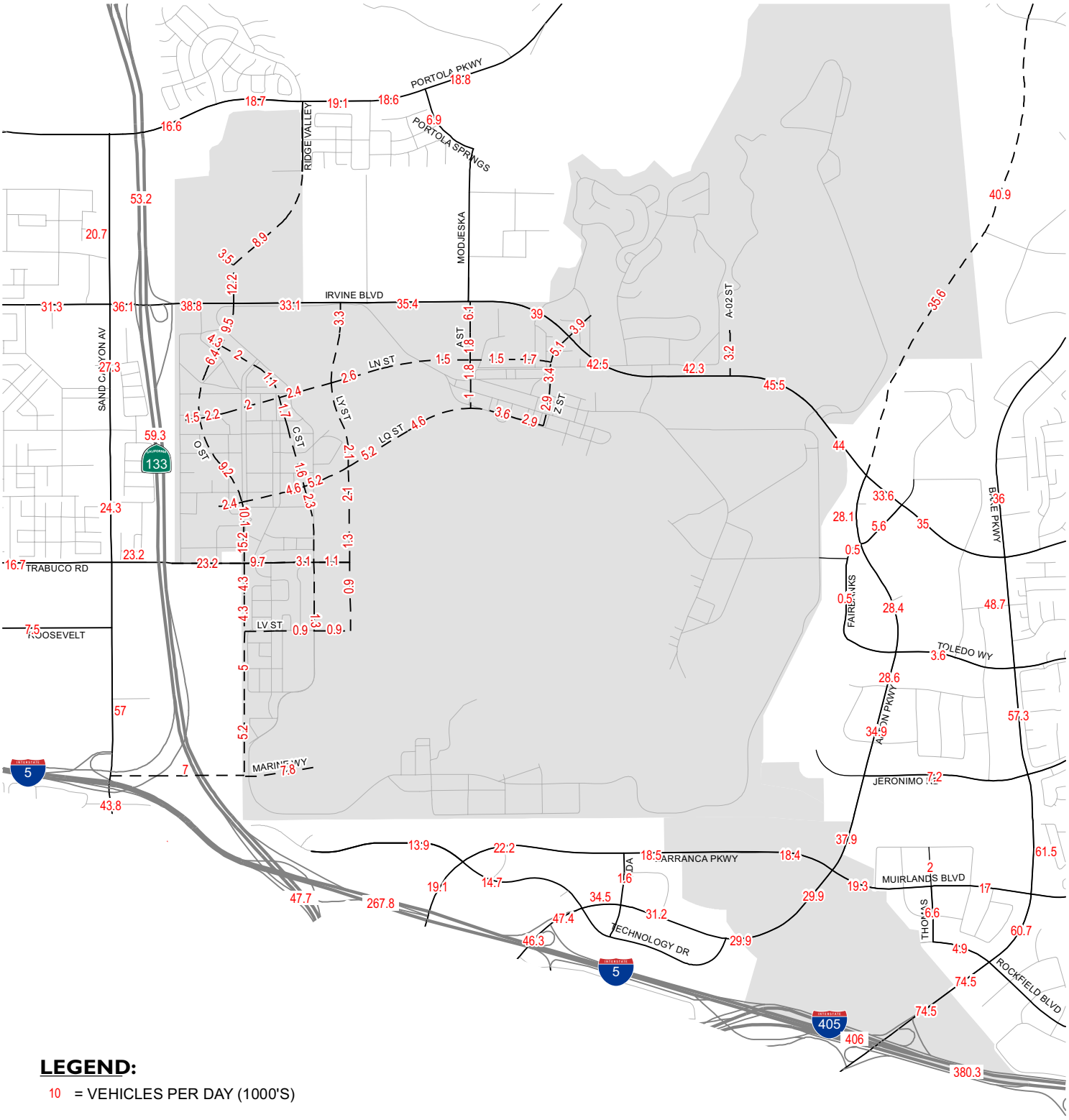


EXHIBIT 9-2 (3 OF 3)

# PENDING YEAR 2015 ADT V/C RATIOS WITHOUT PROJECT, EAST STUDY AREA



# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT VOLUMES, PROJECT AREA



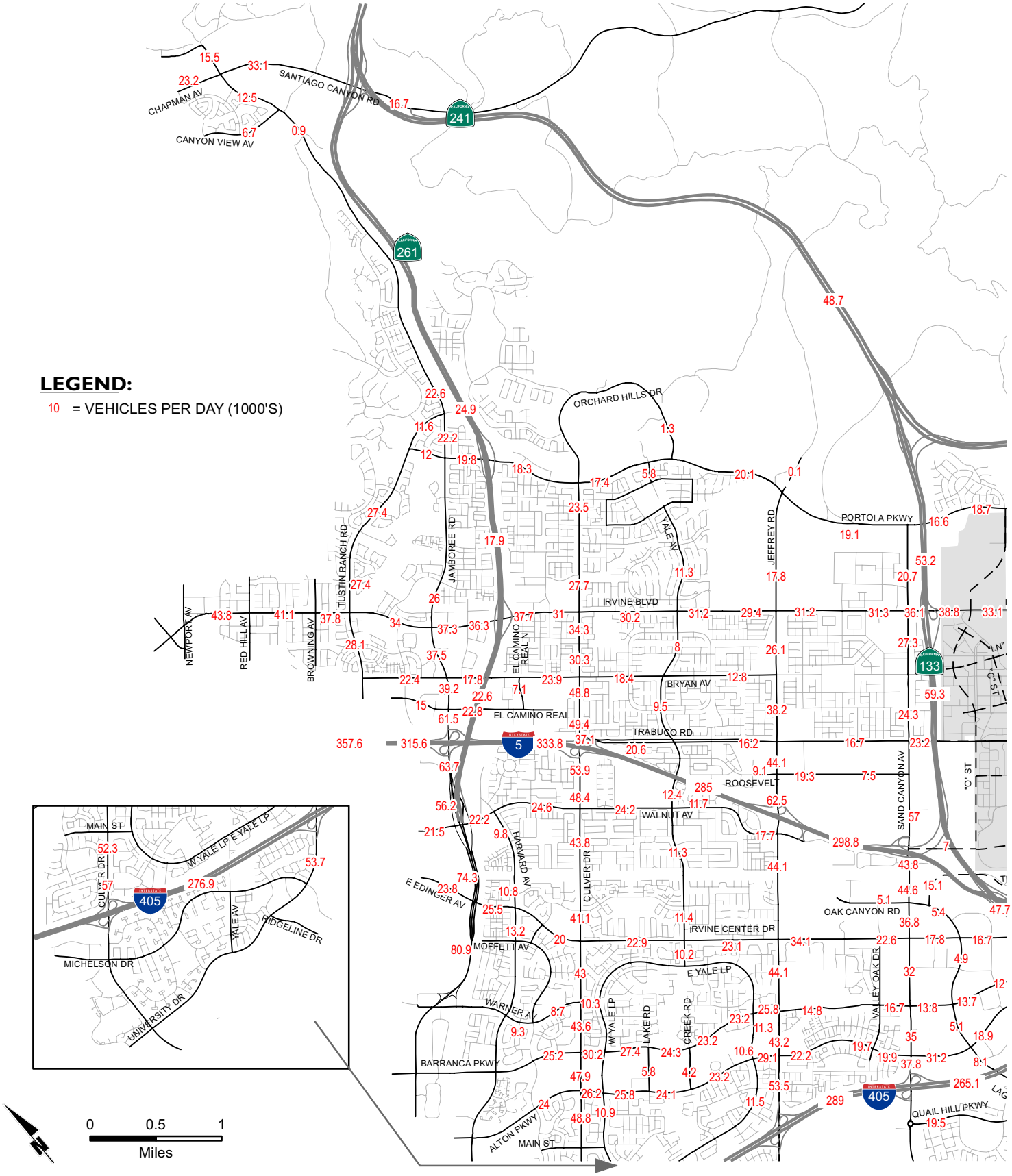

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

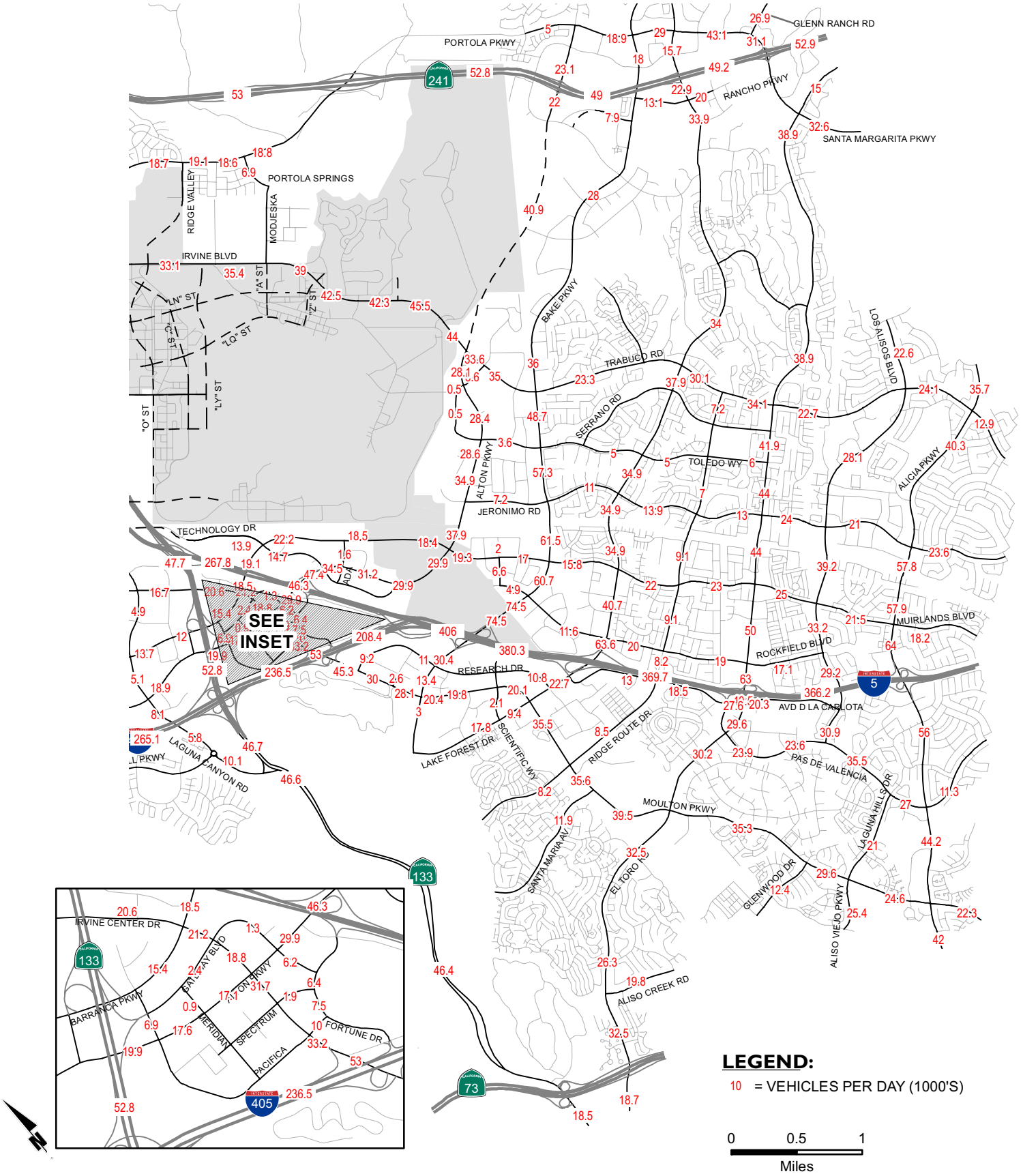
0 1,400 2,800

Feet

# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT VOLUMES, WEST STUDY AREA



# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT VOLUMES, EAST STUDY AREA



# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT V/C RATIOS, PROJECT AREA

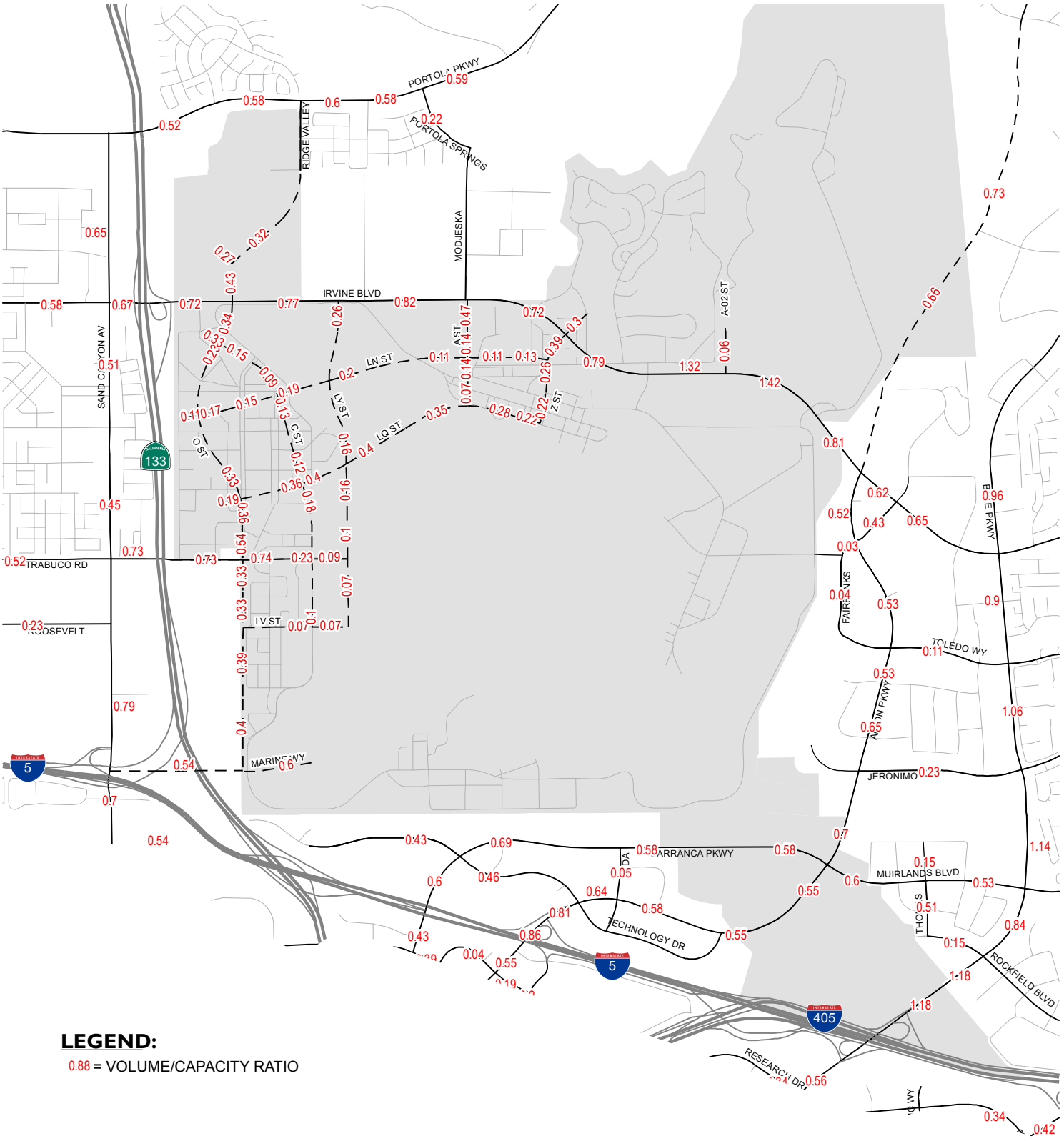
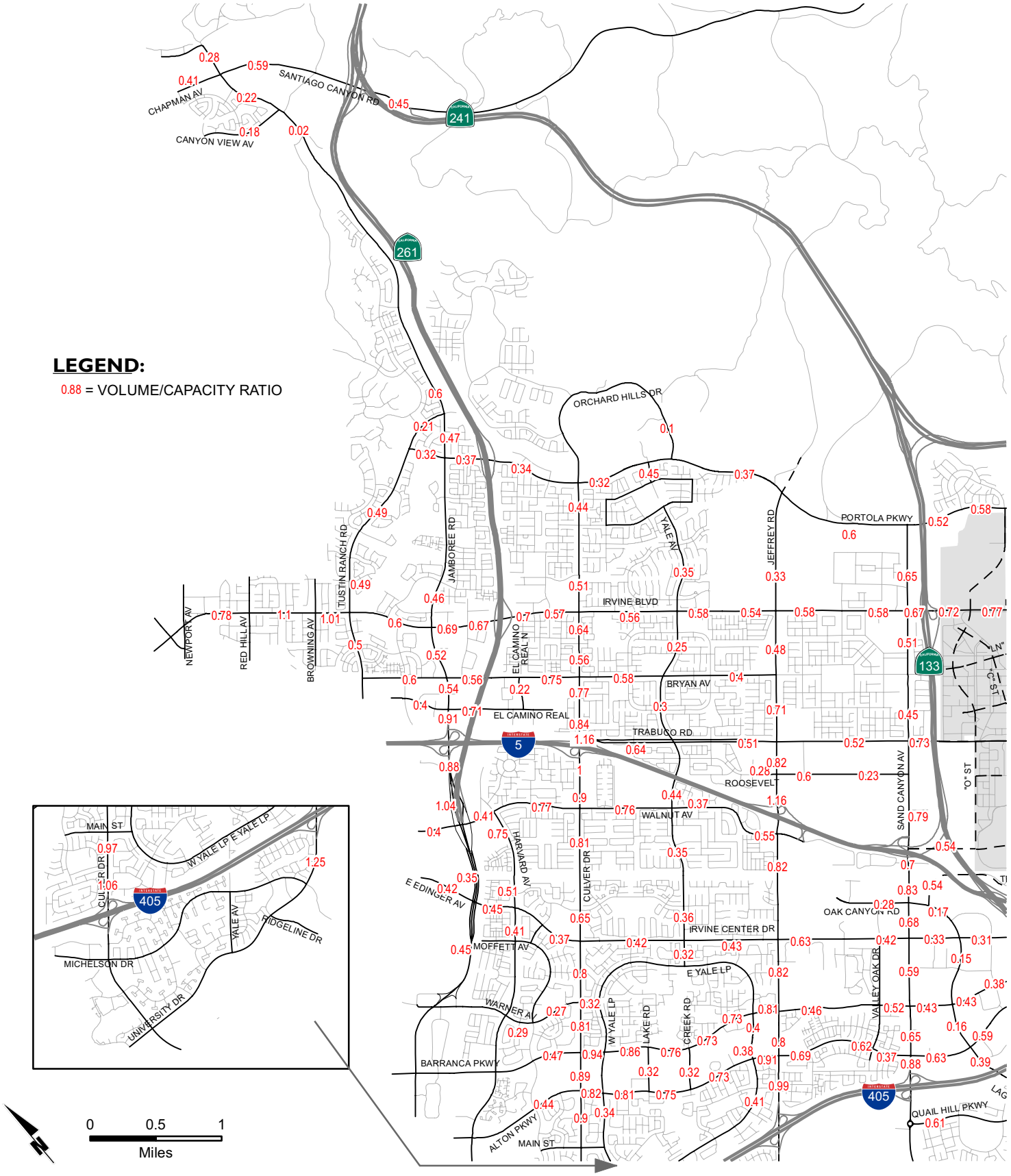
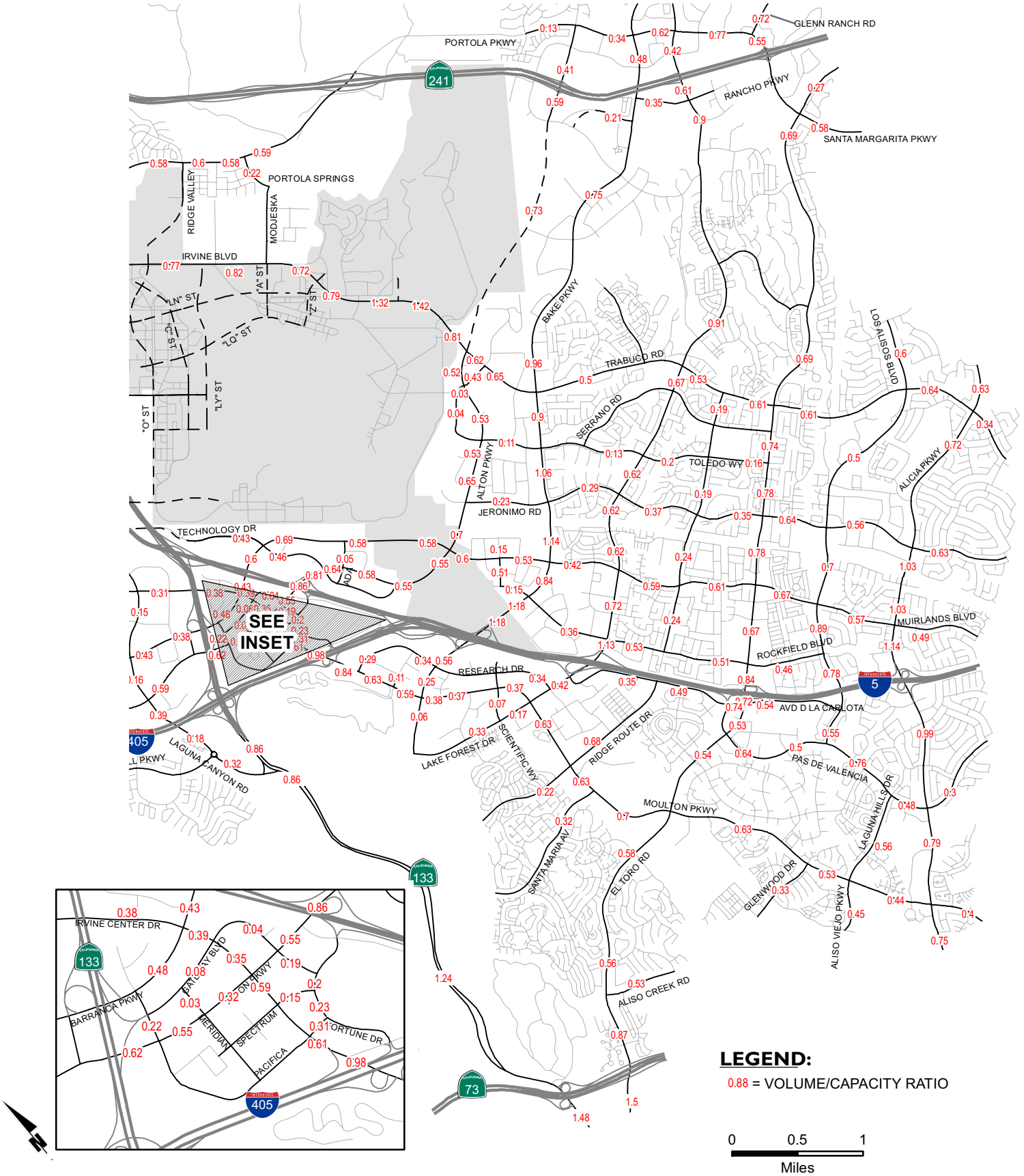


EXHIBIT 9-4 (2 OF 3)

# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT V/C RATIOS, WEST STUDY AREA



# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT V/C RATIOS, EAST STUDY AREA



### 9.1.2 Year 2015 Peak Hour Intersection Levels of Service, with Option 1, with Pending Projects

Year 2015 with Option 1, with Pending Projects AM and PM peak hour intersection capacity utilization (ICU) results are summarized in Table 9-2. Actual turn volumes, lane geometrics and ICU calculation worksheets for Year 2015 Without Project, with Pending Projects are included in Appendix 9.1 and Year 2015 with Option 1, with Pending Projects are included in Appendix 9.2. Based on the peak hour intersection performance criteria and impact thresholds previously presented in Table 2-4, none of the intersections are forecast to exceed adopted impact thresholds with Option 1, with Pending Projects based on Year 2015 conditions.

### 9.1.3 Year 2015 Peak Hour Freeway/Tollway Ramp Levels of Service, with Option 1, with Pending Projects

Exhibit 6-6 (previously presented) illustrates the interchange locations where freeway/tollway ramps were analyzed based on Year 2015 conditions. Year 2015 with Option 1, with Pending Projects AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-3. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, none of the freeway ramps are forecast to exceed adopted impact thresholds with the Year 2015 with Option 1, with Pending Projects conditions.

### 9.1.4 Year 2015 Peak Hour Freeway/Tollway Mainline Levels of Service, with Option 1, with Pending Projects

Year 2015 Year 2015 with Option 1, with Pending Projects AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-4. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, none of the freeway mainline segments are forecast to exceed adopted impact thresholds the Project based on Year 2015 with Option 1, with Pending Projects conditions.

### 9.1.5 Year 2015 Circulation System and Average Daily Traffic Volumes, with Option 2

Year 2015 with 2012 Modified Project Option 21, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-5 and 9-6, respectively.

# Table 9-2

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 1**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.77 | C | 0.77 | C | 0.76 | C | 0.78 | C |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | F | | | 0.72 | C | 0.80 | C | 0.72 | C | 0.80 | C |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **0.92** | **E** | 0.76 | C | **0.91** | **E** | 0.76 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | F | | | 0.82 | D | 0.81 | D | 0.82 | D | 0.80 | C |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | P | | | 0.72 | C | 0.65 | B | 0.73 | C | 0.66 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.60 | A | 0.72 | C | 0.59 | A | 0.73 | C |
| 125 | Jamboree Rd at Irvine Bl | Tus | F | | Yes | 0.79 | C | 0.68 | B | 0.79 | C | 0.68 | B |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.69 | B | 0.61 | B | 0.68 | B | 0.61 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.68 | B | 0.67 | B | 0.68 | B | 0.67 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.66 | B | 0.70 | B |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.71 | C | 0.66 | B | 0.70 | B | 0.66 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.48 | A | 0.49 | A | 0.48 | A | 0.50 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.40 | A | 0.62 | B | 0.40 | A | 0.62 | B |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.42 | A | 0.62 | B | 0.41 | A | 0.62 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.35 | A | 0.30 | A | 0.35 | A | 0.32 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.82 | D | 0.99 | E | 0.82 | D | 0.99 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.37 | A | 0.39 | A | 0.36 | A | 0.39 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.39 | A | 0.34 | A | 0.39 | A | 0.34 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.47 | A | 0.44 | A | 0.47 | A | 0.44 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.62 | B | 0.51 | A | 0.62 | B | 0.51 | A |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.65 | B | 0.59 | A | 0.65 | B | 0.59 | A |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.73 | C | 0.74 | C | 0.73 | C | 0.74 | C |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.85 | D | 0.66 | B | 0.86 | D | 0.66 | B |
| 222 | Culver Dr at Trabuco Rd | Irv | F | | | 0.71 | C | 0.76 | C | 0.71 | C | 0.76 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | F | | | 0.59 | A | 0.65 | B | 0.58 | A | 0.65 | B |
| 224 | Culver Dr at Walnut Av | Irv | F | | | 0.79 | C | 0.82 | D | 0.77 | C | 0.82 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.73 | C | 0.66 | B | 0.73 | C | 0.66 | B |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.77 | C | 0.59 | A | 0.77 | C | 0.59 | A |
| 228 | Culver Dr at Barranca Pw | Irv | P | | | 0.85 | D | 0.73 | C | 0.85 | D | 0.73 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.80 | C | 0.82 | D | 0.80 | C | 0.82 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.49 | A | 0.88 | D | 0.50 | A | 0.88 | D |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.52 | A | 0.61 | B | 0.52 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | F | | | 0.60 | A | 0.82 | D | 0.60 | A | 0.81 | D |
| 249 | Yale Av at Irvine Bl | Irv | F | | | 0.67 | B | 0.79 | C | 0.67 | B | 0.78 | C |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.43 | A | 0.39 | A | 0.43 | A | 0.40 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.59 | A | 0.47 | A | 0.59 | A | 0.47 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.59 | A | 0.66 | B | 0.59 | A | 0.66 | B |
| 261 | Yale Av at ICD | Irv | | | | 0.59 | A | 0.59 | A | 0.59 | A | 0.59 | A |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.63 | B | 0.60 | A | 0.63 | B | 0.59 | A |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.66 | B | 0.64 | B | 0.67 | B | 0.64 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.63 | B | 0.61 | B | 0.63 | B | 0.62 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.67 | B | 0.68 | B | 0.67 | B | 0.68 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.60 | A | 0.63 | B | 0.58 | A | 0.63 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.66 | B | 0.64 | B | 0.66 | B | 0.65 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.62 | B | 0.56 | A | 0.62 | B | 0.56 | A |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.60 | A | 0.61 | B | 0.61 | B | 0.62 | B |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.89 | D | 0.81 | D | 0.87 | D | 0.81 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.67 | B | 0.78 | C | 0.67 | B | 0.78 | C |
| 288 | Jeffrey Rd at Walnut Av | Irv | F | | | 0.70 | B | 0.69 | B | 0.70 | B | 0.69 | B |
| 289 | Jeffrey Rd at ICD | Irv | F | | | 0.70 | B | 0.81 | D | 0.70 | B | 0.82 | D |
| 290 | Jeffrey Rd at Barranca Pw | Irv | P | | | 0.82 | D | 0.72 | C | 0.83 | D | 0.72 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | F | Yes | | **0.93** | **E** | 0.85 | D | **0.93** | **E** | 0.85 | D |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | P | | | 0.72 | C | 0.82 | D | 0.73 | C | 0.82 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.61 | B | 0.63 | B | 0.62 | B | 0.63 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.36 | A | 0.46 | A | 0.36 | A | 0.47 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.61 | B | 0.58 | A | 0.62 | B | 0.58 | A |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | F | | | 0.69 | B | 0.62 | B | 0.70 | B | 0.70 | B |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | F | | | 0.68 | B | 0.71 | C | 0.67 | B | 0.74 | C |
| 304 | Sand Canyon at Marine Wy | | | | | 0.77 | C | 0.85 | D | 0.78 | C | 0.86 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | F | | | 0.79 | C | 0.75 | C | 0.79 | C | 0.80 | C |
| 306 | Sand Canyon Av at Oak Canyon | Irv | F | | | 0.65 | B | 0.82 | D | 0.66 | B | 0.84 | D |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.55 | A | 0.58 | A | 0.54 | A | 0.60 | A |

## Table 9-2 Cont.

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 1**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.52 | A | 0.50 | A | 0.52 | A | 0.51 | A |
| 310 | Sand Canyon Av at Alto | Irv | F | | | 0.68 | B | 0.69 | B | 0.68 | B | 0.70 | B |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | F | | | 0.64 | B | 0.47 | A | 0.65 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.83 | D | 0.62 | B | 0.82 | D | 0.62 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.32 | A | 0.36 | A | 0.32 | A | 0.37 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.39 | A | 0.35 | A | 0.40 | A | 0.35 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.57 | A | 0.51 | A | 0.57 | A | 0.51 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.46 | A | 0.48 | A | 0.48 | A | 0.50 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.51 | A | 0.68 | B | 0.59 | A | 0.70 | B |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.69 | B | 0.50 | A | 0.69 | B | 0.51 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.59 | A | 0.58 | A | 0.60 | A | 0.57 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | F | | | 0.65 | B | 0.61 | B | 0.66 | B | 0.61 | B |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | **1.05** | **F** | 0.88 | D | **1.06** | **F** | 0.88 | D |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.34 | A | 0.38 | A | 0.34 | A | 0.38 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.29 | A | 0.18 | A | 0.29 | A | 0.18 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.26 | A | 0.31 | A | 0.26 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | P | | | 0.59 | A | 0.73 | C | 0.59 | A | 0.73 | C |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.59 | A | 0.44 | A | 0.59 | A | 0.44 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.67 | B | 0.61 | B | 0.68 | B | 0.62 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.58 | A | 0.71 | C | 0.59 | A | 0.71 | C |
| 333 | Pacifica at Gateway | LF | | | Yes | 0.64 | B | 0.65 | B | 0.67 | B | 0.65 | B |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.43 | A | 0.31 | A | 0.44 | A | 0.31 | A |
| 336 | Alton Pw at SR-241 Ramps | Irv | | | | 0.44 | A | 0.41 | A | 0.45 | A | 0.41 | A |
| 338 | Alton Pw at Irvine Bl | Irv | F | | Yes | 0.82 | D | 0.78 | C | 0.81 | D | 0.80 | C |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.63 | B | 0.57 | A | 0.64 | B | 0.58 | A |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.67 | B | 0.52 | A | 0.67 | B | 0.52 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.57 | A | 0.68 | B | 0.57 | A | 0.68 | B |
| 343 | Alton Pw at Ada | Irv | | | | 0.46 | A | 0.56 | A | 0.47 | A | 0.56 | A |
| 344 | Alton Pw at Technology | Irv | P | | | 0.59 | A | 0.82 | D | 0.59 | A | 0.82 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | F | | Yes | 0.70 | B | 0.43 | A | 0.71 | C | 0.44 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.65 | B | 0.73 | C | 0.65 | B | 0.73 | C |
| 348 | Alton Pw at ICD | Irv | P | | Yes | 0.61 | B | 0.69 | B | 0.62 | B | 0.70 | B |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.66 | B | 0.51 | A | 0.66 | B | 0.51 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.37 | A | 0.71 | C | 0.37 | A | 0.73 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.41 | A | 0.41 | A | 0.41 | A | 0.42 | A |
| 358 | ICD at Enterprise Dr | Irv | P | | Yes | 0.82 | D | 0.73 | C | 0.82 | D | 0.73 | C |
| 359 | ICD at I-405 SB Ramps | LF | P | | Yes | 0.75 | C | 0.71 | C | 0.75 | C | 0.72 | C |
| 361 | Bake Pw at Portola Pw | Irv | | | | 0.51 | A | 0.82 | D | 0.51 | A | 0.82 | D |
| 362 | Bake Pw at Irvine Bl | Irv | F | | Yes | 0.77 | C | 0.79 | C | 0.78 | C | 0.79 | C |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.79 | C | 0.63 | B | 0.80 | C | 0.62 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | F | | | 0.77 | C | 0.67 | B | 0.76 | C | 0.67 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.69 | B | 0.84 | D | 0.69 | B | 0.84 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.64 | B | 0.83 | D | 0.64 | B | 0.83 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.83 | D | 0.69 | B | 0.84 | D | 0.68 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | F | | Yes | 0.74 | C | 0.87 | D | 0.73 | C | 0.87 | D |
| 371 | Bake Pw at Research | Irv | | | | 0.56 | A | 0.84 | D | 0.55 | A | 0.77 | C |
| 372 | Bake Pw at ICD | LF | | | | 0.47 | A | 0.58 | A | 0.46 | A | 0.58 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.31 | A | 0.35 | A | 0.31 | A | 0.35 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.54 | A | 0.76 | C | 0.54 | A | 0.76 | C |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.40 | A | 0.44 | A | 0.40 | A | 0.44 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.83 | D | 0.82 | D | 0.83 | D | 0.83 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.51 | A | 0.48 | A | 0.52 | A | 0.48 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | P | | | 0.69 | B | 0.74 | C | 0.70 | B | 0.74 | C |
| 379 | Lake Forest Dr at Muirlands Bl | LF | F | | | 0.64 | B | 0.86 | D | 0.64 | B | 0.86 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | P | | | 0.69 | B | 0.75 | C | 0.69 | B | 0.76 | C |
| 381 | Lake Forest Dr at I-5 NB Ramps | Irv | | | | 0.56 | A | 0.64 | B | 0.56 | A | 0.64 | B |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | F | | Yes | 0.71 | C | 0.76 | C | 0.71 | C | 0.75 | C |
| 385 | Lake Forest Dr at ICD | LF | | | Yes | 0.48 | A | 0.59 | A | 0.48 | A | 0.59 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.45 | A | 0.65 | B | 0.45 | A | 0.65 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LH | P | | | 0.45 | A | 0.55 | A | 0.45 | A | 0.55 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | LH/LW | | | | 0.34 | A | 0.74 | C | 0.34 | A | 0.75 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.46 | A | 0.67 | B | 0.46 | A | 0.67 | B |

## Table 9-2 Cont.

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 1**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.53 | A | 0.71 | C | 0.53 | A | 0.71 | C |
| 391 | Santa Maria Av at Moulton Pw | LF | | | | 0.53 | A | 0.73 | C | 0.53 | A | 0.73 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.65 | B | 0.80 | C | 0.65 | B | 0.80 | C |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.53 | A | 0.63 | B | 0.52 | A | 0.63 | B |
| 394 | El Toro Rd at I-5 NB Ramps | LH | | | Yes | 0.75 | C | 0.88 | D | 0.57 | A | 0.88 | D |
| 396 | El Toro Rd at Avenida Carlota | LH/LW | **P** | | Yes | 0.59 | A | 0.87 | D | 0.59 | A | 0.86 | D |
| 397 | El Toro Rd at Paseo de Valencia | LW | | | | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B |
| 398 | El Toro Rd at Moulton Pw | AV | | | Yes | 0.70 | B | 0.80 | C | 0.70 | B | 0.80 | C |
| 399 | El Toro Rd at Aliso Creek Rd | LB | | | | 0.53 | A | 0.83 | D | 0.54 | A | 0.84 | D |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.56 | A | 0.62 | B | 0.56 | A | 0.62 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | Irv | | | Yes | 0.45 | A | 0.64 | B | 0.45 | A | 0.64 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.55 | A | 0.62 | B | 0.59 | A | 0.64 | B |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.43 | A | 0.35 | A | 0.43 | A | 0.35 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | LF | **F** | | | 0.45 | A | 0.41 | A | 0.45 | A | 0.42 | A |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.60 | A | 0.72 | C | 0.60 | A | 0.73 | C |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.48 | A | 0.60 | A | 0.49 | A | 0.61 | B |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.31 | A | 0.33 | A | 0.31 | A | 0.33 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.44 | A | 0.56 | A | 0.44 | A | 0.56 | A |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.60 | A | 0.62 | B | 0.60 | A | 0.62 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.49 | A | 0.59 | A | 0.49 | A | 0.59 | A |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.64 | B | 0.85 | D | 0.64 | B | 0.85 | D |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.67 | B | 0.74 | C | 0.68 | B | 0.74 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.57 | A | 0.58 | A | 0.57 | A | 0.58 | A |
| 420 | El Toro Rd at Jeronimo Rd | MV | **P** | | | 0.75 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 421 | Los Alisos Bl at Trabuco Rd | LF/MV | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | 0.71 | C | 0.80 | C | 0.71 | C | 0.80 | C |
| 423 | Muirlands Bl at Los Alisos Bl | LF | **P** | | | 0.88 | D | **0.93** | **E** | 0.89 | D | **0.93** | **E** |
| 424 | Los Alisos Bl at Rockfield Bl | LH | **P** | | | 0.80 | C | 0.81 | D | 0.81 | D | 0.81 | D |
| 425 | Los Alisos Bl at Avenido Carlota | LH/LW | | | | 0.51 | A | 0.66 | B | 0.51 | A | 0.66 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | AV/LH | | | | 0.49 | A | 0.58 | A | 0.49 | A | 0.57 | A |
| 427 | Moulton Pw at Glenwood/Indian Creek | LH/LW | | | | 0.59 | A | 0.53 | A | 0.58 | A | 0.55 | A |
| 428 | Laguna Hills Dr at Paseo de Valencia | AV/LH | | | | 0.65 | B | 0.72 | C | 0.65 | B | 0.71 | C |
| 429 | Moulton Pw at Laguna Hills Dr | MV | | | | 0.60 | A | 0.67 | B | 0.60 | A | 0.66 | B |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.76 | C | 0.74 | C | 0.78 | C | 0.74 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | 0.67 | B | 0.85 | D | 0.68 | B | 0.86 | D |
| 433 | I-5 NB Ramps at Alicia Pw | LH | | | | 0.44 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.77 | C | 0.86 | D | 0.77 | C | 0.87 | D |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.61 | B | 0.68 | B | 0.61 | B | 0.68 | B |
| 436 | Moulton Pw at Alicia Pw | Irv | | | | 0.69 | B | 0.67 | B | 0.69 | B | 0.68 | B |
| 437 | Scientific Wy at ICD | Tus | | | | 0.32 | A | 0.37 | A | 0.32 | A | 0.37 | A |
| 441 | Loop Rd at Jamboree Rd | Irv | | | | 0.26 | A | 0.18 | A | 0.26 | A | 0.18 | A |
| 444 | Sand Canyon at Burt Rd | Ora | | | | 0.70 | B | 0.57 | A | 0.76 | C | 0.76 | C |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.53 | A | 0.56 | A | 0.53 | A | 0.55 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | 0.61 | B | 0.68 | B | 0.61 | B | 0.68 | B |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.65 | B | 0.65 | B | 0.65 | B | 0.65 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.64 | B | 0.75 | C | 0.64 | B | 0.75 | C |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | Ora | | | | 0.53 | A | 0.51 | A | 0.53 | A | 0.51 | A |
| 468 | Jamboree Rd at Canyon View | Irv | | | | 0.53 | A | 0.35 | A | 0.53 | A | 0.36 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.37 | A | 0.45 | A | 0.36 | A | 0.44 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.40 | A | 0.36 | A | 0.41 | A | 0.37 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.37 | A | 0.30 | A | 0.37 | A | 0.31 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.30 | A | 0.25 | A | 0.31 | A | 0.26 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.67 | B | 0.39 | A | 0.66 | B | 0.42 | A |
| 485 | Sand Canyon at Nightmist | LF | | | | 0.67 | B | 0.50 | A | 0.67 | B | 0.52 | A |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.59 | A | 0.55 | A | 0.60 | A | 0.55 | A |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.61 | B | 0.71 | C | 0.61 | B | 0.71 | C |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | 0.60 | A | 0.85 | D | 0.60 | A | 0.85 | D |
| 518 | Alton Pw at Commercentre | LF | | | | 0.52 | A | 0.65 | B | 0.52 | A | 0.65 | B |
| 555 | Bake Pw at Rancho Pkw South | LF | | | | 0.62 | B | 0.67 | B | 0.62 | B | 0.66 | B |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.61 | B | 0.67 | B | 0.52 | A | 0.62 | B |
| 557 | O St at C St | Irv | | | | 0.19 | A | 0.24 | A | 0.33 | A | 0.34 | A |

## Table 9-2 Cont.

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 1**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 558 | O St at Irvine Bl | Irv | | | | 0.58 | A | 0.74 | C | 0.60 | A | 0.77 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.64 | B | 0.42 | A | 0.70 | B | 0.58 | A |
| 560 | O St at Marine Wy | Irv | | | | 0.27 | A | 0.48 | A | 0.27 | A | 0.48 | A |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.41 | A | 0.38 | A | 0.41 | A | 0.38 | A |
| 571 | Portola Springs at Portola Pw | Irv | | | | 0.54 | A | 0.47 | A | 0.54 | A | 0.48 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.51 | A | 0.57 | A | 0.51 | A | 0.56 | A |
| 603 | O St at LN St | Irv | | | | 0.28 | A | 0.21 | A | 0.33 | A | 0.24 | A |
| 605 | O St at LQ St | Irv | | | | 0.43 | A | 0.33 | A | 0.43 | A | 0.35 | A |
| 608 | O St at LV St | Irv | | | | 0.14 | A | 0.28 | A | 0.18 | A | 0.33 | A |
| 626 | LY St at LQ St | Irv | | | | 0.30 | A | 0.29 | A | 0.36 | A | 0.33 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.44 | A | 0.65 | B | 0.44 | A | 0.65 | B |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.10 | A | 0.15 | A | 0.10 | A | 0.11 | A |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.32 | A | 0.45 | A | 0.31 | A | 0.45 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.28 | A | 0.38 | A | 0.29 | A | 0.38 | A |
| 782 | A St at LQ St | Irv | | | | 0.18 | A | 0.21 | A | 0.21 | A | 0.25 | A |
| 787 | Z St at LQ St | Irv | | | | 0.11 | A | 0.14 | A | 0.15 | A | 0.17 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.62 | B | 0.58 | A | 0.65 | B | 0.57 | A |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.77 | C | 0.81 | D | 0.78 | C | 0.84 | D |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.51 | A | 0.61 | B | 0.52 | A | 0.62 | B |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | 0.50 | A | 0.53 | A | 0.50 | A | 0.53 | A |
| 832 | Fairbanks at Astor | Irv | | | | 0.06 | A | 0.07 | A | 0.06 | A | 0.07 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_9.13.12.xlsx]9-2

## Table 9-3

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 440 | 0.29 | A | 1,122 | 0.75 | C | 440 | 0.29 | A | 1,122 | 0.75 | C |
| | SB Loop On | 1 | 1,080 | 510 | 0.47 | A | 431 | 0.40 | A | 510 | 0.47 | A | 431 | 0.40 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 750 | 0.69 | B | 670 | 0.62 | B | 750 | 0.69 | B |
| | SB Off | 1 | 1,500 | 1,504 | 1.00 | E | 1,528 | **1.02** | **F** | 1,498 | 1.00 | E | 1,528 | **1.02** | **F** |
| | NB Off | 1 | 1,500 | 1,549 | **1.03** | **F** | 1,307 | 0.87 | D | 1,551 | **1.03** | **F** | 1,306 | 0.87 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 270 | 0.30 | A | 370 | 0.41 | A | 270 | 0.30 | A |
| | NB Direct On | 1 | 900 | 740 | 0.82 | D | 180 | 0.20 | A | 737 | 0.82 | D | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,130 | 0.75 | C | 592 | 0.39 | A | 1,144 | 0.76 | C | 620 | 0.41 | A |
| | SB Off | 2 | 2,250 | 1,127 | 0.50 | A | 2,179 | 0.97 | E | 1,168 | 0.52 | A | 2,186 | 0.97 | E |
| | NB Off | 1 | 1,500 | 353 | 0.24 | A | 517 | 0.34 | A | 363 | 0.24 | A | 523 | 0.35 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 843 | 0.78 | C | 610 | 0.56 | A | 840 | 0.78 | C | 621 | 0.58 | A |
| | NB Direct On | 1 | 1,080 | 700 | 0.65 | B | 350 | 0.32 | A | 690 | 0.64 | B | 370 | 0.34 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 829 | 0.55 | A | 620 | 0.41 | A | 839 | 0.56 | A |
| | NB Off | 2 | 2,250 | 812 | 0.36 | A | 1,374 | 0.61 | B | 810 | 0.36 | A | 1,374 | 0.61 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 920 | 0.61 | B | 870 | 0.58 | A | 960 | 0.64 | B | 970 | 0.65 | B |
| | NB On | 1 | 1,500 | 520 | 0.35 | A | 1,112 | 0.74 | C | 500 | 0.33 | A | 1,110 | 0.74 | C |
| | SB Off | 1 | 1,500 | 1,441 | 0.96 | E | 769 | 0.51 | A | 1,453 | 0.97 | E | 770 | 0.51 | A |
| | NB Off | 2 | 2,250 | 710 | 0.32 | A | 852 | 0.38 | A | 771 | 0.34 | A | 881 | 0.39 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 40 | 0.03 | A | 150 | 0.10 | A | 40 | 0.03 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 150 | 0.10 | A | 130 | 0.09 | A | 150 | 0.10 | A | 121 | 0.08 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 220 | 0.15 | A | 610 | 0.41 | A | 221 | 0.15 | A | 610 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 420 | 0.23 | A | 1,100 | 0.61 | B | 410 | 0.23 | A | 1,100 | 0.61 | B |
| | NB Loop On | 1 | 1,500 | 583 | 0.39 | A | 141 | 0.09 | A | 581 | 0.39 | A | 141 | 0.09 | A |
| | SB Off | 2 | 2,250 | 1,840 | 0.82 | D | 887 | 0.39 | A | 1,859 | 0.83 | D | 924 | 0.41 | A |
| | NB Off | 2 | 2,250 | 1,113 | 0.49 | A | 290 | 0.13 | A | 1,102 | 0.49 | A | 290 | 0.13 | A |

## Table 9-3 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 18 | 0.01 | A | 107 | 0.07 | A | 18 | 0.01 | A | 106 | 0.07 | A |
| | SB Loop On | 1 | 1,080 | 300 | 0.28 | A | 600 | 0.56 | A | 291 | 0.27 | A | 600 | 0.56 | A |
| | NB Direct On | 2 | 3,400 | 2,169 | 0.64 | B | 1,960 | 0.58 | A | 2,176 | 0.64 | B | 1,966 | 0.58 | A |
| | NB Loop On | 1 | 1,500 | 491 | 0.33 | A | 1,240 | 0.83 | D | 450 | 0.30 | A | 1,240 | 0.83 | D |
| | SB Off | 2 | 3,000 | 3,244 | **1.08** | **F** | 2,584 | 0.86 | D | 3,263 | **1.09** | **F** | 2,574 | 0.86 | D |
| | NB Off | 2 | 3,000 | 859 | 0.29 | A | 391 | 0.13 | A | 860 | 0.29 | A | 381 | 0.13 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 294 | 0.20 | A | 733 | 0.49 | A | 297 | 0.20 | A | 731 | 0.49 | A |
| | SB Loop On | 1 | 1,080 | 400 | 0.37 | A | 550 | 0.51 | A | 400 | 0.37 | A | 550 | 0.51 | A |
| | NB On | 2 | 1,800 | 1,504 | 0.84 | D | 1,020 | 0.57 | A | 1,485 | 0.83 | D | 1,020 | 0.57 | A |
| | SB Off | 2 | 3,000 | 1,877 | 0.63 | B | 2,539 | 0.85 | D | 1,881 | 0.63 | B | 2,554 | 0.85 | D |
| | NB Off | 1 | 1,500 | 1,153 | 0.77 | C | 614 | 0.41 | A | 1,152 | 0.77 | C | 612 | 0.41 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 250 | 0.23 | A | 196 | 0.18 | A | 249 | 0.23 | A | 195 | 0.18 | A |
| | SB Loop On | 1 | 1,500 | 385 | 0.26 | A | 433 | 0.29 | A | 388 | 0.26 | A | 433 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,819 | **1.21** | **F** | 1,322 | 0.88 | D | 1,834 | **1.22** | **F** | 1,313 | 0.88 | D |
| | NB Loop On | 1 | 1,500 | 895 | 0.60 | A | 1,103 | 0.74 | C | 913 | 0.61 | B | 1,110 | 0.74 | C |
| | SB Off | 2 | 2,250 | 1,441 | 0.64 | B | 1,310 | 0.58 | A | 1,443 | 0.64 | B | 1,320 | 0.59 | A |
| | NB Off | 1 | 1,500 | 1,220 | 0.81 | D | 1,218 | 0.81 | D | 1,216 | 0.81 | D | 1,217 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 200 | 0.19 | A | 150 | 0.14 | A | 200 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 830 | 0.55 | A | 750 | 0.50 | A | 830 | 0.55 | A | 750 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,270 | 0.85 | D | 801 | 0.53 | A | 1,310 | 0.87 | D | 801 | 0.53 | A |
| | NB Loop On | 1 | 1,500 | 1,260 | 0.84 | D | 801 | 0.53 | A | 1,250 | 0.83 | D | 801 | 0.53 | A |
| | SB Off | 2 | 3,000 | 2,166 | 0.72 | C | 2,329 | 0.78 | C | 2,166 | 0.72 | C | 2,353 | 0.78 | C |
| | NB Off | 1 | 1,500 | 310 | 0.21 | A | 1,070 | 0.71 | C | 310 | 0.21 | A | 1,070 | 0.71 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 261 | 0.17 | A | 640 | 0.43 | A | 252 | 0.17 | A | 650 | 0.43 | A |
| | SB Loop On | 1 | 900 | 251 | 0.28 | A | 310 | 0.34 | A | 252 | 0.28 | A | 310 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 940 | 0.63 | B | 671 | 0.45 | A | 940 | 0.63 | B | 670 | 0.45 | A |
| | NB Loop On | 1 | 1,500 | 640 | 0.43 | A | 441 | 0.29 | A | 640 | 0.43 | A | 450 | 0.30 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,470 | 0.49 | A | 829 | 0.28 | A | 1,473 | 0.49 | A |
| | NB Off | 1 | 1,500 | 1,242 | 0.83 | D | 1,249 | 0.83 | D | 1,232 | 0.82 | D | 1,249 | 0.83 | D |

## Table 9-3 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 970 | 0.65 | B | 1,120 | 0.75 | C | 960 | 0.64 | B | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 250 | 0.28 | A | 290 | 0.32 | A | 250 | 0.28 | A |
| | NB Direct On | 1 | 1,500 | 1,299 | 0.87 | D | 550 | 0.37 | A | 1,301 | 0.87 | D | 550 | 0.37 | A |
| | NB Loop On | 1 | 900 | 302 | 0.34 | A | 80 | 0.09 | A | 302 | 0.34 | A | 80 | 0.09 | A |
| | SB Off | 1 | 1,500 | 576 | 0.38 | A | 739 | 0.49 | A | 587 | 0.39 | A | 750 | 0.50 | A |
| | NB Off | 2 | 2,250 | 1,028 | 0.46 | A | 1,526 | 0.68 | B | 1,029 | 0.46 | A | 1,530 | 0.68 | B |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 521 | 0.35 | A | 360 | 0.24 | A | 530 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 1,130 | 0.75 | C | 1,236 | 0.82 | D | 1,150 | 0.77 | C |
| | NB Loop On | 1 | 1,500 | 650 | 0.43 | A | 360 | 0.24 | A | 643 | 0.43 | A | 360 | 0.24 | A |
| | SB Off | 1 | 1,500 | 1,584 | **1.06** | **F** | 962 | 0.64 | B | 1,579 | **1.05** | **F** | 951 | 0.63 | B |
| | NB Off | 1 | 1,500 | 458 | 0.31 | A | 510 | 0.34 | A | 477 | 0.32 | A | 510 | 0.34 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 110 | 0.12 | A | 90 | 0.10 | A | 110 | 0.12 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 160 | 0.18 | A | 280 | 0.31 | A | 160 | 0.18 | A | 280 | 0.31 | A |
| | NB Direct On | 1 | 1,500 | 525 | 0.35 | A | 628 | 0.42 | A | 523 | 0.35 | A | 623 | 0.42 | A |
| | NB Loop On | 1 | 1,500 | 490 | 0.33 | A | 1,170 | 0.78 | C | 500 | 0.33 | A | 1,180 | 0.79 | C |
| | SB Off | 2 | 2,250 | 2,073 | 0.92 | E | 1,586 | 0.70 | B | 2,087 | 0.93 | E | 1,593 | 0.71 | C |
| | NB Off | 2 | 3,000 | 1,087 | 0.36 | A | 422 | 0.14 | A | 1,081 | 0.36 | A | 420 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 793 | 0.20 | A | 2,431 | 0.61 | B | 794 | 0.20 | A | 2,430 | 0.61 | B |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 2,819 | 0.70 | B | 1,249 | 0.31 | A | 2,795 | 0.70 | B | 1,241 | 0.31 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,443 | 0.36 | A | 2,377 | 0.59 | A | 1,432 | 0.36 | A | 2,391 | 0.60 | A |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,090 | 0.77 | C | 1,514 | 0.38 | A | 3,111 | 0.78 | C | 1,514 | 0.38 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 500 | 0.33 | A | 330 | 0.22 | A | 510 | 0.34 | A | 380 | 0.25 | A |
| | NB Direct On | 1 | 1,500 | 160 | 0.11 | A | 150 | 0.10 | A | 160 | 0.11 | A | 150 | 0.10 | A |
| | NB Loop On | 1 | 1,500 | 211 | 0.14 | A | 310 | 0.21 | A | 200 | 0.13 | A | 310 | 0.21 | A |
| | SB Off | 2 | 2,250 | 510 | 0.23 | A | 318 | 0.14 | A | 531 | 0.24 | A | 318 | 0.14 | A |
| | NB Off | 1 | 1,500 | 231 | 0.15 | A | 616 | 0.41 | A | 324 | 0.22 | A | 643 | 0.43 | A |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 800 | 0.40 | A | 1,300 | 0.65 | B | 828 | 0.41 | A | 1,311 | 0.66 | B |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,640 | 0.82 | D | 934 | 0.47 | A | 1,639 | 0.82 | D | 964 | 0.48 | A |

## Table 9-3 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,575 | 0.79 | C | 797 | 0.40 | A | 1,569 | 0.78 | C | 793 | 0.40 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 675 | 0.34 | A | 1,550 | 0.78 | C | 680 | 0.34 | A | 1,548 | 0.77 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 1,712 | 0.43 | A | 1,444 | 0.36 | A | 1,722 | 0.43 | A | 1,480 | 0.37 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 1,743 | 0.44 | A | 1,764 | 0.44 | A | 1,794 | 0.45 | A | 1,765 | 0.44 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 210 | 0.19 | A | 1,100 | **1.02** | **F** | 200 | 0.19 | A | 1,100 | **1.02** | **F** |
| | NB Direct On | 1 | 1,080 | 119 | 0.11 | A | 546 | 0.51 | A | 159 | 0.15 | A | 549 | 0.51 | A |
| | NB Loop On | 1 | 1,080 | 390 | 0.36 | A | 1,225 | **1.13** | **F** | 422 | 0.39 | A | 1,230 | **1.14** | **F** |
| | SB Off | 2 | 3,000 | 1,994 | 0.66 | B | 430 | 0.14 | A | 1,992 | 0.66 | B | 460 | 0.15 | A |
| | NB Off | 2 | 2,250 | 1,230 | 0.55 | A | 661 | 0.29 | A | 1,229 | 0.55 | A | 650 | 0.29 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 689 | 0.34 | A | 572 | 0.29 | A | 712 | 0.36 | A | 594 | 0.30 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 221 | 0.11 | A | 356 | 0.18 | A | 220 | 0.11 | A | 353 | 0.18 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 802 | 0.20 | A | 508 | 0.13 | A | 760 | 0.19 | A | 507 | 0.13 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 657 | 0.16 | A | 322 | 0.08 | A | 635 | 0.16 | A | 322 | 0.08 | A |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 204 | 0.10 | A | 359 | 0.18 | A | 201 | 0.10 | A | 358 | 0.18 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,345 | 0.67 | B | 1,697 | 0.85 | D | 1,350 | 0.68 | B | 1,683 | 0.84 | D |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 466 | 0.23 | A | 475 | 0.24 | A | 464 | 0.23 | A | 475 | 0.24 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 645 | 0.36 | A | 356 | 0.20 | A | 649 | 0.36 | A | 364 | 0.20 | A |
| | NB On | 1 | 1,500 | 330 | 0.22 | A | 390 | 0.26 | A | 320 | 0.21 | A | 391 | 0.26 | A |
| | SB Off | 1 | 1,500 | 731 | 0.49 | A | 361 | 0.24 | A | 738 | 0.49 | A | 361 | 0.24 | A |
| | NB Off | 1 | 1,500 | 658 | 0.44 | A | 781 | 0.52 | A | 656 | 0.44 | A | 791 | 0.53 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 256 | 0.17 | A | 410 | 0.27 | A | 266 | 0.18 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 60 | 0.04 | A | 30 | 0.02 | A | 60 | 0.04 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 81 | 0.05 | A | 50 | 0.03 | A | 81 | 0.05 | A |
| | NB Off | 1 | 1,500 | 665 | 0.44 | A | 344 | 0.23 | A | 665 | 0.44 | A | 355 | 0.24 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 347 | 0.23 | A | 609 | 0.41 | A | 347 | 0.23 | A | 610 | 0.41 | A |
| | NB On | 1 | 1,500 | 296 | 0.20 | A | 362 | 0.24 | A | 295 | 0.20 | A | 362 | 0.24 | A |
| | SB Off | 1 | 1,500 | 402 | 0.27 | A | 295 | 0.20 | A | 411 | 0.27 | A | 299 | 0.20 | A |
| | NB Off | 2 | 2,250 | 508 | 0.23 | A | 422 | 0.19 | A | 514 | 0.23 | A | 420 | 0.19 | A |

## Table 9-3 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 208 | 0.09 | A | 566 | 0.25 | A | 214 | 0.10 | A | 569 | 0.25 | A |
| | SB Off | 1 | 1,500 | 525 | 0.35 | A | 335 | 0.22 | A | 524 | 0.35 | A | 340 | 0.23 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 254 | 0.17 | A | 994 | 0.66 | B | 254 | 0.17 | A | 997 | 0.66 | B |
| | NB On | 2 | 2,250 | 903 | 0.40 | A | 389 | 0.17 | A | 921 | 0.41 | A | 393 | 0.17 | A |
| | SB Off | 1 | 1,500 | 368 | 0.25 | A | 653 | 0.44 | A | 375 | 0.25 | A | 655 | 0.44 | A |
| | NB Off | 2 | 2,250 | 1,645 | 0.73 | C | 366 | 0.16 | A | 1,644 | 0.73 | C | 366 | 0.16 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 750 | 0.50 | A | 210 | 0.14 | A | 741 | 0.49 | A | 210 | 0.14 | A |
| | NB Off | 1 | 1,500 | 60 | 0.04 | A | 607 | 0.40 | A | 51 | 0.03 | A | 608 | 0.41 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 168 | 0.11 | A | 100 | 0.07 | A | 168 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 271 | 0.18 | A | 140 | 0.09 | A | 262 | 0.17 | A | 150 | 0.10 | A |
| | SB Off | 1 | 1,500 | 101 | 0.07 | A | 192 | 0.13 | A | 101 | 0.07 | A | 191 | 0.13 | A |
| | NB Off | 1 | 1,500 | 99 | 0.07 | A | 99 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 640 | 0.43 | A | 260 | 0.17 | A | 631 | 0.42 | A | 260 | 0.17 | A |
| | NB On | 1 | 1,500 | 240 | 0.16 | A | 170 | 0.11 | A | 240 | 0.16 | A | 170 | 0.11 | A |
| | SB Off | 1 | 1,500 | 80 | 0.05 | A | 90 | 0.06 | A | 79 | 0.05 | A | 91 | 0.06 | A |
| | NB Off | 1 | 1,500 | 140 | 0.09 | A | 321 | 0.21 | A | 141 | 0.09 | A | 321 | 0.21 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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**Table 9-4**

## Pending Year 2015 Freeway Mainline LOS Summary, Option 1

| | Location | Direction | Lanes | Capacity | Without Project, With Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,521 | **1.34** | **F** | 11,517 | 0.99 | E | 15,438 | **1.33** | **F** | 11,528 | 0.99 | E |
| | | SB | 5+1H | 11,600 | 9,036 | 0.78 | C | 10,361 | 0.89 | D | 9,047 | 0.78 | C | 10,365 | 0.89 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,826 | **1.28** | **F** | 10,960 | 0.94 | E | 14,757 | **1.27** | **F** | 10,971 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 10,978 | 0.95 | E | 12,496 | **1.08** | **F** | 11,013 | 0.95 | E | 12,452 | **1.07** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,168 | **1.31** | **F** | 11,340 | 0.98 | E | 15,099 | **1.30** | **F** | 11,345 | 0.98 | E |
| | | SB | 5+1H | 11,600 | 11,490 | 0.99 | E | 12,977 | **1.12** | **F** | 11,533 | 0.99 | E | 12,940 | **1.12** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,565 | **1.26** | **F** | 11,024 | 0.95 | E | 14,494 | **1.25** | **F** | 11,047 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 10,999 | 0.95 | E | 12,444 | **1.07** | **F** | 11,051 | 0.95 | E | 12,402 | **1.07** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,625 | **1.26** | **F** | 10,822 | 0.93 | E | 14,556 | **1.25** | **F** | 10,844 | 0.93 | E |
| | | SB | 5+1H | 11,600 | 10,413 | 0.90 | D | 12,297 | **1.06** | **F** | 10,474 | 0.90 | D | 12,258 | **1.06** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,625 | **1.09** | **F** | 10,073 | 0.87 | D | 12,567 | **1.08** | **F** | 10,084 | 0.87 | D |
| | | SB | 5+1H | 11,600 | 9,904 | 0.85 | D | 10,985 | 0.95 | E | 9,929 | 0.86 | D | 10,940 | 0.94 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,390 | **1.07** | **F** | 10,069 | 0.87 | D | 12,348 | **1.06** | **F** | 10,065 | 0.87 | D |
| | | SB | 5+1H | 11,600 | 10,372 | 0.89 | D | 11,110 | 0.96 | E | 10,384 | 0.90 | D | 11,067 | 0.95 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 9,969 | **1.04** | **F** | 8,202 | 0.85 | D | 9,991 | **1.04** | **F** | 8,234 | 0.86 | D |
| | | SB | 4+1H | 9,600 | 8,728 | 0.91 | E | 8,958 | 0.93 | E | 8,756 | 0.91 | E | 9,021 | 0.94 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,253 | **1.07** | **F** | 7,337 | 0.76 | C | 10,275 | **1.07** | **F** | 7,369 | 0.77 | C |
| | | SB | 4+1H | 9,600 | 7,326 | 0.76 | C | 9,163 | 0.95 | E | 7,337 | 0.76 | C | 9,186 | 0.96 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 21,293 | 0.99 | E | 14,176 | 0.66 | B | 21,277 | 0.99 | E | 14,200 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 10,737 | 0.50 | A | 15,908 | 0.74 | C | 10,751 | 0.50 | A | 15,943 | 0.74 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 19,640 | **1.01** | **F** | 12,159 | 0.62 | B | 19,660 | **1.01** | **F** | 12,171 | 0.62 | B |
| | | SB | 8+2H | 19,500 | 10,888 | 0.56 | A | 16,276 | 0.83 | D | 10,899 | 0.56 | A | 16,311 | 0.84 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 18,742 | **1.39** | **F** | 11,585 | 0.86 | D | 18,779 | **1.39** | **F** | 11,594 | 0.86 | D |
| | | SB | 5+2H | 13,500 | 8,535 | 0.63 | B | 14,101 | **1.04** | **F** | 8,541 | 0.63 | B | 14,122 | **1.05** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 15,468 | **1.61** | **F** | 9,516 | 0.99 | E | 15,469 | **1.61** | **F** | 9,525 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 7,570 | 0.79 | C | 12,599 | **1.31** | **F** | 7,572 | 0.79 | C | 12,616 | **1.31** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 11,587 | **1.21** | **F** | 7,118 | 0.74 | C | 11,556 | **1.20** | **F** | 7,122 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,055 | 0.63 | B | 9,747 | **1.02** | **F** | 6,057 | 0.63 | B | 9,741 | **1.01** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,905 | **1.34** | **F** | 8,619 | 0.90 | D | 12,809 | **1.33** | **F** | 8,633 | 0.90 | D |
| | | SB | 4+1H | 9,600 | 7,997 | 0.83 | D | 10,778 | **1.12** | **F** | 8,026 | 0.84 | D | 10,756 | **1.12** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,872 | **1.34** | **F** | 8,783 | 0.91 | E | 12,757 | **1.33** | **F** | 8,793 | 0.92 | E |
| | | SB | 4+1H | 9,600 | 8,152 | 0.85 | D | 10,662 | **1.11** | **F** | 8,155 | 0.85 | D | 10,623 | **1.11** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,400 | **1.29** | **F** | 8,024 | 0.84 | D | 12,301 | **1.28** | **F** | 8,021 | 0.84 | D |
| | | SB | 4+1H | 9,600 | 7,285 | 0.76 | C | 10,134 | **1.06** | **F** | 7,294 | 0.76 | C | 10,113 | **1.05** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 11,407 | **1.19** | **F** | 7,670 | 0.80 | C | 11,370 | **1.18** | **F** | 7,668 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,645 | 0.69 | B | 9,007 | 0.94 | E | 6,674 | 0.70 | B | 9,020 | 0.94 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,904 | 0.82 | D | 4,502 | 0.47 | A | 7,751 | 0.81 | C | 4,496 | 0.47 | A |
| | | SB | 4+1H | 9,600 | 5,674 | 0.59 | A | 8,576 | 0.89 | D | 5,688 | 0.59 | A | 8,580 | 0.89 | D |

**Table 9-4 Cont.**

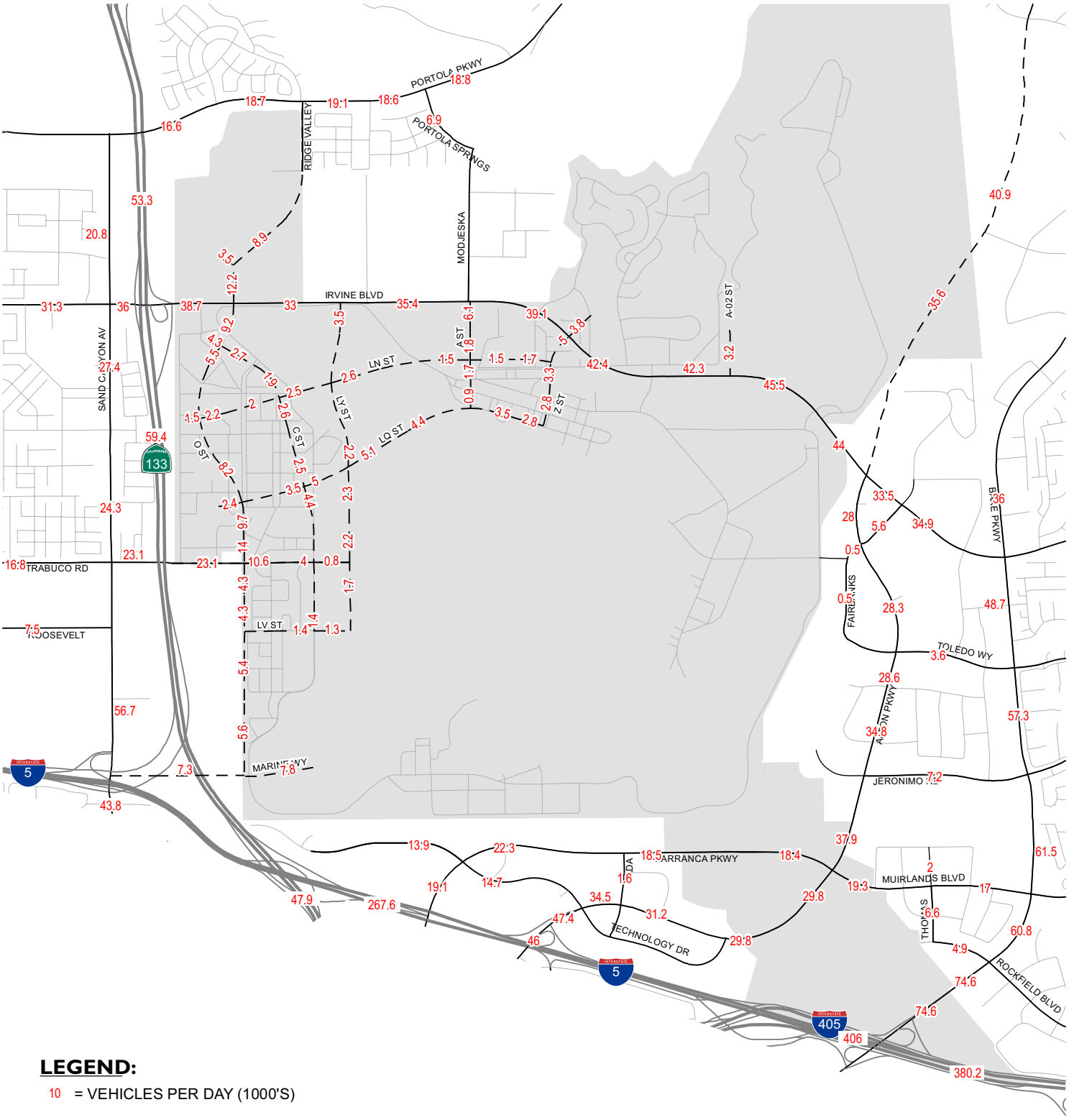
## Pending Year 2015 Freeway Mainline LOS Summary, Option 1

| | Location | Direction | Lanes | Capacity | Without Project, With Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,236 | 0.28 | A | 4,807 | 0.60 | A | 2,226 | 0.28 | A | 4,822 | 0.60 | A |
| | | SB | 4 | 8,000 | 5,909 | 0.74 | C | 2,763 | 0.35 | A | 5,906 | 0.74 | C | 2,755 | 0.34 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 1,942 | 0.32 | A | 4,594 | 0.77 | C | 2,037 | 0.34 | A | 4,606 | 0.77 | C |
| | | SB | 3 | 6,000 | 5,343 | 0.89 | D | 2,491 | 0.42 | A | 5,324 | 0.89 | D | 2,536 | 0.42 | A |
| | n/o I-5 | NB | 3 | 6,000 | 1,942 | 0.32 | A | 4,594 | 0.77 | C | 2,037 | 0.34 | A | 4,606 | 0.77 | C |
| | | SB | 3 | 6,000 | 3,768 | 0.63 | B | 1,694 | 0.28 | A | 3,755 | 0.63 | B | 1,743 | 0.29 | A |
| | s/o I-5 | NB | 3 | 6,000 | 2,210 | 0.37 | A | 3,508 | 0.58 | A | 2,323 | 0.39 | A | 3,511 | 0.59 | A |
| | | SB | 3 | 6,000 | 3,840 | 0.64 | B | 2,205 | 0.37 | A | 3,838 | 0.64 | B | 2,260 | 0.38 | A |
| | n/o I-405 | NB | 3 | 6,000 | 2,762 | 0.46 | A | 2,963 | 0.49 | A | 2,801 | 0.47 | A | 2,952 | 0.49 | A |
| | | SB | 3 | 6,000 | 2,519 | 0.42 | A | 2,305 | 0.38 | A | 2,502 | 0.42 | A | 2,338 | 0.39 | A |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 3,912 | 0.65 | B | 3,829 | 0.64 | B | 3,891 | 0.65 | B | 3,847 | 0.64 | B |
| | | SB | 3 | 6,000 | 4,786 | 0.80 | C | 3,494 | 0.58 | A | 4,815 | 0.80 | C | 3,486 | 0.58 | A |
| | n/o Portola (West) | NB | 4 | 8,000 | 5,288 | 0.66 | B | 2,700 | 0.34 | A | 5,254 | 0.66 | B | 2,697 | 0.34 | A |
| | | SB | 4 | 8,000 | 2,489 | 0.31 | A | 4,411 | 0.55 | A | 2,498 | 0.31 | A | 4,402 | 0.55 | A |
| | n/o Alton | NB | 3 | 6,000 | 5,737 | 0.96 | E | 3,068 | 0.51 | A | 5,731 | 0.96 | E | 3,078 | 0.51 | A |
| | | SB | 3 | 6,000 | 2,928 | 0.49 | A | 4,876 | 0.81 | D | 2,949 | 0.49 | A | 4,888 | 0.81 | B |
| | n/o Lake Forest | NB | 3 | 6,000 | 6,005 | 1.00 | E | 2,797 | 0.47 | A | 6,005 | 1.00 | E | 2,805 | 0.47 | A |
| | | SB | 3 | 6,000 | 2,467 | 0.41 | A | 5,055 | 0.84 | D | 2,477 | 0.41 | A | 5,063 | 0.84 | D |
| SR-261 | n/o Portola | NB | 2 | 4,000 | 1,152 | 0.29 | A | 2,824 | 0.71 | B | 1,139 | 0.28 | A | 2,834 | 0.71 | B |
| | | SB | 2 | 4,000 | 3,554 | 0.89 | D | 1,388 | 0.35 | A | 3,562 | 0.89 | D | 1,391 | 0.35 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 589 | 0.10 | A | 2,311 | 0.39 | A | 581 | 0.10 | A | 2,313 | 0.39 | A |
| | | SB | 3 | 6,000 | 3,096 | 0.52 | A | 898 | 0.15 | A | 3,099 | 0.52 | A | 902 | 0.15 | A |
| | s/o Irvine Blvd | NB | 2 | 4,000 | 783 | 0.20 | A | 2,992 | 0.75 | C | 778 | 0.19 | A | 2,992 | 0.75 | C |
| | | SB | 2 | 4,000 | 3,589 | 0.90 | D | 1,198 | 0.30 | A | 3,589 | 0.90 | D | 1,203 | 0.30 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 3,961 | 0.66 | B | 6,012 | 1.00 | E | 3,928 | 0.65 | B | 6,040 | **1.01** | **F** |
| | | SB | 3 | 6,000 | 8,002 | **1.33** | **F** | 4,032 | 0.67 | B | 8,043 | **1.34** | **F** | 4,025 | 0.67 | B |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT VOLUMES, PROJECT AREA



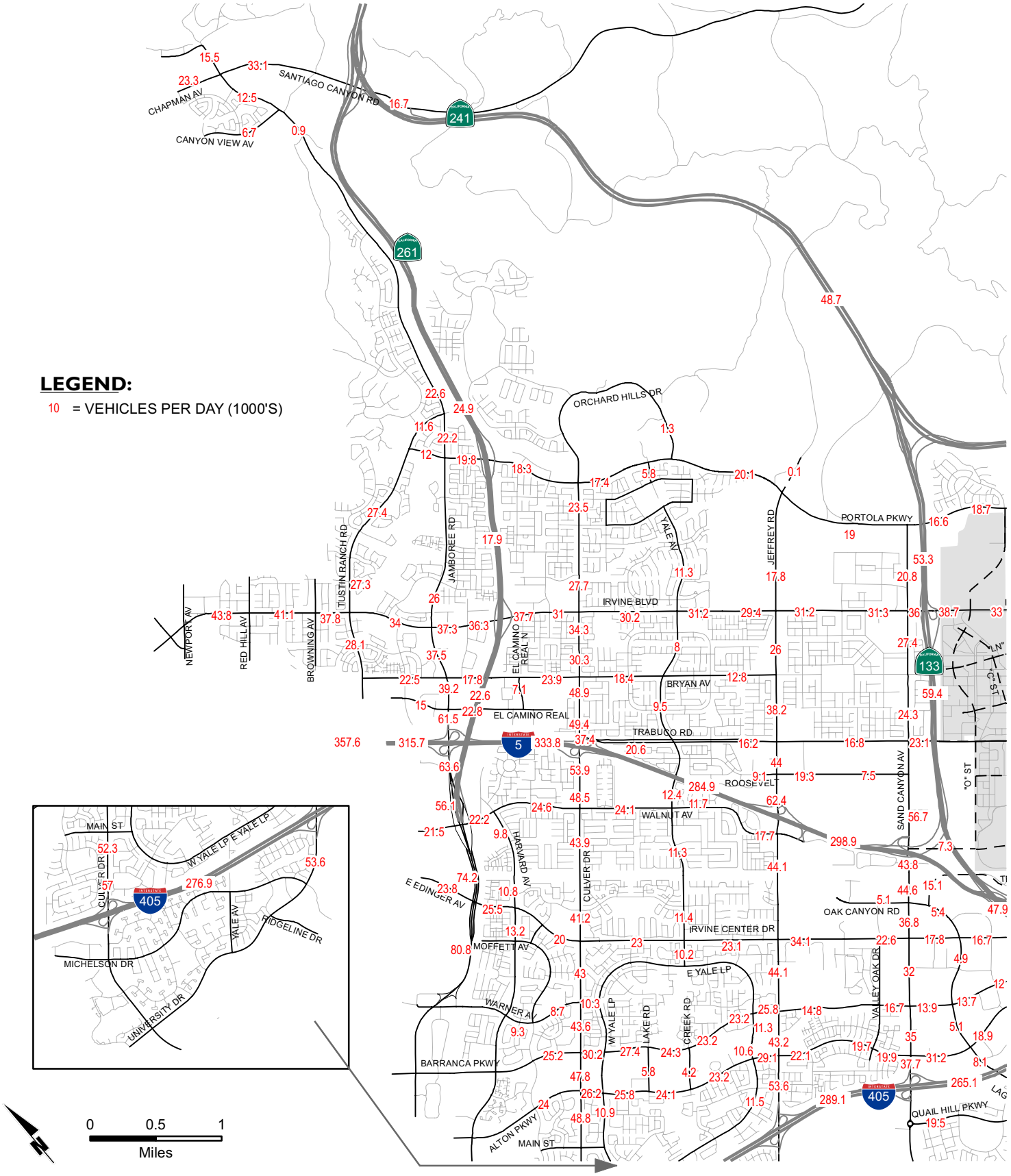

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

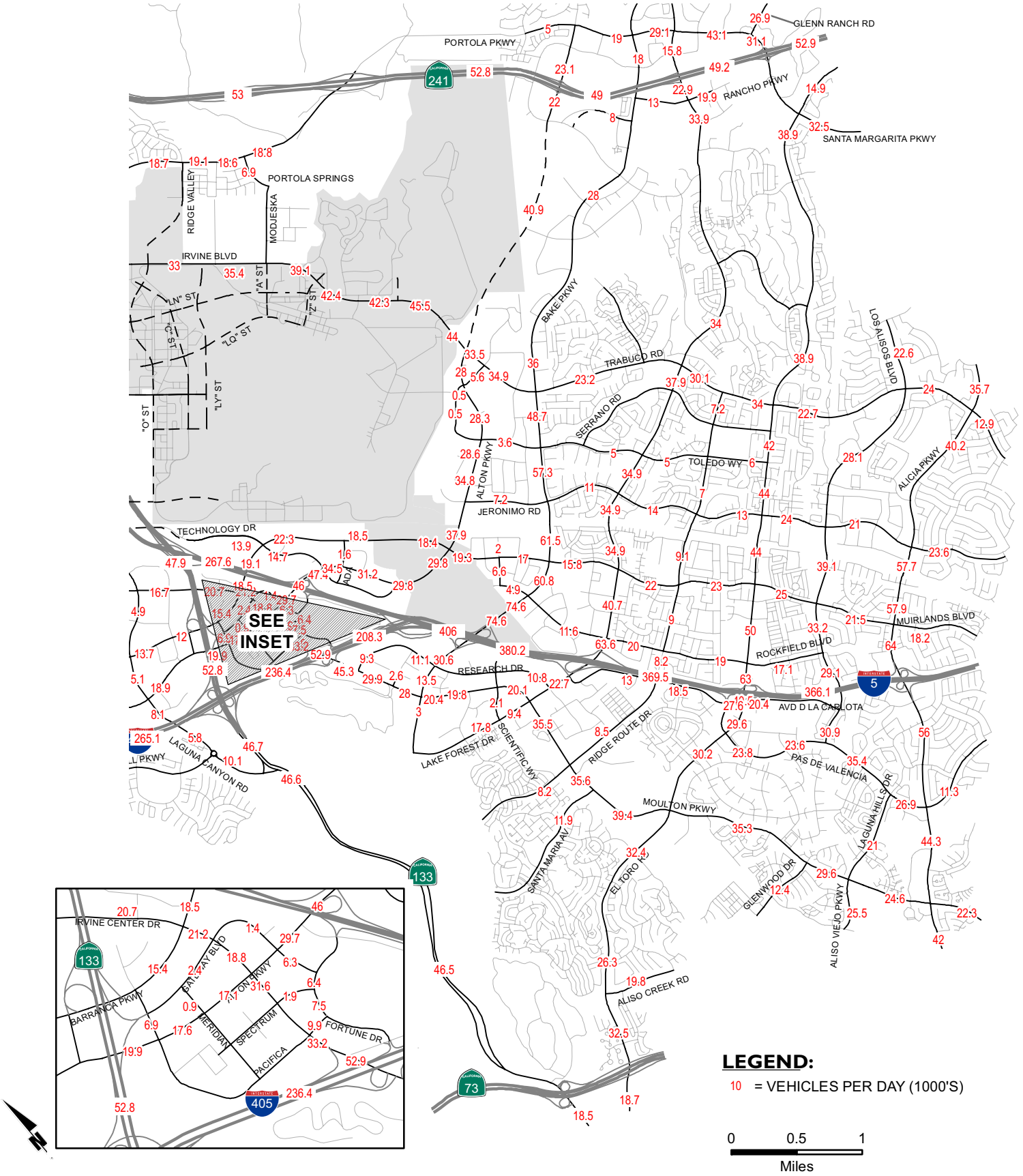
0 1,400 2,800

Feet

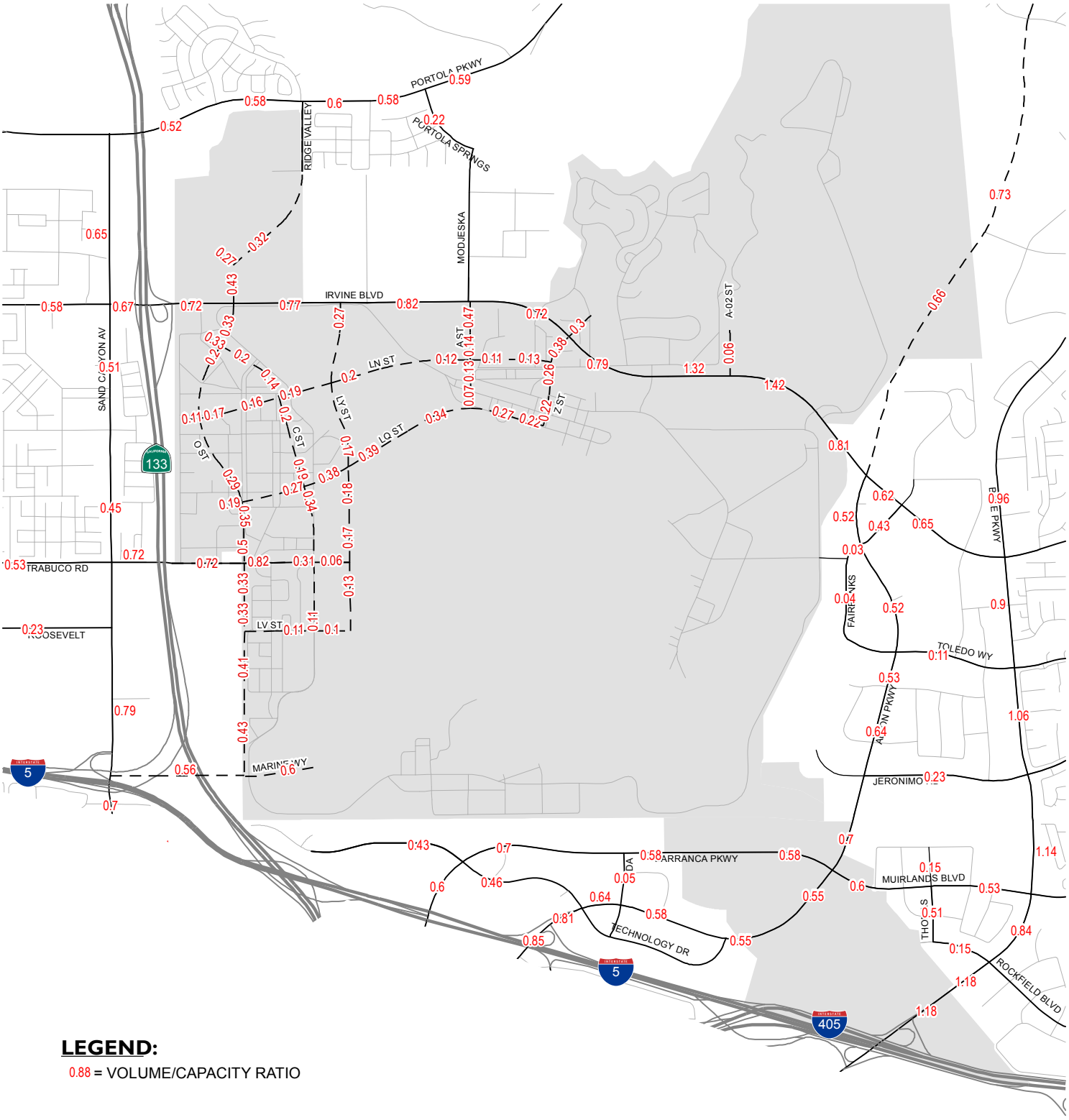
# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT VOLUMES, WEST STUDY AREA



# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT VOLUMES, EAST STUDY AREA



# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT V/C RATIOS, PROJECT AREA



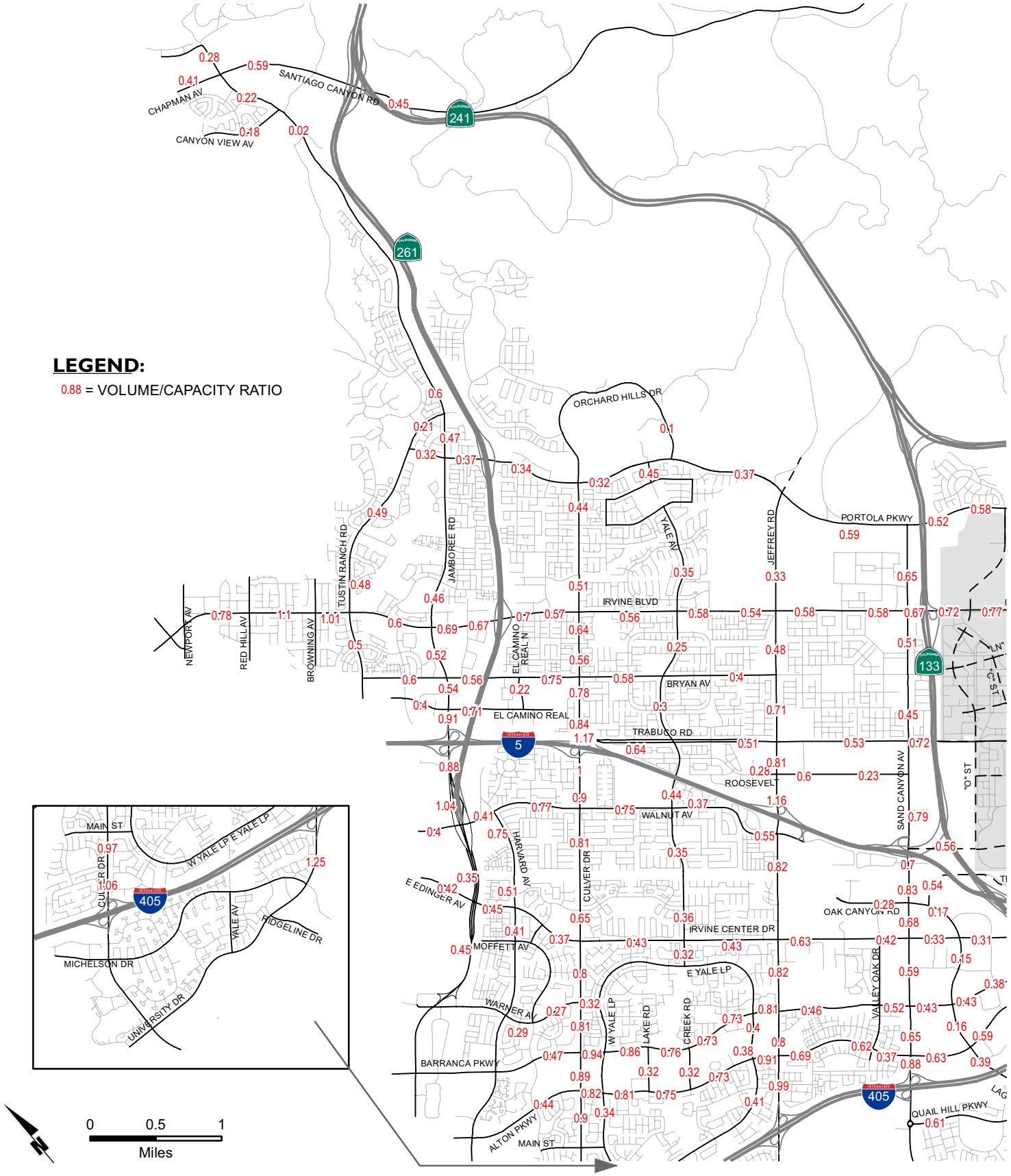

**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

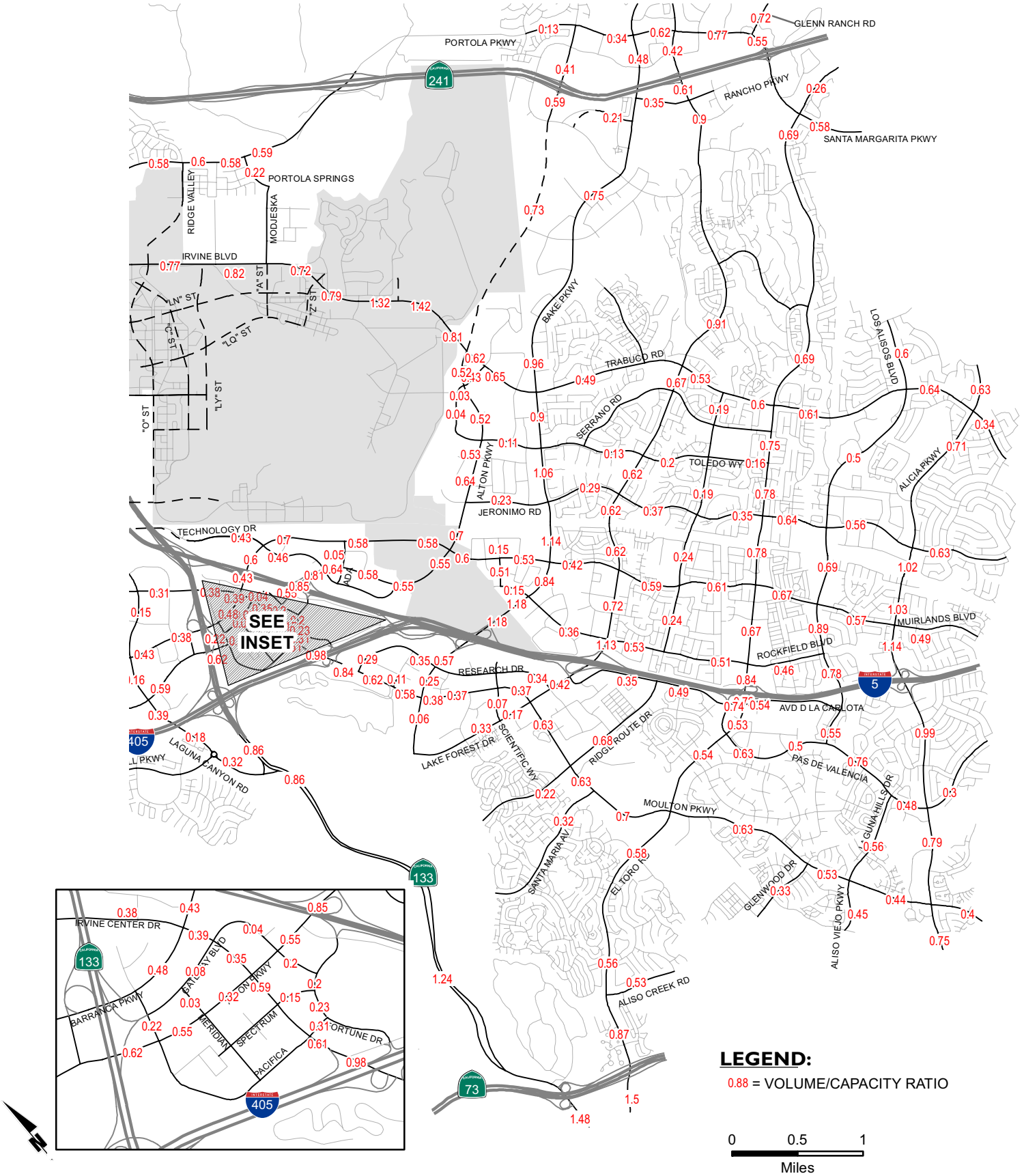
0 1,400 2,800

Feet

# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT V/C RATIOS, WEST STUDY AREA



# YEAR 2015 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT V/C RATIOS, EAST STUDY AREA



Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following arterial roadway segments are potentially impacted by the pending-plus-project scenario:

- Irvine Bl (w/o A-02 St)
- Irvine Bl (e/o A-02 St)
- Jeffrey Rd (s/o Roosevelt)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Year 2015 with Option 2, with Pending Projects conditions are summarized in Table 9-5. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

**Table 9-5**

**Pending Year 2015 Arterial Roadway Peak Hour Analysis, Option 2**

| | | | Pending Year 2015 with 2012 Modified Project Option 2 | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Segment** | **Segment Limits** | **Juris** | **# of Lanes** | **Peak Hour Capacity** | **ADT** | **Highest Peak Volume** | **Peak Hour V/C** | **Peak Hour LOS** |
| Irvine Bl. | w/o "A-02" St. | Irv | 5D | 4,000 | 42,300 | 2,420 PM WB | 0.61 | B |
| Irvine Bl. | e/o "A-02" St. | Irv | 4D | 3,200 | 45,500 | 2,730 PM WB | 0.85 | D |
| Jeffrey Rd. | b/w Roosevelt & I-5 NB Ramps | Irv | 6D | 4,800 | 62,400 | 3,210 PM WB | 0.67 | B |

### 9.1.6 Year 2015 Peak Hour Intersection Levels of Service, with Option 2, with Pending Projects

Year 2015 with Option 2, with Pending Projects AM and PM peak hour intersection capacity utilization (ICU) results are summarized in Table 9-6. Actual turn volumes, lane geometrics and ICU calculation worksheets for Year 2015 with Option 2, with Pending Projects are included in Appendix 9.3. Based on the peak hour intersection performance criteria and impact thresholds previously presented in Table 2-4, none of the intersections are forecast to exceed adopted impact thresholds with Option 2, with Pending Projects based on Year 2015 conditions.

## Table 9-6

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 2**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.77 | C | 0.77 | C | 0.77 | C | 0.78 | C |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | | | 0.72 | C | 0.80 | C | 0.72 | C | 0.80 | C |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **0.92** | **E** | 0.76 | C | **0.93** | **E** | 0.76 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | | | 0.82 | D | 0.81 | D | 0.82 | D | 0.80 | C |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | 0.72 | C | 0.65 | B | 0.73 | C | 0.66 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.60 | A | 0.72 | C | 0.60 | A | 0.73 | C |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | Yes | 0.79 | C | 0.68 | B | 0.79 | C | 0.68 | B |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.69 | B | 0.61 | B | 0.67 | B | 0.62 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.68 | B | 0.67 | B | 0.68 | B | 0.67 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.67 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.71 | C | 0.66 | B | 0.71 | C | 0.66 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.48 | A | 0.49 | A | 0.47 | A | 0.48 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.40 | A | 0.62 | B | 0.40 | A | 0.62 | B |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.42 | A | 0.62 | B | 0.42 | A | 0.62 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.35 | A | 0.30 | A | 0.35 | A | 0.30 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.82 | D | 0.99 | E | 0.81 | D | 0.99 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.37 | A | 0.39 | A | 0.36 | A | 0.39 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.39 | A | 0.34 | A | 0.39 | A | 0.34 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.47 | A | 0.44 | A | 0.47 | A | 0.44 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.62 | B | 0.51 | A | 0.61 | B | 0.51 | A |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.65 | B | 0.59 | A | 0.65 | B | 0.59 | A |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.73 | C | 0.74 | C | 0.73 | C | 0.74 | C |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.85 | D | 0.66 | B | 0.85 | D | 0.65 | B |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | 0.71 | C | 0.76 | C | 0.71 | C | 0.76 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | 0.59 | A | 0.65 | B | 0.58 | A | 0.66 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | | | 0.79 | C | 0.82 | D | 0.77 | C | 0.82 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.73 | C | 0.66 | B | 0.73 | C | 0.66 | B |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.77 | C | 0.59 | A | 0.77 | C | 0.59 | A |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | | | 0.85 | D | 0.73 | C | 0.85 | D | 0.73 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.80 | C | 0.82 | D | 0.80 | C | 0.82 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.49 | A | 0.88 | D | 0.49 | A | 0.88 | D |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.52 | A | 0.61 | B | 0.52 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | **F** | | | 0.60 | A | 0.82 | D | 0.60 | A | 0.81 | D |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | 0.67 | B | 0.79 | C | 0.67 | B | 0.78 | C |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.43 | A | 0.39 | A | 0.43 | A | 0.40 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.59 | A | 0.47 | A | 0.57 | A | 0.47 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.59 | A | 0.66 | B | 0.58 | A | 0.67 | B |
| 261 | Yale Av at ICD | Irv | | | | 0.59 | A | 0.59 | A | 0.59 | A | 0.60 | A |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.63 | B | 0.60 | A | 0.63 | B | 0.60 | A |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.66 | B | 0.64 | B | 0.67 | B | 0.64 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.63 | B | 0.61 | B | 0.63 | B | 0.61 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.67 | B | 0.68 | B | 0.67 | B | 0.68 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.60 | A | 0.63 | B | 0.58 | A | 0.62 | B |

## Table 9-6 Cont.

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 2**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.66 | B | 0.64 | B | 0.66 | B | 0.65 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.62 | B | 0.56 | A | 0.61 | B | 0.56 | A |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.60 | A | 0.61 | B | 0.61 | B | 0.62 | B |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.89 | D | 0.81 | D | 0.88 | D | 0.81 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.67 | B | 0.78 | C | 0.67 | B | 0.78 | C |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | 0.70 | B | 0.69 | B | 0.70 | B | 0.69 | B |
| 289 | Jeffrey Rd at ICD | Irv | **F** | | | 0.70 | B | 0.81 | D | 0.70 | B | 0.82 | D |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | | | 0.82 | D | 0.72 | C | 0.83 | D | 0.72 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | | **0.93** | **E** | 0.85 | D | **0.93** | **E** | 0.85 | D |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | 0.72 | C | 0.82 | D | 0.72 | C | 0.82 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.61 | B | 0.63 | B | 0.62 | B | 0.63 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.36 | A | 0.46 | A | 0.36 | A | 0.46 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.61 | B | 0.58 | A | 0.62 | B | 0.59 | A |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | | 0.69 | B | 0.62 | B | 0.69 | B | 0.71 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | 0.68 | B | 0.71 | C | 0.67 | B | 0.74 | C |
| 304 | Sand Canyon at Marine Wy | Irv | | | | 0.77 | C | 0.85 | D | 0.79 | C | 0.86 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | 0.79 | C | 0.75 | C | 0.79 | C | 0.80 | C |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | 0.65 | B | 0.82 | D | 0.66 | B | 0.84 | D |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.55 | A | 0.58 | A | 0.55 | A | 0.60 | A |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.52 | A | 0.50 | A | 0.52 | A | 0.51 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | 0.68 | B | 0.69 | B | 0.67 | B | 0.69 | B |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | 0.64 | B | 0.47 | A | 0.65 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.83 | D | 0.62 | B | 0.83 | D | 0.62 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.32 | A | 0.36 | A | 0.32 | A | 0.36 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.39 | A | 0.35 | A | 0.40 | A | 0.35 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.57 | A | 0.51 | A | 0.56 | A | 0.51 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.46 | A | 0.48 | A | 0.47 | A | 0.49 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.51 | A | 0.68 | B | 0.59 | A | 0.70 | B |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.69 | B | 0.50 | A | 0.69 | B | 0.48 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.59 | A | 0.58 | A | 0.60 | A | 0.57 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | 0.65 | B | 0.61 | B | 0.66 | B | 0.61 | B |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | 1.05 | F | 0.88 | D | 1.06 | F | 0.88 | D |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.34 | A | 0.38 | A | 0.34 | A | 0.38 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.29 | A | 0.18 | A | 0.29 | A | 0.18 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.26 | A | 0.31 | A | 0.26 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | 0.59 | A | 0.73 | C | 0.58 | A | 0.73 | C |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.59 | A | 0.44 | A | 0.59 | A | 0.44 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.67 | B | 0.61 | B | 0.67 | B | 0.62 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.58 | A | 0.71 | C | 0.58 | A | 0.71 | C |
| 333 | Pacifica at Gateway | Irv | | | Yes | 0.64 | B | 0.65 | B | 0.67 | B | 0.66 | B |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.43 | A | 0.31 | A | 0.44 | A | 0.31 | A |
| 336 | Alton Pw at SR-241 Ramps | Irv | | | | 0.44 | A | 0.41 | A | 0.45 | A | 0.41 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | Yes | 0.82 | D | 0.78 | C | 0.82 | D | 0.80 | C |

## Table 9-6 Cont.

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 2**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.63 | B | 0.57 | A | 0.63 | B | 0.57 | A |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.67 | B | 0.52 | A | 0.67 | B | 0.52 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.57 | A | 0.68 | B | 0.57 | A | 0.68 | B |
| 343 | Alton Pw at Ada | Irv | | | | 0.46 | A | 0.56 | A | 0.47 | A | 0.56 | A |
| 344 | Alton Pw at Technology | Irv | **P** | | | 0.59 | A | 0.82 | D | 0.59 | A | 0.82 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | Yes | 0.70 | B | 0.43 | A | 0.71 | C | 0.43 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.65 | B | 0.73 | C | 0.65 | B | 0.73 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | Yes | 0.61 | B | 0.69 | B | 0.62 | B | 0.70 | B |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.66 | B | 0.51 | A | 0.66 | B | 0.51 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.37 | A | 0.71 | C | 0.37 | A | 0.72 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.41 | A | 0.41 | A | 0.40 | A | 0.41 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | Yes | 0.82 | D | 0.73 | C | 0.82 | D | 0.73 | C |
| 359 | ICD at I-405 SB Ramps | LF | **P** | | Yes | 0.75 | C | 0.71 | C | 0.75 | C | 0.71 | C |
| 361 | Bake Pw at Portola Pw | Irv | | | | 0.51 | A | 0.82 | D | 0.51 | A | 0.82 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | Yes | 0.77 | C | 0.79 | C | 0.78 | C | 0.79 | C |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.79 | C | 0.63 | B | 0.79 | C | 0.63 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | 0.77 | C | 0.67 | B | 0.77 | C | 0.67 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.69 | B | 0.84 | D | 0.70 | B | 0.84 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.64 | B | 0.83 | D | 0.64 | B | 0.83 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.83 | D | 0.69 | B | 0.83 | D | 0.68 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | Yes | 0.74 | C | 0.87 | D | 0.74 | C | 0.87 | D |
| 371 | Bake Pw at Research | Irv | | | | 0.56 | A | 0.84 | D | 0.55 | A | 0.77 | C |
| 372 | Bake Pw at ICD | LF | | | | 0.47 | A | 0.58 | A | 0.46 | A | 0.58 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.31 | A | 0.35 | A | 0.31 | A | 0.35 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.54 | A | 0.76 | C | 0.54 | A | 0.77 | C |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.40 | A | 0.44 | A | 0.40 | A | 0.44 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.83 | D | 0.82 | D | 0.83 | D | 0.82 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.51 | A | 0.48 | A | 0.52 | A | 0.48 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | 0.69 | B | 0.74 | C | 0.70 | B | 0.74 | C |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | 0.64 | B | 0.86 | D | 0.64 | B | 0.86 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | 0.69 | B | 0.75 | C | 0.69 | B | 0.75 | C |
| 381 | Lake Forest Dr at I-5 NB Ramps | Irv | | | | 0.56 | A | 0.64 | B | 0.57 | A | 0.64 | B |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | | Yes | 0.71 | C | 0.76 | C | 0.71 | C | 0.76 | C |
| 385 | Lake Forest Dr at ICD | LF | | | Yes | 0.48 | A | 0.59 | A | 0.48 | A | 0.59 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.45 | A | 0.65 | B | 0.46 | A | 0.65 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LH | **P** | | | 0.45 | A | 0.55 | A | 0.46 | A | 0.55 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | LH/LW | | | | 0.34 | A | 0.74 | C | 0.35 | A | 0.74 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.46 | A | 0.67 | B | 0.46 | A | 0.67 | B |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.53 | A | 0.71 | C | 0.53 | A | 0.71 | C |
| 391 | Santa Maria Av at Moulton Pw | LF | | | | 0.53 | A | 0.73 | C | 0.53 | A | 0.73 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.65 | B | 0.80 | C | 0.65 | B | 0.80 | C |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.53 | A | 0.63 | B | 0.52 | A | 0.63 | B |
| 394 | El Toro Rd at I-5 NB Ramps | LH | | | Yes | 0.75 | C | 0.88 | D | 0.74 | C | 0.88 | D |

## Table 9-6 Cont.

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 2**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 396 | El Toro Rd at Avenida Carlota | LH/LW | **P** | | Yes | 0.59 | A | 0.87 | D | 0.59 | A | 0.87 | D |
| 397 | El Toro Rd at Paseo de Valencia | LW | | | | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B |
| 398 | El Toro Rd at Moulton Pw | AV | | | Yes | 0.70 | B | 0.80 | C | 0.70 | B | 0.80 | C |
| 399 | El Toro Rd at Aliso Creek Rd | LB | | | | 0.53 | A | 0.83 | D | 0.54 | A | 0.83 | D |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.56 | A | 0.62 | B | 0.56 | A | 0.61 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | Irv | | | Yes | 0.45 | A | 0.64 | B | 0.45 | A | 0.64 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.55 | A | 0.62 | B | 0.59 | A | 0.62 | B |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.43 | A | 0.35 | A | 0.43 | A | 0.35 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | LF | **F** | | | 0.45 | A | 0.41 | A | 0.46 | A | 0.42 | A |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.60 | A | 0.72 | C | 0.60 | A | 0.73 | C |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.48 | A | 0.60 | A | 0.49 | A | 0.61 | B |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.31 | A | 0.33 | A | 0.31 | A | 0.33 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.44 | A | 0.56 | A | 0.44 | A | 0.56 | A |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.60 | A | 0.62 | B | 0.60 | A | 0.62 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.49 | A | 0.59 | A | 0.49 | A | 0.59 | A |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.64 | B | 0.85 | D | 0.64 | B | 0.85 | D |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.67 | B | 0.74 | C | 0.68 | B | 0.74 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.57 | A | 0.58 | A | 0.57 | A | 0.58 | A |
| 420 | El Toro Rd at Jeronimo Rd | MV | **P** | | | 0.75 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 421 | Los Alisos Bl at Trabuco Rd | LF/MV | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | 0.71 | C | 0.80 | C | 0.71 | C | 0.80 | C |
| 423 | Muirlands Bl at Los Alisos Bl | LF | **P** | | | 0.88 | D | **0.93** | **E** | 0.88 | D | **0.93** | **E** |
| 424 | Los Alisos Bl at Rockfield Bl | LH | **P** | | | 0.80 | C | 0.81 | D | 0.80 | C | 0.81 | D |
| 425 | Los Alisos Bl at Avenido Carlota | LH/LW | | | | 0.51 | A | 0.66 | B | 0.51 | A | 0.66 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | AV/LH | | | | 0.49 | A | 0.58 | A | 0.49 | A | 0.58 | A |
| 427 | Moulton Pw at Glenwood/Indian Creek | LH/LW | | | | 0.59 | A | 0.53 | A | 0.58 | A | 0.54 | A |
| 428 | Laguna Hills Dr at Paseo de Valencia | AV/LH | | | | 0.65 | B | 0.72 | C | 0.65 | B | 0.72 | C |
| 429 | Moulton Pw at Laguna Hills Dr | MV | | | | 0.60 | A | 0.67 | B | 0.60 | A | 0.67 | B |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.69 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.76 | C | 0.74 | C | 0.77 | C | 0.75 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | 0.67 | B | 0.85 | D | 0.67 | B | 0.86 | D |
| 433 | I-5 NB Ramps at Alicia Pw | LH | | | | 0.44 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.77 | C | 0.86 | D | 0.77 | C | 0.87 | D |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.61 | B | 0.68 | B | 0.61 | B | 0.68 | B |
| 436 | Moulton Pw at Alicia Pw | Irv | | | | 0.69 | B | 0.67 | B | 0.69 | B | 0.68 | B |
| 437 | Scientific Wy at ICD | Tus | | | | 0.32 | A | 0.37 | A | 0.32 | A | 0.37 | A |
| 441 | Loop Rd at Jamboree Rd | Irv | | | | 0.26 | A | 0.18 | A | 0.26 | A | 0.18 | A |
| 444 | Sand Canyon at Burt Rd | Ora | | | | 0.70 | B | 0.57 | A | 0.75 | C | 0.76 | C |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.53 | A | 0.56 | A | 0.53 | A | 0.56 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | 0.61 | B | 0.68 | B | 0.61 | B | 0.68 | B |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.65 | B | 0.65 | B | 0.65 | B | 0.65 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.64 | B | 0.75 | C | 0.63 | B | 0.75 | C |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | Ora | | | | 0.53 | A | 0.51 | A | 0.53 | A | 0.51 | A |

## Table 9-6 Cont.

**Pending Year 2015 Intersection LOS Summary (ICU Methodology), Option 2**

| | | | | | | Without Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 468 | Jamboree Rd at Canyon View | Irv | | | | 0.53 | A | 0.35 | A | 0.53 | A | 0.36 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.37 | A | 0.45 | A | 0.37 | A | 0.44 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.40 | A | 0.36 | A | 0.40 | A | 0.37 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.37 | A | 0.30 | A | 0.37 | A | 0.31 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.30 | A | 0.25 | A | 0.31 | A | 0.26 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.67 | B | 0.39 | A | 0.66 | B | 0.42 | A |
| 485 | Sand Canyon at Nightmist | LF | | | | 0.67 | B | 0.50 | A | 0.67 | B | 0.52 | A |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.59 | A | 0.55 | A | 0.60 | A | 0.55 | A |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.61 | B | 0.71 | C | 0.62 | B | 0.70 | B |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | 0.60 | A | 0.85 | D | 0.60 | A | 0.85 | D |
| 518 | Alton Pw at Commercentre | LF | | | | 0.52 | A | 0.65 | B | 0.52 | A | 0.64 | B |
| 555 | Bake Pw at Rancho Pkw South | LF | | | | 0.62 | B | 0.67 | B | 0.62 | B | 0.66 | B |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.61 | B | 0.67 | B | 0.50 | A | 0.62 | B |
| 557 | O St at C St | Irv | | | | 0.19 | A | 0.24 | A | 0.33 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | 0.58 | A | 0.74 | C | 0.60 | A | 0.76 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.64 | B | 0.42 | A | 0.70 | B | 0.57 | A |
| 560 | O St at Marine Wy | Irv | | | | 0.27 | A | 0.48 | A | 0.26 | A | 0.48 | A |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.41 | A | 0.38 | A | 0.41 | A | 0.38 | A |
| 571 | Portola Springs at Portola Pw | Irv | | | | 0.54 | A | 0.47 | A | 0.54 | A | 0.48 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.51 | A | 0.57 | A | 0.52 | A | 0.56 | A |
| 603 | O St at LN St | Irv | | | | 0.28 | A | 0.21 | A | 0.32 | A | 0.23 | A |
| 605 | O St at LQ St | Irv | | | | 0.43 | A | 0.33 | A | 0.42 | A | 0.34 | A |
| 608 | O St at LV St | Irv | | | | 0.14 | A | 0.21 | A | 0.17 | A | 0.35 | A |
| 626 | LY St at LQ St | Irv | | | | 0.30 | A | 0.29 | A | 0.35 | A | 0.32 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.44 | A | 0.65 | B | 0.44 | A | 0.65 | B |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.10 | A | 0.15 | A | 0.13 | A | 0.14 | A |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.32 | A | 0.45 | A | 0.30 | A | 0.45 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.28 | A | 0.38 | A | 0.28 | A | 0.38 | A |
| 782 | A St at LQ St | Irv | | | | 0.18 | A | 0.21 | A | 0.21 | A | 0.25 | A |
| 787 | Z St at LQ St | Irv | | | | 0.11 | A | 0.14 | A | 0.14 | A | 0.23 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.62 | B | 0.58 | A | 0.65 | B | 0.57 | A |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.77 | C | 0.81 | D | 0.77 | C | 0.84 | D |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.51 | A | 0.61 | B | 0.52 | A | 0.62 | B |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | 0.50 | A | 0.53 | A | 0.50 | A | 0.53 | A |
| 832 | Fairbanks at Astor | Irv | | | | 0.06 | A | 0.07 | A | 0.06 | A | 0.07 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

9.1.7 Year 2015 Peak Hour Freeway/Tollway Ramp Levels of Service, with Option 2, with Pending Projects

Year 2015 with Option 2, with Pending Projects AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-7. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, the SR-133 NB loop on-ramp from Barranca Parkway is forecast to exceed adopted impact thresholds with the Year 2015 with Option 2, with Pending Projects conditions. The project mitigation at this location is fair share participation (on a NITM methodology fair share basis) in converting the HOV preferential lane at the on-ramp to a second metered mixed-flow lane (capacity = 1,500). This fair share improvement results in a v/c = 0.83 (LOS "D").

9.1.8 Year 2015 Peak Hour Freeway/Tollway Mainline Levels of Service, with Option 2, with Pending Projects

Year 2015 Year 2015 with Option 2, with Pending Projects AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-8. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, none of the freeway mainline segments are forecast to exceed adopted impact thresholds the Project based on Year 2015 with Option 2, with Pending Projects conditions.

9.1.9 Year 2030 Circulation System and Average Daily Traffic Volumes, with Option 1, with Pending Projects

The Year 2030 circulation system in the study area was previously illustrated in Chapter 4.0. The 2011 Approved Project, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-7 and 9-8. Year 2030 with Option 1, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-9 and 9-10, respectively.

## Table 9-7

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 440 | 0.29 | A | 1,122 | 0.75 | C | 440 | 0.29 | A | 1,112 | 0.74 | C |
| | SB Loop On | 1 | 1,080 | 510 | 0.47 | A | 431 | 0.40 | A | 510 | 0.47 | A | 431 | 0.40 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 750 | 0.69 | B | 670 | 0.62 | B | 750 | 0.69 | B |
| | SB Off | 1 | 1,500 | 1,504 | 1.00 | E | 1,528 | **1.02** | **F** | 1,501 | 1.00 | E | 1,518 | **1.01** | **F** |
| | NB Off | 1 | 1,500 | 1,549 | **1.03** | **F** | 1,307 | 0.87 | D | 1,552 | **1.03** | **F** | 1,307 | 0.87 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 270 | 0.30 | A | 370 | 0.41 | A | 270 | 0.30 | A |
| | NB Direct On | 1 | 900 | 740 | 0.82 | D | 180 | 0.20 | A | 740 | 0.82 | D | 180 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,130 | 0.75 | C | 592 | 0.39 | A | 1,150 | 0.77 | C | 600 | 0.40 | A |
| | SB Off | 2 | 2,250 | 1,127 | 0.50 | A | 2,179 | 0.97 | E | 1,158 | 0.51 | A | 2,186 | 0.97 | E |
| | NB Off | 1 | 1,500 | 353 | 0.24 | A | 517 | 0.34 | A | 352 | 0.23 | A | 529 | 0.35 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 843 | 0.78 | C | 610 | 0.56 | A | 840 | 0.78 | C | 620 | 0.57 | A |
| | NB Direct On | 1 | 1,080 | 700 | 0.65 | B | 350 | 0.32 | A | 680 | 0.63 | B | 370 | 0.34 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 829 | 0.55 | A | 611 | 0.41 | A | 819 | 0.55 | A |
| | NB Off | 2 | 2,250 | 812 | 0.36 | A | 1,374 | 0.61 | B | 812 | 0.36 | A | 1,374 | 0.61 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 920 | 0.61 | B | 870 | 0.58 | A | 951 | 0.63 | B | 970 | 0.65 | B |
| | NB On | 1 | 1,500 | 520 | 0.35 | A | 1,112 | 0.74 | C | 500 | 0.33 | A | 1,110 | 0.74 | C |
| | SB Off | 1 | 1,500 | 1,441 | 0.96 | E | 769 | 0.51 | A | 1,451 | 0.97 | E | 780 | 0.52 | A |
| | NB Off | 2 | 2,250 | 710 | 0.32 | A | 852 | 0.38 | A | 771 | 0.34 | A | 881 | 0.39 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 40 | 0.03 | A | 150 | 0.10 | A | 40 | 0.03 | A | 150 | 0.10 | A |
| | SB Off | 1 | 1,500 | 150 | 0.10 | A | 130 | 0.09 | A | 150 | 0.10 | A | 130 | 0.09 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 220 | 0.15 | A | 610 | 0.41 | A | 210 | 0.14 | A | 609 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 420 | 0.23 | A | 1,100 | 0.61 | B | 440 | 0.24 | A | 1,110 | 0.62 | B |
| | NB Loop On | 1 | 1,500 | 583 | 0.39 | A | 141 | 0.09 | A | 576 | 0.38 | A | 141 | 0.09 | A |
| | SB Off | 2 | 2,250 | 1,840 | 0.82 | D | 887 | 0.39 | A | 1,869 | 0.83 | D | 917 | 0.41 | A |
| | NB Off | 2 | 2,250 | 1,113 | 0.49 | A | 290 | 0.13 | A | 1,112 | 0.49 | A | 289 | 0.13 | A |

## Table 9-7 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 18 | 0.01 | A | 107 | 0.07 | A | 18 | 0.01 | A | 106 | 0.07 | A |
| | SB Loop On | 1 | 1,080 | 300 | 0.28 | A | 600 | 0.56 | A | 291 | 0.27 | A | 600 | 0.56 | A |
| | NB Direct On | 2 | 3,400 | 2,169 | 0.64 | B | 1,960 | 0.58 | A | 2,178 | 0.64 | B | 1,981 | 0.58 | A |
| | NB Loop On | 1 | 1,500 | 491 | 0.33 | A | 1,240 | 0.83 | D | 500 | 0.33 | A | 1,242 | 0.83 | D |
| | SB Off | 2 | 3,000 | 3,244 | **1.08** | **F** | 2,584 | 0.86 | D | 3,243 | **1.08** | **F** | 2,580 | 0.86 | D |
| | NB Off | 2 | 3,000 | 859 | 0.29 | A | 391 | 0.13 | A | 852 | 0.28 | A | 390 | 0.13 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 294 | 0.20 | A | 733 | 0.49 | A | 298 | 0.20 | A | 734 | 0.49 | A |
| | SB Loop On | 1 | 1,080 | 400 | 0.37 | A | 550 | 0.51 | A | 400 | 0.37 | A | 550 | 0.51 | A |
| | NB On | 2 | 1,800 | 1,504 | 0.84 | D | 1,020 | 0.57 | A | 1,499 | 0.83 | D | 1,018 | 0.57 | A |
| | SB Off | 2 | 3,000 | 1,877 | 0.63 | B | 2,539 | 0.85 | D | 1,887 | 0.63 | B | 2,543 | 0.85 | D |
| | NB Off | 1 | 1,500 | 1,153 | 0.77 | C | 614 | 0.41 | A | 1,143 | 0.76 | C | 612 | 0.41 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 250 | 0.23 | A | 196 | 0.18 | A | 248 | 0.23 | A | 195 | 0.18 | A |
| | SB Loop On | 1 | 1,500 | 385 | 0.26 | A | 433 | 0.29 | A | 388 | 0.26 | A | 435 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,819 | **1.21** | **F** | 1,322 | 0.88 | D | 1,803 | **1.20** | **F** | 1,322 | 0.88 | D |
| | NB Loop On | 1 | 1,500 | 895 | 0.60 | A | 1,103 | 0.74 | C | 888 | 0.59 | A | 1,114 | 0.74 | C |
| | SB Off | 2 | 2,250 | 1,441 | 0.64 | B | 1,310 | 0.58 | A | 1,443 | 0.64 | B | 1,333 | 0.59 | A |
| | NB Off | 1 | 1,500 | 1,220 | 0.81 | D | 1,218 | 0.81 | D | 1,215 | 0.81 | D | 1,216 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 200 | 0.19 | A | 150 | 0.14 | A | 200 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 830 | 0.55 | A | 750 | 0.50 | A | 830 | 0.55 | A | 750 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,270 | 0.85 | D | 801 | 0.53 | A | 1,280 | 0.85 | D | 800 | 0.53 | A |
| | NB Loop On | 1 | 1,500 | 1,260 | 0.84 | D | 801 | 0.53 | A | 1,260 | 0.84 | D | 810 | 0.54 | A |
| | SB Off | 2 | 3,000 | 2,166 | 0.72 | C | 2,329 | 0.78 | C | 2,166 | 0.72 | C | 2,349 | 0.78 | C |
| | NB Off | 1 | 1,500 | 310 | 0.21 | A | 1,070 | 0.71 | C | 311 | 0.21 | A | 1,070 | 0.71 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 261 | 0.17 | A | 640 | 0.43 | A | 261 | 0.17 | A | 650 | 0.43 | A |
| | SB Loop On | 1 | 900 | 251 | 0.28 | A | 310 | 0.34 | A | 251 | 0.28 | A | 310 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 940 | 0.63 | B | 671 | 0.45 | A | 940 | 0.63 | B | 671 | 0.45 | A |
| | NB Loop On | 1 | 1,500 | 640 | 0.43 | A | 441 | 0.29 | A | 640 | 0.43 | A | 451 | 0.30 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,470 | 0.49 | A | 829 | 0.28 | A | 1,483 | 0.49 | A |
| | NB Off | 1 | 1,500 | 1,242 | 0.83 | D | 1,249 | 0.83 | D | 1,240 | 0.83 | D | 1,259 | 0.84 | D |

## Table 9-7 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 970 | 0.65 | B | 1,120 | 0.75 | C | 970 | 0.65 | B | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 250 | 0.28 | A | 300 | 0.33 | A | 250 | 0.28 | A |
| | NB Direct On | 1 | 1,500 | 1,299 | 0.87 | D | 550 | 0.37 | A | 1,298 | 0.87 | D | 550 | 0.37 | A |
| | NB Loop On | 1 | 900 | 302 | 0.34 | A | 80 | 0.09 | A | 302 | 0.34 | A | 80 | 0.09 | A |
| | SB Off | 1 | 1,500 | 576 | 0.38 | A | 739 | 0.49 | A | 588 | 0.39 | A | 750 | 0.50 | A |
| | NB Off | 2 | 2,250 | 1,028 | 0.46 | A | 1,526 | 0.68 | B | 1,028 | 0.46 | A | 1,536 | 0.68 | B |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 521 | 0.35 | A | 360 | 0.24 | A | 520 | 0.35 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 1,130 | 0.75 | C | 1,220 | 0.81 | D | 1,150 | 0.77 | C |
| | NB Loop On | 1 | 1,500 | 650 | 0.43 | A | 360 | 0.24 | A | 640 | 0.43 | A | 360 | 0.24 | A |
| | SB Off | 1 | 1,500 | 1,584 | **1.06** | **F** | 962 | 0.64 | B | 1,584 | **1.06** | **F** | 944 | 0.63 | B |
| | NB Off | 1 | 1,500 | 458 | 0.31 | A | 510 | 0.34 | A | 457 | 0.30 | A | 509 | 0.34 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 110 | 0.12 | A | 90 | 0.10 | A | 110 | 0.12 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 160 | 0.18 | A | 280 | 0.31 | A | 160 | 0.18 | A | 290 | 0.32 | A |
| | NB Direct On | 1 | 1,500 | 525 | 0.35 | A | 628 | 0.42 | A | 516 | 0.34 | A | 624 | 0.42 | A |
| | NB Loop On | 1 | 1,500 | 490 | 0.33 | A | 1,170 | 0.78 | C | 480 | 0.32 | A | 1,180 | 0.79 | C |
| | SB Off | 2 | 2,250 | 2,073 | 0.92 | E | 1,586 | 0.70 | B | 2,097 | 0.93 | E | 1,596 | 0.71 | C |
| | NB Off | 2 | 3,000 | 1,087 | 0.36 | A | 422 | 0.14 | A | 1,082 | 0.36 | A | 422 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 793 | 0.20 | A | 2,431 | 0.61 | B | 782 | 0.20 | A | 2,431 | 0.61 | B |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 2,819 | 0.70 | B | 1,249 | 0.31 | A | 2,817 | 0.70 | B | 1,243 | 0.31 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,443 | 0.36 | A | 2,377 | 0.59 | A | 1,433 | 0.36 | A | 2,400 | 0.60 | A |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,090 | 0.77 | C | 1,514 | 0.38 | A | 3,111 | 0.78 | C | 1,515 | 0.38 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 500 | 0.33 | A | 330 | 0.22 | A | 510 | 0.34 | A | 380 | 0.25 | A |
| | NB Direct On | 1 | 1,500 | 160 | 0.11 | A | 150 | 0.10 | A | 160 | 0.11 | A | 150 | 0.10 | A |
| | NB Loop On | 1 | 1,500 | 211 | 0.14 | A | 310 | 0.21 | A | 200 | 0.13 | A | 320 | 0.21 | A |
| | SB Off | 2 | 2,250 | 510 | 0.23 | A | 318 | 0.14 | A | 520 | 0.23 | A | 319 | 0.14 | A |
| | NB Off | 1 | 1,500 | 231 | 0.15 | A | 616 | 0.41 | A | 325 | 0.22 | A | 643 | 0.43 | A |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 800 | 0.40 | A | 1,300 | 0.65 | B | 837 | 0.42 | A | 1,311 | 0.66 | B |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,640 | 0.82 | D | 934 | 0.47 | A | 1,641 | 0.82 | D | 961 | 0.48 | A |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,575 | 0.79 | C | 797 | 0.40 | A | 1,577 | 0.79 | C | 797 | 0.40 | A |

## Table 9-7 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 675 | 0.34 | A | 1,550 | 0.78 | C | 675 | 0.34 | A | 1,550 | 0.78 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 1,712 | 0.43 | A | 1,444 | 0.36 | A | 1,735 | 0.43 | A | 1,469 | 0.37 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 1,743 | 0.44 | A | 1,764 | 0.44 | A | 1,791 | 0.45 | A | 1,769 | 0.44 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 210 | 0.19 | A | 1,100 | **1.02** | **F** | 211 | 0.20 | A | 1,090 | **1.01** | **F** |
| | NB Direct On | 1 | 1,080 | 119 | 0.11 | A | 546 | 0.51 | A | 141 | 0.13 | A | 552 | 0.51 | A |
| | NB Loop On | 1 | 1,080 | 390 | 0.36 | A | 1,225 | **1.13** | **F** | 432 | 0.40 | A | 1,240 | **1.15** | **F** |
| | SB Off | 2 | 3,000 | 1,994 | 0.66 | B | 430 | 0.14 | A | 1,986 | 0.66 | B | 450 | 0.15 | A |
| | NB Off | 2 | 2,250 | 1,230 | 0.55 | A | 661 | 0.29 | A | 1,230 | 0.55 | A | 652 | 0.29 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 689 | 0.34 | A | 572 | 0.29 | A | 719 | 0.36 | A | 591 | 0.30 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 221 | 0.11 | A | 356 | 0.18 | A | 220 | 0.11 | A | 356 | 0.18 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 802 | 0.20 | A | 508 | 0.13 | A | 794 | 0.20 | A | 506 | 0.13 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 657 | 0.16 | A | 322 | 0.08 | A | 643 | 0.16 | A | 324 | 0.08 | A |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 204 | 0.10 | A | 359 | 0.18 | A | 201 | 0.10 | A | 357 | 0.18 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,345 | 0.67 | B | 1,697 | 0.85 | D | 1,350 | 0.68 | B | 1,671 | 0.84 | D |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 466 | 0.23 | A | 475 | 0.24 | A | 458 | 0.23 | A | 474 | 0.24 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 645 | 0.36 | A | 356 | 0.20 | A | 649 | 0.36 | A | 350 | 0.19 | A |
| | NB On | 1 | 1,500 | 330 | 0.22 | A | 390 | 0.26 | A | 321 | 0.21 | A | 390 | 0.26 | A |
| | SB Off | 1 | 1,500 | 731 | 0.49 | A | 361 | 0.24 | A | 739 | 0.49 | A | 361 | 0.24 | A |
| | NB Off | 1 | 1,500 | 658 | 0.44 | A | 781 | 0.52 | A | 648 | 0.43 | A | 788 | 0.53 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 256 | 0.17 | A | 410 | 0.27 | A | 273 | 0.18 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 60 | 0.04 | A | 30 | 0.02 | A | 60 | 0.04 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 81 | 0.05 | A | 49 | 0.03 | A | 81 | 0.05 | A |
| | NB Off | 1 | 1,500 | 665 | 0.44 | A | 344 | 0.23 | A | 665 | 0.44 | A | 355 | 0.24 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 347 | 0.23 | A | 609 | 0.41 | A | 347 | 0.23 | A | 613 | 0.41 | A |
| | NB On | 1 | 1,500 | 296 | 0.20 | A | 362 | 0.24 | A | 294 | 0.20 | A | 364 | 0.24 | A |
| | SB Off | 1 | 1,500 | 402 | 0.27 | A | 295 | 0.20 | A | 409 | 0.27 | A | 300 | 0.20 | A |
| | NB Off | 2 | 2,250 | 508 | 0.23 | A | 422 | 0.19 | A | 521 | 0.23 | A | 420 | 0.19 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 208 | 0.09 | A | 566 | 0.25 | A | 214 | 0.10 | A | 569 | 0.25 | A |
| | SB Off | 1 | 1,500 | 525 | 0.35 | A | 335 | 0.22 | A | 526 | 0.35 | A | 339 | 0.23 | A |

## Table 9-7 Cont.

### Pending Year 2015 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | Without Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 254 | 0.17 | A | 994 | 0.66 | B | 254 | 0.17 | A | 995 | 0.66 | B |
| | NB On | 2 | 2,250 | 903 | 0.40 | A | 389 | 0.17 | A | 924 | 0.41 | A | 394 | 0.18 | A |
| | SB Off | 1 | 1,500 | 368 | 0.25 | A | 653 | 0.44 | A | 375 | 0.25 | A | 651 | 0.43 | A |
| | NB Off | 2 | 2,250 | 1,645 | 0.73 | C | 366 | 0.16 | A | 1,644 | 0.73 | C | 366 | 0.16 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 750 | 0.50 | A | 210 | 0.14 | A | 750 | 0.50 | A | 210 | 0.14 | A |
| | NB Off | 1 | 1,500 | 60 | 0.04 | A | 607 | 0.40 | A | 60 | 0.04 | A | 608 | 0.41 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 168 | 0.11 | A | 100 | 0.07 | A | 168 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 271 | 0.18 | A | 140 | 0.09 | A | 270 | 0.18 | A | 140 | 0.09 | A |
| | SB Off | 1 | 1,500 | 101 | 0.07 | A | 192 | 0.13 | A | 101 | 0.07 | A | 191 | 0.13 | A |
| | NB Off | 1 | 1,500 | 99 | 0.07 | A | 99 | 0.07 | A | 100 | 0.07 | A | 99 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 640 | 0.43 | A | 260 | 0.17 | A | 630 | 0.42 | A | 260 | 0.17 | A |
| | NB On | 1 | 1,500 | 240 | 0.16 | A | 170 | 0.11 | A | 240 | 0.16 | A | 170 | 0.11 | A |
| | SB Off | 1 | 1,500 | 80 | 0.05 | A | 90 | 0.06 | A | 80 | 0.05 | A | 91 | 0.06 | A |
| | NB Off | 1 | 1,500 | 140 | 0.09 | A | 321 | 0.21 | A | 141 | 0.09 | A | 312 | 0.21 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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**Table 9-8**

## Pending Year 2015 Freeway Mainline LOS Summary, Option 2

| | Location | Direction | Lanes | Capacity | Without Project, With Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,521 | **1.34** | **F** | 11,517 | 0.99 | E | 15,473 | **1.33** | **F** | 11,528 | 0.99 | E |
| | | SB | 5+1H | 11,600 | 9,036 | 0.78 | C | 10,361 | 0.89 | D | 9,084 | 0.78 | C | 10,303 | 0.89 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,826 | **1.28** | **F** | 10,960 | 0.94 | E | 14,776 | **1.27** | **F** | 10,973 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 10,978 | 0.95 | E | 12,496 | **1.08** | **F** | 11,004 | 0.95 | E | 12,455 | **1.07** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,168 | **1.31** | **F** | 11,340 | 0.98 | E | 15,121 | **1.30** | **F** | 11,353 | 0.98 | E |
| | | SB | 5+1H | 11,600 | 11,490 | 0.99 | E | 12,977 | **1.12** | **F** | 11,529 | 0.99 | E | 12,936 | **1.12** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,565 | **1.26** | **F** | 11,024 | 0.95 | E | 14,519 | **1.25** | **F** | 11,047 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 10,999 | 0.95 | E | 12,444 | **1.07** | **F** | 11,048 | 0.95 | E | 12,399 | **1.07** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,625 | **1.26** | **F** | 10,822 | 0.93 | E | 14,581 | **1.26** | **F** | 10,849 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 10,413 | 0.90 | D | 12,297 | **1.06** | **F** | 10,469 | 0.90 | D | 12,250 | **1.06** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,625 | **1.09** | **F** | 10,073 | 0.87 | D | 12,575 | **1.08** | **F** | 10,091 | 0.87 | D |
| | | SB | 5+1H | 11,600 | 9,904 | 0.85 | D | 10,985 | 0.95 | E | 9,931 | 0.86 | D | 10,925 | 0.94 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,390 | **1.07** | **F** | 10,069 | 0.87 | D | 12,366 | **1.07** | **F** | 10,072 | 0.87 | D |
| | | SB | 5+1H | 11,600 | 10,372 | 0.89 | D | 11,110 | 0.96 | E | 10,387 | 0.90 | D | 11,065 | 0.95 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 9,969 | **1.04** | **F** | 8,202 | 0.85 | D | 10,011 | **1.04** | **F** | 8,247 | 0.86 | D |
| | | SB | 4+1H | 9,600 | 8,728 | 0.91 | E | 8,958 | 0.93 | E | 8,752 | 0.91 | E | 9,011 | 0.94 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,253 | **1.07** | **F** | 7,337 | 0.76 | C | 10,284 | **1.07** | **F** | 7,378 | 0.77 | C |
| | | SB | 4+1H | 9,600 | 7,326 | 0.76 | C | 9,163 | 0.95 | E | 7,330 | 0.76 | C | 9,188 | 0.96 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 21,293 | 0.99 | E | 14,176 | 0.66 | B | 21,279 | 0.99 | E | 14,210 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 10,737 | 0.50 | A | 15,908 | 0.74 | C | 10,754 | 0.50 | A | 15,954 | 0.74 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 19,640 | **1.01** | **F** | 12,159 | 0.62 | B | 19,610 | **1.01** | **F** | 12,174 | 0.62 | B |
| | | SB | 8+2H | 19,500 | 10,888 | 0.56 | A | 16,276 | 0.83 | D | 10,901 | 0.56 | A | 16,322 | 0.84 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 18,742 | **1.39** | **F** | 11,585 | 0.86 | D | 18,706 | **1.39** | **F** | 11,600 | 0.86 | D |
| | | SB | 5+2H | 13,500 | 8,535 | 0.63 | B | 14,101 | **1.04** | **F** | 8,538 | 0.63 | B | 14,140 | **1.05** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 15,468 | **1.61** | **F** | 9,516 | 0.99 | E | 15,450 | **1.61** | **F** | 9,518 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 7,570 | 0.79 | C | 12,599 | **1.31** | **F** | 7,572 | 0.79 | C | 12,623 | **1.31** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 11,587 | **1.21** | **F** | 7,118 | 0.74 | C | 11,557 | **1.20** | **F** | 7,117 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,055 | 0.63 | B | 9,747 | **1.02** | **F** | 6,054 | 0.63 | B | 9,751 | **1.02** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,905 | **1.34** | **F** | 8,619 | 0.90 | D | 12,824 | **1.34** | **F** | 8,631 | 0.90 | D |
| | | SB | 4+1H | 9,600 | 7,997 | 0.83 | D | 10,778 | **1.12** | **F** | 8,017 | 0.84 | D | 10,762 | **1.12** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,872 | **1.34** | **F** | 8,783 | 0.91 | E | 12,783 | **1.33** | **F** | 8,794 | 0.92 | E |
| | | SB | 4+1H | 9,600 | 8,152 | 0.85 | D | 10,662 | **1.11** | **F** | 8,153 | 0.85 | D | 10,627 | **1.11** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,400 | **1.29** | **F** | 8,024 | 0.84 | D | 12,319 | **1.28** | **F** | 8,022 | 0.84 | D |
| | | SB | 4+1H | 9,600 | 7,285 | 0.76 | C | 10,134 | **1.06** | **F** | 7,288 | 0.76 | C | 10,109 | **1.05** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 11,407 | **1.19** | **F** | 7,670 | 0.80 | C | 11,340 | **1.18** | **F** | 7,666 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,645 | 0.69 | B | 9,007 | 0.94 | E | 6,675 | 0.70 | B | 9,028 | 0.94 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,904 | 0.82 | D | 4,502 | 0.47 | A | 7,854 | 0.82 | D | 4,498 | 0.47 | A |
| | | SB | 4+1H | 9,600 | 5,674 | 0.59 | A | 8,576 | 0.89 | D | 5,680 | 0.59 | A | 8,592 | 0.90 | D |

**Table 9-8 Cont.**

## Pending Year 2015 Freeway Mainline LOS Summary, Option 2

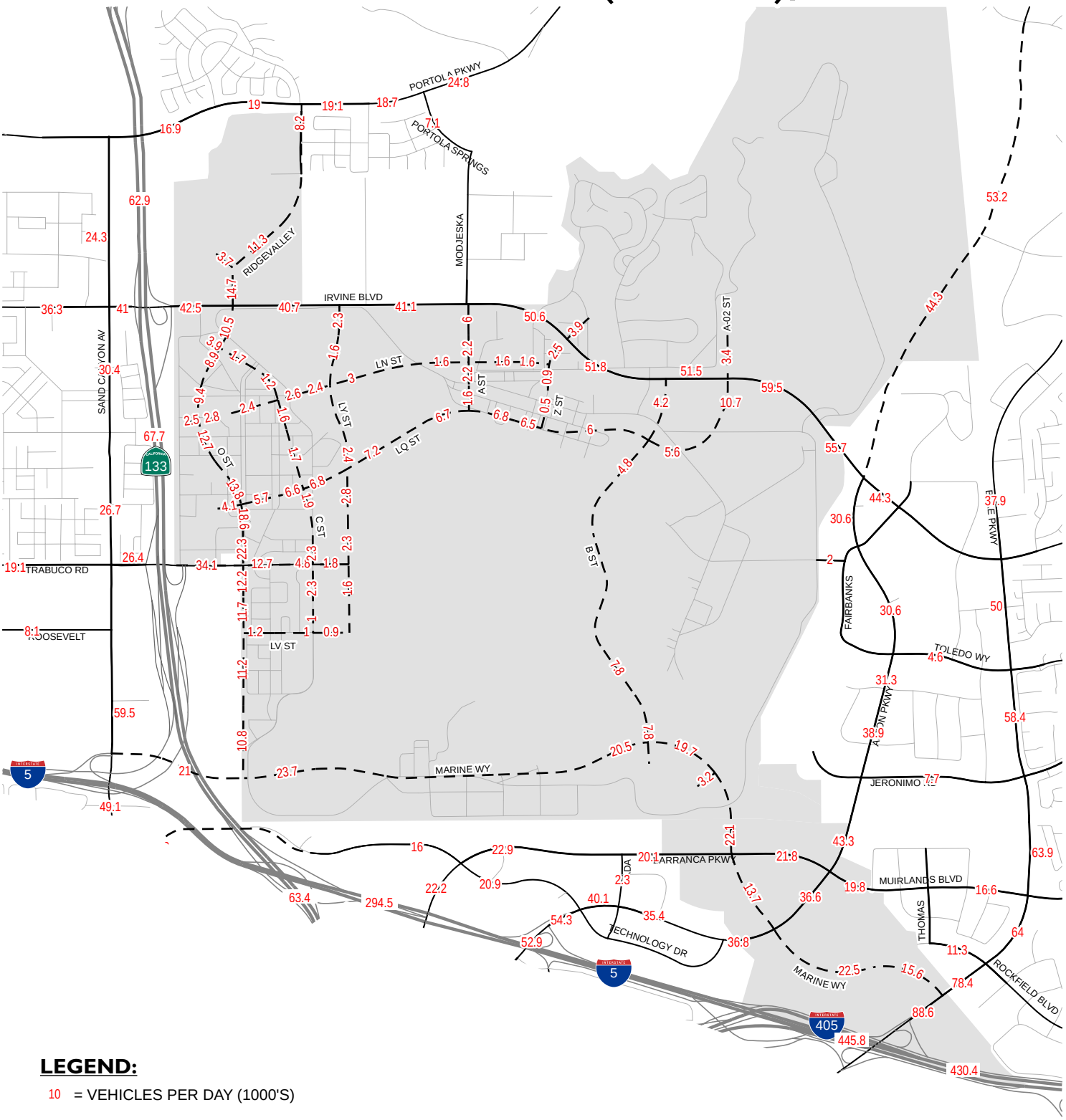
| | Location | Direction | Lanes | Capacity | Without Project, With Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,236 | 0.28 | A | 4,807 | 0.60 | A | 2,216 | 0.28 | A | 4,831 | 0.60 | A |
| | | SB | 4 | 8,000 | 5,909 | 0.74 | C | 2,763 | 0.35 | A | 5,928 | 0.74 | C | 2,759 | 0.34 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 1,942 | 0.32 | A | 4,594 | 0.77 | C | 2,032 | 0.34 | A | 4,602 | 0.77 | C |
| | | SB | 3 | 6,000 | 5,343 | 0.89 | D | 2,491 | 0.42 | A | 5,356 | 0.89 | D | 2,540 | 0.42 | A |
| | n/o I-5 | NB | 3 | 6,000 | 1,942 | 0.32 | A | 4,594 | 0.77 | C | 2,032 | 0.34 | A | 4,602 | 0.77 | C |
| | | SB | 3 | 6,000 | 3,768 | 0.63 | B | 1,694 | 0.28 | A | 3,779 | 0.63 | B | 1,743 | 0.29 | A |
| | s/o I-5 | NB | 3 | 6,000 | 2,210 | 0.37 | A | 3,508 | 0.58 | A | 2,311 | 0.39 | A | 3,509 | 0.58 | A |
| | | SB | 3 | 6,000 | 3,840 | 0.64 | B | 2,205 | 0.37 | A | 3,873 | 0.65 | B | 2,251 | 0.38 | A |
| | n/o I-405 | NB | 3 | 6,000 | 2,762 | 0.46 | A | 2,963 | 0.49 | A | 2,801 | 0.47 | A | 2,938 | 0.49 | A |
| | | SB | 3 | 6,000 | 2,519 | 0.42 | A | 2,305 | 0.38 | A | 2,545 | 0.42 | A | 2,329 | 0.39 | A |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 3,912 | 0.65 | B | 3,829 | 0.64 | B | 3,890 | 0.65 | B | 3,856 | 0.64 | B |
| | | SB | 3 | 6,000 | 4,786 | 0.80 | C | 3,494 | 0.58 | A | 4,820 | 0.80 | C | 3,478 | 0.58 | A |
| | n/o Portola (West) | NB | 4 | 8,000 | 5,288 | 0.66 | B | 2,700 | 0.34 | A | 5,273 | 0.66 | B | 2,699 | 0.34 | A |
| | | SB | 4 | 8,000 | 2,489 | 0.31 | A | 4,411 | 0.55 | A | 2,492 | 0.31 | A | 4,394 | 0.55 | A |
| | n/o Alton | NB | 3 | 6,000 | 5,737 | 0.96 | E | 3,068 | 0.51 | A | 5,753 | 0.96 | E | 3,080 | 0.51 | A |
| | | SB | 3 | 6,000 | 2,928 | 0.49 | A | 4,876 | 0.81 | D | 2,947 | 0.49 | A | 4,881 | 0.81 | B |
| | n/o Lake Forest | NB | 3 | 6,000 | 6,005 | 1.00 | E | 2,797 | 0.47 | A | 6,036 | 1.01 | E | 2,806 | 0.47 | A |
| | | SB | 3 | 6,000 | 2,467 | 0.41 | A | 5,055 | 0.84 | D | 2,479 | 0.41 | A | 5,058 | 0.84 | D |
| SR-261 | n/o Portola | NB | 2 | 4,000 | 1,152 | 0.29 | A | 2,824 | 0.71 | B | 1,138 | 0.28 | A | 2,828 | 0.71 | B |
| | | SB | 2 | 4,000 | 3,554 | 0.89 | D | 1,388 | 0.35 | A | 3,564 | 0.89 | D | 1,390 | 0.35 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 589 | 0.10 | A | 2,311 | 0.39 | A | 579 | 0.10 | A | 2,315 | 0.39 | A |
| | | SB | 3 | 6,000 | 3,096 | 0.52 | A | 898 | 0.15 | A | 3,104 | 0.52 | A | 902 | 0.15 | A |
| | s/o Irvine Blvd | NB | 2 | 4,000 | 783 | 0.20 | A | 2,992 | 0.75 | C | 775 | 0.19 | A | 2,989 | 0.75 | C |
| | | SB | 2 | 4,000 | 3,589 | 0.90 | D | 1,198 | 0.30 | A | 3,591 | 0.90 | D | 1,201 | 0.30 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 3,961 | 0.66 | B | 6,012 | 1.00 | E | 3,926 | 0.65 | B | 6,042 | **1.01** | **F** |
| | | SB | 3 | 6,000 | 8,002 | **1.33** | **F** | 4,032 | 0.67 | B | 8,044 | **1.34** | **F** | 4,025 | 0.67 | B |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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EXHIBIT 9-7 (1 OF 3)

# PENDING YEAR 2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

# PENDING YEAR 2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA

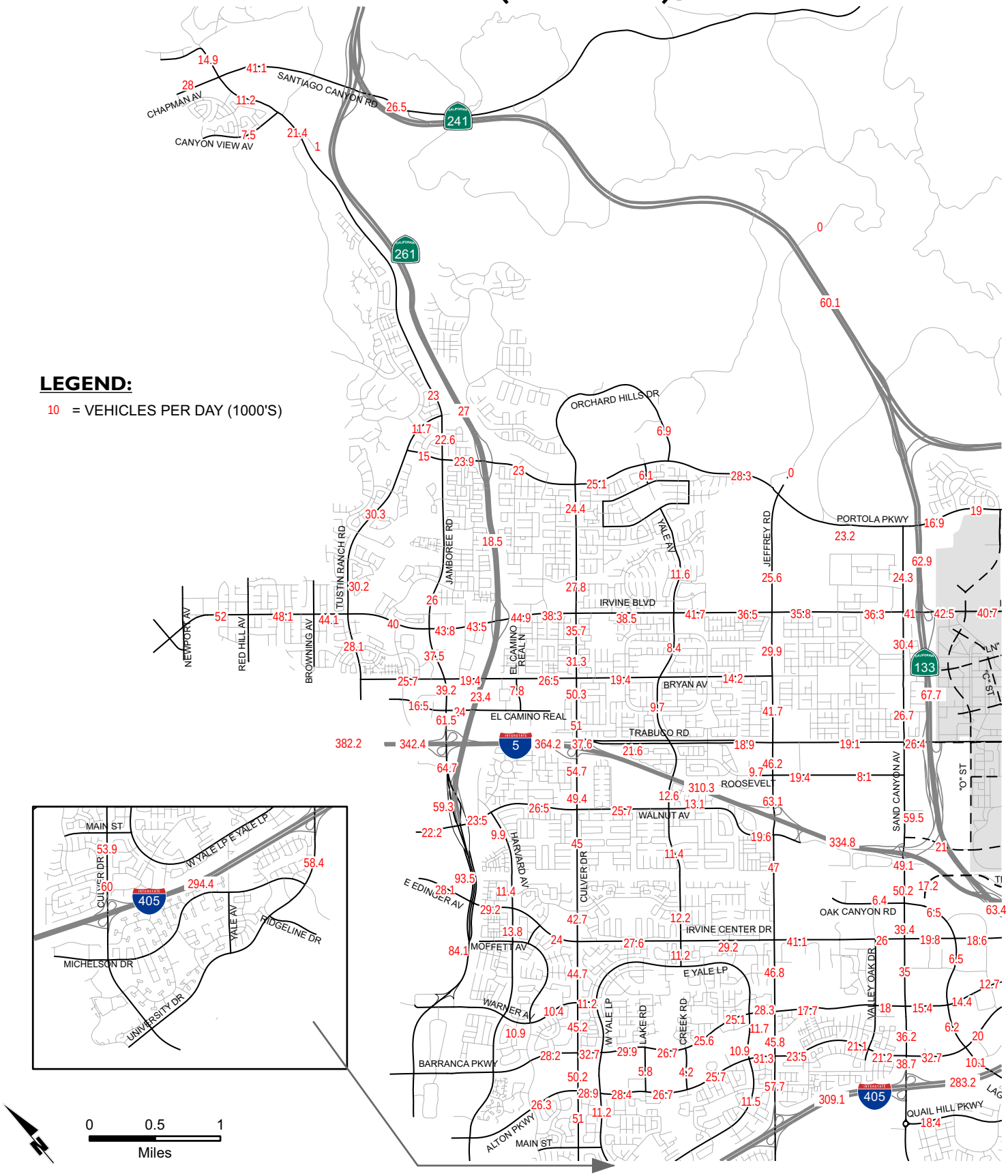


EXHIBIT 9-7 (3 OF 3)

# PENDING YEAR 2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA

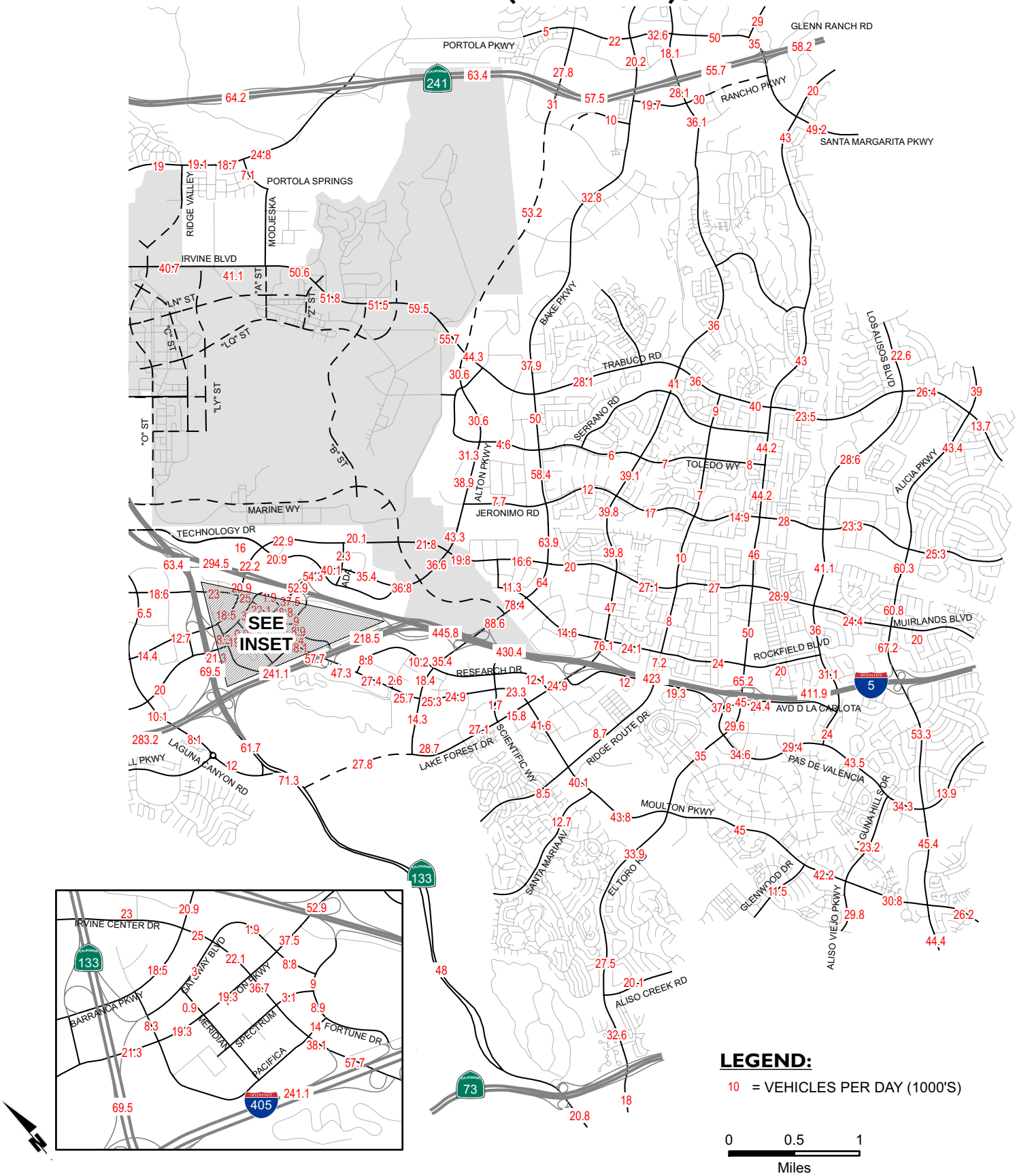
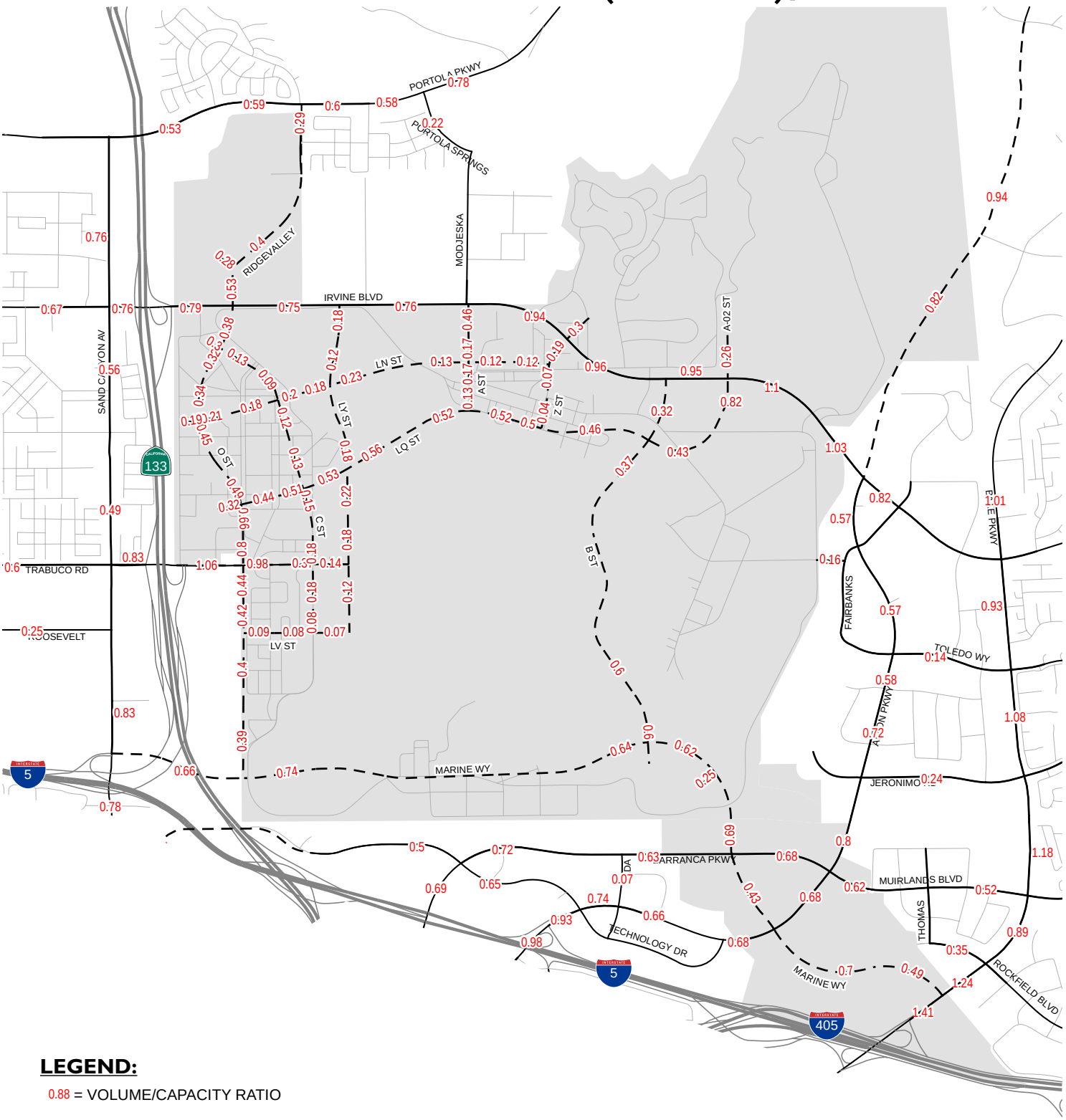


EXHIBIT 9-8 (1 OF 3)

# PENDING YEAR 2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

*Heritage Fields Project 2012 - GPA/ZC Traffic Study*
*City of Irvine, CA (JN - 07151:pending_2030_vc_baseline_site.mxd)*

URBAN CROSSROADS

# PENDING YEAR 2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA

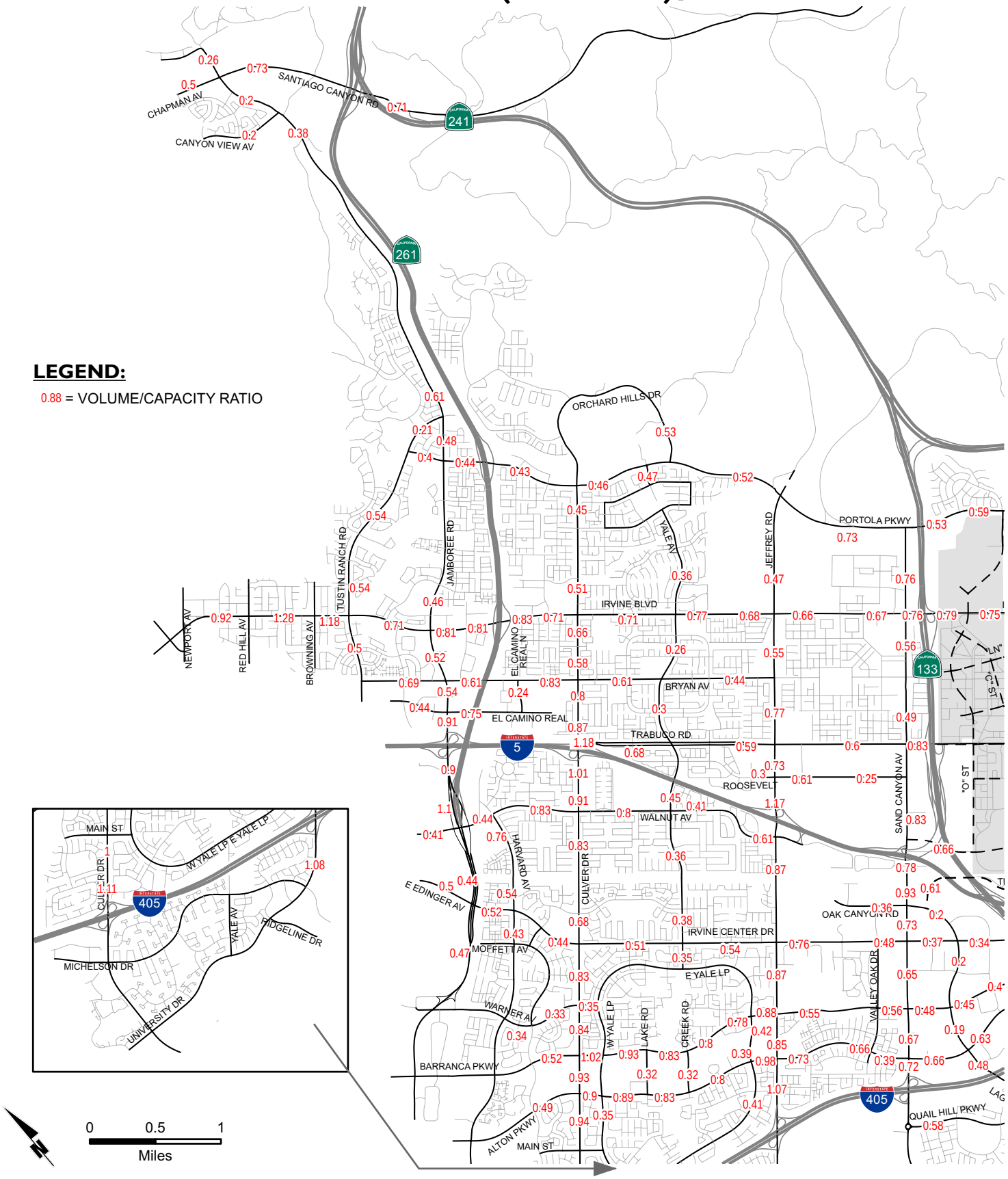
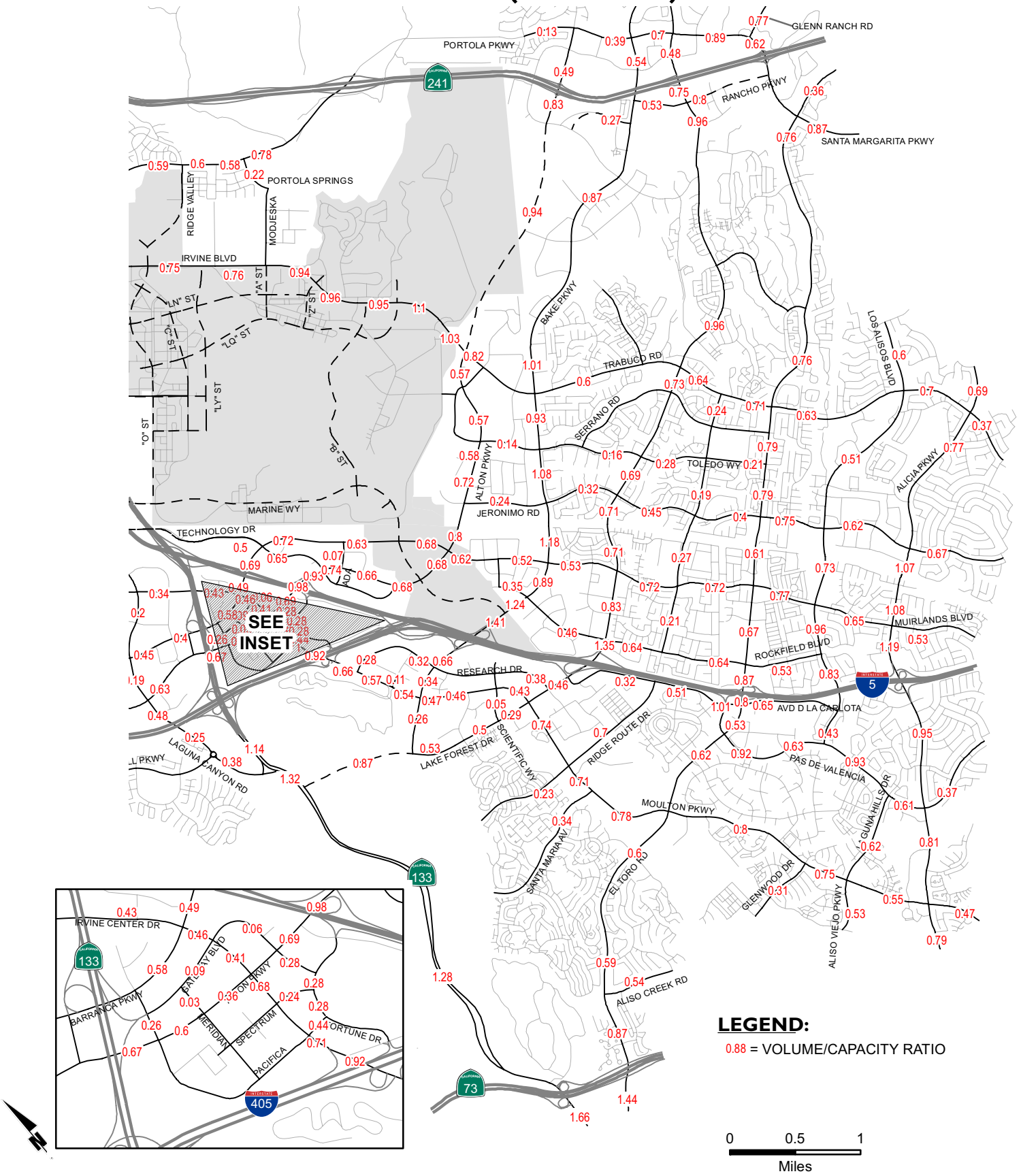
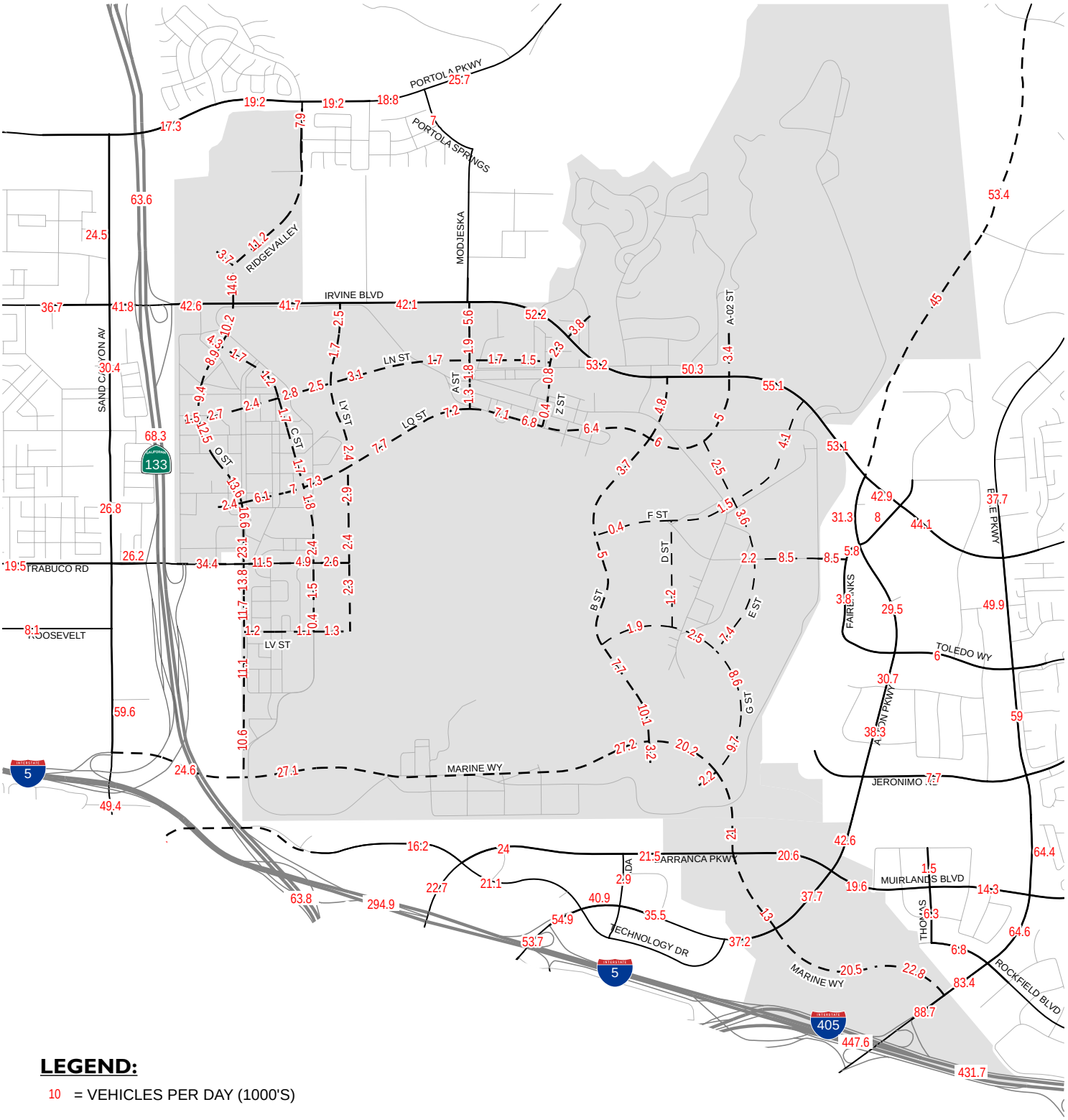


EXHIBIT 9-8 (3 OF 3)

# PENDING YEAR 2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA



# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT VOLUMES, PROJECT AREA



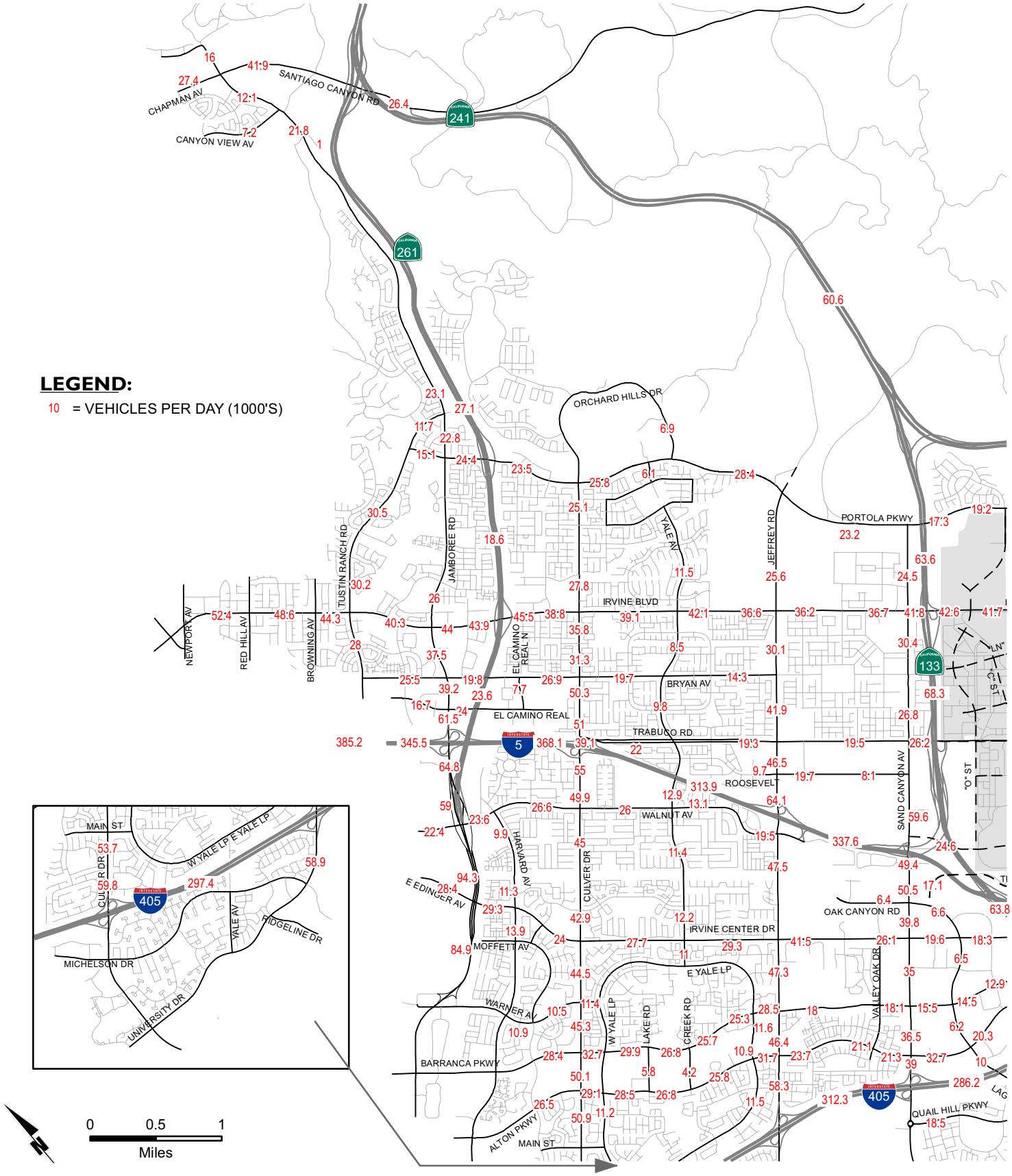

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

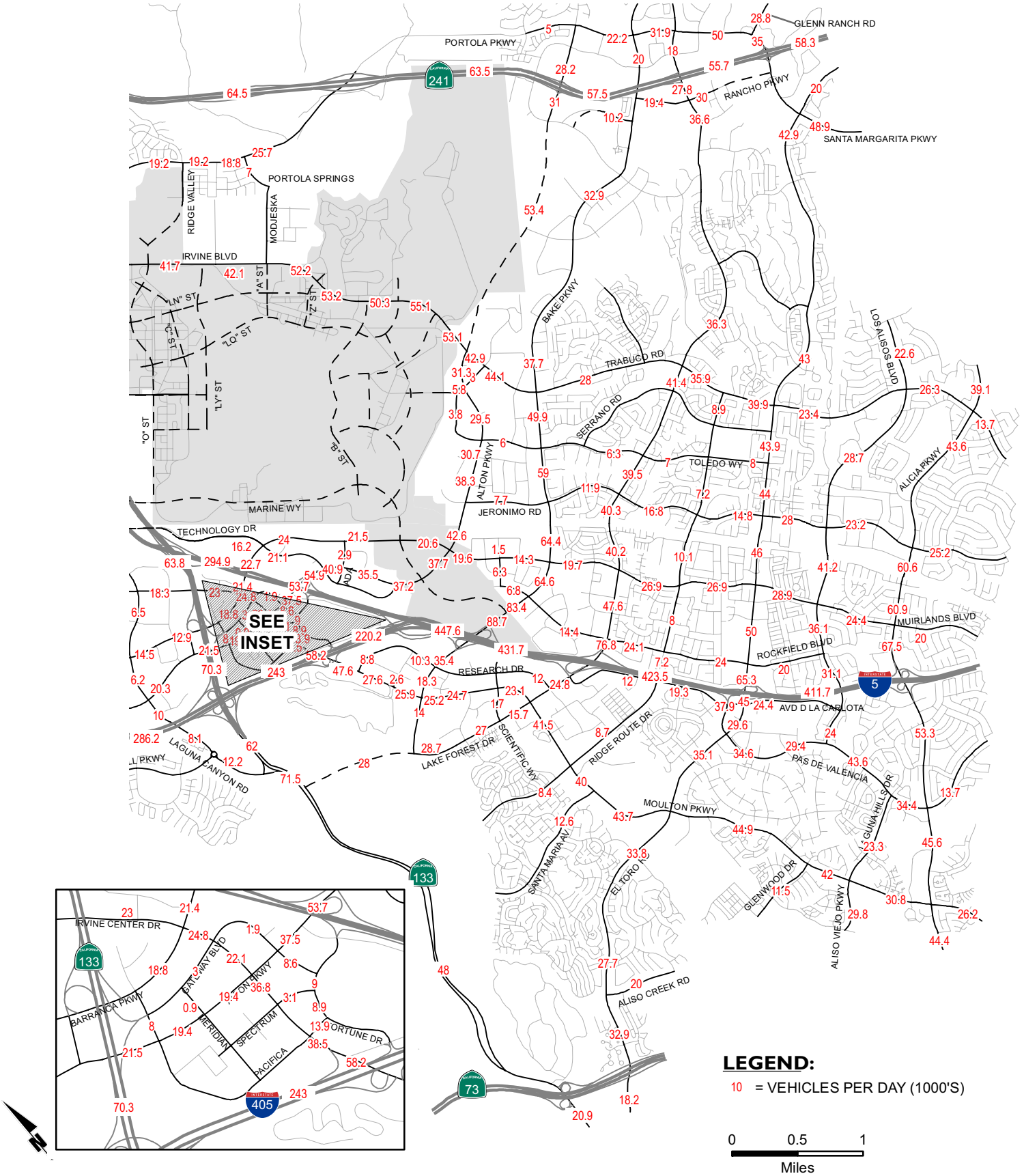
0 1,400 2,800

Feet

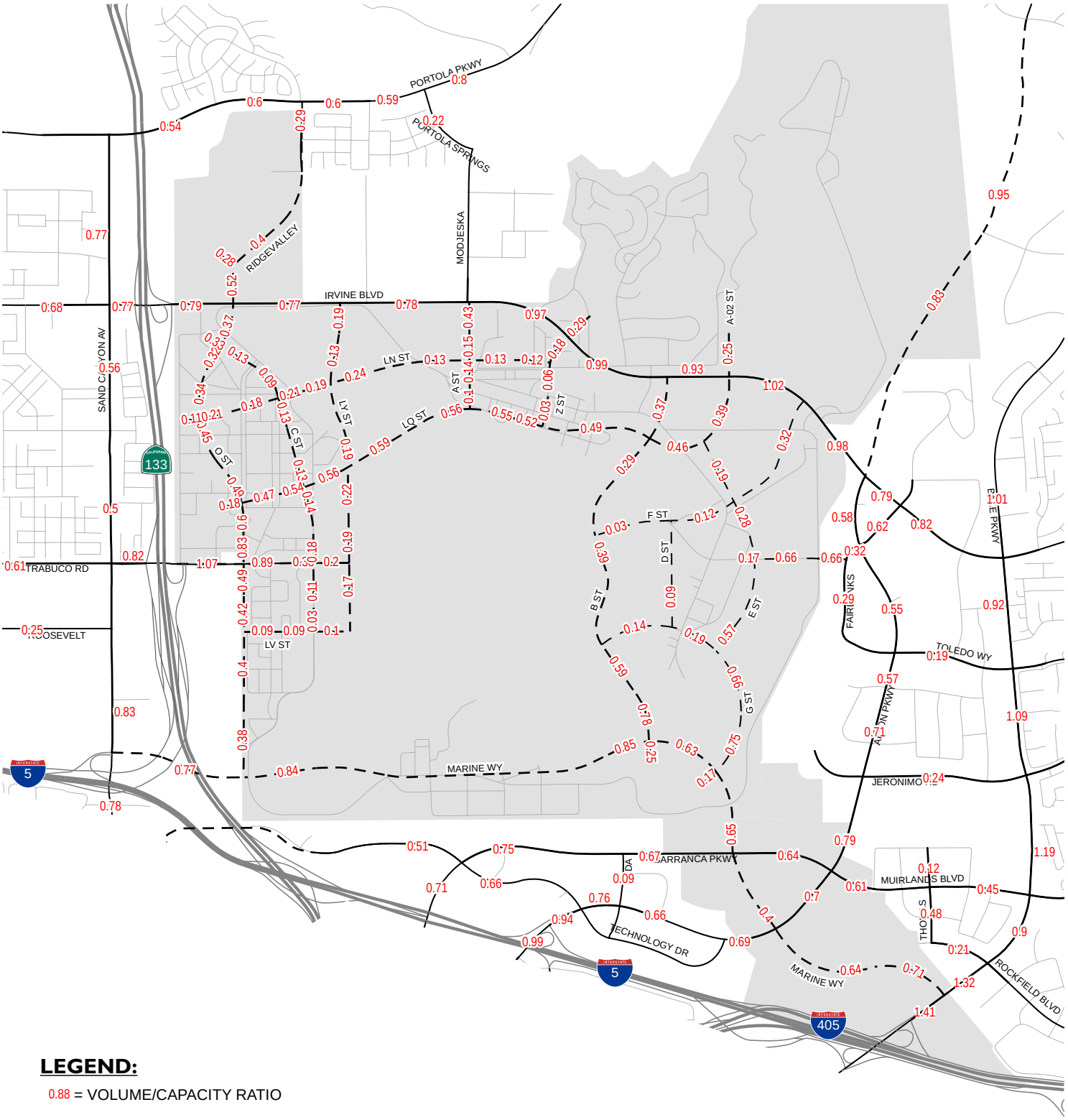
# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT VOLUMES, WEST STUDY AREA



# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT VOLUMES, EAST STUDY AREA



# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT V/C RATIOS, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT V/C RATIOS, WEST STUDY AREA

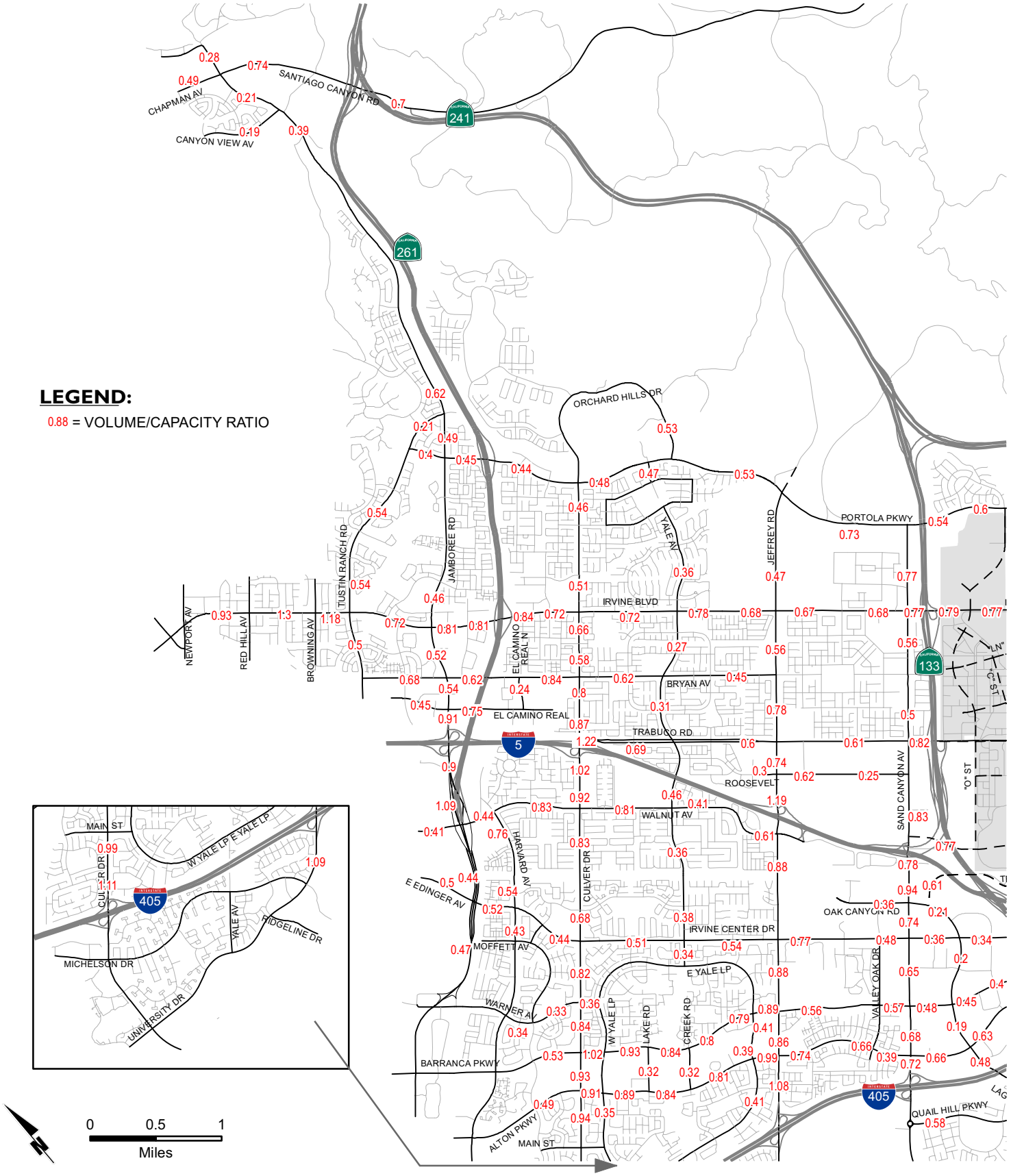
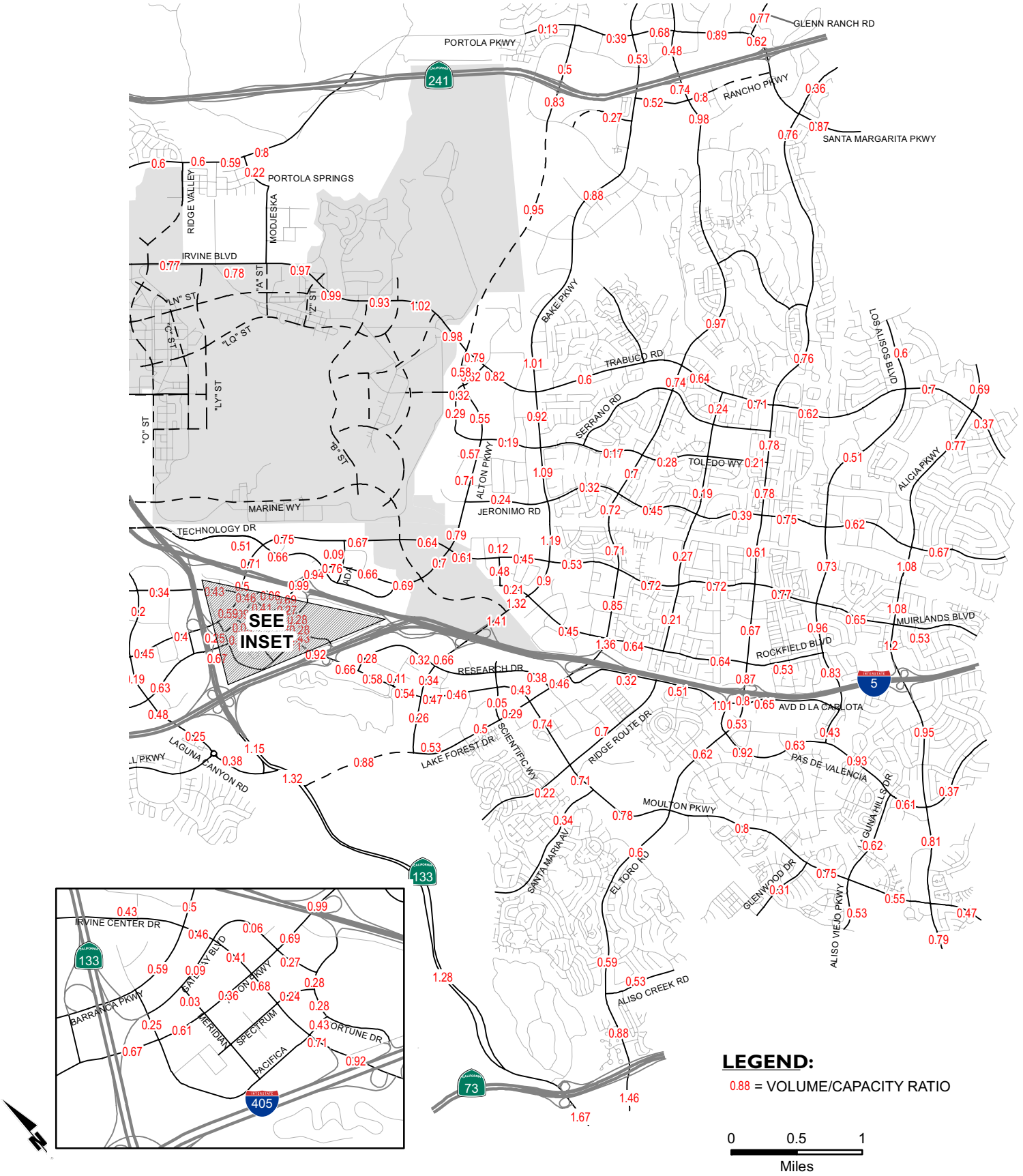


EXHIBIT 9-10 (3 OF 3)

# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 1 ADT V/C RATIOS, EAST STUDY AREA



Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following arterial roadway segments are potentially impacted by Option 1 with Pending Projects:

- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Irvine Bl (b/w A St and Z St)
- Irvine Bl (e/o Z St.)
- Jeffrey Rd (b/w Roosevelt and I-5 NB Ramps)
- Trabuco Rd (b/w Culver Dr and I-5 NB Ramps)
- Lake Forest Dr (s/o Rancho Pkwy)
- Alton Pkwy (e/o Culver Dr)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Year 2030 with Option 1, with Pending Projects conditions are summarized in Table 9-9. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

**Table 9-9**

**Pending Year 2030 Arterial Roadway Peak Hour Analysis, Option 1**

| Segment | Segment Limits | Juris | Pending Year 2030 with 2012 Modified Project Option 1 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | # of Lanes | Peak Hour Capacity | ADT | Highest Peak Volume | Peak Hour V/C | Peak Hour LOS |
| Bake Pkwy. | b/w Rockfield Bl. and Marine Wy. | Irv | 8D | 6,400 | 83,400 | 4,032 AM NB | 0.63 | B |
| Irvine Bl. | b/w A St. and Z St. | Irv | 6D | 4,800 | 52,200 | 3,005 PM WB | 0.63 | B |
| Irvine Bl. | e/o Z St. | Irv | 6D | 4,800 | 53,200 | 3,070 PM WB | 0.64 | B |
| Jeffrey Rd. | b/w Roosevelt and I-5 NB Ramps | Irv | 6D | 4,800 | 64,100 | 3,346 AM SB | 0.70 | B |
| Trabuco Rd. | b/w Culver Dr. and I-5 NB Ramps | Irv | 5D | 4,000 | 39,100 | 1,927 PM EB | 0.48 | A |
| Lake Forest | s/o Ranch Pkwy. | LF | 4D | 3,200 | 36,600 | 2,159 PM NB | 0.67 | B |
| Alton Pkwy. | e/o Culver Dr. | Irv | 4D | 3,200 | 29,100 | 2,320 PM WB | 0.73 | C |

### 9.1.10 Year 2030 Peak Hour Intersection Levels of Service, with Option 1

Year 2030 with Option 1, with Pending Projects AM and PM peak hour intersection capacity utilization (ICU) results are summarized in Table 9-10. Actual turn volumes, lane geometrics and ICU calculation worksheets for 2011 Approved Project (baseline), with Pending Projects are included in Appendix 9.4 and Year 2030 with Option 1, with Pending Projects are included in Appendix 9.5. Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that seven intersections that exceed adopted impact thresholds with Year 2030 with Option 1, with Pending Projects. Table 9-25 identifies the Project impact locations for 2030 with Option 1, with Pending Projects which are also listed here:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Jeffrey Rd. & Alton Pkwy.
- Sand Canyon & I-5 NB Ramp/Marine Way
- Bake Pkwy. & Rockfield Blvd.
- El Toro Rd. & Portola Pkwy.

### 9.1.11 Year 2030 Peak Hour Freeway/Tollway Ramp Levels of Service with Option 1, with Pending Projects

Exhibit 7-6 (previously presented) illustrates the interchange locations where freeway/tollway ramps were analyzed based on Year 2030 conditions. Year 2030 with Option 1, with Pending Projects AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-11. The pending projects with Option 1 exceeds adopted impact thresholds at one freeway interchange off-ramp: I-5 Northbound off-ramp to Jamboree Road.

## Table 9-10

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.79 | C | **0.92** | **E** | 0.79 | C | **0.93** | **E** |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | | | 0.79 | C | 0.90 | D | 0.82 | D | 0.90 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **1.00** | **E** | 0.88 | D | **1.03** | **F** | 0.88 | D |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | | | 0.85 | D | 0.90 | D | 0.85 | D | 0.90 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | 0.76 | C | 0.67 | B | 0.75 | C | 0.66 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.68 | B | 0.63 | B | 0.69 | B | 0.62 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | Yes | 0.82 | D | 0.76 | C | 0.83 | D | 0.75 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.72 | C | 0.62 | B | 0.72 | C | 0.64 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.72 | C | 0.69 | B | 0.73 | C | 0.69 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.68 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.69 | B | 0.65 | B | 0.68 | B | 0.65 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.46 | A | 0.55 | A | 0.47 | A | 0.57 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.50 | A | 0.73 | C | 0.49 | A | 0.74 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.51 | A | 0.67 | B | 0.51 | A | 0.68 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.42 | A | 0.42 | A | 0.43 | A | 0.42 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.91 | E | 0.96 | E | 0.91 | E | 0.98 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.42 | A | 0.50 | A | 0.44 | A | 0.50 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.45 | A | 0.41 | A | 0.48 | A | 0.42 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.61 | B | 0.53 | A | 0.60 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.71 | C | 0.66 | B | 0.72 | C | 0.66 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.71 | C | 0.67 | B | 0.74 | C | 0.69 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.79 | C | 0.88 | D | 0.78 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.89 | D | 0.73 | C | 0.89 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | 0.77 | C | 0.77 | C | 0.79 | C | 0.78 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | 0.61 | B | 0.68 | B | 0.61 | B | 0.68 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | | | 0.82 | D | 0.86 | D | 0.83 | D | 0.87 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.78 | C | 0.74 | C | 0.78 | C | 0.74 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.81 | D | 0.64 | B | 0.82 | D | 0.63 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | | | **0.91** | **E** | 0.78 | C | **0.93** | **E** | 0.78 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.84 | D | 0.88 | D | 0.85 | D | 0.87 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.83 | D | 0.74 | C | 0.85 | D | 0.74 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.61 | B | 0.66 | B | 0.63 | B | 0.67 | B |
| 235 | Culver Dr at University | Irv | **F** | | | 0.71 | C | 0.82 | D | 0.73 | C | 0.82 | D |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | 0.75 | C | 0.88 | D | 0.75 | C | 0.89 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.48 | A | 0.44 | A | 0.49 | A | 0.45 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.61 | B | 0.52 | A | 0.63 | B | 0.52 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.60 | A | 0.72 | C | 0.63 | B | 0.73 | C |
| 261 | Yale Av at ICD | Irv | | | | 0.71 | C | 0.69 | B | 0.68 | B | 0.68 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.66 | B | 0.62 | B | 0.68 | B | 0.63 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.72 | C | 0.68 | B | 0.73 | C | 0.68 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.65 | B | 0.65 | B | 0.67 | B | 0.65 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.76 | C | 0.69 | B | 0.75 | C | 0.69 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.63 | B | 0.60 | A | 0.62 | B | 0.59 | A |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.68 | B | 0.67 | B | 0.69 | B | 0.66 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.70 | B | 0.64 | B | 0.70 | B | 0.65 | B |

## Table 9-10 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.65 | B | 0.72 | C | 0.63 | B | 0.73 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.86 | D | 0.85 | D | 0.89 | D | 0.85 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.69 | B | 0.80 | C | 0.70 | B | 0.80 | C |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | 0.76 | C | 0.76 | C | 0.77 | C | 0.77 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | | | 0.83 | D | 0.77 | C | 0.83 | D | 0.78 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | | | 0.90 | D | 0.79 | C | **0.92** | **E** | 0.79 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | | **0.93** | **E** | 0.79 | C | **0.95** | **E** | 0.79 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | 0.74 | C | 0.88 | D | 0.76 | C | 0.90 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.63 | B | 0.70 | B | 0.65 | B | 0.70 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.40 | A | 0.56 | A | 0.42 | A | 0.56 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.74 | C | 0.75 | C | 0.72 | C | 0.74 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | | 0.77 | C | 0.78 | C | 0.77 | C | 0.78 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | 0.84 | D | 0.85 | D | 0.90 | D | **0.94** | **E** |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | 0.82 | D | 0.81 | D | 0.84 | D | 0.85 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | 0.78 | C | **0.92** | **E** | 0.77 | C | **0.93** | **E** |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.60 | A | 0.63 | B | 0.61 | B | 0.65 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.55 | A | 0.57 | A | 0.55 | A | 0.58 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | 0.66 | B | 0.72 | C | 0.67 | B | 0.73 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | 0.59 | A | 0.42 | A | 0.60 | A | 0.42 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.87 | D | 0.61 | B | 0.88 | D | 0.62 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.36 | A | 0.42 | A | 0.36 | A | 0.43 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.42 | A | 0.42 | A | 0.42 | A | 0.42 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.56 | A | 0.60 | A | 0.57 | A | 0.59 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.55 | A | 0.61 | B | 0.54 | A | 0.61 | B |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.75 | C | 0.72 | C | 0.70 | B | 0.76 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.66 | B | 0.53 | A | 0.68 | B | 0.52 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.58 | A | 0.55 | A | 0.58 | A | 0.57 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | 0.87 | D | 0.78 | C | 0.88 | D | 0.79 | C |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | 0.99 | E | 0.65 | B | 0.98 | E | 0.65 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.37 | A | 0.41 | A | 0.36 | A | 0.41 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.19 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.28 | A | 0.31 | A | 0.26 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | 0.58 | A | 0.82 | D | 0.59 | A | 0.82 | D |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.66 | B | 0.44 | A | 0.65 | B | 0.45 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.69 | B | 0.69 | B | 0.69 | B | 0.69 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.61 | B | 0.77 | C | 0.61 | B | 0.77 | C |
| 333 | Pacifica at Gateway | Irv | | | Yes | 0.77 | C | 0.77 | C | 0.77 | C | 0.79 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.49 | A | 0.36 | A | 0.49 | A | 0.36 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | 0.69 | B | 0.58 | A | 0.66 | B | 0.58 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | Yes | **1.03** | **F** | 0.98 | E | **1.03** | **F** | 0.95 | E |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.70 | B | 0.61 | B | 0.81 | D | 0.64 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.70 | B | 0.56 | A | 0.71 | C | 0.55 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.59 | A | 0.77 | C | 0.60 | A | 0.74 | C |
| 343 | Alton Pw at Ada | Irv | | | | 0.49 | A | 0.73 | C | 0.52 | A | 0.74 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | 0.57 | A | 0.85 | D | 0.58 | A | 0.86 | D |

## Table 9-10 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | Yes | 0.89 | D | 0.53 | A | 0.87 | D | 0.53 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.71 | C | 0.80 | C | 0.70 | B | 0.81 | D |
| 348 | Alton Pw at ICD | Irv | **P** | | Yes | 0.77 | C | 0.83 | D | 0.76 | C | 0.83 | D |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.63 | B | 0.58 | A | 0.63 | B | 0.58 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.57 | A | 0.85 | D | 0.56 | A | 0.86 | D |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.51 | A | 0.53 | A | 0.51 | A | 0.53 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | Yes | 0.68 | B | 0.56 | A | 0.68 | B | 0.56 | A |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | Yes | 0.61 | B | 0.58 | A | 0.62 | B | 0.59 | A |
| 361 | Bake Pw at Portola Pw | LF | | | | 0.63 | B | 0.89 | D | 0.61 | B | 0.89 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | Yes | 0.83 | D | 0.88 | D | 0.82 | D | 0.90 | D |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.83 | D | 0.67 | B | 0.83 | D | 0.67 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | 0.87 | D | 0.70 | B | 0.85 | D | 0.69 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.74 | C | **0.93** | **E** | 0.72 | C | 0.89 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.79 | C | **0.98** | **E** | 0.75 | C | **1.02** | **F** |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.83 | D | 0.61 | B | 0.80 | C | 0.61 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | Yes | 0.81 | D | 0.90 | D | 0.81 | D | 0.91 | E |
| 371 | Bake Pw at Research Dr | Irv | | | | 0.53 | A | 0.83 | D | 0.54 | A | 0.84 | D |
| 372 | Bake Pw at ICD | Irv | | | | 0.57 | A | 0.57 | A | 0.56 | A | 0.56 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.34 | A | 0.45 | A | 0.34 | A | 0.43 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.63 | B | 0.90 | D | 0.62 | B | 0.88 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.56 | A | 0.53 | A | 0.54 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.83 | D | 0.90 | D | 0.84 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.61 | B | 0.58 | A | 0.65 | B | 0.60 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | 0.74 | C | **0.92** | **E** | 0.73 | C | **0.91** | **E** |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | 0.74 | C | 0.85 | D | 0.73 | C | 0.84 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | 0.82 | D | **0.93** | **E** | 0.82 | D | **0.92** | **E** |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | 0.71 | C | 0.75 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | | Yes | 0.66 | B | 0.81 | D | 0.64 | B | 0.81 | D |
| 385 | Lake Forest Dr at ICD | Irv | | | Yes | 0.54 | A | 0.76 | C | 0.54 | A | 0.75 | C |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.58 | A | 0.69 | B | 0.57 | A | 0.68 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | 0.50 | A | 0.64 | B | 0.51 | A | 0.64 | B |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | 0.40 | A | 0.73 | C | 0.40 | A | 0.73 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.58 | A | 0.72 | C | 0.57 | A | 0.71 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.80 | C | **0.95** | **E** | 0.81 | D | **0.95** | **E** |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | 0.67 | B | 0.81 | D | 0.66 | B | 0.78 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.78 | C | 0.87 | D | 0.78 | C | 0.87 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.61 | B | 0.75 | C | 0.61 | B | 0.73 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | Yes | 0.82 | D | 0.85 | D | 0.83 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | Yes | 0.74 | C | 0.96 | E | 0.74 | C | 0.96 | E |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | 0.68 | B | 0.84 | D | 0.68 | B | 0.83 | D |
| 398 | El Toro Rd at Moulton Pw | LW | | | Yes | 0.86 | D | 0.95 | E | 0.87 | D | 0.96 | E |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.69 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.65 | B | 0.61 | B | 0.66 | B | 0.61 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | Yes | 0.43 | A | 0.64 | B | 0.43 | A | 0.64 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.64 | B | 0.65 | B | 0.59 | A | 0.67 | B |

## Table 9-10 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.44 | A | 0.37 | A | 0.43 | A | 0.37 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | 0.81 | D | 0.74 | C | 0.81 | D | 0.75 | C |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.66 | B | 0.74 | C | 0.67 | B | 0.76 | C |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.58 | A | 0.70 | B | 0.55 | A | 0.70 | B |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.42 | A | 0.40 | A | 0.42 | A | 0.40 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.49 | A | 0.66 | B | 0.51 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.64 | B | 0.67 | B | 0.65 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.51 | A | 0.68 | B | 0.51 | A | 0.67 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.82 | D | **0.99** | **E** | 0.82 | D | **1.01** | **F** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.79 | C | 0.78 | C | 0.77 | C | 0.78 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.57 | A | 0.63 | B | 0.59 | A | 0.63 | B |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | 0.77 | C | 0.79 | C | 0.76 | C | 0.78 | C |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | 0.78 | C | 0.71 | C | 0.77 | C | 0.71 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | 0.89 | D | 0.89 | D | 0.89 | D | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | **0.99** | **E** | **1.06** | **F** | **0.98** | **E** | **1.05** | **F** |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | **0.93** | **E** | **0.92** | **E** | **0.92** | **E** | **0.92** | **E** |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | 0.61 | B | 0.71 | C | 0.62 | B | 0.70 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | 0.59 | A | 0.73 | C | 0.59 | A | 0.73 | C |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | 0.72 | C | 0.71 | C | 0.72 | C | 0.72 | C |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | 0.74 | C | 0.77 | C | 0.73 | C | 0.77 | C |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | 0.82 | D | 0.82 | D | 0.82 | D | 0.82 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.74 | C | 0.73 | C | 0.73 | C | 0.74 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.78 | C | 0.77 | C | 0.78 | C | 0.77 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | 0.73 | C | 0.88 | D | 0.73 | C | 0.88 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | 0.44 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.69 | B | 0.76 | C | 0.69 | B | 0.76 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.68 | B | 0.76 | C | 0.68 | B | 0.75 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | 0.75 | C | 0.79 | C | 0.74 | C | 0.79 | C |
| 437 | Scientific Wy at ICD | Irv | | | | 0.34 | A | 0.42 | A | 0.34 | A | 0.41 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.19 | A |
| 444 | Sand Canyon Av at Burt Rd | Irv | | | | 0.80 | C | 0.80 | C | 0.83 | D | 0.82 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.52 | A | 0.53 | A | 0.58 | A | 0.57 | A |
| 463 | Jamboree Rd at Chapman Av | Ora | | | | 0.70 | B | 0.72 | C | 0.72 | C | 0.74 | C |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.64 | B | 0.61 | B | 0.62 | B | 0.61 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.60 | A | 0.67 | B | 0.63 | B | 0.65 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | 0.56 | A | 0.61 | B | 0.60 | A | 0.62 | B |
| 468 | Jamboree Rd at Canyon View | Ora | | | | 0.61 | B | 0.38 | A | 0.59 | A | 0.39 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.44 | A | 0.48 | A | 0.44 | A | 0.49 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.45 | A | 0.42 | A | 0.45 | A | 0.42 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.40 | A | 0.33 | A | 0.42 | A | 0.36 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.37 | A | 0.35 | A | 0.39 | A | 0.36 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.65 | B | 0.53 | A | 0.64 | B | 0.52 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | 0.74 | C | 0.60 | A | 0.72 | C | 0.59 | A |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | 0.55 | A | 0.57 | A | 0.56 | A | 0.57 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | 0.52 | A | 0.65 | B | 0.55 | A | 0.66 | B |

## Table 9-10 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.69 | B | 0.77 | C | 0.69 | B | 0.75 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.66 | B | 0.86 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | **0.92** | **E** | **1.17** | **F** | **0.92** | **E** | **1.18** | **F** |
| 517 | Portola Pw at Rancho Pw | LF | | | | 0.62 | B | 0.70 | B | 0.62 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | 0.63 | B | 0.76 | C | 0.62 | B | 0.77 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | 0.70 | B | 0.74 | C | 0.69 | B | 0.73 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.52 | A | 0.53 | A | 0.53 | A | 0.52 | A |
| 557 | O St at C St | Irv | | | | 0.39 | A | 0.36 | A | 0.37 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | 0.65 | B | 0.75 | C | 0.70 | B | 0.75 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.73 | C | 0.69 | B | 0.78 | C | 0.67 | B |
| 560 | O St at Marine Wy | Irv | | | | 0.45 | A | 0.61 | B | 0.52 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | 0.40 | A | 0.46 | A | 0.49 | A | 0.44 | A |
| 563 | B St. at Irvine Bl | Irv | | | | 0.69 | B | 0.71 | C | 0.59 | A | 0.66 | B |
| 564 | C St. at Marine Wy | Irv | | | | 0.47 | A | 0.59 | A | 0.65 | B | 0.64 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | 0.67 | B | 0.63 | B | 0.64 | B | 0.61 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.63 | B | 0.63 | B | 0.67 | B | 0.60 | A |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | 0.69 | B | 0.54 | A | 0.43 | A | 0.39 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | 0.68 | B | 0.65 | B | 0.78 | C | 0.71 | C |
| 571 | Portola Springs at Porto | Irv | | | | 0.56 | A | 0.48 | A | 0.56 | A | 0.48 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.67 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 603 | O St at LN St | Irv | | | | 0.40 | A | 0.33 | A | 0.37 | A | 0.31 | A |
| 605 | O St at LQ St | Irv | | | | 0.56 | A | 0.54 | A | 0.54 | A | 0.49 | A |
| 608 | O St at LV St | Irv | | | | 0.35 | A | 0.32 | A | 0.36 | A | 0.32 | A |
| 626 | LY St at LQ St | Irv | | | | 0.39 | A | 0.38 | A | 0.44 | A | 0.42 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.54 | A | 0.59 | A | 0.53 | A | 0.59 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.11 | A | 0.14 | A | 0.12 | A | 0.18 | A |
| 633 | Sterling at Rockfield Bl | Irv | | | | 0.28 | A | 0.36 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.34 | A | 0.42 | A | 0.35 | A | 0.41 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.26 | A | 0.36 | A | 0.26 | A | 0.37 | A |
| 782 | A St at LQ St | Irv | | | | 0.31 | A | 0.29 | A | 0.32 | A | 0.33 | A |
| 787 | Z St at LQ St | Irv | | | | 0.31 | A | 0.28 | A | 0.27 | A | 0.27 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.72 | C | 0.70 | B | 0.71 | C | 0.70 | B |
| 798 | B St. at LQ St | Irv | | | | 0.49 | A | 0.38 | A | 0.35 | A | 0.38 | A |
| 799 | "B" St. at Marine Wy. | Irv | | | | 0.49 | A | 0.56 | A | 0.73 | C | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.81 | D | 0.74 | C | 0.69 | B | 0.69 | B |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.72 | C | 0.78 | C | 0.73 | C | 0.81 | D |
| 821 | Alton Pw. at Fairbanks | Irv | | | | 0.54 | A | 0.56 | A | 0.67 | B | 0.72 | C |
| 822 | "F" St. at Irvine Bl. | Irv | | | | Not Applicable | | | | 0.70 | B | 0.72 | C |
| 831 | "G" St. at Marine Wy. | Irv | | | | Not Applicable | | | | 0.53 | A | 0.58 | A |
| 832 | Fairbanks at Astor | Irv | | | | 0.14 | A | 0.15 | A | 0.48 | A | 0.51 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 9-11

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 397 | 0.26 | A | 1,090 | 0.73 | C | 440 | 0.29 | A | 1,140 | 0.76 | C |
| | SB Loop On | 1 | 1,080 | 519 | 0.48 | A | 450 | 0.42 | A | 522 | 0.48 | A | 460 | 0.43 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 700 | 0.65 | B | 670 | 0.62 | B | 700 | 0.65 | B |
| | SB Off | 1 | 1,500 | 1,429 | 0.95 | E | 1,438 | 0.96 | E | 1,428 | 0.95 | E | 1,468 | 0.98 | E |
| | NB Off | 1 | 1,500 | 1,562 | **1.04** | **F** | 1,270 | 0.85 | D | 1,633 | **1.09** | **F** | 1,301 | 0.87 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 330 | 0.37 | A | 240 | 0.27 | A | 340 | 0.38 | A | 220 | 0.24 | A |
| | NB Direct On | 1 | 900 | 726 | 0.81 | D | 179 | 0.20 | A | 729 | 0.81 | D | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,100 | 0.73 | C | 590 | 0.39 | A | 1,090 | 0.73 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 959 | 0.43 | A | 2,163 | 0.96 | E | 939 | 0.42 | A | 2,187 | 0.97 | E |
| | NB Off | 1 | 1,500 | 332 | 0.22 | A | 444 | 0.30 | A | 324 | 0.22 | A | 455 | 0.30 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,229 | **1.14** | **F** | 780 | 0.72 | C | 1,185 | **1.10** | **F** | 791 | 0.73 | C |
| | NB Direct On | 1 | 1,080 | 700 | 0.65 | B | 220 | 0.20 | A | 740 | 0.69 | B | 220 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 609 | 0.41 | A | 980 | 0.65 | B | 609 | 0.41 | A | 998 | 0.67 | B |
| | NB Off | 2 | 2,250 | 938 | 0.42 | A | 1,457 | 0.65 | B | 928 | 0.41 | A | 1,445 | 0.64 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 691 | 0.46 | A | 740 | 0.49 | A | 700 | 0.47 | A | 740 | 0.49 | A |
| | NB On | 1 | 1,500 | 761 | 0.51 | A | 1,490 | 0.99 | E | 959 | 0.64 | B | 1,490 | 0.99 | E |
| | SB Off | 1 | 1,500 | 1,794 | **1.20** | **F** | 849 | 0.57 | A | 1,727 | **1.15** | **F** | 931 | 0.62 | B |
| | NB Off | 2 | 2,250 | 701 | 0.31 | A | 711 | 0.32 | A | 692 | 0.31 | A | 710 | 0.32 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 20 | 0.01 | A | 210 | 0.14 | A | 20 | 0.01 | A | 200 | 0.13 | A |
| | SB Off | 1 | 1,500 | 289 | 0.19 | A | 101 | 0.07 | A | 268 | 0.18 | A | 111 | 0.07 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 380 | 0.25 | A | 670 | 0.45 | A | 450 | 0.30 | A | 690 | 0.46 | A |
| | NB Direct On | 2 | 1,800 | 260 | 0.14 | A | 1,170 | 0.65 | B | 311 | 0.17 | A | 1,160 | 0.64 | B |
| | NB Loop On | 1 | 1,500 | 576 | 0.38 | A | 151 | 0.10 | A | 563 | 0.38 | A | 153 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,221 | 0.99 | E | 1,050 | 0.47 | A | 2,199 | 0.98 | E | 1,070 | 0.48 | A |
| | NB Off | 2 | 2,250 | 1,160 | 0.52 | A | 320 | 0.14 | A | 1,161 | 0.52 | A | 320 | 0.14 | A |

## Table 9-11 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 113 | 0.08 | A | 135 | 0.09 | A | 122 | 0.08 | A | 128 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 352 | 0.33 | A | 848 | 0.79 | C | 380 | 0.35 | A | 815 | 0.75 | C |
| | NB Direct On | 2 | 3,400 | 1,894 | 0.56 | A | 1,644 | 0.48 | A | 1,916 | 0.56 | A | 1,628 | 0.48 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,994 | 1.00 | E | 2,438 | 0.81 | D | 3,013 | 1.00 | E | 2,439 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,424 | 0.47 | A | 598 | 0.20 | A | 1,302 | 0.43 | A | 569 | 0.19 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 329 | 0.22 | A | 868 | 0.58 | A | 329 | 0.22 | A | 853 | 0.57 | A |
| | SB Loop On | 1 | 1,080 | 405 | 0.38 | A | 654 | 0.61 | B | 405 | 0.38 | A | 643 | 0.60 | A |
| | NB On | 2 | 1,800 | 1,314 | 0.73 | C | 1,050 | 0.58 | A | 1,352 | 0.75 | C | 1,059 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,326 | 0.78 | C | 1,761 | 0.59 | A | 2,327 | 0.78 | C |
| | NB Off | 1 | 1,500 | 1,502 | 1.00 | E | 729 | 0.49 | A | 1,498 | 1.00 | E | 727 | 0.48 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 140 | 0.13 | A | 140 | 0.13 | A | 163 | 0.15 | A | 137 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 449 | 0.30 | A | 519 | 0.35 | A | 442 | 0.29 | A | 511 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,482 | 0.99 | E | 1,102 | 0.73 | C | 1,500 | 1.00 | E | 1,105 | 0.74 | C |
| | NB Loop On | 1 | 1,500 | 1,307 | 0.87 | D | 940 | 0.63 | B | 1,289 | 0.86 | D | 1,270 | 0.85 | D |
| | SB Off | 1 | 2,250 | 2,794 | **1.24** | **F** | 2,800 | **1.24** | **F** | 2,814 | **1.25** | **F** | 2,809 | **1.25** | **F** |
| | NB Off | 1 | 1,500 | 1,272 | 0.85 | D | 1,308 | 0.87 | D | 1,325 | 0.88 | D | 1,210 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 202 | 0.19 | A | 151 | 0.14 | A | 203 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 800 | 0.53 | A | 749 | 0.50 | A | 803 | 0.54 | A | 750 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,336 | 0.89 | D | 890 | 0.59 | A | 1,316 | 0.88 | D | 900 | 0.60 | A |
| | NB Loop On | 1 | 1,500 | 1,397 | 0.93 | E | 880 | 0.59 | A | 1,397 | 0.93 | E | 880 | 0.59 | A |
| | SB Off | 1 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,097 | 0.70 | B | 2,199 | 0.73 | C |
| | NB Off | 1 | 1,500 | 311 | 0.21 | A | 1,071 | 0.71 | C | 310 | 0.21 | A | 1,081 | 0.72 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 240 | 0.16 | A | 570 | 0.38 | A | 230 | 0.15 | A | 621 | 0.41 | A |
| | SB Loop On | 1 | 900 | 250 | 0.28 | A | 340 | 0.38 | A | 250 | 0.28 | A | 331 | 0.37 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 680 | 0.45 | A | 930 | 0.62 | B | 680 | 0.45 | A |
| | NB Loop On | 1 | 1,500 | 670 | 0.45 | A | 480 | 0.32 | A | 680 | 0.45 | A | 490 | 0.33 | A |
| | SB Off | 2 | 3,000 | 942 | 0.31 | A | 1,492 | 0.50 | A | 941 | 0.31 | A | 1,510 | 0.50 | A |
| | NB Off | 1 | 1,500 | 1,381 | 0.92 | E | 1,289 | 0.86 | D | 1,410 | 0.94 | E | 1,289 | 0.86 | D |

## Table 9-11 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,030 | 0.69 | B | 1,202 | 0.80 | C | 1,050 | 0.70 | B | 1,190 | 0.79 | C |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 290 | 0.32 | A | 380 | 0.42 | A | 300 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,342 | 0.89 | D | 650 | 0.43 | A | 1,360 | 0.91 | E | 640 | 0.43 | A |
| | NB Loop On | 1 | 900 | 371 | 0.41 | A | 110 | 0.12 | A | 350 | 0.39 | A | 110 | 0.12 | A |
| | SB Off | 1 | 1,500 | 654 | 0.44 | A | 812 | 0.54 | A | 645 | 0.43 | A | 815 | 0.54 | A |
| | NB Off | 1 | 2,250 | 1,247 | 0.55 | A | 1,873 | 0.83 | D | 1,269 | 0.56 | A | 1,864 | 0.83 | D |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 525 | 0.35 | A | 360 | 0.24 | A | 510 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,223 | 0.82 | D | 1,350 | 0.90 | D | 1,270 | 0.85 | D | 1,333 | 0.89 | D |
| | NB Loop On | 1 | 1,500 | 621 | 0.41 | A | 360 | 0.24 | A | 630 | 0.42 | A | 381 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,847 | **1.23** | **F** | 1,024 | 0.68 | B | 1,822 | **1.21** | **F** | 1,051 | 0.70 | B |
| | NB Off | 1 | 1,500 | 627 | 0.42 | A | 497 | 0.33 | A | 609 | 0.41 | A | 528 | 0.35 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 250 | 0.28 | A | 370 | 0.41 | A | 250 | 0.28 | A | 360 | 0.40 | A |
| | NB Direct On | 1 | 1,500 | 281 | 0.19 | A | 582 | 0.39 | A | 296 | 0.20 | A | 572 | 0.38 | A |
| | NB Loop On | 1 | 1,500 | 247 | 0.16 | A | 1,273 | 0.85 | D | 258 | 0.17 | A | 1,273 | 0.85 | D |
| | SB Off | 1 | 2,250 | 2,117 | 0.94 | E | 1,482 | 0.66 | B | 2,033 | 0.90 | D | 1,510 | 0.67 | B |
| | NB Off | 1 | 3,000 | 1,261 | 0.42 | A | 501 | 0.17 | A | 1,259 | 0.42 | A | 501 | 0.17 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 820 | 0.21 | A | 2,443 | 0.61 | B | 781 | 0.20 | A | 2,438 | 0.61 | B |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,077 | 0.77 | C | 1,363 | 0.34 | A | 3,119 | 0.78 | C | 1,336 | 0.33 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,916 | 0.48 | A | 2,915 | 0.73 | C | 2,088 | 0.52 | A | 2,874 | 0.72 | C |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,399 | 0.85 | D | 1,974 | 0.49 | A | 3,355 | 0.84 | D | 2,040 | 0.51 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 292 | 0.19 | A | 280 | 0.19 | A | 303 | 0.20 | A | 280 | 0.19 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 270 | 0.18 | A | 300 | 0.20 | A | 260 | 0.17 | A |
| | NB Loop On | 1 | 1,500 | 140 | 0.09 | A | 200 | 0.13 | A | 120 | 0.08 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 439 | 0.20 | A | 299 | 0.13 | A | 440 | 0.20 | A | 318 | 0.14 | A |
| | NB Off | 1 | 1,500 | 181 | 0.12 | A | 469 | 0.31 | A | 150 | 0.10 | A | 502 | 0.33 | A |

## Table 9-11 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 742 | 0.49 | A | 680 | 0.45 | A | 790 | 0.53 | A | 660 | 0.44 | A |
| | NB On | 1 | 1,500 | 170 | 0.11 | A | 490 | 0.33 | A | 180 | 0.12 | A | 490 | 0.33 | A |
| | SB Off | 1 | 1,500 | 620 | 0.41 | A | 380 | 0.25 | A | 610 | 0.41 | A | 370 | 0.25 | A |
| | NB Off | 1 | 1,500 | 827 | 0.55 | A | 943 | 0.63 | B | 816 | 0.54 | A | 960 | 0.64 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,196 | 0.60 | A | 1,547 | 0.77 | C | 1,191 | 0.60 | A | 1,561 | 0.78 | C |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,684 | 0.84 | D | 1,230 | 0.62 | B | 1,672 | 0.84 | D | 1,231 | 0.62 | B |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,452 | 0.73 | C | 706 | 0.35 | A | 1,494 | 0.75 | C | 698 | 0.35 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 784 | 0.39 | A | 1,459 | 0.73 | C | 759 | 0.38 | A | 1,487 | 0.74 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,036 | 0.51 | A | 1,735 | 0.43 | A | 2,064 | 0.52 | A | 1,782 | 0.45 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,223 | 0.56 | A | 2,106 | 0.53 | A | 2,214 | 0.55 | A | 2,155 | 0.54 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 160 | 0.15 | A | 1,191 | **1.10** | **F** | 161 | 0.15 | A | 1,190 | **1.10** | **F** |
| | NB Direct On | 1 | 1,080 | 259 | 0.24 | A | 631 | 0.58 | A | 242 | 0.22 | A | 627 | 0.58 | A |
| | NB Loop On | 1 | 1,080 | 501 | 0.46 | A | 1,509 | **1.40** | **F** | 530 | 0.49 | A | 1,511 | **1.40** | **F** |
| | SB Off | 2 | 3,000 | 2,080 | 0.69 | B | 590 | 0.20 | A | 2,080 | 0.69 | B | 601 | 0.20 | A |
| | NB Off | 2 | 2,250 | 1,539 | 0.68 | B | 530 | 0.24 | A | 1,520 | 0.68 | B | 570 | 0.25 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 1,073 | 0.54 | A | 947 | 0.47 | A | 1,039 | 0.52 | A | 966 | 0.48 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 59 | 0.03 | A | 76 | 0.04 | A | 55 | 0.03 | A | 81 | 0.04 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 793 | 0.20 | A | 598 | 0.15 | A | 882 | 0.22 | A | 594 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,255 | 0.31 | A | 930 | 0.23 | A | 1,272 | 0.32 | A | 930 | 0.23 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,694 | 0.85 | D | 1,595 | 0.80 | C | 1,658 | 0.83 | D | 1,670 | 0.84 | D |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 560 | 0.28 | A | 621 | 0.31 | A | 548 | 0.27 | A | 640 | 0.32 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 315 | 0.16 | A | 369 | 0.18 | A | 312 | 0.16 | A | 205 | 0.10 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 962 | 0.53 | A | 311 | 0.17 | A | 972 | 0.54 | A | 400 | 0.22 | A |
| | NB On | 1 | 1,500 | 479 | 0.32 | A | 420 | 0.28 | A | 468 | 0.31 | A | 350 | 0.23 | A |
| | SB Off | 1 | 1,500 | 826 | 0.55 | A | 491 | 0.33 | A | 666 | 0.44 | A | 471 | 0.31 | A |
| | NB Off | 1 | 1,500 | 732 | 0.49 | A | 984 | 0.66 | B | 868 | 0.58 | A | 987 | 0.66 | B |

## Table 9-11 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 359 | 0.24 | A | 410 | 0.27 | A | 339 | 0.23 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 20 | 0.01 | A | 30 | 0.02 | A | 20 | 0.01 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 30 | 0.02 | A | 61 | 0.04 | A | 30 | 0.02 | A | 70 | 0.05 | A |
| | NB Off | 1 | 1,500 | 664 | 0.44 | A | 385 | 0.26 | A | 664 | 0.44 | A | 374 | 0.25 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 430 | 0.15 | A | 1,151 | 0.53 | A | 449 | 0.30 | A | 1,111 | 0.74 | C |
| | NB On | 1 | 1,500 | 431 | 0.35 | A | 620 | 0.21 | A | 431 | 0.29 | A | 622 | 0.41 | A |
| | SB Off | 1 | 1,500 | 731 | 0.19 | A | 449 | 0.24 | A | 684 | 0.46 | A | 453 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,087 | 0.68 | B | 630 | 0.21 | A | 1,015 | 0.45 | A | 635 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 215 | 0.10 | A | 863 | 0.28 | A | 209 | 0.09 | A | 827 | 0.37 | A |
| | SB Off | 1 | 1,500 | 818 | 0.52 | A | 426 | 0.22 | A | 789 | 0.53 | A | 430 | 0.29 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 329 | 0.22 | A | 1,432 | 0.95 | E | 332 | 0.22 | A | 1,425 | 0.95 | E |
| | NB On | 2 | 2,250 | 817 | 0.36 | A | 431 | 0.19 | A | 802 | 0.36 | A | 425 | 0.19 | A |
| | SB Off | 1 | 1,500 | 531 | 0.35 | A | 615 | 0.41 | A | 522 | 0.35 | A | 600 | 0.40 | A |
| | NB Off | 2 | 2,250 | 2,185 | 0.97 | E | 575 | 0.26 | A | 2,172 | 0.97 | E | 582 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 1,010 | 0.67 | B | 300 | 0.20 | A | 1,012 | 0.67 | B | 290 | 0.19 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 787 | 0.52 | A | 110 | 0.07 | A | 786 | 0.52 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 160 | 0.11 | A | 100 | 0.07 | A | 160 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 480 | 0.32 | A | 250 | 0.17 | A | 491 | 0.33 | A | 230 | 0.15 | A |
| | SB Off | 1 | 1,500 | 120 | 0.08 | A | 292 | 0.19 | A | 100 | 0.07 | A | 292 | 0.19 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 860 | 0.57 | A | 321 | 0.21 | A | 860 | 0.57 | A | 320 | 0.21 | A |
| | NB On | 1 | 1,500 | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 150 | 0.10 | A | 120 | 0.08 | A | 131 | 0.09 | A | 121 | 0.08 | A |
| | NB Off | 1 | 1,500 | 233 | 0.16 | A | 233 | 0.16 | A | 223 | 0.15 | A | 223 | 0.15 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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9.1.12 Year 2030 Peak Hour Freeway/Tollway Mainline Levels of Service, with Option 1, with Pending Projects

Year 2030 with Option 1, with Pending Projects AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-12. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, there is one directional mainline fair share impacts based on Year 2030 conditions with Option 1, with Pending Projects:

- I-5 Northbound, n/o Culver

9.1.13 Year 2030 Circulation System and Average Daily Traffic Volumes, with Option 2, with Pending Projects

Year 2030 with Option 2, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-11 and 9-12, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following arterial roadway segments are potentially impacted by Option 2 with Pending Projects:

- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Irvine Bl (b/w A St and Z St)
- Irvine Bl (e/o Z St.)
- Jeffrey Rd (b/w Roosevelt and I-5 NB Ramps)
- Lake Forest Dr (s/o Rancho Pkwy)
- Trabuco Rd (e/o Culver Dr)
- Alton Pkwy (e/o Culver Dr)
- Trabuco Rd (w/o “O” St)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Year 2030 with Option 2, with Pending Projects conditions

## Table 9-12

## Pending Year 2030 Freeway Mainline LOS Summary, Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,817 | **1.36** | **F** | 12,366 | **1.07** | **F** | 16,099 | **1.39** | **F** | 12,371 | **1.07** | **F** |
| | | SB | 5+1H | 11,600 | 9,974 | 0.86 | D | 10,685 | 0.92 | E | 9,850 | 0.85 | D | 10,861 | 0.94 | E |
| | n/o Red Hill | NB | 5+1H | 11,600 | 15,092 | **1.30** | **F** | 11,765 | **1.01** | **F** | 15,372 | **1.33** | **F** | 11,736 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 11,997 | **1.03** | **F** | 12,793 | **1.10** | **F** | 11,871 | **1.02** | **F** | 13,010 | **1.12** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,746 | **1.36** | **F** | 12,333 | **1.06** | **F** | 16,056 | **1.38** | **F** | 12,317 | **1.06** | **F** |
| | | SB | 5+1H | 11,600 | 12,661 | **1.09** | **F** | 13,410 | **1.16** | **F** | 12,523 | **1.08** | **F** | 13,655 | **1.18** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 15,258 | **1.32** | **F** | 12,006 | **1.04** | **F** | 15,585 | **1.34** | **F** | 11,998 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,333 | **1.06** | **F** | 12,926 | **1.11** | **F** | 12,194 | **1.05** | **F** | 13,168 | **1.14** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 15,365 | **1.32** | **F** | 11,878 | **1.02** | **F** | 15,768 | **1.36** | **F** | 11,896 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 11,897 | **1.03** | **F** | 12,854 | **1.11** | **F** | 11,826 | **1.02** | **F** | 13,128 | **1.13** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 13,425 | **1.16** | **F** | 11,068 | 0.95 | E | 13,817 | **1.19** | **F** | 11,083 | 0.96 | E |
| | | SB | 5+1H | 11,600 | 11,494 | 0.99 | E | 11,503 | 0.99 | E | 11,457 | 0.99 | E | 11,731 | **1.01** | **F** |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 13,327 | **1.15** | **F** | 11,250 | 0.97 | E | 13,677 | **1.18** | **F** | 11,255 | 0.97 | E |
| | | SB | 5+1H | 11,600 | 12,080 | **1.04** | **F** | 11,810 | **1.02** | **F** | 11,980 | **1.03** | **F** | 12,038 | **1.04** | **F** |
| | n/o Alton | NB | 4+1H | 9,600 | 10,701 | **1.11** | **F** | 8,814 | 0.92 | E | 10,809 | **1.13** | **F** | 8,795 | 0.92 | E |
| | | SB | 4+1H | 9,600 | 9,332 | 0.97 | E | 9,576 | 1.00 | E | 9,310 | 0.97 | E | 9,632 | 1.00 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 11,198 | **1.17** | **F** | 7,808 | 0.81 | D | 11,255 | **1.17** | **F** | 7,808 | 0.81 | D |
| | | SB | 4+1H | 9,600 | 7,746 | 0.81 | D | 9,895 | **1.03** | **F** | 7,745 | 0.81 | D | 9,935 | **1.03** | **F** |
| | n/o Bake | NB | 9+2H | 21,500 | 22,459 | **1.04** | **F** | 14,480 | 0.67 | B | 22,615 | **1.05** | **F** | 14,500 | 0.67 | B |
| | | SB | 9+2H | 21,500 | 11,923 | 0.55 | A | 16,900 | 0.79 | C | 11,954 | 0.56 | A | 16,983 | 0.79 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 21,818 | **1.12** | **F** | 12,913 | 0.66 | B | 21,824 | **1.12** | **F** | 12,934 | 0.66 | B |
| | | SB | 8+2H | 19,500 | 12,225 | 0.63 | B | 17,531 | 0.90 | D | 12,298 | 0.63 | B | 17,576 | 0.90 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,840 | **1.54** | **F** | 12,074 | 0.89 | D | 20,802 | **1.54** | **F** | 12,083 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,092 | 0.75 | C | 16,074 | **1.19** | **F** | 10,167 | 0.75 | C | 16,073 | **1.19** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 17,663 | **1.84** | **F** | 10,188 | **1.06** | **F** | 17,580 | **1.83** | **F** | 10,195 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,768 | 0.81 | D | 13,144 | **1.37** | **F** | 7,837 | 0.82 | D | 13,128 | **1.37** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,555 | **1.41** | **F** | 7,629 | 0.79 | C | 13,491 | **1.41** | **F** | 7,631 | 0.79 | C |
| | | SB | 4+1H | 9,600 | 6,416 | 0.67 | B | 10,753 | **1.12** | **F** | 6,495 | 0.68 | B | 10,728 | **1.12** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,880 | **1.34** | **F** | 9,132 | 0.95 | E | 13,147 | **1.37** | **F** | 9,140 | 0.95 | E |
| | | SB | 4+1H | 9,600 | 9,177 | 0.96 | E | 10,636 | **1.11** | **F** | 9,123 | 0.95 | E | 10,856 | **1.13** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,975 | **1.35** | **F** | 9,478 | 0.99 | E | 13,279 | **1.38** | **F** | 9,486 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 9,380 | 0.98 | E | 10,570 | **1.10** | **F** | 9,357 | 0.97 | E | 10,776 | **1.12** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,695 | **1.32** | **F** | 8,501 | 0.89 | D | 12,926 | **1.35** | **F** | 8,528 | 0.89 | D |
| | | SB | 4+1H | 9,600 | 8,264 | 0.86 | D | 9,989 | **1.04** | **F** | 8,251 | 0.86 | D | 10,148 | **1.06** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,963 | **1.14** | **F** | 7,342 | 0.76 | C | 11,084 | **1.15** | **F** | 7,357 | 0.77 | C |
| | | SB | 4+1H | 9,600 | 7,142 | 0.74 | C | 8,795 | 0.92 | E | 7,136 | 0.74 | C | 8,885 | 0.93 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,902 | 0.82 | D | 4,094 | 0.43 | A | 7,985 | 0.83 | D | 4,106 | 0.43 | A |
| | | SB | 4+1H | 9,600 | 6,162 | 0.64 | B | 8,549 | 0.89 | D | 6,242 | 0.65 | B | 8,603 | 0.90 | D |

## Table 9-12 Cont.

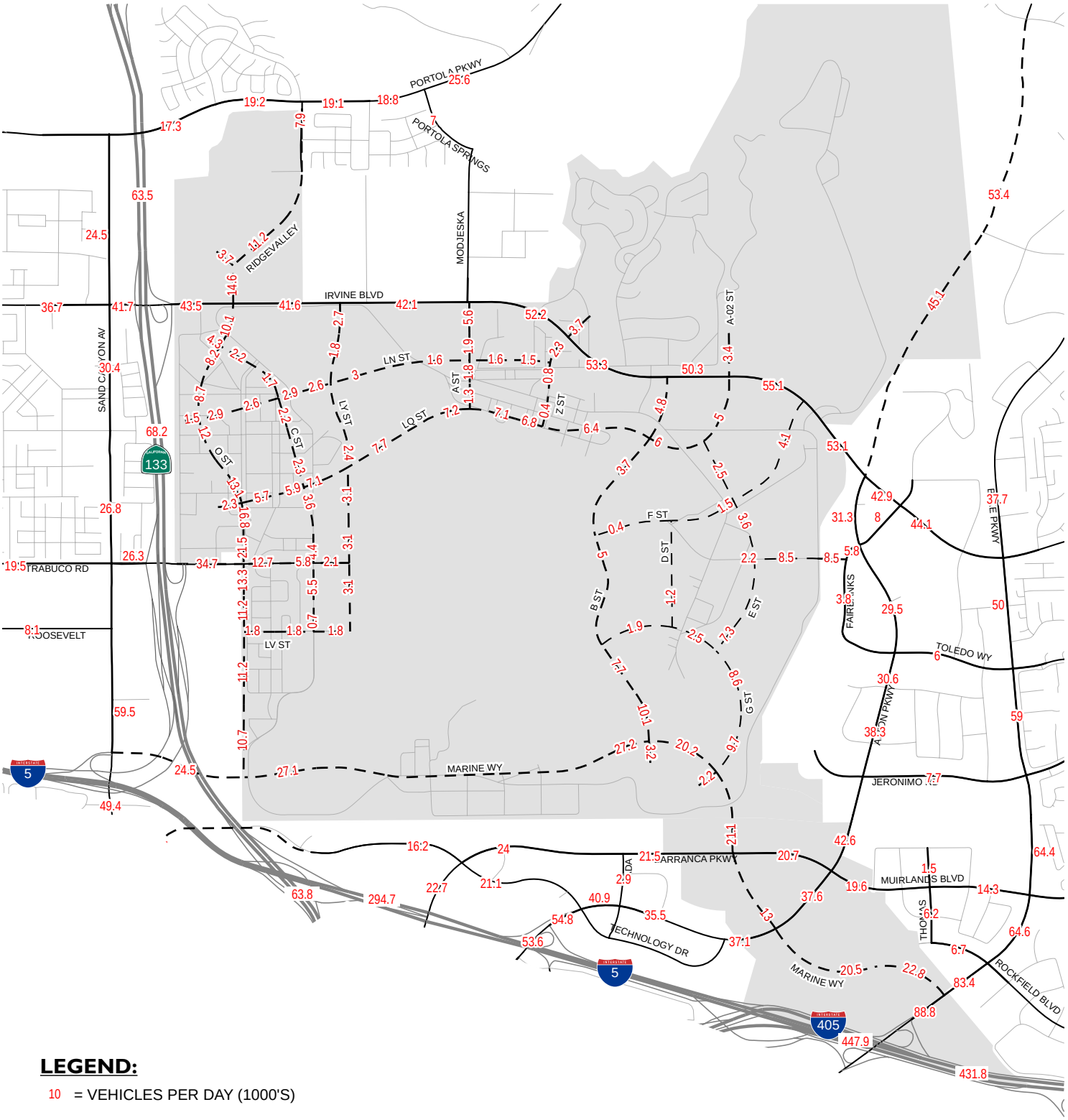
### Pending Year 2030 Freeway Mainline LOS Summary, Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,735 | 0.34 | A | 5,358 | 0.67 | B | 2,869 | 0.36 | A | 5,312 | 0.66 | B |
| | | SB | 4 | 8,000 | 6,476 | 0.81 | D | 3,337 | 0.42 | A | 6,473 | 0.81 | D | 3,377 | 0.42 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 2,443 | 0.41 | A | 5,049 | 0.84 | D | 2,444 | 0.41 | A | 5,055 | 0.84 | D |
| | | SB | 3 | 6,000 | 5,782 | 0.96 | E | 3,039 | 0.51 | A | 5,808 | 0.97 | E | 3,054 | 0.51 | A |
| | n/o I-5 | NB | 3 | 6,000 | 2,274 | 0.38 | A | 4,560 | 0.76 | C | 2,269 | 0.38 | A | 4,569 | 0.76 | C |
| | | SB | 3 | 6,000 | 3,723 | 0.62 | B | 1,956 | 0.33 | A | 3,732 | 0.62 | B | 1,984 | 0.33 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,338 | 0.56 | A | 4,600 | 0.77 | C | 3,344 | 0.56 | A | 4,635 | 0.77 | C |
| | | SB | 3 | 6,000 | 4,807 | 0.80 | C | 3,138 | 0.52 | A | 4,888 | 0.81 | D | 3,194 | 0.53 | A |
| | n/o I-405 | NB | 3 | 6,000 | 3,947 | 0.66 | B | 3,565 | 0.59 | A | 3,928 | 0.65 | B | 3,632 | 0.61 | B |
| | | SB | 3 | 6,000 | 3,320 | 0.55 | A | 3,179 | 0.53 | A | 3,403 | 0.57 | A | 3,222 | 0.54 | A |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 5,356 | 0.89 | D | 4,930 | 0.82 | D | 5,559 | 0.93 | E | 4,882 | 0.81 | D |
| | | SB | 3 | 6,000 | 5,743 | 0.96 | E | 4,820 | 0.80 | C | 5,656 | 0.94 | E | 4,930 | 0.82 | D |
| | n/o Portola (West) | NB | 4 | 8,000 | 6,518 | 0.81 | D | 3,377 | 0.42 | A | 6,590 | 0.82 | D | 3,344 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,164 | 0.40 | A | 5,288 | 0.66 | B | 3,083 | 0.39 | A | 5,327 | 0.67 | B |
| | n/o Alton | NB | 4 | 8,000 | 7,130 | 0.89 | D | 3,787 | 0.47 | A | 7,179 | 0.90 | D | 3,741 | 0.47 | A |
| | | SB | 4 | 8,000 | 3,727 | 0.47 | A | 5,829 | 0.73 | C | 3,629 | 0.45 | A | 5,850 | 0.73 | C |
| | n/o Lake Forest | NB | 4 | 8,000 | 7,564 | 0.95 | E | 3,402 | 0.43 | A | 7,542 | 0.94 | E | 3,358 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,119 | 0.39 | A | 6,077 | 0.76 | C | 3,088 | 0.39 | A | 6,054 | 0.76 | C |
| SR-261 | n/o Portola | NB | 3 | 6,000 | 1,306 | 0.22 | A | 3,010 | 0.50 | A | 1,348 | 0.22 | A | 3,017 | 0.50 | A |
| | | SB | 3 | 6,000 | 3,760 | 0.63 | B | 1,416 | 0.24 | A | 3,749 | 0.62 | B | 1,431 | 0.24 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 536 | 0.09 | A | 2,390 | 0.40 | A | 562 | 0.09 | A | 2,413 | 0.40 | A |
| | | SB | 3 | 6,000 | 3,121 | 0.52 | A | 825 | 0.14 | A | 3,135 | 0.52 | A | 836 | 0.14 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 790 | 0.13 | A | 3,109 | 0.52 | A | 809 | 0.13 | A | 3,152 | 0.53 | A |
| | | SB | 3 | 6,000 | 3,768 | 0.63 | B | 1,157 | 0.19 | A | 3,801 | 0.63 | B | 1,173 | 0.20 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 5,555 | 0.93 | E | 6,840 | **1.14** | **F** | 5,626 | 0.94 | E | 6,733 | **1.12** | **F** |
| | | SB | 3 | 6,000 | 8,518 | **1.42** | **F** | 5,150 | 0.86 | D | 8,254 | **1.38** | **F** | 5,181 | 0.86 | D |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_6.12.12.xlsx]9-12

# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT VOLUMES, PROJECT AREA



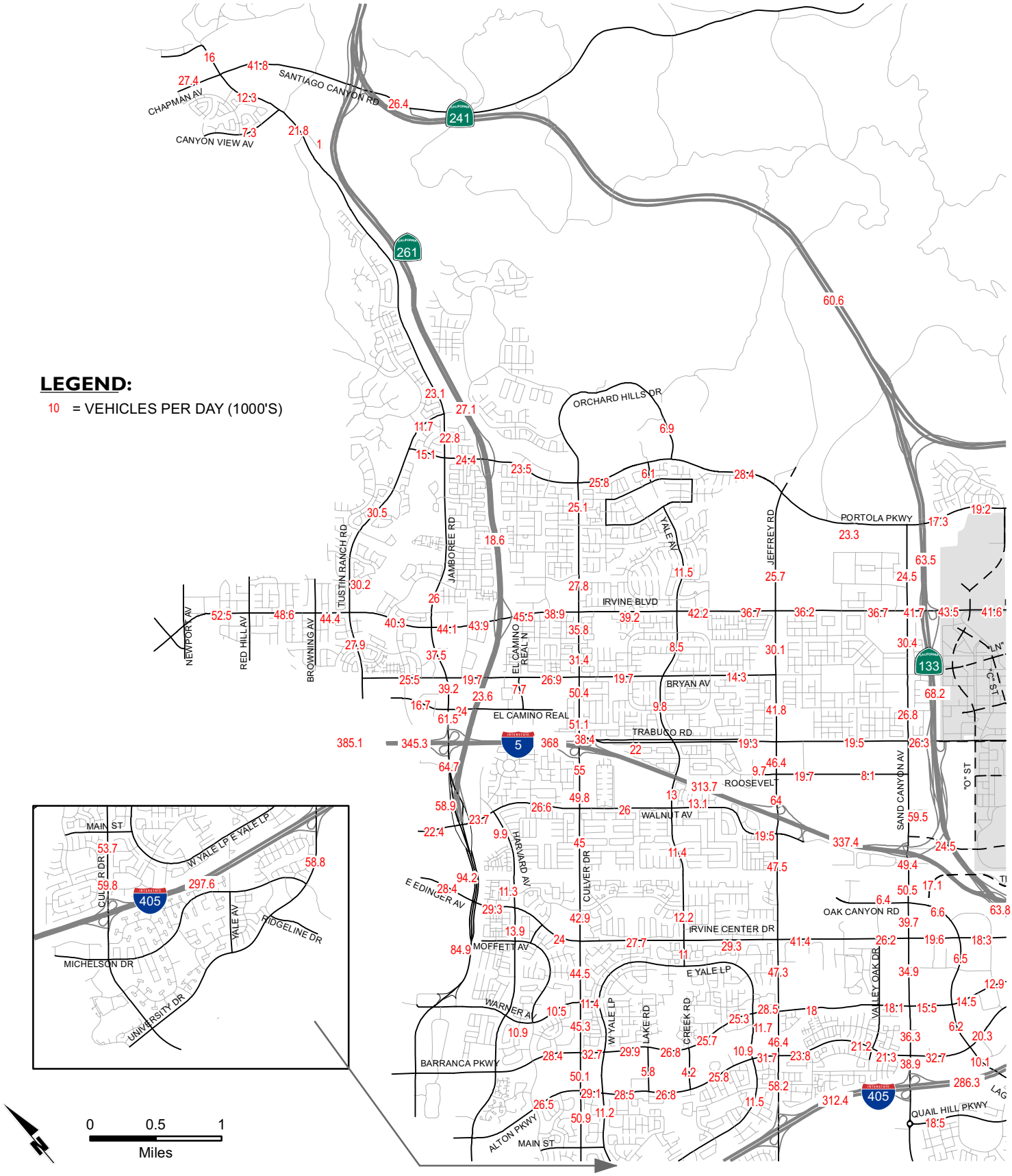

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT VOLUMES, WEST STUDY AREA



# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT VOLUMES, EAST STUDY AREA

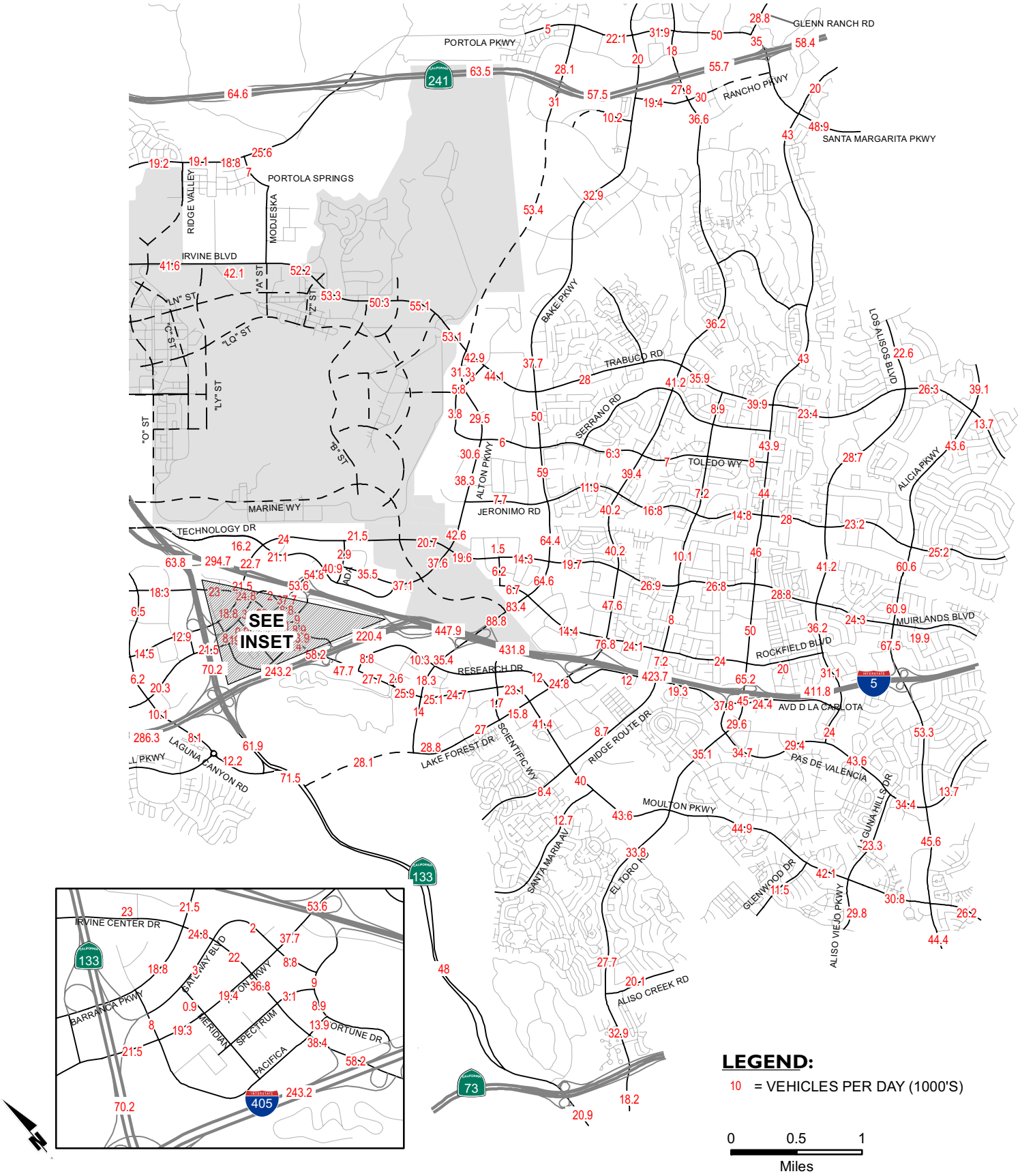
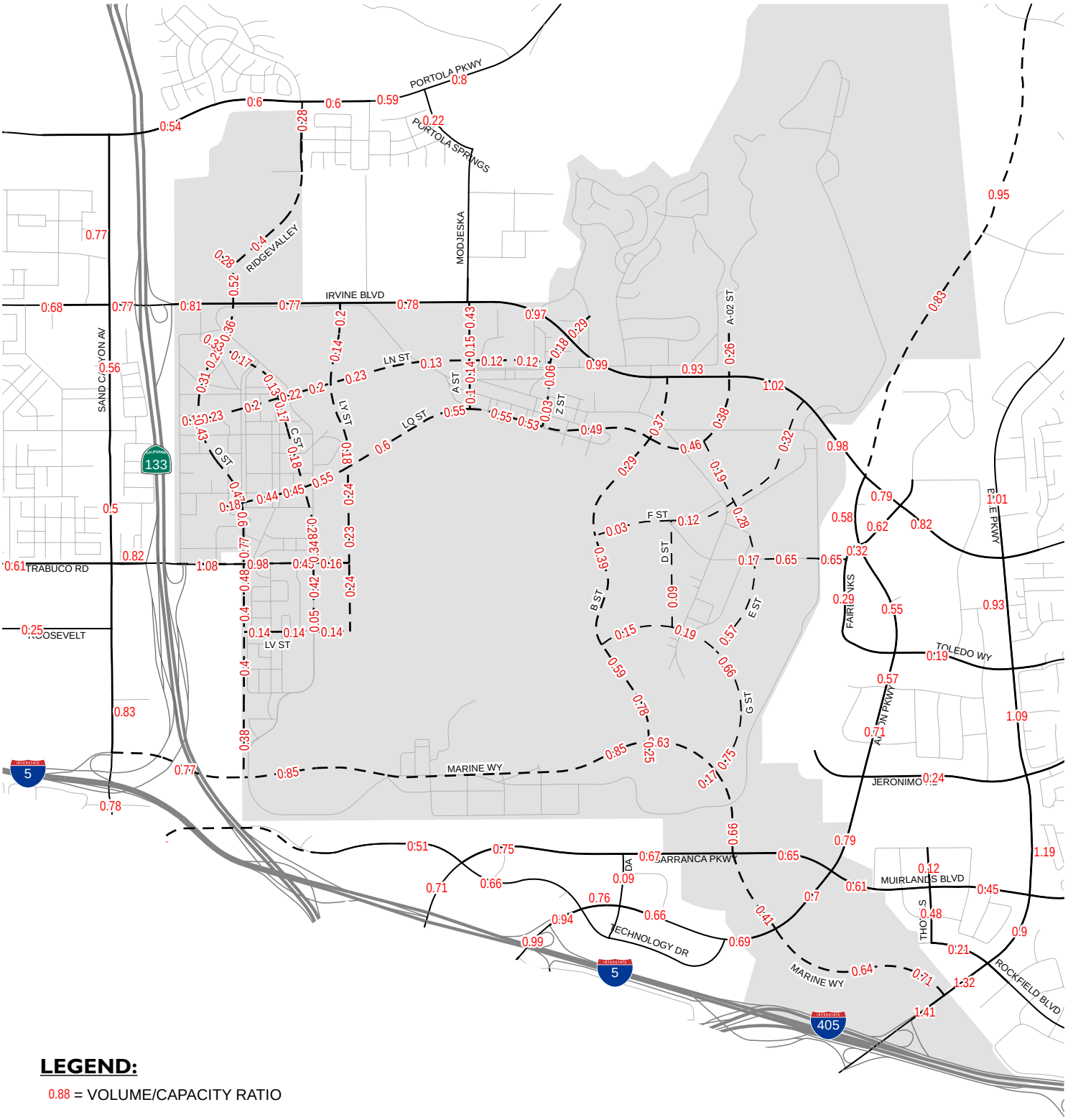


EXHIBIT 9-12 (1 OF 3)

# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT V/C RATIOS, PROJECT AREA



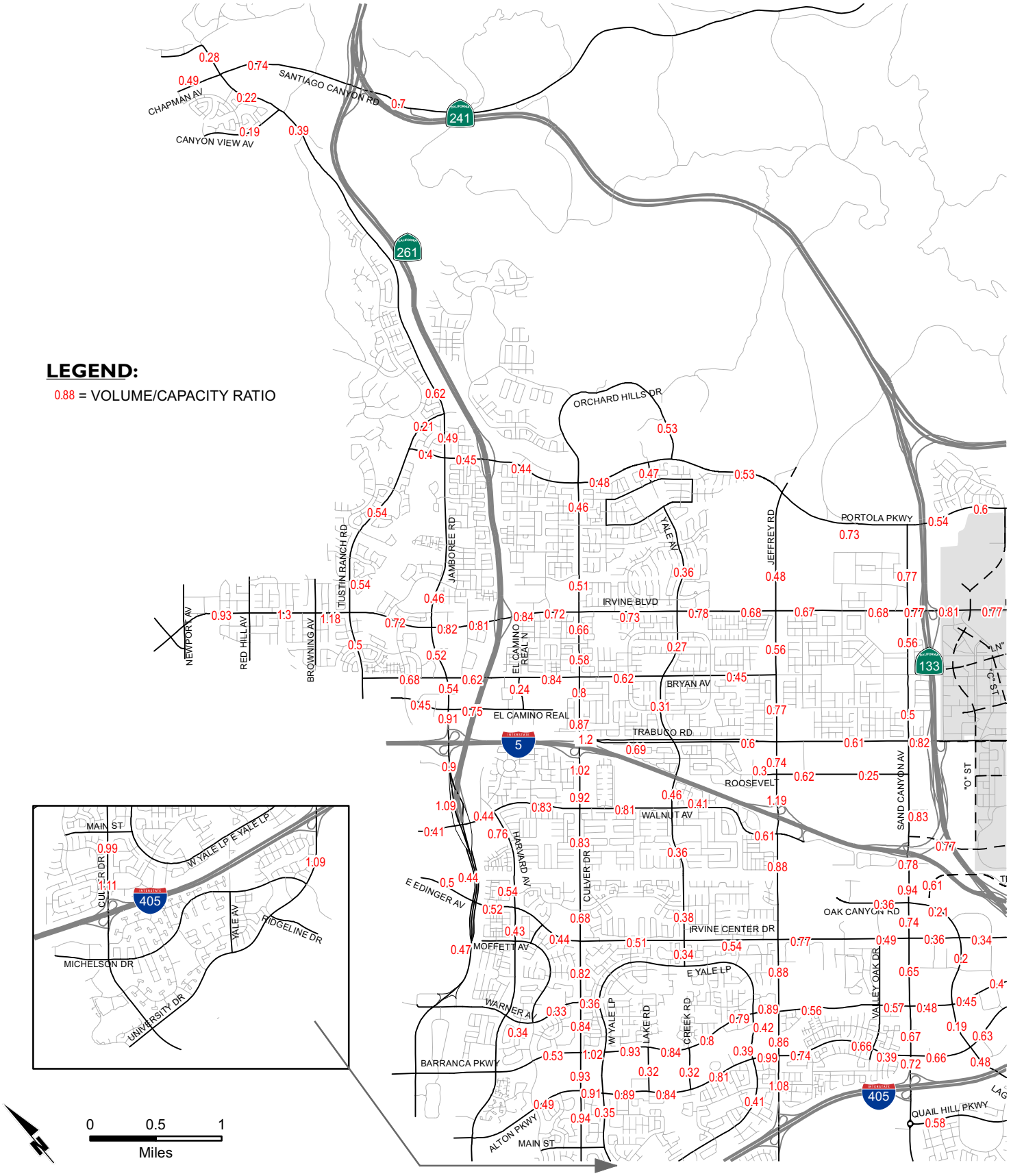

**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

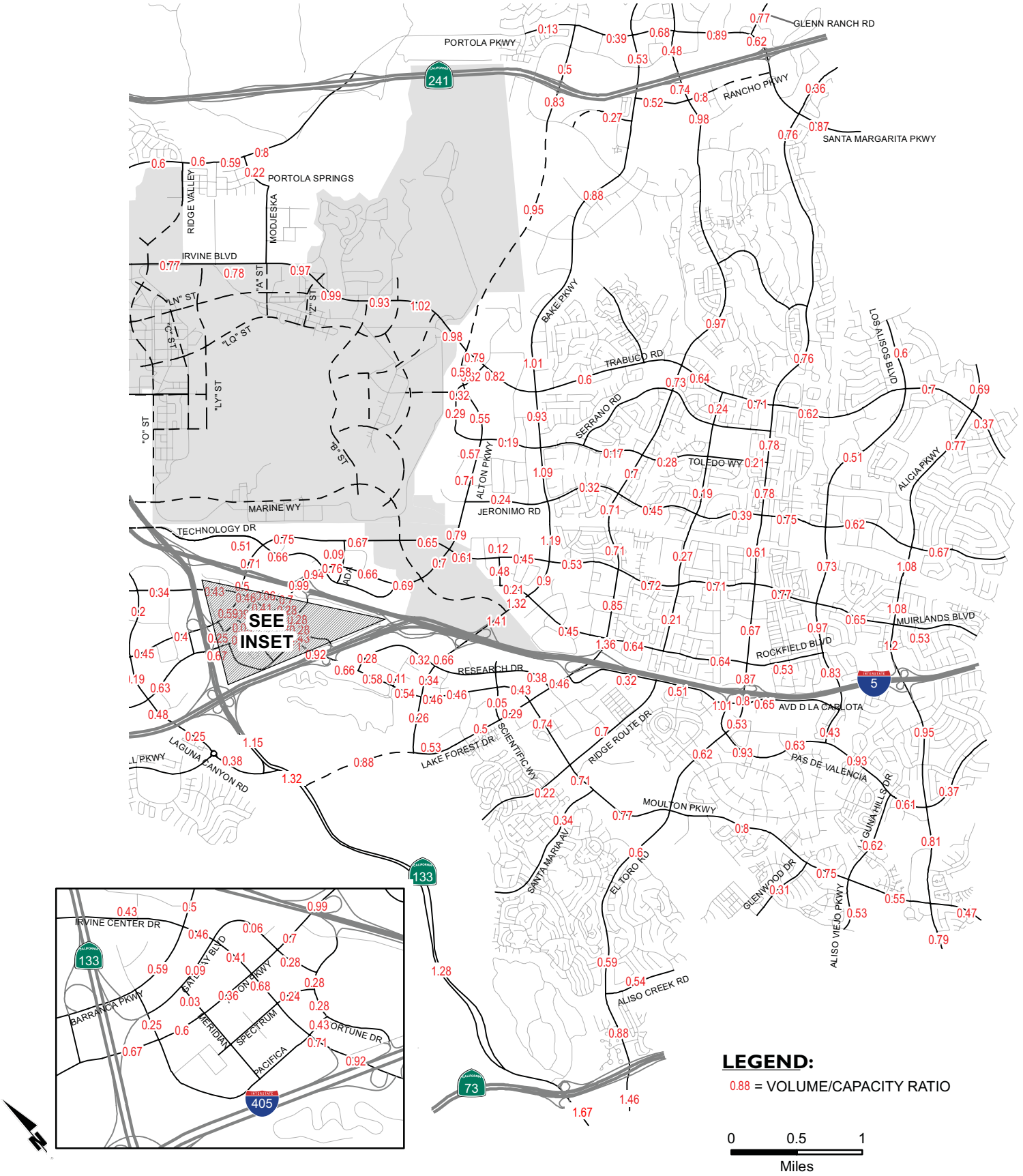
0 1,400 2,800

Feet

# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT V/C RATIOS, WEST STUDY AREA



# YEAR 2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT, OPTION 2 ADT V/C RATIOS, EAST STUDY AREA



are summarized in Table 9-13. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

**Table 9-13**
**Pending Year 2030 Arterial Roadway Peak Hour Analysis, Option 2**

| Segment | Segment Limits | Juris | Pending Year 2030 with 2012 Modified Project Option 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | # of Lanes | Peak Hour Capacity | ADT | Highest Peak Volume | | Peak Hour V/C | Peak Hour LOS |
| Bake Pkwy. | b/w Rockfield Bl. & Marine Wy. | Irv | 8D | 6,400 | 83,400 | 4,030 | AM NB | 0.63 | B |
| Irvine Bl. | b/w A St. & Z St. | Irv | 6D | 4,800 | 52,200 | 3,023 | PM WB | 0.63 | B |
| Irvine Bl. | e/o Z St. | Irv | 6D | 4,800 | 53,300 | 3,076 | PM WB | 0.64 | B |
| Jeffrey Rd. | b/w Roosevelt & I-5 NB Ramps | Irv | 6D | 4,800 | 64,000 | 3,336 | AM SB | 0.70 | B |
| Lake Forest | s/o Ranch Pkwy. | LF | 4D | 3,200 | 36,600 | 2,163 | PM NB | 0.68 | B |
| Trabuco Rd. | e/o Culver Dr. | Irv | 4D | 3,200 | 38,400 | 1,940 | PM EB | 0.61 | A |
| Alton Pkwy. | e/o Culver Dr. | Irv | 4D | 3,200 | 29,100 | 1,729 | PM WB | 0.54 | C |
| Trabuco Rd. | w/o "O" St. | Irv | 4D | 3,200 | 34,700 | 1,657 | PM EB | 0.52 | A |

9.1.14 Year 2030 Peak Hour Intersection Levels of Service, with Option 2

Year 2030 with Option 2, with Pending Projects AM and PM peak hour intersection capacity utilization (ICU) results are summarized in Table 9-14. Actual turn volumes, lane geometrics and ICU calculation worksheets for 2030 with Option 2, with Pending Projects are included in Appendix 9.6. Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that six intersections that exceed adopted impact thresholds with Year 2030 with Option 2, with Pending Projects. Table 9-25 identifies the Project impact locations for 2030 with Option 2, with Pending Projects which are also listed here:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Sand Canyon & I-5 NB Ramp/Marine Way

## Table 9-14

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, Pending | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | | | 0.79 | C | **0.92** | **E** | 0.79 | C | **0.93** | **E** |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | | | 0.79 | C | 0.90 | D | 0.82 | D | 0.90 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | **1.00** | **E** | 0.88 | D | **1.03** | **F** | 0.88 | D |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | | | 0.85 | D | 0.90 | D | 0.85 | D | 0.90 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | 0.76 | C | 0.67 | B | 0.75 | C | 0.66 | B |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | 0.68 | B | 0.63 | B | 0.69 | B | 0.62 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | Yes | 0.82 | D | 0.76 | C | 0.83 | D | 0.75 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | 0.72 | C | 0.62 | B | 0.71 | C | 0.64 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | 0.72 | C | 0.69 | B | 0.73 | C | 0.69 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | 0.66 | B | 0.71 | C | 0.68 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | 0.69 | B | 0.65 | B | 0.68 | B | 0.65 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | 0.46 | A | 0.55 | A | 0.46 | A | 0.56 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | 0.50 | A | 0.73 | C | 0.49 | A | 0.74 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | Yes | 0.51 | A | 0.67 | B | 0.50 | A | 0.67 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | | | 0.42 | A | 0.42 | A | 0.43 | A | 0.42 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | Yes | 0.91 | E | 0.96 | E | 0.91 | E | 0.98 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | 0.42 | A | 0.50 | A | 0.44 | A | 0.50 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | 0.45 | A | 0.41 | A | 0.48 | A | 0.42 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | 0.61 | B | 0.53 | A | 0.59 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | 0.71 | C | 0.66 | B | 0.72 | C | 0.65 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | 0.71 | C | 0.67 | B | 0.74 | C | 0.69 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | 0.79 | C | 0.88 | D | 0.78 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | 0.89 | D | 0.73 | C | 0.89 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | 0.77 | C | 0.77 | C | 0.79 | C | 0.79 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | 0.61 | B | 0.68 | B | 0.60 | A | 0.68 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | | | 0.82 | D | 0.86 | D | 0.82 | D | 0.87 | D |
| 226 | Culver Dr at ICD | Irv | | | | 0.78 | C | 0.74 | C | 0.78 | C | 0.74 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | 0.81 | D | 0.64 | B | 0.82 | D | 0.63 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | | | **0.91** | **E** | 0.78 | C | **0.94** | **E** | 0.78 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | | | 0.84 | D | 0.88 | D | 0.86 | D | 0.87 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | 0.83 | D | 0.74 | C | 0.86 | D | 0.74 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | 0.61 | B | 0.66 | B | 0.63 | B | 0.67 | B |
| 235 | Culver Dr at University | Irv | **F** | | | 0.71 | C | 0.82 | D | 0.73 | C | 0.82 | D |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | 0.75 | C | 0.88 | D | 0.75 | C | 0.89 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | 0.48 | A | 0.44 | A | 0.49 | A | 0.45 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | 0.61 | B | 0.52 | A | 0.63 | B | 0.51 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | 0.60 | A | 0.72 | C | 0.63 | B | 0.73 | C |
| 261 | Yale Av at ICD | Irv | | | | 0.71 | C | 0.69 | B | 0.69 | B | 0.68 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | 0.66 | B | 0.62 | B | 0.68 | B | 0.63 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | 0.72 | C | 0.68 | B | 0.73 | C | 0.68 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | 0.65 | B | 0.65 | B | 0.68 | B | 0.65 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | 0.76 | C | 0.69 | B | 0.75 | C | 0.69 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | 0.63 | B | 0.60 | A | 0.63 | B | 0.60 | A |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | | | 0.68 | B | 0.67 | B | 0.69 | B | 0.68 | B |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | 0.70 | B | 0.64 | B | 0.71 | C | 0.65 | B |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | | | 0.65 | B | 0.72 | C | 0.63 | B | 0.73 | C |

## Table 9-14 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, Pending | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | 0.86 | D | 0.85 | D | 0.88 | D | 0.85 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | 0.69 | B | 0.80 | C | 0.70 | B | 0.80 | C |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | 0.76 | C | 0.76 | C | 0.77 | C | 0.78 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | | | 0.83 | D | 0.77 | C | 0.83 | D | 0.79 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | | | 0.90 | D | 0.79 | C | **0.92** | **E** | 0.79 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | | **0.93** | **E** | 0.79 | C | **0.94** | **E** | 0.80 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | 0.74 | C | 0.88 | D | 0.75 | C | 0.90 | D |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | 0.63 | B | 0.70 | B | 0.64 | B | 0.70 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | 0.40 | A | 0.56 | A | 0.42 | A | 0.56 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | 0.74 | C | 0.75 | C | 0.72 | C | 0.74 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | | | 0.77 | C | 0.78 | C | 0.76 | C | 0.78 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | 0.84 | D | 0.85 | D | 0.90 | D | **0.95** | **E** |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | 0.82 | D | 0.81 | D | 0.84 | D | 0.85 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | 0.78 | C | **0.92** | **E** | 0.77 | C | **0.93** | **E** |
| 307 | Sand Canyon Av at ICD | Irv | | | | 0.60 | A | 0.63 | B | 0.60 | A | 0.64 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | 0.55 | A | 0.57 | A | 0.55 | A | 0.58 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | 0.66 | B | 0.72 | C | 0.66 | B | 0.73 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | 0.59 | A | 0.42 | A | 0.60 | A | 0.42 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | 0.87 | D | 0.61 | B | 0.87 | D | 0.61 | B |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | 0.36 | A | 0.42 | A | 0.37 | A | 0.42 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | 0.42 | A | 0.42 | A | 0.42 | A | 0.41 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | 0.56 | A | 0.60 | A | 0.57 | A | 0.59 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | 0.55 | A | 0.61 | B | 0.54 | A | 0.61 | B |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | 0.75 | C | 0.72 | C | 0.70 | B | 0.77 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | 0.66 | B | 0.53 | A | 0.66 | B | 0.52 | A |
| 319 | Banting at Alton Pw | Irv | | | | 0.58 | A | 0.55 | A | 0.58 | A | 0.56 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | 0.87 | D | 0.78 | C | 0.88 | D | 0.78 | C |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | Yes | 0.99 | E | 0.65 | B | 0.98 | E | 0.64 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | Yes | 0.37 | A | 0.41 | A | 0.37 | A | 0.41 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.19 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | 0.28 | A | 0.31 | A | 0.26 | A | 0.31 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | 0.58 | A | 0.82 | D | 0.60 | A | 0.82 | D |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | Yes | 0.66 | B | 0.44 | A | 0.65 | B | 0.44 | A |
| 329 | Barranca Pw at ICD | Irv | | | Yes | 0.69 | B | 0.69 | B | 0.68 | B | 0.69 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | Yes | 0.61 | B | 0.77 | C | 0.61 | B | 0.77 | C |
| 333 | Pacifica at Gateway | Irv | | | Yes | 0.77 | C | 0.77 | C | 0.76 | C | 0.78 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | 0.49 | A | 0.36 | A | 0.49 | A | 0.36 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | 0.69 | B | 0.58 | A | 0.66 | B | 0.58 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | Yes | **1.03** | **F** | 0.98 | E | **1.03** | **F** | 0.95 | E |
| 339 | Alton Pw at Toledo Wy | Irv | | | | 0.70 | B | 0.61 | B | 0.80 | C | 0.65 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | 0.70 | B | 0.56 | A | 0.70 | B | 0.55 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | 0.59 | A | 0.77 | C | 0.60 | A | 0.74 | C |
| 343 | Alton Pw at Ada | Irv | | | | 0.49 | A | 0.73 | C | 0.52 | A | 0.74 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | 0.57 | A | 0.85 | D | 0.59 | A | 0.85 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | Yes | 0.89 | D | 0.53 | A | 0.87 | D | 0.53 | A |
| 346 | Alton Pw at Enterprise | Irv | | | Yes | 0.71 | C | 0.80 | C | 0.70 | B | 0.82 | D |

## Table 9-14 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, Pending | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 348 | Alton Pw at ICD | Irv | **P** | | Yes | 0.77 | C | 0.83 | D | 0.75 | C | 0.83 | D |
| 350 | Alton Pw at Pacifica | Irv | | | Yes | 0.63 | B | 0.58 | A | 0.63 | B | 0.58 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | Yes | 0.57 | A | 0.85 | D | 0.56 | A | 0.86 | D |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | Yes | 0.51 | A | 0.53 | A | 0.52 | A | 0.54 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | Yes | 0.68 | B | 0.56 | A | 0.68 | B | 0.56 | A |
| 359 | ICD at I-405 SB Ramps | Irv | **P** | | Yes | 0.61 | B | 0.58 | A | 0.62 | B | 0.59 | A |
| 361 | Bake Pw at Portola Pw | LF | | | | 0.63 | B | 0.89 | D | 0.61 | B | 0.89 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | Yes | 0.83 | D | 0.88 | D | 0.82 | D | 0.90 | D |
| 363 | Bake Pw at Toledo Wy | Irv | | | | 0.83 | D | 0.67 | B | 0.83 | D | 0.67 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | 0.87 | D | 0.70 | B | 0.85 | D | 0.70 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | 0.74 | C | **0.93** | **E** | 0.72 | C | 0.90 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | 0.79 | C | **0.98** | **E** | 0.75 | C | **1.02** | **F** |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | Yes | 0.83 | D | 0.61 | B | 0.81 | D | 0.62 | B |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | Yes | 0.81 | D | 0.90 | D | 0.81 | D | 0.91 | E |
| 371 | Bake Pw at Research Dr | Irv | | | | 0.53 | A | 0.83 | D | 0.53 | A | 0.84 | D |
| 372 | Bake Pw at ICD | Irv | | | | 0.57 | A | 0.57 | A | 0.57 | A | 0.56 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | 0.34 | A | 0.45 | A | 0.34 | A | 0.43 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | 0.63 | B | 0.90 | D | 0.62 | B | 0.88 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | 0.56 | A | 0.53 | A | 0.54 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | 0.83 | D | 0.90 | D | 0.83 | D | 0.80 | C |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | 0.61 | B | 0.58 | A | 0.64 | B | 0.61 | B |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | 0.74 | C | **0.92** | **E** | 0.74 | C | **0.91** | **E** |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | 0.74 | C | 0.85 | D | 0.73 | C | 0.84 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | 0.82 | D | **0.93** | **E** | 0.82 | D | **0.92** | **E** |
| 381 | Lake Forest Dr at I-5 NB Ramps | LF | | | | 0.71 | C | 0.75 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | | Yes | 0.66 | B | 0.81 | D | 0.64 | B | 0.81 | D |
| 385 | Lake Forest Dr at ICD | Irv | | | Yes | 0.54 | A | 0.76 | C | 0.53 | A | 0.75 | C |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | 0.58 | A | 0.69 | B | 0.57 | A | 0.68 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LF | **P** | | | 0.50 | A | 0.64 | B | 0.50 | A | 0.64 | B |
| 388 | Ridge Route Dr at Aveninda Carlota | LH | | | | 0.40 | A | 0.73 | C | 0.40 | A | 0.73 | C |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | 0.58 | A | 0.72 | C | 0.57 | A | 0.71 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | 0.80 | C | **0.95** | **E** | 0.81 | D | **0.95** | **E** |
| 391 | Santa Maria Av at Moulton Pw | LH/LW | | | | 0.67 | B | 0.81 | D | 0.66 | B | 0.79 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | 0.78 | C | 0.87 | D | 0.79 | C | 0.88 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | 0.61 | B | 0.75 | C | 0.60 | A | 0.73 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LF | | | Yes | 0.82 | D | 0.85 | D | 0.83 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH | **P** | | Yes | 0.74 | C | 0.96 | E | 0.74 | C | 0.96 | E |
| 397 | El Toro Rd at Paseo de Valencia | LH/LW | | | | 0.68 | B | 0.84 | D | 0.68 | B | 0.84 | D |
| 398 | El Toro Rd at Moulton Pw | LW | | | Yes | 0.86 | D | 0.95 | E | 0.86 | D | 0.97 | E |
| 399 | El Toro Rd at Aliso Creek Rd | AV | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.70 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | Yes | 0.65 | B | 0.61 | B | 0.67 | B | 0.61 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | LB | | | Yes | 0.43 | A | 0.64 | B | 0.44 | A | 0.64 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | Irv | | | | 0.64 | B | 0.65 | B | 0.59 | A | 0.67 | B |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | 0.44 | A | 0.37 | A | 0.43 | A | 0.37 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | 0.81 | D | 0.74 | C | 0.81 | D | 0.75 | C |
| 409 | Bake Pw at Commercentre Dr | LF | | | | 0.66 | B | 0.74 | C | 0.66 | B | 0.75 | C |

## Table 9-14 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, Pending | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | 0.58 | A | 0.70 | B | 0.55 | A | 0.69 | B |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | 0.42 | A | 0.40 | A | 0.42 | A | 0.40 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | 0.49 | A | 0.66 | B | 0.51 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | 0.64 | B | 0.67 | B | 0.65 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | 0.51 | A | 0.68 | B | 0.50 | A | 0.67 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | 0.82 | D | **0.99** | **E** | 0.82 | D | **1.01** | **F** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | Yes | 0.79 | C | 0.78 | C | 0.78 | C | 0.78 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | 0.57 | A | 0.63 | B | 0.59 | A | 0.63 | B |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | 0.77 | C | 0.79 | C | 0.76 | C | 0.78 | C |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | 0.78 | C | 0.71 | C | 0.77 | C | 0.71 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | 0.89 | D | 0.89 | D | 0.89 | D | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | **0.99** | **E** | **1.06** | **F** | **0.98** | **E** | **1.05** | **F** |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | **0.93** | **E** | **0.92** | **E** | **0.92** | **E** | **0.92** | **E** |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | 0.61 | B | 0.71 | C | 0.61 | B | 0.70 | B |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | 0.59 | A | 0.73 | C | 0.58 | A | 0.73 | C |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | 0.72 | C | 0.71 | C | 0.72 | C | 0.72 | C |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | 0.74 | C | 0.77 | C | 0.73 | C | 0.77 | C |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | 0.82 | D | 0.82 | D | 0.82 | D | 0.81 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | 0.74 | C | 0.73 | C | 0.73 | C | 0.74 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | 0.78 | C | 0.77 | C | 0.78 | C | 0.77 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | 0.73 | C | 0.88 | D | 0.73 | C | 0.88 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | 0.44 | A | 0.70 | B | 0.44 | A | 0.70 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | 0.69 | B | 0.76 | C | 0.69 | B | 0.76 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | 0.68 | B | 0.76 | C | 0.68 | B | 0.76 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | 0.75 | C | 0.79 | C | 0.74 | C | 0.79 | C |
| 437 | Scientific Wy at ICD | Irv | | | | 0.34 | A | 0.42 | A | 0.34 | A | 0.41 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.19 | A |
| 444 | Sand Canyon Av at Burt Rd | Irv | | | | 0.80 | C | 0.80 | C | 0.83 | D | 0.82 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Ora | | | | 0.52 | A | 0.53 | A | 0.57 | A | 0.57 | A |
| 463 | Jamboree Rd at Chapman Av | Ora | | | | 0.70 | B | 0.72 | C | 0.73 | C | 0.75 | C |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | OC | | | | 0.64 | B | 0.61 | B | 0.62 | B | 0.61 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | 0.60 | A | 0.67 | B | 0.63 | B | 0.65 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | 0.56 | A | 0.61 | B | 0.60 | A | 0.62 | B |
| 468 | Jamboree Rd at Canyon View | Ora | | | | 0.61 | B | 0.38 | A | 0.59 | A | 0.39 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | 0.44 | A | 0.48 | A | 0.44 | A | 0.49 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | 0.45 | A | 0.42 | A | 0.44 | A | 0.42 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | 0.40 | A | 0.33 | A | 0.42 | A | 0.36 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | 0.37 | A | 0.35 | A | 0.39 | A | 0.36 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | 0.65 | B | 0.53 | A | 0.64 | B | 0.52 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | 0.74 | C | 0.60 | A | 0.72 | C | 0.59 | A |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | 0.55 | A | 0.57 | A | 0.57 | A | 0.59 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | 0.52 | A | 0.65 | B | 0.55 | A | 0.67 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | 0.69 | B | 0.77 | C | 0.69 | B | 0.75 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | 0.66 | B | 0.86 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | **0.92** | **E** | **1.17** | **F** | **0.91** | **E** | **1.18** | **F** |
| 517 | Portola Pw at Rancho Pw | LF | | | | 0.62 | B | 0.70 | B | 0.62 | B | 0.70 | B |

## Table 9-14 Cont.

## Pending Year 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | 2011 Approved Project, with Pending Projects | | | | 2012 Modified Project, Pending | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 518 | Alton Pw at Commercentre | LF | | | | 0.63 | B | 0.76 | C | 0.62 | B | 0.77 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | 0.70 | B | 0.74 | C | 0.69 | B | 0.73 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | 0.52 | A | 0.53 | A | 0.53 | A | 0.52 | A |
| 557 | O St at C St | Irv | | | | 0.39 | A | 0.36 | A | 0.38 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | 0.65 | B | 0.75 | C | 0.70 | B | 0.75 | C |
| 559 | O St at Trabuco Rd | Irv | | | | 0.73 | C | 0.69 | B | 0.79 | C | 0.67 | B |
| 560 | O St at Marine Wy | Irv | | | | 0.45 | A | 0.61 | B | 0.53 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | 0.40 | A | 0.46 | A | 0.49 | A | 0.44 | A |
| 563 | B St. at Irvine Bl | Irv | | | | 0.69 | B | 0.71 | C | 0.59 | A | 0.66 | B |
| 564 | C St. at Marine Wy | Irv | | | | 0.47 | A | 0.59 | A | 0.65 | B | 0.64 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | 0.67 | B | 0.63 | B | 0.64 | B | 0.61 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | 0.63 | B | 0.63 | B | 0.65 | B | 0.59 | A |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | 0.69 | B | 0.54 | A | 0.43 | A | 0.39 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | 0.68 | B | 0.65 | B | 0.78 | C | 0.71 | C |
| 571 | Portola Springs at Porto | Irv | | | | 0.56 | A | 0.48 | A | 0.56 | A | 0.48 | A |
| 572 | Modjeska at Irvine Bl | Irv | | | | 0.67 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 603 | O St at LN St | Irv | | | | 0.40 | A | 0.33 | A | 0.38 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | 0.56 | A | 0.54 | A | 0.54 | A | 0.50 | A |
| 608 | O St at LV St | Irv | | | | 0.35 | A | 0.32 | A | 0.33 | A | 0.34 | A |
| 626 | LY St at LQ St | Irv | | | | 0.39 | A | 0.38 | A | 0.44 | A | 0.43 | A |
| 627 | LY St at Irvine Bl | Irv | | | | 0.54 | A | 0.59 | A | 0.54 | A | 0.60 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | 0.11 | A | 0.14 | A | 0.13 | A | 0.18 | A |
| 633 | Sterling at Rockfield Bl | Irv | | | | 0.28 | A | 0.36 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | 0.34 | A | 0.42 | A | 0.35 | A | 0.41 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | 0.26 | A | 0.36 | A | 0.26 | A | 0.37 | A |
| 782 | A St at LQ St | Irv | | | | 0.31 | A | 0.29 | A | 0.32 | A | 0.33 | A |
| 787 | Z St at LQ St | Irv | | | | 0.31 | A | 0.28 | A | 0.27 | A | 0.27 | A |
| 790 | Z St at Irvine Bl | Irv | | | | 0.72 | C | 0.70 | B | 0.71 | C | 0.70 | B |
| 798 | B St. at LQ St | Irv | | | | 0.49 | A | 0.38 | A | 0.35 | A | 0.38 | A |
| 799 | "B" St. at Marine Wy. | Irv | | | | 0.49 | A | 0.56 | A | 0.73 | C | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | 0.81 | D | 0.74 | C | 0.69 | B | 0.69 | B |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | 0.72 | C | 0.78 | C | 0.73 | C | 0.81 | D |
| 821 | Alton Pw. at Fairbanks | Irv | | | | 0.54 | A | 0.56 | A | 0.68 | B | 0.72 | C |
| 822 | "F" St. at Irvine Bl. | Irv | | | | Not Applicable | | | | 0.70 | B | 0.72 | C |
| 831 | "G" St. at Marine Wy. | Irv | | | | Not Applicable | | | | 0.55 | A | 0.58 | A |
| 832 | Fairbanks at Astor | Irv | | | | 0.14 | A | 0.15 | A | 0.48 | A | 0.51 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

- Bake Pkwy. & Rockfield Blvd.
- El Toro Rd. & Portola Pkwy.

9.1.15 Year 2030 Peak Hour Freeway/Tollway Ramp Levels of Service with Option 2, with Pending Projects

Year 2030 with Option 2, with Pending Projects AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-15. The pending projects with Option 2 exceeds adopted impact thresholds at one freeway interchange off-ramp: I-5 Northbound off-ramp to Jamboree Road.

9.1.16 Year 2030 Peak Hour Freeway/Tollway Mainline Levels of Service, with Option 2, with Pending Projects

Year 2030 with Option 2, with Pending Projects AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-16. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, there is one freeway mainline segment forecast to exceed adopted impact thresholds with the project based on Year 2030 conditions with Option 2, with Pending Projects:

- I-5 Northbound, n/o Culver

9.1.17 Post-2030 Circulation System and Average Daily Traffic Volumes, with Option 1, with Pending Projects

The Post-2030 circulation system in the study area was previously illustrated in Chapter 4.0. The 2011 Approved Project (baseline), with Pending Project average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-13 and 9-14. Post-2030 with Option 1, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-15 and 9-16, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following arterial roadway segments are potentially impacted by Option 1 with Pending Projects:

## Table 9-15

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 397 | 0.26 | A | 1,090 | 0.73 | C | 428 | 0.29 | A | 1,100 | 0.73 | C |
| | SB Loop On | 1 | 1,080 | 519 | 0.48 | A | 450 | 0.42 | A | 519 | 0.48 | A | 470 | 0.44 | A |
| | NB Direct On | 1 | 1,080 | 470 | 0.44 | A | 480 | 0.44 | A | 470 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 670 | 0.62 | B | 700 | 0.65 | B | 670 | 0.62 | B | 730 | 0.68 | B |
| | SB Off | 1 | 1,500 | 1,429 | 0.95 | E | 1,438 | 0.96 | E | 1,428 | 0.95 | E | 1,479 | 0.99 | E |
| | NB Off | 1 | 1,500 | 1,562 | **1.04** | **F** | 1,270 | 0.85 | D | 1,599 | **1.07** | **F** | 1,284 | 0.86 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 330 | 0.37 | A | 240 | 0.27 | A | 330 | 0.37 | A | 220 | 0.24 | A |
| | NB Direct On | 1 | 900 | 726 | 0.81 | D | 179 | 0.20 | A | 730 | 0.81 | D | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,100 | 0.73 | C | 590 | 0.39 | A | 1,090 | 0.73 | C | 600 | 0.40 | A |
| | SB Off | 2 | 2,250 | 959 | 0.43 | A | 2,163 | 0.96 | E | 950 | 0.42 | A | 2,198 | 0.98 | E |
| | NB Off | 1 | 1,500 | 332 | 0.22 | A | 444 | 0.30 | A | 333 | 0.22 | A | 434 | 0.29 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,229 | **1.14** | **F** | 780 | 0.72 | C | 1,175 | **1.09** | **F** | 751 | 0.70 | B |
| | NB Direct On | 1 | 1,080 | 700 | 0.65 | B | 220 | 0.20 | A | 760 | 0.70 | B | 230 | 0.21 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 609 | 0.41 | A | 980 | 0.65 | B | 609 | 0.41 | A | 1,018 | 0.68 | B |
| | NB Off | 2 | 2,250 | 938 | 0.42 | A | 1,457 | 0.65 | B | 907 | 0.40 | A | 1,425 | 0.63 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 691 | 0.46 | A | 740 | 0.49 | A | 670 | 0.45 | A | 720 | 0.48 | A |
| | NB On | 1 | 1,500 | 761 | 0.51 | A | 1,490 | 0.99 | E | 959 | 0.64 | B | 1,483 | 0.99 | E |
| | SB Off | 1 | 1,500 | 1,794 | **1.20** | **F** | 849 | 0.57 | A | 1,714 | **1.14** | **F** | 921 | 0.61 | B |
| | NB Off | 2 | 2,250 | 701 | 0.31 | A | 711 | 0.32 | A | 680 | 0.30 | A | 699 | 0.31 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 20 | 0.01 | A | 210 | 0.14 | A | 20 | 0.01 | A | 190 | 0.13 | A |
| | SB Off | 1 | 1,500 | 289 | 0.19 | A | 101 | 0.07 | A | 259 | 0.17 | A | 91 | 0.06 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 380 | 0.25 | A | 670 | 0.45 | A | 349 | 0.23 | A | 610 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 260 | 0.14 | A | 1,170 | 0.65 | B | 270 | 0.15 | A | 1,170 | 0.65 | B |
| | NB Loop On | 1 | 1,500 | 576 | 0.38 | A | 151 | 0.10 | A | 566 | 0.38 | A | 151 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,221 | 0.99 | E | 1,050 | 0.47 | A | 2,096 | 0.93 | E | 954 | 0.42 | A |
| | NB Off | 2 | 2,250 | 1,160 | 0.52 | A | 320 | 0.14 | A | 1,140 | 0.51 | A | 310 | 0.14 | A |

## Table 9-15 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 113 | 0.08 | A | 135 | 0.09 | A | 122 | 0.08 | A | 128 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 352 | 0.33 | A | 848 | 0.79 | C | 391 | 0.36 | A | 827 | 0.77 | C |
| | NB Direct On | 2 | 3,400 | 1,894 | 0.56 | A | 1,644 | 0.48 | A | 1,915 | 0.56 | A | 1,624 | 0.48 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,994 | 1.00 | E | 2,438 | 0.81 | D | 2,992 | 1.00 | E | 2,440 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,424 | 0.47 | A | 598 | 0.20 | A | 1,322 | 0.44 | A | 579 | 0.19 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 329 | 0.22 | A | 868 | 0.58 | A | 331 | 0.22 | A | 856 | 0.57 | A |
| | SB Loop On | 1 | 1,080 | 405 | 0.38 | A | 654 | 0.61 | B | 407 | 0.38 | A | 642 | 0.59 | A |
| | NB On | 2 | 1,800 | 1,314 | 0.73 | C | 1,050 | 0.58 | A | 1,332 | 0.74 | C | 1,059 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,326 | 0.78 | C | 1,761 | 0.59 | A | 2,326 | 0.78 | C |
| | NB Off | 1 | 1,500 | 1,502 | 1.00 | E | 729 | 0.49 | A | 1,505 | 1.00 | E | 733 | 0.49 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 140 | 0.13 | A | 140 | 0.13 | A | 162 | 0.15 | A | 135 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 449 | 0.30 | A | 519 | 0.35 | A | 443 | 0.30 | A | 515 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,482 | 0.99 | E | 1,102 | 0.73 | C | 1,483 | 0.99 | E | 1,101 | 0.73 | C |
| | NB Loop On | 1 | 1,500 | 1,307 | 0.87 | D | 940 | 0.63 | B | 1,289 | 0.86 | D | 1,270 | 0.85 | D |
| | SB Off | 1 | 2,250 | 2,794 | **1.24** | **F** | 2,800 | **1.24** | **F** | 2,785 | **1.24** | **F** | 2,800 | **1.24** | **F** |
| | NB Off | 1 | 1,500 | 1,272 | 0.85 | D | 1,308 | 0.87 | D | 1,331 | 0.89 | D | 1,210 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 202 | 0.19 | A | 151 | 0.14 | A | 202 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 800 | 0.53 | A | 749 | 0.50 | A | 804 | 0.54 | A | 749 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,336 | 0.89 | D | 890 | 0.59 | A | 1,334 | 0.89 | D | 890 | 0.59 | A |
| | NB Loop On | 1 | 1,500 | 1,397 | 0.93 | E | 880 | 0.59 | A | 1,414 | 0.94 | E | 870 | 0.58 | A |
| | SB Off | 1 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,097 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 311 | 0.21 | A | 1,071 | 0.71 | C | 310 | 0.21 | A | 1,069 | 0.71 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 240 | 0.16 | A | 570 | 0.38 | A | 240 | 0.16 | A | 580 | 0.39 | A |
| | SB Loop On | 1 | 900 | 250 | 0.28 | A | 340 | 0.38 | A | 250 | 0.28 | A | 340 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 680 | 0.45 | A | 930 | 0.62 | B | 680 | 0.45 | A |
| | NB Loop On | 1 | 1,500 | 670 | 0.45 | A | 480 | 0.32 | A | 690 | 0.46 | A | 480 | 0.32 | A |
| | SB Off | 2 | 3,000 | 942 | 0.31 | A | 1,492 | 0.50 | A | 933 | 0.31 | A | 1,500 | 0.50 | A |
| | NB Off | 1 | 1,500 | 1,381 | 0.92 | E | 1,289 | 0.86 | D | 1,393 | 0.93 | E | 1,262 | 0.84 | D |

## Table 9-15 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | $V/C^2$ | LOS | Volume | $V/C^2$ | LOS | Volume | $V/C^2$ | LOS | Volume | $V/C^2$ | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,030 | 0.69 | B | 1,202 | 0.80 | C | 1,020 | 0.68 | B | 1,190 | 0.79 | C |
| | SB Loop On | 1 | 900 | 370 | 0.41 | A | 290 | 0.32 | A | 360 | 0.40 | A | 280 | 0.31 | A |
| | NB Direct On | 1 | 1,500 | 1,342 | 0.89 | D | 650 | 0.43 | A | 1,352 | 0.90 | D | 640 | 0.43 | A |
| | NB Loop On | 1 | 900 | 371 | 0.41 | A | 110 | 0.12 | A | 351 | 0.39 | A | 110 | 0.12 | A |
| | SB Off | 1 | 1,500 | 654 | 0.44 | A | 812 | 0.54 | A | 644 | 0.43 | A | 813 | 0.54 | A |
| | NB Off | 1 | 2,250 | 1,247 | 0.55 | A | 1,873 | 0.83 | D | 1,248 | 0.55 | A | 1,860 | 0.83 | D |
| I-405 at Sand Canyon | SB On | 1 | 1,500 | 360 | 0.24 | A | 525 | 0.35 | A | 360 | 0.24 | A | 510 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,223 | 0.82 | D | 1,350 | 0.90 | D | 1,250 | 0.83 | D | 1,340 | 0.89 | D |
| | NB Loop On | 1 | 1,500 | 621 | 0.41 | A | 360 | 0.24 | A | 640 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,847 | **1.23** | **F** | 1,024 | 0.68 | B | 1,816 | **1.21** | **F** | 1,051 | 0.70 | B |
| | NB Off | 1 | 1,500 | 627 | 0.42 | A | 497 | 0.33 | A | 619 | 0.41 | A | 508 | 0.34 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 250 | 0.28 | A | 370 | 0.41 | A | 240 | 0.27 | A | 380 | 0.42 | A |
| | NB Direct On | 1 | 1,500 | 281 | 0.19 | A | 582 | 0.39 | A | 290 | 0.19 | A | 566 | 0.38 | A |
| | NB Loop On | 1 | 1,500 | 247 | 0.16 | A | 1,273 | 0.85 | D | 249 | 0.17 | A | 1,214 | 0.81 | D |
| | SB Off | 1 | 2,250 | 2,117 | 0.94 | E | 1,482 | 0.66 | B | 2,101 | 0.93 | E | 1,512 | 0.67 | B |
| | NB Off | 1 | 3,000 | 1,261 | 0.42 | A | 501 | 0.17 | A | 1,210 | 0.40 | A | 421 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 820 | 0.21 | A | 2,443 | 0.61 | B | 782 | 0.20 | A | 2,423 | 0.61 | B |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,077 | 0.77 | C | 1,363 | 0.34 | A | 3,111 | 0.78 | C | 1,339 | 0.33 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,916 | 0.48 | A | 2,915 | 0.73 | C | 2,088 | 0.52 | A | 2,869 | 0.72 | C |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 3,399 | 0.85 | D | 1,974 | 0.49 | A | 3,366 | 0.84 | D | 2,029 | 0.51 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 292 | 0.19 | A | 280 | 0.19 | A | 295 | 0.20 | A | 270 | 0.18 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 270 | 0.18 | A | 260 | 0.17 | A | 260 | 0.17 | A |
| | NB Loop On | 1 | 1,500 | 140 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 439 | 0.20 | A | 299 | 0.13 | A | 440 | 0.20 | A | 329 | 0.15 | A |
| | NB Off | 1 | 1,500 | 181 | 0.12 | A | 469 | 0.31 | A | 140 | 0.09 | A | 491 | 0.33 | A |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 742 | 0.49 | A | 680 | 0.45 | A | 780 | 0.52 | A | 670 | 0.45 | A |
| | NB On | 1 | 1,500 | 170 | 0.11 | A | 490 | 0.33 | A | 170 | 0.11 | A | 480 | 0.32 | A |
| | SB Off | 1 | 1,500 | 620 | 0.41 | A | 380 | 0.25 | A | 602 | 0.40 | A | 380 | 0.25 | A |
| | NB Off | 1 | 1,500 | 827 | 0.55 | A | 943 | 0.63 | B | 797 | 0.53 | A | 941 | 0.63 | B |

## Table 9-15 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,196 | 0.60 | A | 1,547 | 0.77 | C | 1,201 | 0.60 | A | 1,544 | 0.77 | C |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,684 | 0.84 | D | 1,230 | 0.62 | B | 1,687 | 0.84 | D | 1,230 | 0.62 | B |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,452 | 0.73 | C | 706 | 0.35 | A | 1,487 | 0.74 | C | 698 | 0.35 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 784 | 0.39 | A | 1,459 | 0.73 | C | 762 | 0.38 | A | 1,480 | 0.74 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,036 | 0.51 | A | 1,735 | 0.43 | A | 2,068 | 0.52 | A | 1,782 | 0.45 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,223 | 0.56 | A | 2,106 | 0.53 | A | 2,215 | 0.55 | A | 2,142 | 0.54 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 160 | 0.15 | A | 1,191 | **1.10** | **F** | 150 | 0.14 | A | 1,194 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 259 | 0.24 | A | 631 | 0.58 | A | 244 | 0.23 | A | 625 | 0.58 | A |
| | NB Loop On | 1 | 1,080 | 501 | 0.46 | A | 1,509 | **1.40** | **F** | 520 | 0.48 | A | 1,510 | **1.40** | **F** |
| | SB Off | 2 | 3,000 | 2,080 | 0.69 | B | 590 | 0.20 | A | 2,125 | 0.71 | C | 559 | 0.19 | A |
| | NB Off | 2 | 2,250 | 1,539 | 0.68 | B | 530 | 0.24 | A | 1,520 | 0.68 | B | 562 | 0.25 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 1,073 | 0.54 | A | 947 | 0.47 | A | 1,039 | 0.52 | A | 956 | 0.48 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 59 | 0.03 | A | 76 | 0.04 | A | 56 | 0.03 | A | 71 | 0.04 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 793 | 0.20 | A | 598 | 0.15 | A | 878 | 0.22 | A | 594 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,255 | 0.31 | A | 930 | 0.23 | A | 1,288 | 0.32 | A | 928 | 0.23 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,694 | 0.85 | D | 1,595 | 0.80 | C | 1,660 | 0.83 | D | 1,660 | 0.83 | D |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 560 | 0.28 | A | 621 | 0.31 | A | 552 | 0.28 | A | 628 | 0.31 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 315 | 0.16 | A | 369 | 0.18 | A | 205 | 0.10 | A | 353 | 0.18 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 962 | 0.53 | A | 311 | 0.17 | A | 946 | 0.53 | A | 273 | 0.15 | A |
| | NB On | 1 | 1,500 | 479 | 0.32 | A | 420 | 0.28 | A | 450 | 0.30 | A | 290 | 0.19 | A |
| | SB Off | 1 | 1,500 | 826 | 0.55 | A | 491 | 0.33 | A | 477 | 0.32 | A | 440 | 0.29 | A |
| | NB Off | 1 | 1,500 | 732 | 0.49 | A | 984 | 0.66 | B | 728 | 0.49 | A | 961 | 0.64 | B |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 359 | 0.24 | A | 410 | 0.27 | A | 342 | 0.23 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 20 | 0.01 | A | 30 | 0.02 | A | 20 | 0.01 | A | 30 | 0.02 | A |
| | SB Off | 1 | 1,500 | 30 | 0.02 | A | 61 | 0.04 | A | 39 | 0.03 | A | 71 | 0.05 | A |
| | NB Off | 1 | 1,500 | 664 | 0.44 | A | 385 | 0.26 | A | 664 | 0.44 | A | 364 | 0.24 | A |

## Table 9-15 Cont.

### Pending Year 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Alton | SB On | 1 | 1,500 | 430 | 0.15 | A | 1,151 | 0.53 | A | 452 | 0.30 | A | 1,110 | 0.74 | C |
| | NB On | 1 | 1,500 | 431 | 0.35 | A | 620 | 0.21 | A | 433 | 0.29 | A | 619 | 0.41 | A |
| | SB Off | 1 | 1,500 | 731 | 0.19 | A | 449 | 0.24 | A | 693 | 0.46 | A | 452 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,087 | 0.68 | B | 630 | 0.21 | A | 1,020 | 0.45 | A | 628 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 215 | 0.10 | A | 863 | 0.28 | A | 223 | 0.10 | A | 851 | 0.38 | A |
| | SB Off | 1 | 1,500 | 818 | 0.52 | A | 426 | 0.22 | A | 804 | 0.54 | A | 412 | 0.27 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 329 | 0.22 | A | 1,432 | 0.95 | E | 331 | 0.22 | A | 1,423 | 0.95 | E |
| | NB On | 2 | 2,250 | 817 | 0.36 | A | 431 | 0.19 | A | 817 | 0.36 | A | 429 | 0.19 | A |
| | SB Off | 1 | 1,500 | 531 | 0.35 | A | 615 | 0.41 | A | 527 | 0.35 | A | 609 | 0.41 | A |
| | NB Off | 2 | 2,250 | 2,185 | 0.97 | E | 575 | 0.26 | A | 2,173 | 0.97 | E | 584 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 1,010 | 0.67 | B | 300 | 0.20 | A | 990 | 0.66 | B | 300 | 0.20 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 787 | 0.52 | A | 110 | 0.07 | A | 777 | 0.52 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 160 | 0.11 | A | 100 | 0.07 | A | 160 | 0.11 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 480 | 0.32 | A | 250 | 0.17 | A | 480 | 0.32 | A | 230 | 0.15 | A |
| | SB Off | 1 | 1,500 | 120 | 0.08 | A | 292 | 0.19 | A | 100 | 0.07 | A | 292 | 0.19 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A | 100 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 860 | 0.57 | A | 321 | 0.21 | A | 861 | 0.57 | A | 330 | 0.22 | A |
| | NB On | 1 | 1,500 | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 150 | 0.10 | A | 120 | 0.08 | A | 130 | 0.09 | A | 121 | 0.08 | A |
| | NB Off | 1 | 1,500 | 233 | 0.16 | A | 233 | 0.16 | A | 233 | 0.16 | A | 233 | 0.16 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 9-16

## Pending Year 2030 Freeway Mainline LOS Summary, Option 2

| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | Modified Project, Pending | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,817 | **1.36** | **F** | 12,366 | **1.07** | **F** | 16,089 | **1.39** | **F** | 12,375 | **1.07** | **F** |
| | | SB | 5+1H | 11,600 | 9,974 | 0.86 | D | 10,685 | 0.92 | E | 9,787 | 0.84 | D | 10,860 | 0.94 | E |
| | n/o Red Hill | NB | 5+1H | 11,600 | 15,092 | **1.30** | **F** | 11,765 | **1.01** | **F** | 15,355 | **1.32** | **F** | 11,742 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 11,997 | **1.03** | **F** | 12,793 | **1.10** | **F** | 11,881 | **1.02** | **F** | 12,981 | **1.12** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,746 | **1.36** | **F** | 12,333 | **1.06** | **F** | 16,042 | **1.38** | **F** | 12,314 | **1.06** | **F** |
| | | SB | 5+1H | 11,600 | 12,661 | **1.09** | **F** | 13,410 | **1.16** | **F** | 12,549 | **1.08** | **F** | 13,646 | **1.18** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 15,258 | **1.32** | **F** | 12,006 | **1.04** | **F** | 15,567 | **1.34** | **F** | 12,000 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,333 | **1.06** | **F** | 12,926 | **1.11** | **F** | 12,205 | **1.05** | **F** | 13,155 | **1.13** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 15,365 | **1.32** | **F** | 11,878 | **1.02** | **F** | 15,752 | **1.36** | **F** | 11,901 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 11,897 | **1.03** | **F** | 12,854 | **1.11** | **F** | 11,832 | **1.02** | **F** | 13,124 | **1.13** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 13,425 | **1.16** | **F** | 11,068 | 0.95 | E | 13,778 | **1.19** | **F** | 11,090 | 0.96 | E |
| | | SB | 5+1H | 11,600 | 11,494 | 0.99 | E | 11,503 | 0.99 | E | 11,452 | 0.99 | E | 11,722 | **1.01** | **F** |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 13,327 | **1.15** | **F** | 11,250 | 0.97 | E | 13,651 | **1.18** | **F** | 11,265 | 0.97 | E |
| | | SB | 5+1H | 11,600 | 12,080 | **1.04** | **F** | 11,810 | **1.02** | **F** | 11,980 | **1.03** | **F** | 12,017 | **1.04** | **F** |
| | n/o Alton | NB | 4+1H | 9,600 | 10,701 | **1.11** | **F** | 8,814 | 0.92 | E | 10,808 | **1.13** | **F** | 8,781 | 0.91 | E |
| | | SB | 4+1H | 9,600 | 9,332 | 0.97 | E | 9,576 | 1.00 | E | 9,322 | 0.97 | E | 9,627 | 1.00 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 11,198 | **1.17** | **F** | 7,808 | 0.81 | D | 11,272 | **1.17** | **F** | 7,791 | 0.81 | D |
| | | SB | 4+1H | 9,600 | 7,746 | 0.81 | D | 9,895 | **1.03** | **F** | 7,753 | 0.81 | D | 9,911 | **1.03** | **F** |
| | n/o Bake | NB | 9+2H | 21,500 | 22,459 | **1.04** | **F** | 14,480 | 0.67 | B | 22,625 | **1.05** | **F** | 14,500 | 0.67 | B |
| | | SB | 9+2H | 21,500 | 11,923 | 0.55 | A | 16,900 | 0.79 | C | 11,947 | 0.56 | A | 16,996 | 0.79 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 21,818 | **1.12** | **F** | 12,913 | 0.66 | B | 21,839 | **1.12** | **F** | 12,951 | 0.66 | B |
| | | SB | 8+2H | 19,500 | 12,225 | 0.63 | B | 17,531 | 0.90 | D | 12,294 | 0.63 | B | 17,595 | 0.90 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,840 | **1.54** | **F** | 12,074 | 0.89 | D | 20,795 | **1.54** | **F** | 12,106 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,092 | 0.75 | C | 16,074 | **1.19** | **F** | 10,158 | 0.75 | C | 16,100 | **1.19** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 17,663 | **1.84** | **F** | 10,188 | **1.06** | **F** | 17,609 | **1.83** | **F** | 10,219 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,768 | 0.81 | D | 13,144 | **1.37** | **F** | 7,821 | 0.81 | D | 13,142 | **1.37** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,555 | **1.41** | **F** | 7,629 | 0.79 | C | 13,512 | **1.41** | **F** | 7,657 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,416 | 0.67 | B | 10,753 | **1.12** | **F** | 6,484 | 0.68 | B | 10,744 | **1.12** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,880 | **1.34** | **F** | 9,132 | 0.95 | E | 13,156 | **1.37** | **F** | 9,145 | 0.95 | E |
| | | SB | 4+1H | 9,600 | 9,177 | 0.96 | E | 10,636 | **1.11** | **F** | 9,107 | 0.95 | E | 10,881 | **1.13** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,975 | **1.35** | **F** | 9,478 | 0.99 | E | 13,259 | **1.38** | **F** | 9,485 | 0.99 | E |
| | | SB | 4+1H | 9,600 | 9,380 | 0.98 | E | 10,570 | **1.10** | **F** | 9,332 | 0.97 | E | 10,792 | **1.12** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,695 | **1.32** | **F** | 8,501 | 0.89 | D | 12,941 | **1.35** | **F** | 8,539 | 0.89 | D |
| | | SB | 4+1H | 9,600 | 8,264 | 0.86 | D | 9,989 | **1.04** | **F** | 8,243 | 0.86 | D | 10,179 | **1.06** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,963 | **1.14** | **F** | 7,342 | 0.76 | C | 11,084 | **1.15** | **F** | 7,370 | 0.77 | C |
| | | SB | 4+1H | 9,600 | 7,142 | 0.74 | C | 8,795 | 0.92 | E | 7,127 | 0.74 | C | 8,918 | 0.93 | E |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,902 | 0.82 | D | 4,094 | 0.43 | A | 7,964 | 0.83 | D | 4,122 | 0.43 | A |
| | | SB | 4+1H | 9,600 | 6,162 | 0.64 | B | 8,549 | 0.89 | D | 6,235 | 0.65 | B | 8,635 | 0.90 | D |

## Table 9-16 Cont.

## Pending Year 2030 Freeway Mainline LOS Summary, Option 2

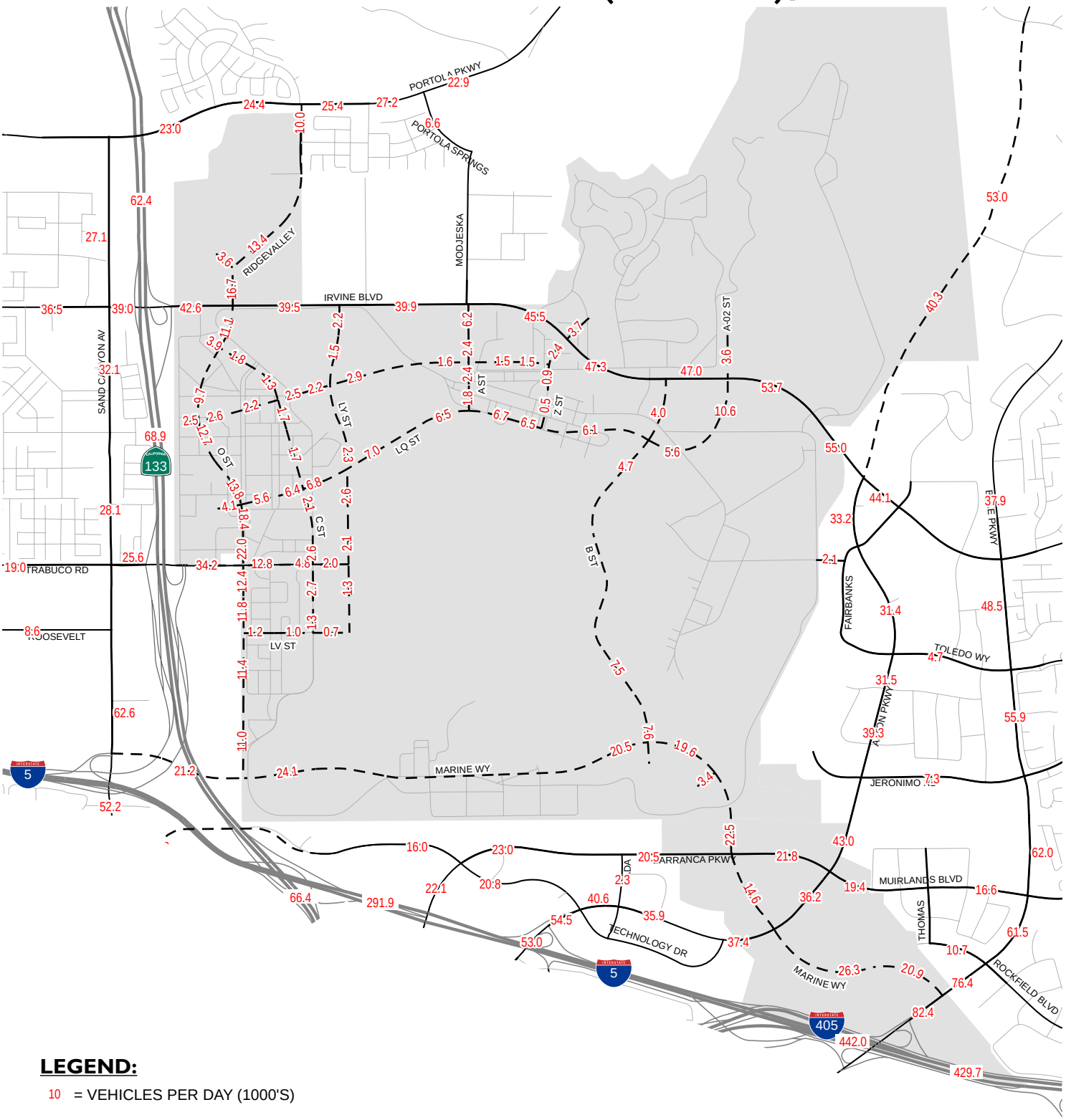
| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | Modified Project, Pending | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4 | 8,000 | 2,735 | 0.34 | A | 5,358 | 0.67 | B | 2,870 | 0.36 | A | 5,292 | 0.66 | B |
| | | SB | 4 | 8,000 | 6,476 | 0.81 | D | 3,337 | 0.42 | A | 6,477 | 0.81 | D | 3,368 | 0.42 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 2,443 | 0.41 | A | 5,049 | 0.84 | D | 2,451 | 0.41 | A | 5,035 | 0.84 | D |
| | | SB | 3 | 6,000 | 5,782 | 0.96 | E | 3,039 | 0.51 | A | 5,819 | 0.97 | E | 3,046 | 0.51 | A |
| | n/o I-5 | NB | 3 | 6,000 | 2,274 | 0.38 | A | 4,560 | 0.76 | C | 2,277 | 0.38 | A | 4,540 | 0.76 | C |
| | | SB | 3 | 6,000 | 3,723 | 0.62 | B | 1,956 | 0.33 | A | 3,742 | 0.62 | B | 1,977 | 0.33 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,338 | 0.56 | A | 4,600 | 0.77 | C | 3,338 | 0.56 | A | 4,618 | 0.77 | C |
| | | SB | 3 | 6,000 | 4,807 | 0.80 | C | 3,138 | 0.52 | A | 4,891 | 0.82 | D | 3,185 | 0.53 | A |
| | n/o I-405 | NB | 3 | 6,000 | 3,947 | 0.66 | B | 3,565 | 0.59 | A | 3,922 | 0.65 | B | 3,620 | 0.60 | A |
| | | SB | 3 | 6,000 | 3,320 | 0.55 | A | 3,179 | 0.53 | A | 3,402 | 0.57 | A | 3,218 | 0.54 | A |
| SR-241 | n/o SR-133 | NB | 3 | 6,000 | 5,356 | 0.89 | D | 4,930 | 0.82 | D | 5,570 | 0.93 | E | 4,877 | 0.81 | D |
| | | SB | 3 | 6,000 | 5,743 | 0.96 | E | 4,820 | 0.80 | C | 5,665 | 0.94 | E | 4,939 | 0.82 | D |
| | n/o Portola (West) | NB | 4 | 8,000 | 6,518 | 0.81 | D | 3,377 | 0.42 | A | 6,594 | 0.82 | D | 3,347 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,164 | 0.40 | A | 5,288 | 0.66 | B | 3,081 | 0.39 | A | 5,332 | 0.67 | B |
| | n/o Alton | NB | 4 | 8,000 | 7,130 | 0.89 | D | 3,787 | 0.47 | A | 7,183 | 0.90 | D | 3,743 | 0.47 | A |
| | | SB | 4 | 8,000 | 3,727 | 0.47 | A | 5,829 | 0.73 | C | 3,628 | 0.45 | A | 5,851 | 0.73 | C |
| | n/o Lake Forest | NB | 4 | 8,000 | 7,564 | 0.95 | E | 3,402 | 0.43 | A | 7,550 | 0.94 | E | 3,361 | 0.42 | A |
| | | SB | 4 | 8,000 | 3,119 | 0.39 | A | 6,077 | 0.76 | C | 3,090 | 0.39 | A | 6,053 | 0.76 | C |
| SR-261 | n/o Portola | NB | 3 | 6,000 | 1,306 | 0.22 | A | 3,010 | 0.50 | A | 1,354 | 0.23 | A | 3,010 | 0.50 | A |
| | | SB | 3 | 6,000 | 3,760 | 0.63 | B | 1,416 | 0.24 | A | 3,749 | 0.62 | B | 1,429 | 0.24 | A |
| | n/o irvine Blvd | NB | 3 | 6,000 | 536 | 0.09 | A | 2,390 | 0.40 | A | 566 | 0.09 | A | 2,410 | 0.40 | A |
| | | SB | 3 | 6,000 | 3,121 | 0.52 | A | 825 | 0.14 | A | 3,139 | 0.52 | A | 833 | 0.14 | A |
| | s/o Irvine Blvd | NB | 3 | 6,000 | 790 | 0.13 | A | 3,109 | 0.52 | A | 814 | 0.14 | A | 3,158 | 0.53 | A |
| | | SB | 3 | 6,000 | 3,768 | 0.63 | B | 1,157 | 0.19 | A | 3,803 | 0.63 | B | 1,172 | 0.20 | A |
| | n/o Chapman/Sant. Cyn | NB | 3 | 6,000 | 5,555 | 0.93 | E | 6,840 | **1.14** | **F** | 5,637 | 0.94 | E | 6,720 | **1.12** | **F** |
| | | SB | 3 | 6,000 | 8,518 | **1.42** | **F** | 5,150 | 0.86 | D | 8,277 | **1.38** | **F** | 5,179 | 0.86 | D |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_6.12.12.xlsx]9-16

EXHIBIT 9-13 (1 OF 3)

# PENDING POST-2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA




**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

Feet

EXHIBIT 9-13 (2 OF 3)

# PENDING POST-2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA

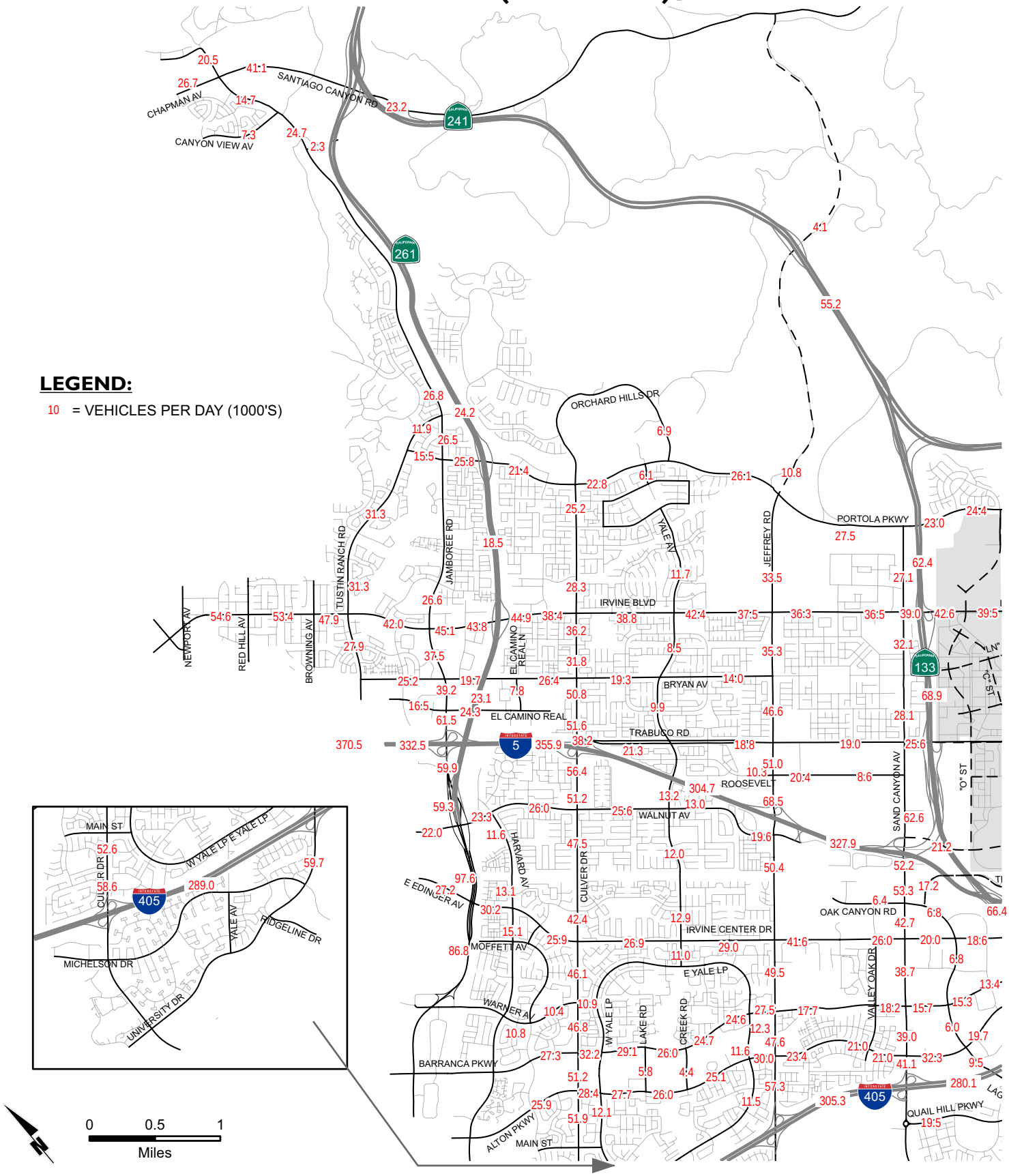


EXHIBIT 9-13 (3 OF 3)

# PENDING POST-2030 ADT VOLUMES - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA

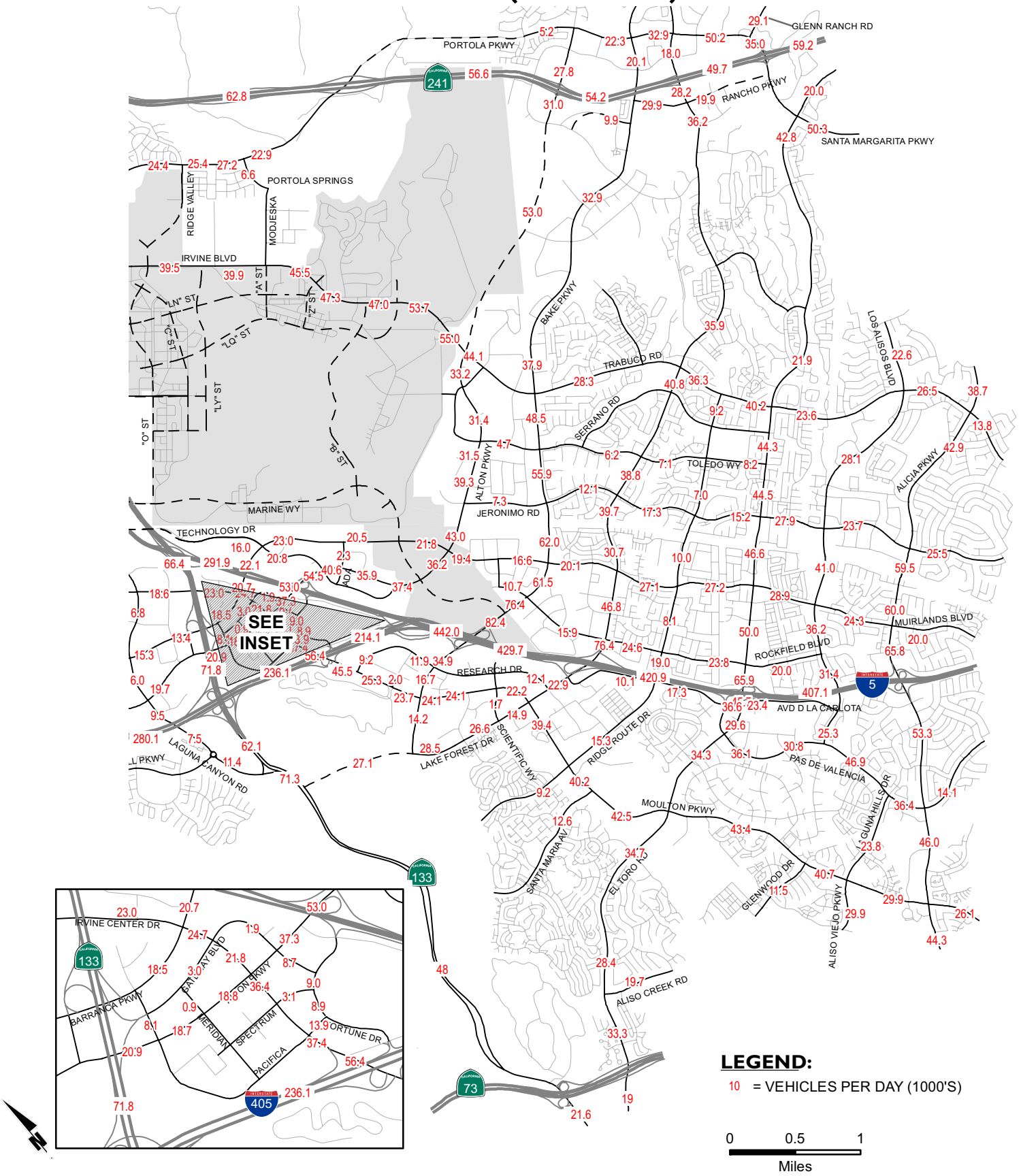
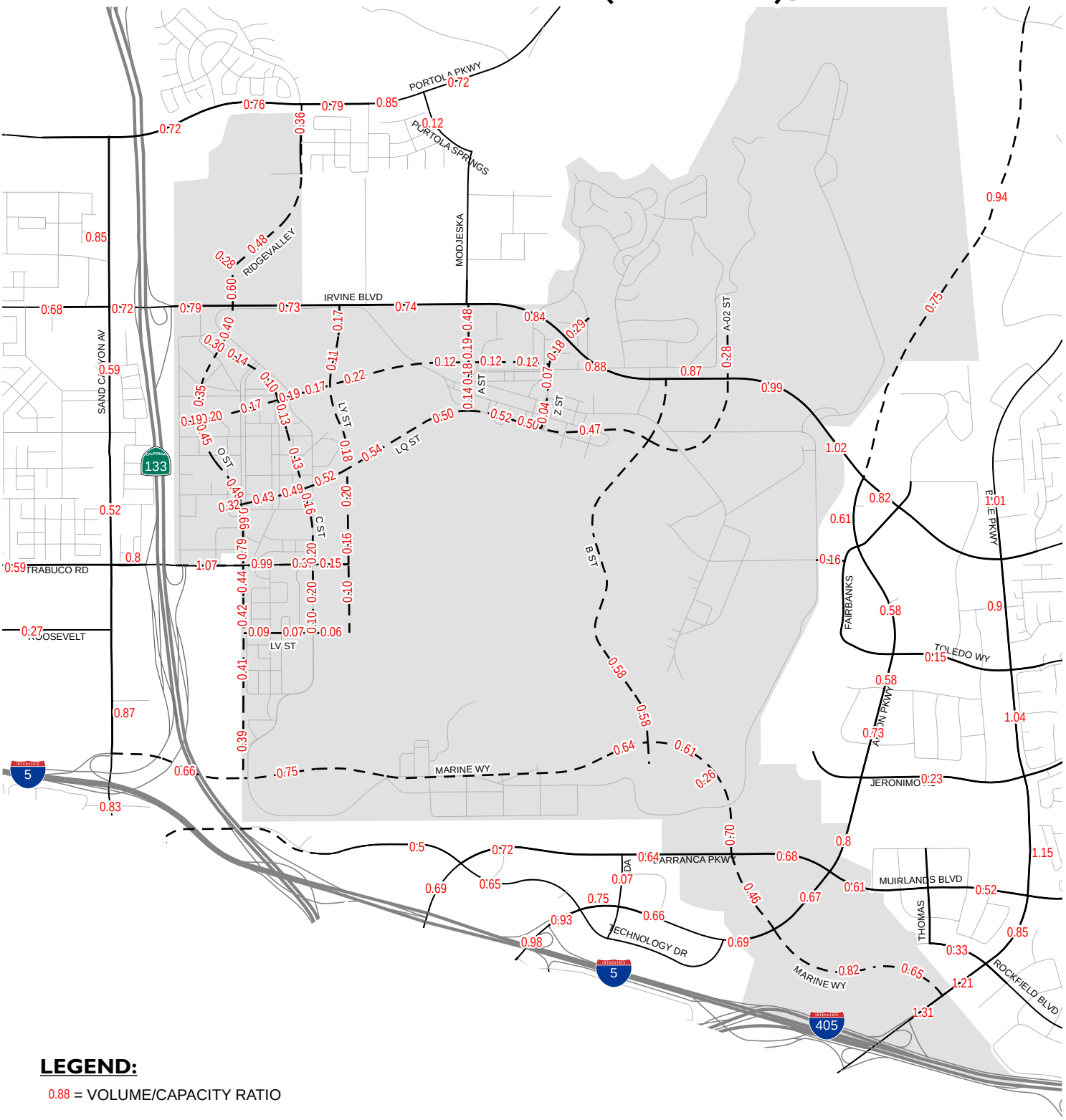


EXHIBIT 9-14 (1 OF 3)

# PENDING POST-2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), PROJECT AREA



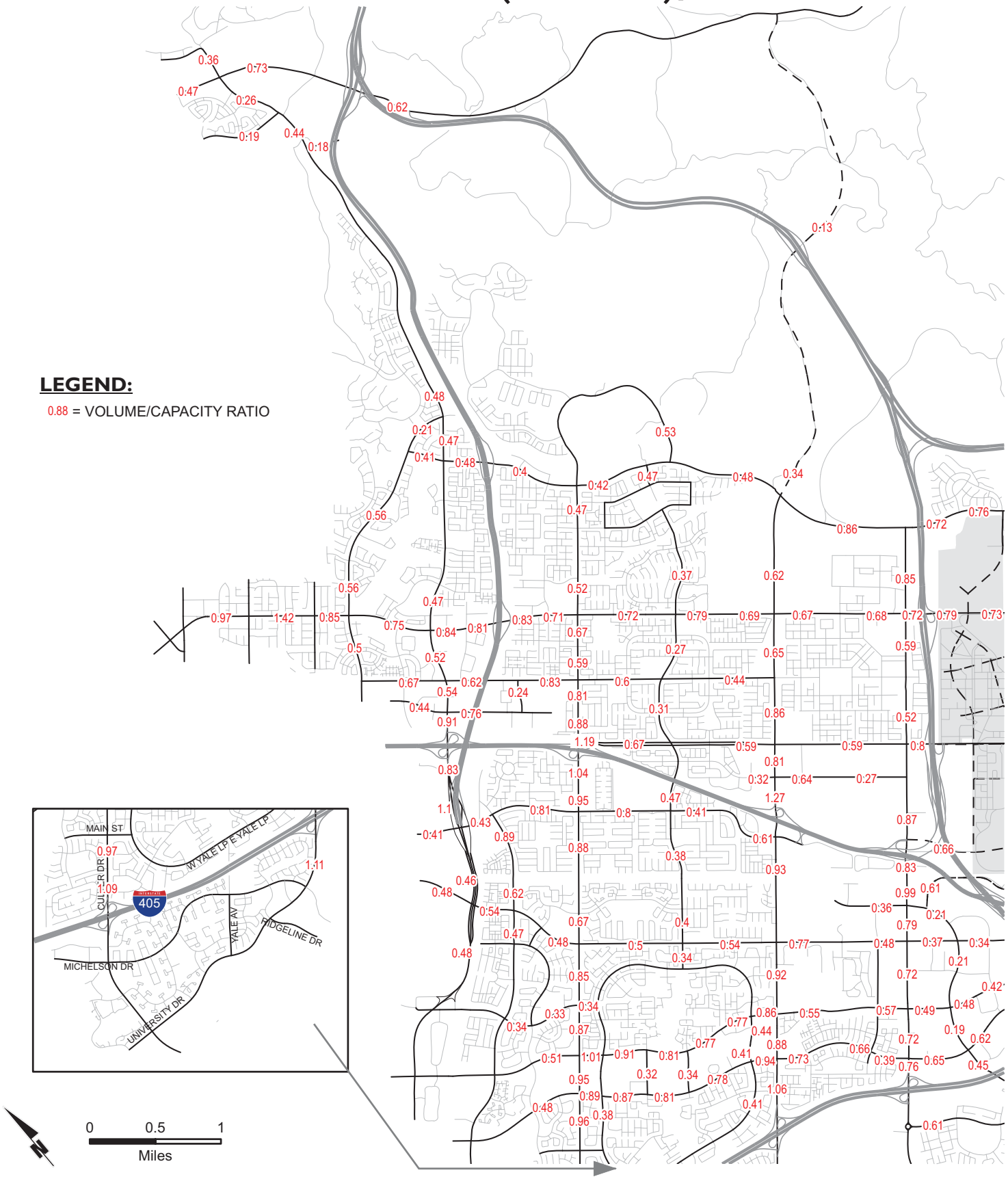

**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

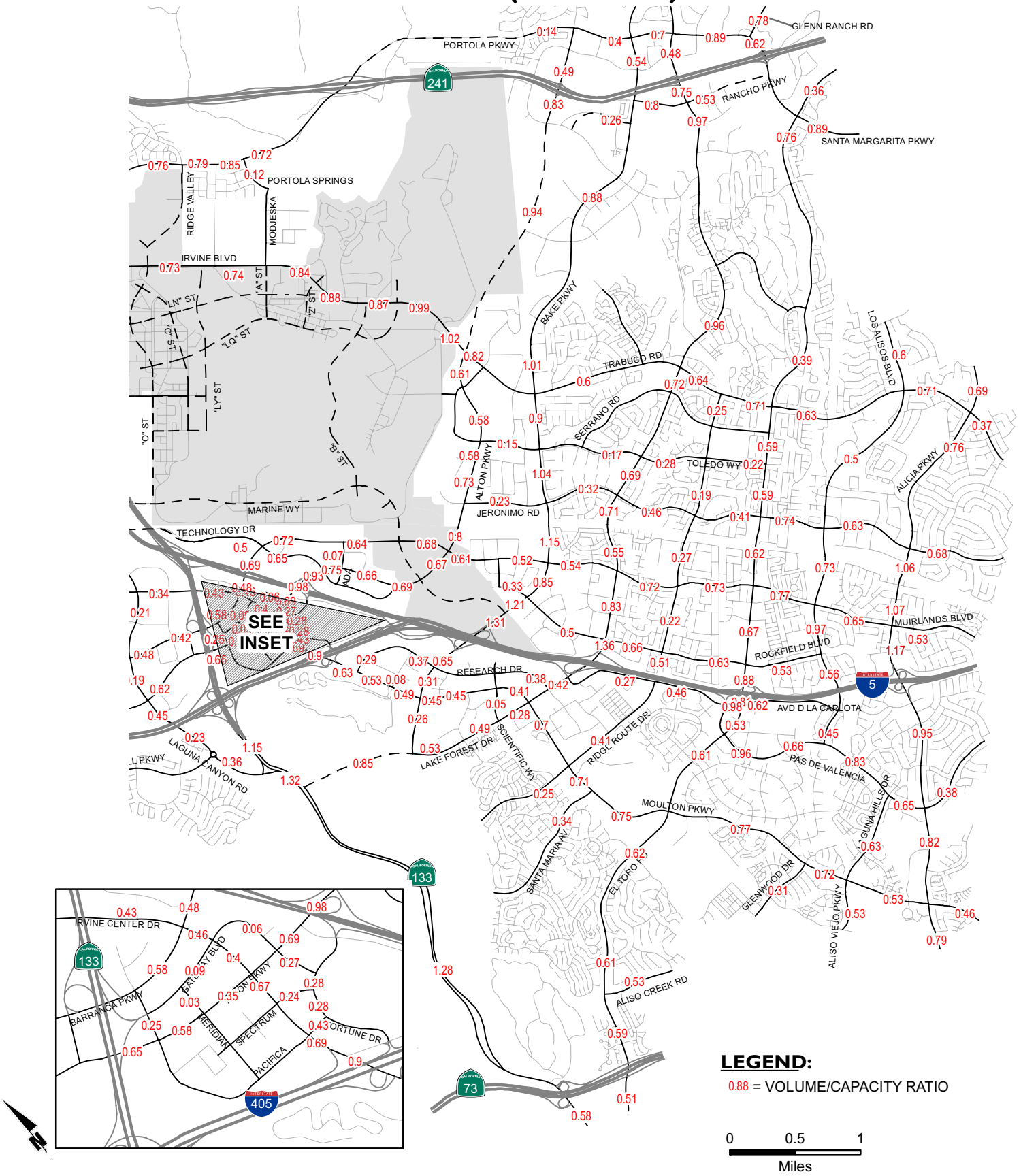
0 1,400 2,800

Feet

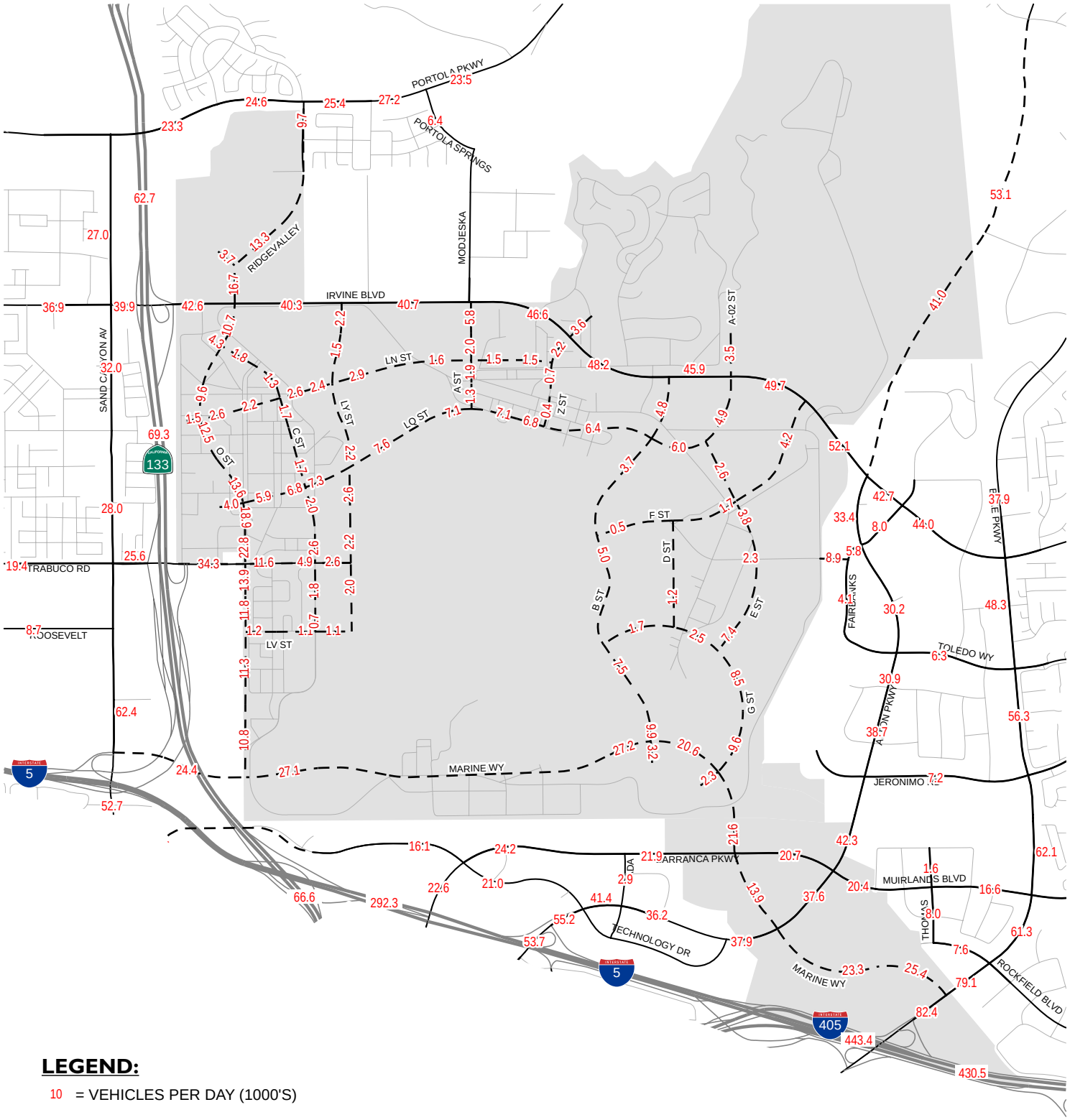
# PENDING POST-2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), WEST STUDY AREA



# PENDING POST-2030 ADT V/C RATIOS - 2011 APPROVED PROJECT (BASELINE), EAST STUDY AREA



# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 1 ADT VOLUMES, PROJECT AREA




**LEGEND:**

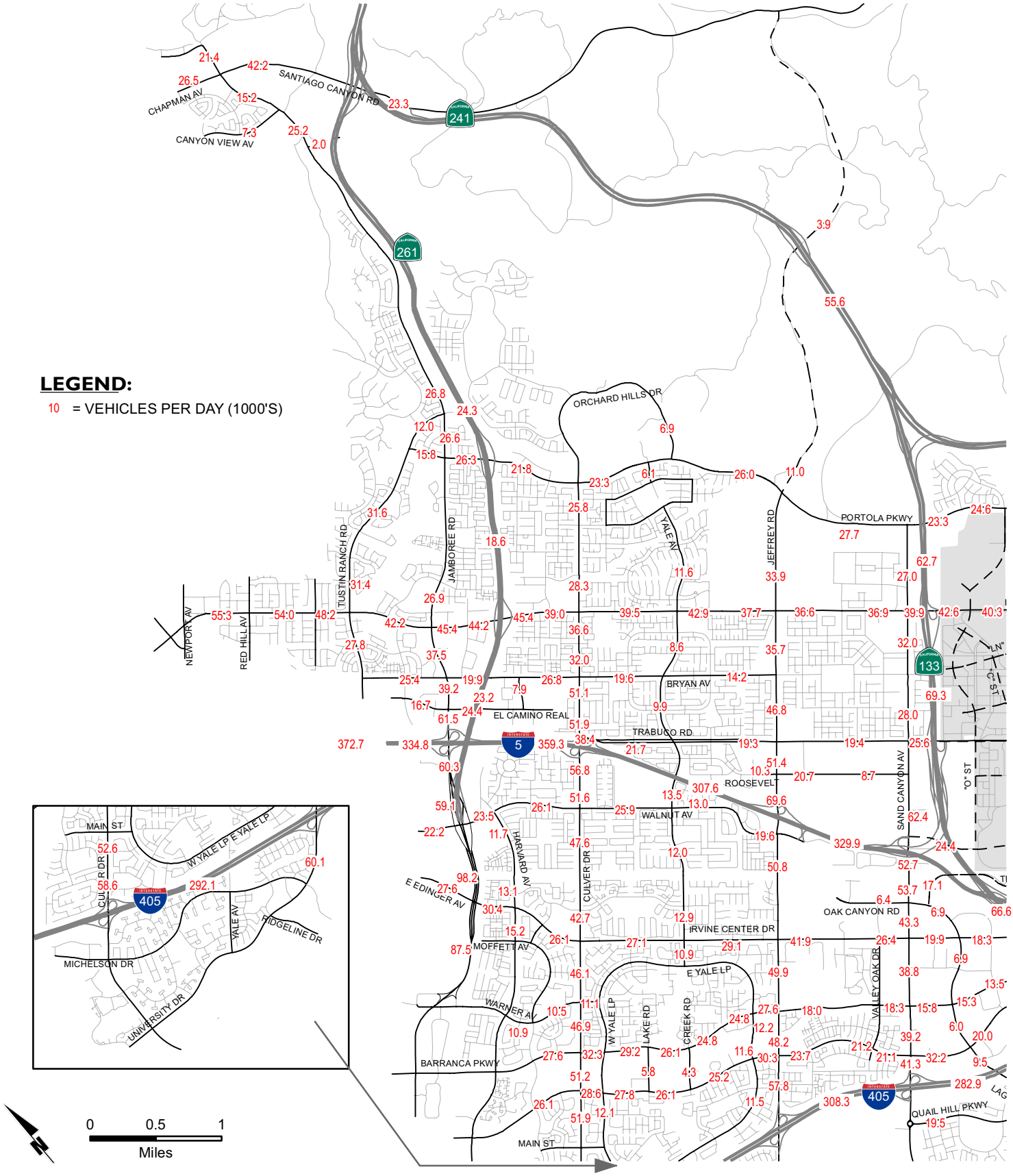
10 = VEHICLES PER DAY (1000'S)

0 1,400 2,800

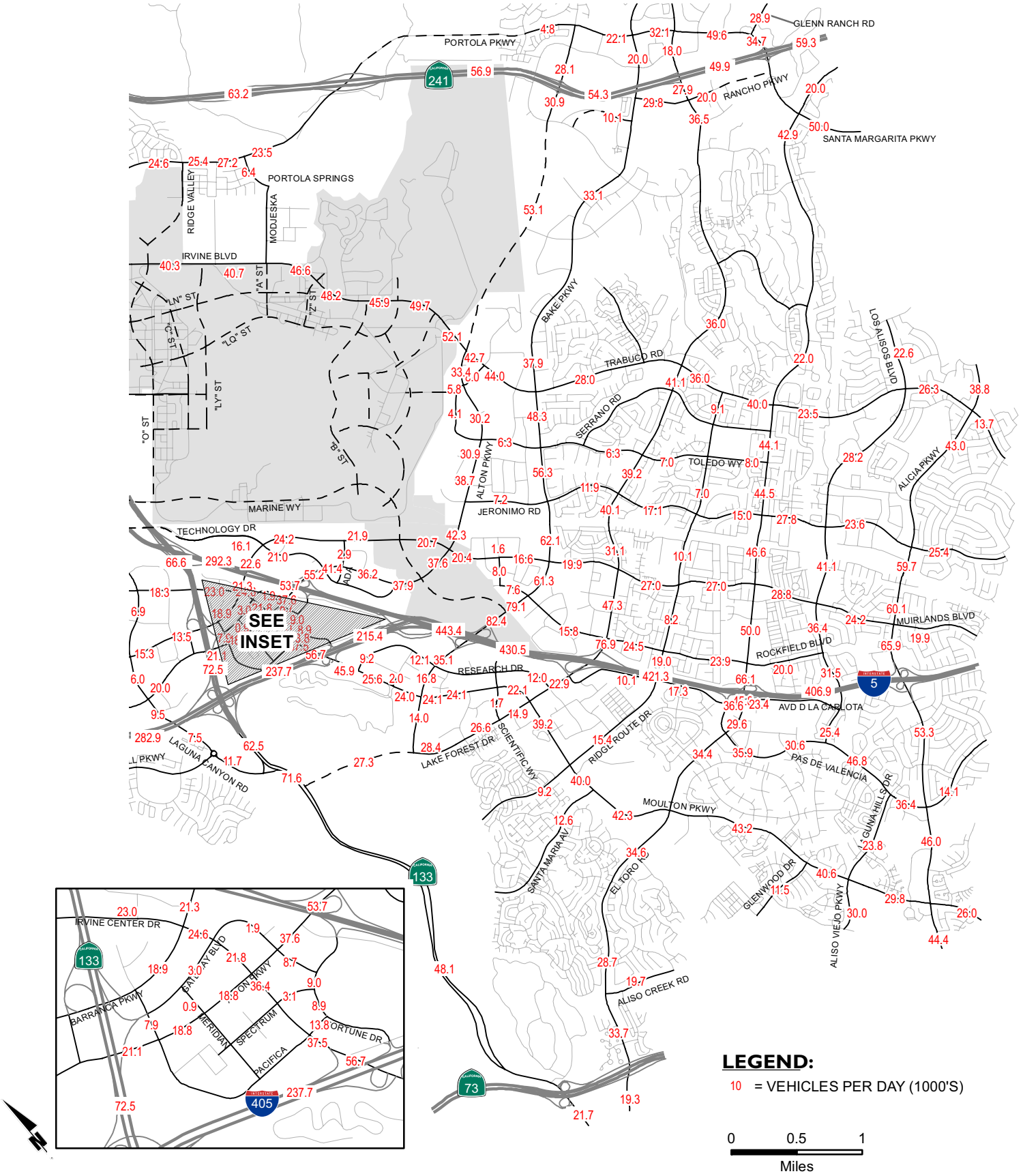
Feet

EXHIBIT 9-15 (2 OF 3)

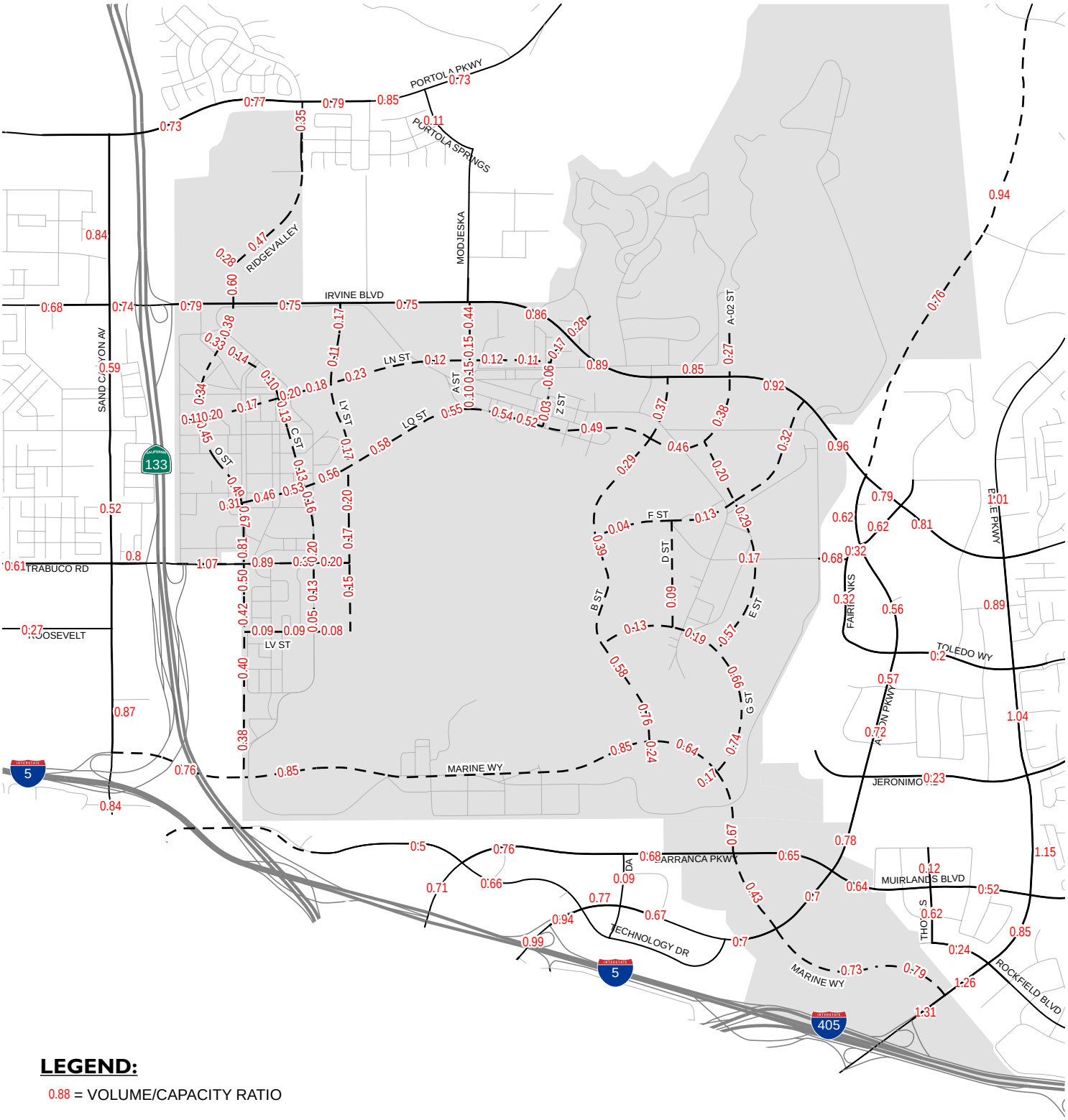
# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 1 ADT VOLUMES, WEST STUDY AREA



# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 1 ADT VOLUMES, EAST STUDY AREA



# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 1 ADT V/C RATIOS, PROJECT AREA



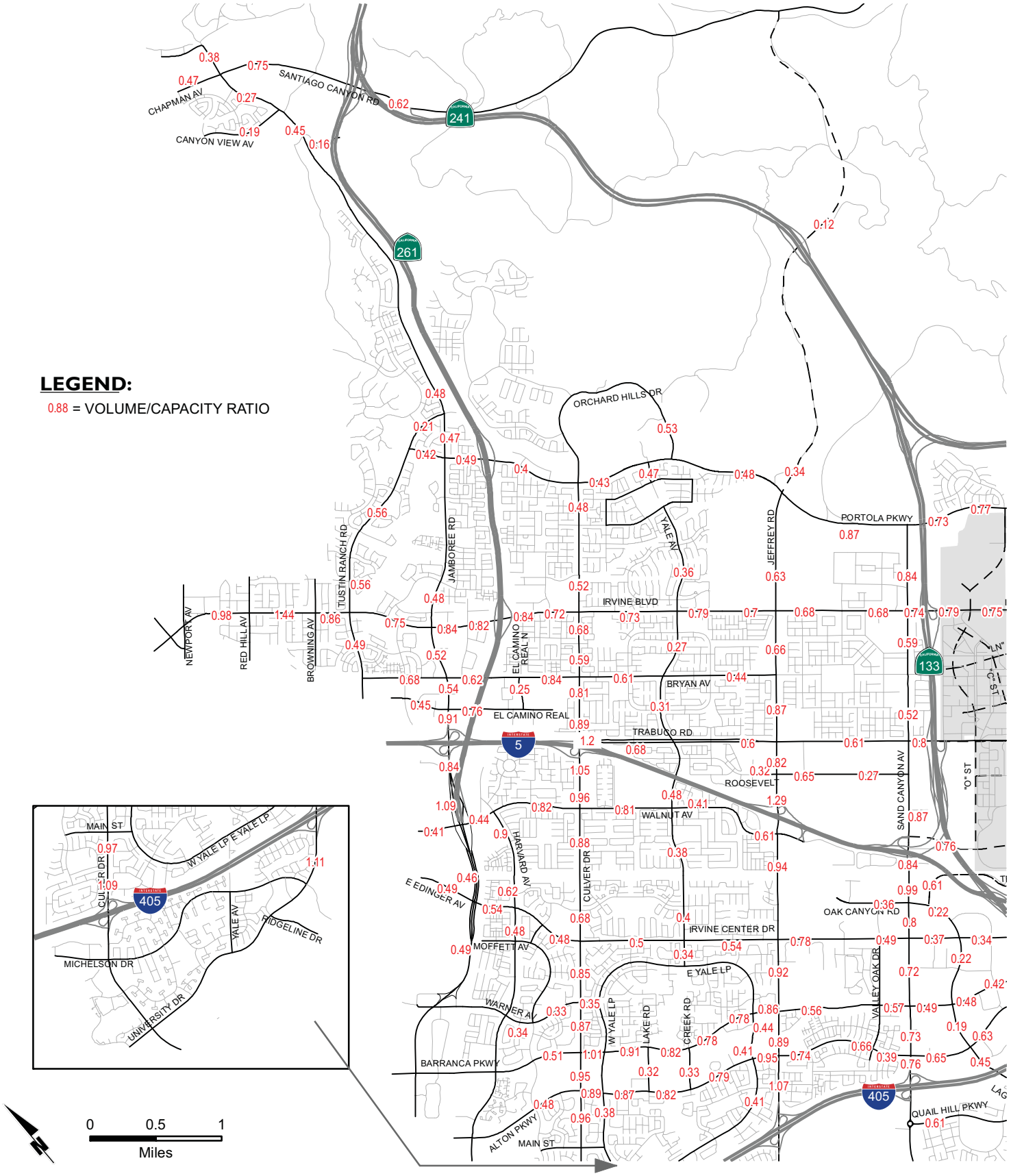

**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

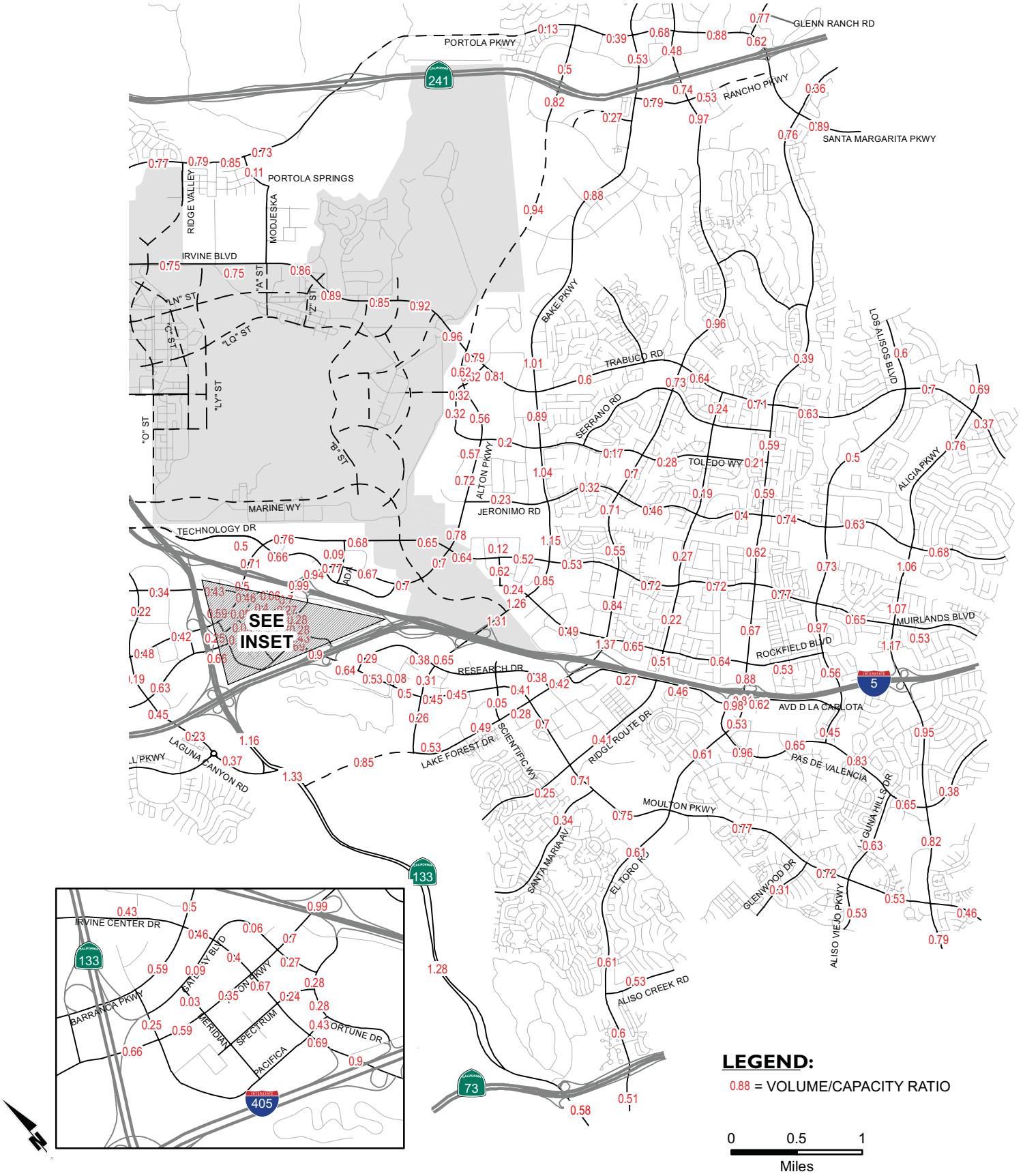
0 1,400 2,800

Feet

# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 1 ADT V/C RATIOS, WEST STUDY AREA



# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 1 ADT V/C RATIOS, EAST STUDY AREA



- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Jeffrey Rd (b/w Roosevelt and I-5 NB Ramps)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Post-2030 with Option 1, with Pending Projects conditions are summarized in Table 9-17. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

**Table 9-17**
**Pending Post 2030 Arterial Roadway Peak Hour Analysis, Option 1**

| | | Pending P2030 With 2012 Modified Project Option 1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Arterial | ADT Segment Limits | Juris | # of Lanes | Peak Hour Capacity | ADT | Highest Peak Volume | | Peak Hour V/C | Peak Hour LOS |
| Bake Pkwy. | b/w Rockfield Bl. & Marine Wy. | Irv | 8D | 6400 | 79,100 | 4,127 | AM NB | 0.64 | B |
| Jeffrey Rd. | b/w Roosevelt & I-5 NB Ramps | Irv | 6D | 4800 | 69,600 | 3,470 | AM SB | 0.72 | C |

9.1.18 Post-2030 Peak Hour Intersection Levels of Service, with Option 1, with Pending Projects

Post-2030 with Option 1, with Pending Projects AM and PM peak hour intersection capacity utilization (ICU) results are summarized in Table 9-18. Actual turn volumes, lane geometrics and ICU calculation worksheets for 2011 Approved Project (baseline), with Pending Projects are included in Appendix 9.7 and Post-2030 with Option 1, with Pending Projects are included in Appendix 9.8. Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that the following two intersections exceed adopted impact thresholds for the 2012 Modified Project Option 1, with Pending Projects (see Table 9-26):

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.

## Table 9-18

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | | Post 2030 With Approved Project, with Pending Projects | | | | Post 2030 With Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | Yes | Yes | | 0.78 | C | 0.89 | D | 0.79 | C | 0.90 | D |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | Yes | Yes | | 0.75 | C | 0.85 | D | 0.77 | C | 0.85 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | | 0.85 | D | 0.76 | C | 0.87 | D | 0.74 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | Yes | Yes | | 0.78 | C | 0.85 | D | 0.79 | C | 0.85 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | | 0.64 | B | 0.54 | A | 0.64 | B | 0.54 | A |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | | 0.74 | C | 0.70 | B | 0.75 | C | 0.70 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | | Yes | 0.81 | D | 0.79 | C | 0.81 | D | 0.78 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | | 0.70 | B | 0.62 | B | 0.69 | B | 0.62 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | | 0.71 | C | 0.70 | B | 0.72 | C | 0.70 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | | 0.62 | B | 0.71 | C | 0.65 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | | 0.64 | B | 0.64 | B | 0.64 | B | 0.63 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | | 0.46 | A | 0.57 | A | 0.47 | A | 0.59 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | | 0.54 | A | 0.74 | C | 0.53 | A | 0.74 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | | Yes | 0.50 | A | 0.70 | B | 0.51 | A | 0.71 | C |
| 135 | Jamboree Rd NB at Warner Av | Irv | | Yes | | | 0.40 | A | 0.44 | A | 0.41 | A | 0.45 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | | Yes | 0.87 | D | 0.97 | E | 0.87 | D | 0.98 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | | 0.47 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | | 0.47 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | | 0.58 | A | 0.52 | A | 0.57 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | | 0.70 | B | 0.62 | B | 0.71 | C | 0.63 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | | 0.71 | C | 0.67 | B | 0.73 | C | 0.67 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | | 0.78 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | | 0.88 | D | 0.74 | C | 0.89 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | | 0.74 | C | 0.76 | C | 0.76 | C | 0.78 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | | 0.59 | A | 0.65 | B | 0.60 | A | 0.66 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | Yes | | | 0.81 | D | 0.87 | D | 0.81 | D | 0.88 | D |
| 226 | Culver Dr at ICD | Irv | | Yes | | | 0.77 | C | 0.70 | B | 0.77 | C | 0.70 | B |
| 227 | Culver Dr at Warner Av | Irv | | | | | 0.81 | D | 0.66 | B | 0.83 | D | 0.65 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | Yes | | | 0.88 | D | 0.80 | C | 0.89 | D | 0.80 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | Yes | | | 0.81 | D | 0.88 | D | 0.84 | D | 0.88 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | | 0.76 | C | 0.73 | C | 0.78 | C | 0.73 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | | 0.55 | A | 0.62 | B | 0.56 | A | 0.63 | B |
| 235 | Culver Dr at University | Irv | **F** | Yes | | | 0.63 | B | 0.77 | C | 0.63 | B | 0.77 | C |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | | 0.75 | C | 0.88 | D | 0.75 | C | 0.88 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | | 0.46 | A | 0.45 | A | 0.47 | A | 0.45 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | | 0.60 | A | 0.50 | A | 0.62 | B | 0.50 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | | 0.58 | A | 0.72 | C | 0.60 | A | 0.74 | C |
| 261 | Yale Av at ICD | Irv | | | | | 0.69 | B | 0.69 | B | 0.68 | B | 0.69 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | | 0.64 | B | 0.63 | B | 0.65 | B | 0.63 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | | 0.68 | B | 0.65 | B | 0.69 | B | 0.66 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | | 0.65 | B | 0.66 | B | 0.66 | B | 0.65 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | | 0.68 | B | 0.64 | B | 0.68 | B | 0.65 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | Yes | | | 0.74 | C | 0.71 | C | 0.74 | C | 0.72 | C |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | | 0.73 | C | 0.67 | B | 0.74 | C | 0.68 | B |

## Table 9-18 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | | Post 2030 With Approved Project, with Pending Projects | | | | Post 2030 With Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | Yes | | | 0.66 | B | 0.74 | C | 0.64 | B | 0.75 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | | 0.89 | D | 0.88 | D | **0.91** | **E** | 0.88 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | | 0.73 | C | 0.81 | D | 0.74 | C | 0.82 | D |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | | 0.79 | C | 0.80 | C | 0.79 | C | 0.80 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | Yes | | | 0.82 | D | 0.79 | C | 0.83 | D | 0.80 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | Yes | | | 0.85 | D | 0.75 | C | 0.85 | D | 0.75 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | Yes | | 0.90 | D | 0.80 | C | **0.92** | **E** | **0.80** | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | | 0.68 | B | 0.79 | C | 0.70 | B | 0.79 | C |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | | 0.68 | B | 0.70 | B | 0.69 | B | 0.71 | C |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | | 0.48 | A | 0.59 | A | 0.48 | A | 0.60 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | | 0.74 | C | 0.76 | C | 0.73 | C | 0.76 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | Yes | | | 0.77 | C | 0.76 | C | 0.76 | C | 0.78 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | | 0.81 | D | 0.83 | D | 0.86 | D | 0.88 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | | 0.88 | D | 0.84 | D | 0.90 | D | 0.88 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | | 0.87 | D | 0.78 | C | 0.86 | D | 0.79 | C |
| 307 | Sand Canyon Av at ICD | Irv | | | | | 0.60 | A | 0.67 | B | 0.61 | B | 0.67 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | | 0.57 | A | 0.61 | B | 0.56 | A | 0.60 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | | 0.64 | B | 0.74 | C | 0.64 | B | 0.75 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | | 0.66 | B | 0.48 | A | 0.66 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | | 0.80 | C | 0.53 | A | 0.80 | C | 0.54 | A |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | | 0.35 | A | 0.44 | A | 0.35 | A | 0.43 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | | 0.45 | A | 0.46 | A | 0.45 | A | 0.46 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | | 0.53 | A | 0.59 | A | 0.53 | A | 0.59 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | | 0.55 | A | 0.58 | A | 0.54 | A | 0.58 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | | 0.75 | C | 0.76 | C | 0.72 | C | 0.81 | D |
| 318 | Banting at Barranca Pkwy | Irv | | | | | 0.73 | C | 0.54 | A | 0.73 | C | 0.54 | A |
| 319 | Banting at Alton Pw | Irv | | | | | 0.58 | A | 0.54 | A | 0.59 | A | 0.55 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | | 0.85 | D | 0.76 | C | 0.86 | D | 0.77 | C |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | | Yes | 0.98 | E | 0.65 | B | 0.98 | E | 0.66 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | | Yes | 0.40 | A | 0.44 | A | 0.40 | A | 0.44 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | | 0.59 | A | 0.40 | A | 0.59 | A | 0.40 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | | 0.44 | A | 0.44 | A | 0.43 | A | 0.43 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | | 0.59 | A | 0.70 | B | 0.61 | B | 0.70 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | | Yes | 0.66 | B | 0.45 | A | 0.64 | B | 0.46 | A |
| 329 | Barranca Pw at ICD | Irv | | | | Yes | 0.68 | B | 0.68 | B | 0.68 | B | 0.69 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | | Yes | 0.60 | A | 0.79 | C | 0.61 | B | 0.77 | C |
| 333 | Pacifica at Gateway | Irv | | | | Yes | 0.73 | C | 0.78 | C | 0.75 | C | 0.79 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | | 0.49 | A | 0.37 | A | 0.49 | A | 0.37 | A |
| 336 | Alton Pw at SR-241 Ramps | Irv | | | | | 0.65 | B | 0.58 | A | 0.65 | B | 0.58 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | | Yes | 0.91 | E | 0.93 | E | 0.94 | E | 0.89 | D |
| 339 | Alton Pw at Toledo Wy | Irv | | | | | 0.70 | B | 0.63 | B | 0.79 | C | 0.67 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | | 0.66 | B | 0.54 | A | 0.66 | B | 0.53 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | | 0.59 | A | 0.75 | C | 0.57 | A | 0.73 | C |
| 343 | Alton Pw at Ada | Irv | | | | | 0.48 | A | 0.75 | C | 0.51 | A | 0.78 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | | 0.58 | A | 0.88 | D | 0.58 | A | 0.87 | D |

## Table 9-18 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | | Post 2030 With Approved Project, with Pending Projects | | | | Post 2030 With Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | | Yes | 0.90 | D | 0.54 | A | 0.89 | D | 0.54 | A |
| 346 | Alton Pw at Enterprise | Irv | | | | Yes | 0.72 | C | 0.79 | C | 0.71 | C | 0.81 | D |
| 348 | Alton Pw at ICD | Irv | **P** | | | Yes | 0.58 | A | 0.77 | C | 0.57 | A | 0.77 | C |
| 350 | Alton Pw at Pacifica | Irv | | | | Yes | 0.59 | A | 0.58 | A | 0.61 | B | 0.59 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | | Yes | 0.57 | A | 0.87 | D | 0.58 | A | 0.87 | D |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | | Yes | 0.52 | A | 0.55 | A | 0.50 | A | 0.55 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | | Yes | 0.65 | B | 0.54 | A | 0.66 | B | 0.54 | A |
| 359 | ICD at I-405 SB Ramps | LF | **P** | | | Yes | 0.59 | A | 0.55 | A | 0.60 | A | 0.56 | A |
| 361 | Bake Pw at Portola Pw | Irv | | | | | 0.56 | A | 0.83 | D | 0.55 | A | 0.82 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | | Yes | 0.81 | D | 0.90 | D | 0.82 | D | 0.91 | E |
| 363 | Bake Pw at Toledo Wy | Irv | | | | | 0.79 | C | 0.66 | B | 0.77 | C | 0.66 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | | 0.82 | D | 0.68 | B | 0.81 | D | 0.68 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | | 0.74 | C | **0.93** | **E** | 0.74 | C | **0.91** | **E** |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | | 0.72 | C | 0.87 | D | 0.70 | B | 0.87 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | | Yes | 0.84 | D | 0.57 | A | 0.82 | D | 0.58 | A |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | | Yes | 0.81 | D | 0.86 | D | 0.81 | D | 0.87 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | | 0.58 | A | 0.81 | D | 0.58 | A | 0.81 | D |
| 372 | Bake Pw at ICD | LF | | | | | 0.55 | A | 0.54 | A | 0.56 | A | 0.53 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | | 0.34 | A | 0.45 | A | 0.34 | A | 0.43 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | | 0.64 | B | 0.90 | D | 0.62 | B | 0.89 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | | 0.57 | A | 0.53 | A | 0.54 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | | 0.84 | D | 0.90 | D | 0.83 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | | 0.61 | B | 0.57 | A | 0.63 | B | 0.60 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | | 0.69 | B | 0.87 | D | 0.70 | B | 0.87 | D |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | | 0.74 | C | 0.85 | D | 0.73 | C | 0.85 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | | 0.85 | D | 0.87 | D | 0.84 | D | 0.89 | D |
| 381 | Lake Forest Dr at I-5 NB Ramps | Irv | | | | | 0.70 | B | 0.75 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | Yes | | Yes | 0.63 | B | 0.78 | C | 0.63 | B | 0.78 | C |
| 385 | Lake Forest Dr at ICD | LF | | | | Yes | 0.50 | A | 0.72 | C | 0.50 | A | 0.72 | C |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | | 0.57 | A | 0.70 | B | 0.57 | A | 0.69 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LH | **P** | | | | 0.51 | A | 0.61 | B | 0.50 | A | 0.61 | B |
| 388 | Ridge Route Dr at Aveninda Carlota | LH/LW | | | | | 0.47 | A | 0.69 | B | 0.48 | A | 0.69 | B |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | | 0.56 | A | 0.61 | B | 0.56 | A | 0.62 | B |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | | 0.79 | C | 0.89 | D | 0.79 | C | 0.89 | D |
| 391 | Santa Maria Av at Moulton Pw | LF | | | | | 0.50 | A | 0.78 | C | 0.50 | A | 0.77 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | | 0.73 | C | 0.84 | D | 0.73 | C | 0.83 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | | 0.60 | A | 0.75 | C | 0.61 | B | 0.75 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LH | | | | Yes | 0.82 | D | 0.85 | D | 0.82 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH/LW | **P** | | | Yes | 0.62 | B | 0.89 | D | 0.62 | B | 0.89 | D |
| 397 | El Toro Rd at Paseo de Valencia | LW | | | | | 0.68 | B | 0.85 | D | 0.68 | B | 0.85 | D |
| 398 | El Toro Rd at Moulton Pw | AV | | | | Yes | 0.83 | D | 0.91 | E | 0.84 | D | 0.91 | E |
| 399 | El Toro Rd at Aliso Creek Rd | LB | | | | | 0.56 | A | 0.70 | B | 0.57 | A | 0.69 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | | Yes | 0.63 | B | 0.63 | B | 0.64 | B | 0.64 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | Irv | | | | Yes | 0.46 | A | 0.66 | B | 0.47 | A | 0.66 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | OC | | | | | 0.63 | B | 0.64 | B | 0.64 | B | 0.66 | B |

## Table 9-18 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | | Post 2030 With Approved Project, with Pending Projects | | | | Post 2030 With Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 403 | SR-241 NB Ramps at Jeffery Rd | OC | | | | | 0.35 | A | 0.27 | A | 0.34 | A | 0.26 | A |
| 404 | SR-241 SB Ramps at Jeffery Rd | OC | | | | | 0.26 | A | 0.22 | A | 0.28 | A | 0.22 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | | 0.41 | A | 0.37 | A | 0.42 | A | 0.37 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | | 0.59 | A | 0.52 | A | 0.59 | A | 0.53 | A |
| 407 | Laguna Canyon Rd at Bake Pw | LF | **F** | | | | 0.49 | A | 0.41 | A | 0.49 | A | 0.41 | A |
| 408 | Laguna Canyon Rd at Santa Maria Dr | LF | | | | | 0.70 | B | 0.60 | A | 0.70 | B | 0.60 | A |
| 409 | Bake Pw at Commercentre Dr | LF | | | | | 0.66 | B | 0.73 | C | 0.66 | B | 0.74 | C |
| 410 | Bake Pw at Lake Forest Dr | Irv | | | | | 0.50 | A | 0.45 | A | 0.52 | A | 0.45 | A |
| 411 | Bake Pw at Ridge Route | LF | | | | | 0.05 | A | 0.05 | A | 0.05 | A | 0.05 | A |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | | 0.58 | A | 0.70 | B | 0.57 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | | 0.43 | A | 0.40 | A | 0.43 | A | 0.40 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | | 0.50 | A | 0.66 | B | 0.52 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | | 0.65 | B | 0.67 | B | 0.66 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | | 0.51 | A | 0.68 | B | 0.51 | A | 0.67 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | | 0.82 | D | **1.00** | **E** | 0.83 | D | **1.01** | **F** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | | Yes | 0.77 | C | 0.78 | C | 0.76 | C | 0.78 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | | 0.54 | A | 0.52 | A | 0.53 | A | 0.52 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | | 0.74 | C | 0.68 | B | 0.72 | C | 0.68 | B |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | | 0.77 | C | 0.70 | B | 0.76 | C | 0.70 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | | **0.91** | **E** | 0.89 | D | 0.89 | D | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | | 0.85 | D | 0.84 | D | 0.85 | D | 0.84 | D |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | | 0.63 | B | 0.80 | C | 0.64 | B | 0.80 | C |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | | 0.52 | A | 0.61 | B | 0.53 | A | 0.60 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | | 0.58 | A | 0.83 | D | 0.58 | A | 0.84 | D |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | | 0.69 | B | 0.69 | B | 0.69 | B | 0.69 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | | 0.74 | C | 0.83 | D | 0.75 | C | 0.83 | D |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | | 0.82 | D | 0.81 | D | 0.82 | D | 0.80 | C |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | | 0.72 | C | 0.72 | C | 0.71 | C | 0.74 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | | 0.78 | C | 0.78 | C | 0.78 | C | 0.76 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | | 0.67 | B | 0.85 | D | 0.67 | B | 0.83 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | | 0.43 | A | 0.69 | B | 0.43 | A | 0.69 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | | 0.67 | B | 0.75 | C | 0.67 | B | 0.75 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | | 0.68 | B | 0.79 | C | 0.68 | B | 0.79 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | | 0.74 | C | 0.76 | C | 0.74 | C | 0.76 | C |
| 437 | Scientific Wy at ICD | Irv | | | | | 0.32 | A | 0.42 | A | 0.33 | A | 0.40 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.18 | A |
| 444 | Sand Canyon Av at Burt Rd | OC | | | | | 0.87 | D | 0.87 | D | 0.90 | D | 0.90 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Irv | | | | | 0.67 | B | 0.67 | B | 0.72 | C | 0.70 | B |
| 459 | Jeffrey at Santiago Canyon Rd | Ora | | | | | 0.29 | A | 0.26 | A | 0.31 | A | 0.27 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | | 0.76 | C | 0.84 | D | 0.81 | D | 0.87 | D |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | Ora | | | | | 0.68 | B | 0.64 | B | 0.68 | B | 0.64 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | | 0.60 | A | 0.68 | B | 0.62 | B | 0.66 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | | 0.58 | A | 0.63 | B | 0.64 | B | 0.64 | B |
| 468 | Jamboree Rd at Canyon View | OC | | | | | 0.65 | B | 0.41 | A | 0.64 | B | 0.43 | A |
| 469 | Jamboree Rd at Handy Creek Rd | Ora | | | | | 0.54 | A | 0.50 | A | 0.54 | A | 0.52 | A |

## Table 9-18 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | | Post 2030 With Approved Project, with Pending Projects | | | | Post 2030 With Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 470 | SR-261 SB Ramps at Handy Creek Rd | Ora | | | | | 0.34 | A | 0.15 | A | 0.34 | A | 0.14 | A |
| 471 | SR-261 NB Ramps at Handy Creek Rd | OC | | | | | 0.15 | A | 0.29 | A | 0.14 | A | 0.29 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | | 0.44 | A | 0.47 | A | 0.43 | A | 0.48 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | | 0.46 | A | 0.43 | A | 0.44 | A | 0.43 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | | 0.38 | A | 0.32 | A | 0.40 | A | 0.34 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | | 0.35 | A | 0.34 | A | 0.38 | A | 0.35 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | | 0.68 | B | 0.54 | A | 0.69 | B | 0.53 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | | 0.80 | C | 0.61 | B | 0.78 | C | 0.61 | B |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | | 0.57 | A | 0.59 | A | 0.57 | A | 0.61 | B |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | | 0.54 | A | 0.67 | B | 0.54 | A | 0.70 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | | 0.64 | B | 0.77 | C | 0.63 | B | 0.75 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | | 0.66 | B | 0.85 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | | 0.70 | B | 0.89 | D | 0.70 | B | 0.89 | D |
| 517 | Portola Pw at Rancho Pw | LF | | | | | 0.64 | B | 0.70 | B | 0.63 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | | 0.63 | B | 0.77 | C | 0.62 | B | 0.77 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | | 0.70 | B | 0.73 | C | 0.69 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | | 0.71 | C | 0.68 | B | 0.69 | B | 0.67 | B |
| 557 | O St at C St | Irv | | | | | 0.39 | A | 0.36 | A | 0.38 | A | 0.36 | A |
| 558 | O St at Irvine Bl | Irv | | | | | 0.64 | B | 0.80 | C | 0.63 | B | 0.79 | C |
| 559 | O St at Trabuco Rd | Irv | | | | | 0.72 | C | 0.69 | B | 0.75 | C | 0.68 | B |
| 560 | O St at Marine Wy | Irv | | | | | 0.46 | A | 0.61 | B | 0.50 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | | 0.43 | A | 0.69 | B | 0.54 | A | 0.73 | C |
| 563 | B St. at Irvine Bl | Irv | | | | | 0.68 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | | 0.47 | A | 0.60 | A | 0.62 | B | 0.64 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | | 0.65 | B | 0.63 | B | 0.63 | B | 0.62 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | | 0.63 | B | 0.67 | B | 0.65 | B | 0.61 | B |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | | 0.72 | C | 0.59 | A | 0.46 | A | 0.42 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | | 0.67 | B | 0.63 | B | 0.77 | C | 0.72 | C |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | | 0.62 | B | 0.60 | A | 0.61 | B | 0.59 | A |
| 572 | Modjeska / A St at Irvine Bl | Irv | | | | | 0.67 | B | 0.73 | C | 0.66 | B | 0.72 | C |
| 603 | O St at LN St | Irv | | | | | 0.38 | A | 0.32 | A | 0.36 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | | 0.55 | A | 0.53 | A | 0.58 | A | 0.54 | A |
| 608 | O St at LV St | Irv | | | | | 0.36 | A | 0.33 | A | 0.34 | A | 0.33 | A |
| 626 | LY St at LQ St | Irv | | | | | 0.37 | A | 0.36 | A | 0.41 | A | 0.41 | A |
| 627 | LY St at Irvine Bl | Irv | | | | | 0.53 | A | 0.59 | A | 0.52 | A | 0.60 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | | 0.11 | A | 0.13 | A | 0.12 | A | 0.16 | A |
| 633 | Sterling at Rockfield | Irv | | | | | 0.25 | A | 0.30 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | | 0.33 | A | 0.39 | A | 0.35 | A | 0.47 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | | 0.26 | A | 0.41 | A | 0.26 | A | 0.43 | A |
| 782 | A St at LQ St | Irv | | | | | 0.31 | A | 0.28 | A | 0.31 | A | 0.31 | A |
| 787 | Z St at LQ St | Irv | | | | | 0.30 | A | 0.26 | A | 0.25 | A | 0.26 | A |
| 790 | Z St at Irvine Bl | Irv | | | | | 0.72 | C | 0.70 | B | 0.70 | B | 0.69 | B |
| 798 | B St. at LQ St | Irv | | | | | 0.46 | A | 0.37 | A | 0.33 | A | 0.38 | A |
| 799 | "B" St. at Marine Wy. | Irv | | | | | 0.47 | A | 0.55 | A | 0.71 | C | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | | 0.82 | D | 0.73 | C | 0.77 | C | 0.71 | C |

## Table 9-18 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 1

| | | | | | | | Post 2030 With Approved Project, with Pending Projects | | | | Post 2030 With Modified Project, with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | | 0.71 | C | 0.80 | C | 0.71 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | | 0.55 | A | 0.56 | A | 0.66 | B | 0.69 | B |
| 822 | "F" Street at Irvine Bl. | Irv | | | | | Not Applicable | | | | 0.70 | B | 0.72 | C |
| 831 | "G" Street at Marine Way | Irv | | | | | Not Applicable | | | | 0.54 | A | 0.59 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | | 0.14 | A | 0.17 | A | 0.55 | A | 0.58 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_9.13.12.xlsx]9-18

9.1.19 Post-2030 Peak Hour Freeway/Tollway Ramp Levels of Service with Option 1, with Pending Projects

Exhibit 8-6 (previously presented) illustrates the interchange locations where freeway/tollway ramps were analyzed based on Post-2030 conditions. Post-2030 with Option 1, with Pending Projects AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-19.

Option 1 with the pending projects exceed adopted impact thresholds at one freeway interchange off-ramps: I-5 Northbound off-ramp to Jamboree Road.

9.1.20 Post-2030 Peak Hour Freeway/Tollway Mainline Levels of Service, with Option 1, with Pending Projects

Post-2030 with Option 1, with Pending Projects AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-20.

Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, none of the freeway mainline segments are forecast to exceed adopted impact thresholds with the Project based on Post-2030 with Option 1, with Pending Projects conditions.

9.1.21 Post-2030 Circulation System and Average Daily Traffic Volumes, with Option 2, with Pending Projects

Post-2030 with Option 2, with Pending Projects average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios are illustrated in Exhibits 9-17 and 9-18, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, the following arterial roadway segments are potentially impacted by Option 2 with Pending Projects:

- Bake Pkwy (b/w Rockfield Bl and Marine Way)
- Jeffrey Rd (b/w Roosevelt and I-5 NB Ramps)

## Table 9-19

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project with Pending Projects | | | | | | 2012 Modified Project with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 394 | 0.26 | A | 1,110 | 0.74 | C | 427 | 0.28 | A | 1,160 | 0.77 | C |
| | SB Loop On | 1 | 1,080 | 556 | 0.51 | A | 470 | 0.44 | A | 570 | 0.53 | A | 480 | 0.44 | A |
| | NB Direct On | 1 | 1,080 | 475 | 0.44 | A | 480 | 0.44 | A | 476 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 677 | 0.63 | B | 670 | 0.62 | B | 678 | 0.63 | B | 660 | 0.61 | B |
| | SB Off | 1 | 1,500 | 1,429 | 0.95 | E | 1,449 | 0.97 | E | 1,429 | 0.95 | E | 1,463 | 0.98 | E |
| | NB Off | 1 | 1,500 | 1,519 | **1.01** | **F** | 1,306 | 0.87 | D | 1,610 | **1.07** | **F** | 1,330 | 0.89 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 350 | 0.39 | A | 260 | 0.29 | A | 360 | 0.40 | A | 250 | 0.28 | A |
| | NB Direct On | 1 | 900 | 723 | 0.80 | C | 178 | 0.20 | A | 716 | 0.80 | C | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,063 | 0.71 | C | 590 | 0.39 | A | 1,100 | 0.73 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 934 | 0.42 | A | 2,037 | 0.91 | E | 935 | 0.42 | A | 2,091 | 0.93 | E |
| | NB Off | 1 | 1,500 | 341 | 0.23 | A | 489 | 0.33 | A | 342 | 0.23 | A | 492 | 0.33 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,300 | **1.20** | **F** | 869 | 0.80 | C | 1,273 | **1.18** | **F** | 861 | 0.80 | C |
| | NB Direct On | 1 | 1,080 | 620 | 0.57 | A | 240 | 0.22 | A | 640 | 0.59 | A | 250 | 0.23 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 280 | 0.19 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 1,110 | 0.74 | C | 610 | 0.41 | A | 1,099 | 0.73 | C |
| | NB Off | 2 | 2,250 | 957 | 0.43 | A | 1,450 | 0.64 | B | 962 | 0.43 | A | 1,442 | 0.64 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 660 | 0.44 | A | 770 | 0.51 | A | 651 | 0.43 | A | 760 | 0.51 | A |
| | NB On | 1 | 1,500 | 770 | 0.51 | A | 1,599 | **1.07** | **F** | 950 | 0.63 | B | 1,590 | **1.06** | **F** |
| | SB Off | 1 | 1,500 | 1,877 | **1.25** | **F** | 829 | 0.55 | A | 1,785 | **1.19** | **F** | 910 | 0.61 | B |
| | NB Off | 2 | 2,250 | 720 | 0.32 | A | 730 | 0.32 | A | 712 | 0.32 | A | 720 | 0.32 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 30 | 0.02 | A | 270 | 0.18 | A | 30 | 0.02 | A | 260 | 0.17 | A |
| | SB Off | 1 | 1,500 | 289 | 0.19 | A | 110 | 0.07 | A | 269 | 0.18 | A | 110 | 0.07 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 440 | 0.29 | A | 670 | 0.45 | A | 500 | 0.33 | A | 700 | 0.47 | A |
| | NB Direct On | 2 | 1,800 | 301 | 0.17 | A | 1,270 | 0.71 | C | 330 | 0.18 | A | 1,260 | 0.70 | B |
| | NB Loop On | 1 | 1,500 | 582 | 0.39 | A | 149 | 0.10 | A | 572 | 0.38 | A | 150 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,296 | **1.02** | **F** | 1,083 | 0.48 | A | 2,302 | **1.02** | **F** | 1,100 | 0.49 | A |
| | NB Off | 2 | 2,250 | 1,172 | 0.52 | A | 319 | 0.14 | A | 1,153 | 0.51 | A | 320 | 0.14 | A |

## Table 9-19 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project with Pending Projects | | | | | | 2012 Modified Project with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 100 | 0.07 | A | 142 | 0.09 | A | 112 | 0.07 | A | 136 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 360 | 0.33 | A | 903 | 0.84 | D | 400 | 0.37 | A | 883 | 0.82 | D |
| | NB Direct On | 2 | 3,400 | 1,368 | 0.40 | A | 1,212 | 0.36 | A | 1,402 | 0.41 | A | 1,208 | 0.36 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 3,052 | **1.02** | **F** | 2,433 | 0.81 | D | 3,031 | **1.01** | **F** | 2,434 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,489 | 0.50 | A | 626 | 0.21 | A | 1,372 | 0.46 | A | 619 | 0.21 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 310 | 0.21 | A | 843 | 0.56 | A | 310 | 0.21 | A | 833 | 0.56 | A |
| | SB Loop On | 1 | 1,080 | 403 | 0.37 | A | 660 | 0.61 | B | 406 | 0.38 | A | 641 | 0.59 | A |
| | NB On | 2 | 1,800 | 1,393 | 0.77 | C | 1,087 | 0.60 | A | 1,371 | 0.76 | C | 1,099 | 0.61 | B |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,324 | 0.77 | C | 1,760 | 0.59 | A | 2,325 | 0.78 | C |
| | NB Off | 1 | 1,500 | 1,491 | 0.99 | E | 717 | 0.48 | A | 1,476 | 0.98 | E | 717 | 0.48 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 106 | 0.10 | A | 141 | 0.13 | A | 122 | 0.11 | A | 139 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 454 | 0.30 | A | 503 | 0.34 | A | 458 | 0.31 | A | 501 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,529 | **1.02** | **F** | 1,121 | 0.75 | C | 1,572 | **1.05** | **F** | 1,127 | 0.75 | C |
| | NB Loop On | 1 | 1,500 | 1,359 | 0.91 | E | 1,283 | 0.86 | D | 1,389 | 0.93 | E | 1,278 | 0.85 | D |
| | SB Off | 2 | 2,250 | 2,931 | **1.30** | **F** | 3,050 | **1.36** | **F** | 2,953 | **1.31** | **F** | 3,048 | **1.35** | **F** |
| | NB Off | 1 | 1,500 | 1,322 | 0.88 | D | 1,204 | 0.80 | C | 1,347 | 0.90 | D | 1,208 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 203 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 820 | 0.55 | A | 752 | 0.50 | A | 824 | 0.55 | A | 753 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 900 | 0.60 | A | 1,230 | 0.82 | D | 910 | 0.61 | B |
| | NB Loop On | 1 | 1,500 | 1,330 | 0.89 | D | 840 | 0.56 | A | 1,330 | 0.89 | D | 840 | 0.56 | A |
| | SB Off | 2 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,098 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 311 | 0.21 | A | 1,093 | 0.73 | C | 311 | 0.21 | A | 1,090 | 0.73 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 271 | 0.18 | A | 740 | 0.49 | A | 280 | 0.19 | A | 770 | 0.51 | A |
| | SB Loop On | 1 | 900 | 251 | 0.28 | A | 330 | 0.37 | A | 250 | 0.28 | A | 330 | 0.37 | A |
| | NB Direct On | 1 | 1,500 | 932 | 0.62 | B | 660 | 0.44 | A | 930 | 0.62 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 591 | 0.39 | A | 400 | 0.27 | A | 580 | 0.39 | A | 400 | 0.27 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,380 | 0.46 | A | 829 | 0.28 | A | 1,403 | 0.47 | A |
| | NB Off | 1 | 1,500 | 1,281 | 0.85 | D | 1,296 | 0.86 | D | 1,290 | 0.86 | D | 1,311 | 0.87 | D |

## Table 9-19 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project with Pending Projects | | | | | | 2012 Modified Project with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,060 | 0.71 | C | 1,120 | 0.75 | C | 1,080 | 0.72 | C | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 290 | 0.32 | A | 290 | 0.32 | A | 290 | 0.32 | A |
| | NB Direct On | 1 | 1,500 | 1,350 | 0.90 | D | 600 | 0.40 | A | 1,352 | 0.90 | D | 600 | 0.40 | A |
| | NB Loop On | 1 | 900 | 340 | 0.38 | A | 110 | 0.12 | A | 320 | 0.36 | A | 110 | 0.12 | A |
| | SB Off | 1 | 1,500 | 634 | 0.42 | A | 777 | 0.52 | A | 626 | 0.42 | A | 778 | 0.52 | A |
| | NB Off | 2 | 2,250 | 1,473 | 0.65 | B | 1,920 | 0.85 | D | 1,478 | 0.66 | B | 1,880 | 0.84 | D |
| I-405 at Sand Canyon | SB Direct On | 1 | 1,500 | 320 | 0.21 | A | 250 | 0.17 | A | 310 | 0.21 | A | 230 | 0.15 | A |
| | SB Loop On | 1 | 1,500 | 190 | 0.13 | A | 430 | 0.29 | A | 190 | 0.13 | A | 430 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,232 | 0.82 | D | 1,370 | 0.91 | E | 1,280 | 0.85 | D | 1,360 | 0.91 | E |
| | NB Loop On | 1 | 1,500 | 641 | 0.43 | A | 350 | 0.23 | A | 640 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,972 | **1.31** | **F** | 1,065 | 0.71 | C | 1,952 | **1.30** | **F** | 1,095 | 0.73 | C |
| | NB Off | 1 | 1,500 | 708 | 0.47 | A | 516 | 0.34 | A | 690 | 0.46 | A | 527 | 0.35 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 270 | 0.30 | A | 400 | 0.44 | A | 260 | 0.29 | A | 391 | 0.43 | A |
| | NB Direct On | 1 | 1,500 | 291 | 0.19 | A | 606 | 0.40 | A | 333 | 0.22 | A | 574 | 0.38 | A |
| | NB Loop On | 1 | 1,500 | 283 | 0.19 | A | 1,293 | 0.86 | D | 278 | 0.19 | A | 1,304 | 0.87 | D |
| | SB Off | 2 | 2,250 | 2,032 | 0.90 | D | 1,432 | 0.64 | B | 2,043 | 0.91 | E | 1,479 | 0.66 | B |
| | NB Off | 2 | 3,000 | 1,259 | 0.42 | A | 520 | 0.17 | A | 1,259 | 0.42 | A | 511 | 0.17 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 592 | 0.15 | A | 2,390 | 0.60 | A | 561 | 0.14 | A | 2,414 | 0.60 | A |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,162 | 0.79 | C | 1,005 | 0.25 | A | 3,220 | 0.81 | D | 952 | 0.24 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,942 | 0.49 | A | 3,387 | 0.85 | D | 2,142 | 0.54 | A | 3,324 | 0.83 | D |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 4,091 | **1.02** | **F** | 1,952 | 0.49 | A | 3,988 | 1.00 | E | 2,015 | 0.50 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 374 | 0.25 | A | 340 | 0.23 | A | 416 | 0.28 | A | 340 | 0.23 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 280 | 0.19 | A | 300 | 0.20 | A | 270 | 0.18 | A |
| | NB Loop On | 1 | 1,500 | 130 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 441 | 0.20 | A | 199 | 0.09 | A | 440 | 0.20 | A | 210 | 0.09 | A |
| | NB Off | 1 | 1,500 | 190 | 0.13 | A | 586 | 0.39 | A | 170 | 0.11 | A | 610 | 0.41 | A |

## Table 9-19 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project with Pending Projects | | | | | | 2012 Modified Project with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 762 | 0.51 | A | 682 | 0.45 | A | 760 | 0.51 | A | 672 | 0.45 | A |
| | NB On | 1 | 1,500 | 150 | 0.10 | A | 570 | 0.38 | A | 160 | 0.11 | A | 560 | 0.37 | A |
| | SB Off | 1 | 1,500 | 700 | 0.47 | A | 289 | 0.19 | A | 690 | 0.46 | A | 289 | 0.19 | A |
| | NB Off | 1 | 1,500 | 860 | 0.57 | A | 952 | 0.63 | B | 816 | 0.54 | A | 960 | 0.64 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,203 | 0.60 | A | 1,674 | 0.84 | D | 1,228 | 0.61 | B | 1,683 | 0.84 | D |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,959 | 0.98 | E | 1,215 | 0.61 | B | 1,989 | 0.99 | E | 1,253 | 0.63 | B |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,308 | 0.65 | B | 460 | 0.23 | A | 1,338 | 0.67 | B | 435 | 0.22 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 632 | 0.32 | A | 1,406 | 0.70 | B | 584 | 0.29 | A | 1,420 | 0.71 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 1,973 | 0.49 | A | 1,816 | 0.45 | A | 2,026 | 0.51 | A | 1,827 | 0.46 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,232 | 0.56 | A | 2,047 | 0.51 | A | 2,262 | 0.57 | A | 2,092 | 0.52 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 141 | 0.13 | A | 1,190 | **1.10** | **F** | 149 | 0.14 | A | 1,203 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 262 | 0.24 | A | 640 | 0.59 | A | 297 | 0.28 | A | 629 | 0.58 | A |
| | NB Loop On | 1 | 1,080 | 490 | 0.45 | A | 1,551 | **1.44** | **F** | 500 | 0.46 | A | 1,550 | **1.44** | **F** |
| | SB Off | 2 | 3,000 | 2,280 | 0.76 | C | 620 | 0.21 | A | 2,285 | 0.76 | C | 620 | 0.21 | A |
| | NB Off | 2 | 2,250 | 1,525 | 0.68 | B | 450 | 0.20 | A | 1,519 | 0.68 | B | 501 | 0.22 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 1,044 | 0.52 | A | 1,076 | 0.54 | A | 1,013 | 0.51 | A | 1,054 | 0.53 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 55 | 0.03 | A | 76 | 0.04 | A | 53 | 0.03 | A | 69 | 0.03 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 1,165 | 0.29 | A | 617 | 0.15 | A | 1,234 | 0.31 | A | 620 | 0.16 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,141 | 0.29 | A | 941 | 0.24 | A | 1,161 | 0.29 | A | 956 | 0.24 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,679 | 0.84 | D | 1,724 | 0.86 | D | 1,646 | 0.82 | D | 1,820 | 0.91 | E |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 555 | 0.28 | A | 603 | 0.30 | A | 559 | 0.28 | A | 608 | 0.30 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 249 | 0.12 | A | 205 | 0.10 | A | 266 | 0.13 | A | 325 | 0.16 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 1,098 | 0.61 | B | 498 | 0.28 | A | 1,117 | 0.62 | B | 565 | 0.31 | A |
| | NB On | 1 | 1,500 | 481 | 0.32 | A | 350 | 0.23 | A | 471 | 0.31 | A | 311 | 0.21 | A |
| | SB Off | 1 | 1,500 | 885 | 0.59 | A | 521 | 0.35 | A | 775 | 0.52 | A | 509 | 0.34 | A |
| | NB Off | 1 | 1,500 | 896 | 0.60 | A | 1,174 | 0.78 | C | 1,055 | 0.70 | B | 1,190 | 0.79 | C |
| SR-241 at Jeffrey | SB On | 1 | 1,500 | 38 | 0.03 | A | 23 | 0.02 | A | 34 | 0.02 | A | 17 | 0.01 | A |
| | NB On | 1 | 1,500 | 390 | 0.26 | A | 355 | 0.24 | A | 400 | 0.27 | A | 345 | 0.23 | A |
| | SB Off | 1 | 1,500 | 519 | 0.35 | A | 384 | 0.26 | A | 518 | 0.35 | A | 394 | 0.26 | A |
| | NB Off | 1 | 1,500 | 22 | 0.01 | A | 71 | 0.05 | A | 22 | 0.01 | A | 60 | 0.04 | A |

## Table 9-19 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 1

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project with Pending Projects | | | | | | 2012 Modified Project with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 170 | 0.11 | A | 410 | 0.27 | A | 170 | 0.11 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 120 | 0.08 | A | 33 | 0.02 | A | 110 | 0.07 | A | 33 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 135 | 0.09 | A | 49 | 0.03 | A | 150 | 0.10 | A |
| | NB Off | 1 | 1,500 | 591 | 0.39 | A | 209 | 0.14 | A | 590 | 0.39 | A | 211 | 0.14 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 429 | 0.29 | A | 1,154 | 0.77 | C | 445 | 0.30 | A | 1,116 | 0.74 | C |
| | NB On | 1 | 1,500 | 432 | 0.29 | A | 618 | 0.41 | A | 429 | 0.29 | A | 600 | 0.40 | A |
| | SB Off | 1 | 1,500 | 721 | 0.48 | A | 456 | 0.30 | A | 697 | 0.46 | A | 461 | 0.31 | A |
| | NB Off | 2 | 2,250 | 1,075 | 0.48 | A | 629 | 0.28 | A | 1,000 | 0.44 | A | 635 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 210 | 0.09 | A | 854 | 0.38 | A | 208 | 0.09 | A | 832 | 0.37 | A |
| | SB Off | 1 | 1,500 | 822 | 0.55 | A | 413 | 0.28 | A | 797 | 0.53 | A | 424 | 0.28 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 327 | 0.22 | A | 1,427 | 0.95 | E | 330 | 0.22 | A | 1,419 | 0.95 | E |
| | NB On | 2 | 2,250 | 815 | 0.36 | A | 440 | 0.20 | A | 840 | 0.37 | A | 430 | 0.19 | A |
| | SB Off | 1 | 1,500 | 532 | 0.35 | A | 617 | 0.41 | A | 528 | 0.35 | A | 606 | 0.40 | A |
| | NB Off | 2 | 2,250 | 2,176 | 0.97 | E | 580 | 0.26 | A | 2,172 | 0.97 | E | 582 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 920 | 0.61 | B | 240 | 0.16 | A | 911 | 0.61 | B | 240 | 0.16 | A |
| | NB Off | 1 | 1,500 | 141 | 0.09 | A | 702 | 0.47 | A | 141 | 0.09 | A | 692 | 0.46 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 175 | 0.12 | A | 100 | 0.07 | A | 175 | 0.12 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 210 | 0.14 | A | 140 | 0.09 | A | 220 | 0.15 | A | 140 | 0.09 | A |
| | SB Off | 1 | 1,500 | 103 | 0.07 | A | 89 | 0.06 | A | 103 | 0.07 | A | 89 | 0.06 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 106 | 0.07 | A | 101 | 0.07 | A | 107 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 780 | 0.52 | A | 330 | 0.22 | A | 780 | 0.52 | A | 330 | 0.22 | A |
| | NB On | 1 | 1,500 | 220 | 0.15 | A | 160 | 0.11 | A | 220 | 0.15 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 80 | 0.05 | A | 70 | 0.05 | A | 70 | 0.05 | A | 71 | 0.05 | A |
| | NB Off | 1 | 1,500 | 223 | 0.15 | A | 381 | 0.25 | A | 212 | 0.14 | A | 392 | 0.26 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 9-20

## Pending Post 2030 Freeway Mainline LOS Summary, Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 14,958 | **1.29** | **F** | 11,892 | **1.03** | **F** | 15,169 | **1.31** | **F** | 11,895 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 9,689 | 0.84 | D | 9,948 | 0.86 | D | 9,572 | 0.83 | D | 10,114 | 0.87 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,205 | **1.22** | **F** | 11,304 | 0.97 | E | 14,418 | **1.24** | **F** | 11,280 | 0.97 | E |
| | | SB | 5+1H | 11,600 | 11,619 | 1.00 | E | 11,956 | **1.03** | **F** | 11,472 | 0.99 | E | 12,141 | **1.05** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 14,834 | **1.28** | **F** | 11,959 | **1.03** | **F** | 15,061 | **1.30** | **F** | 11,945 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,351 | **1.06** | **F** | 12,669 | **1.09** | **F** | 12,197 | **1.05** | **F** | 12,857 | **1.11** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,468 | **1.25** | **F** | 11,676 | **1.01** | **F** | 14,723 | **1.27** | **F** | 11,660 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 12,062 | **1.04** | **F** | 12,332 | **1.06** | **F** | 11,921 | **1.03** | **F** | 12,529 | **1.08** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,627 | **1.26** | **F** | 11,634 | 1.00 | E | 14,966 | **1.29** | **F** | 11,652 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 11,732 | **1.01** | **F** | 12,342 | **1.06** | **F** | 11,650 | 1.00 | E | 12,589 | **1.09** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,789 | **1.10** | **F** | 10,897 | 0.94 | E | 13,117 | **1.13** | **F** | 10,905 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 11,389 | 0.98 | E | 11,171 | 0.96 | E | 11,313 | 0.98 | E | 11,352 | 0.98 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,781 | **1.10** | **F** | 11,041 | 0.95 | E | 13,104 | **1.13** | **F** | 11,022 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,922 | **1.03** | **F** | 11,501 | 0.99 | E | 11,806 | **1.02** | **F** | 11,693 | **1.01** | **F** |
| | n/o Alton | NB | 4+1H | 9,600 | 10,302 | **1.07** | **F** | 8,887 | 0.93 | E | 10,410 | **1.08** | **F** | 8,863 | 0.92 | E |
| | | SB | 4+1H | 9,600 | 9,549 | 0.99 | E | 9,266 | 0.97 | E | 9,564 | 1.00 | E | 9,371 | 0.98 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,771 | **1.12** | **F** | 7,751 | 0.81 | D | 10,833 | **1.13** | **F** | 7,752 | 0.81 | D |
| | | SB | 4+1H | 9,600 | 7,861 | 0.82 | D | 9,577 | 1.00 | E | 7,885 | 0.82 | D | 9,655 | **1.01** | **F** |
| | n/o Bake | NB | 9+2H | 21,500 | 21,181 | 0.99 | E | 14,272 | 0.66 | B | 21,350 | 0.99 | E | 14,277 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 11,993 | 0.56 | A | 16,356 | 0.76 | C | 11,952 | 0.56 | A | 16,423 | 0.76 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 21,129 | **1.08** | **F** | 13,150 | 0.67 | B | 21,144 | **1.08** | **F** | 13,165 | 0.68 | B |
| | | SB | 8+2H | 19,500 | 12,294 | 0.63 | B | 17,046 | 0.87 | D | 12,300 | 0.63 | B | 17,081 | 0.88 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,121 | **1.49** | **F** | 12,185 | 0.90 | D | 20,145 | **1.49** | **F** | 12,188 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,166 | 0.75 | C | 15,573 | **1.15** | **F** | 10,187 | 0.75 | C | 15,534 | **1.15** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 16,987 | **1.77** | **F** | 10,162 | **1.06** | **F** | 16,921 | **1.76** | **F** | 10,167 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,880 | 0.82 | D | 12,511 | **1.30** | **F** | 7,852 | 0.82 | D | 12,276 | **1.28** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,084 | **1.36** | **F** | 7,652 | 0.80 | C | 13,031 | **1.36** | **F** | 7,644 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,409 | 0.67 | B | 10,339 | **1.08** | **F** | 6,419 | 0.67 | B | 10,296 | **1.07** | **F** |

## Table 9-20 Cont.

## Pending Post 2030 Freeway Mainline LOS Summary, Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,067 | **1.26** | **F** | 9,003 | 0.94 | E | 12,344 | **1.29** | **F** | 9,029 | 0.94 | E |
| | | SB | 4+1H | 9,600 | 9,140 | 0.95 | E | 10,224 | **1.07** | **F** | 9,058 | 0.94 | E | 10,442 | **1.09** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,422 | **1.29** | **F** | 9,442 | 0.98 | E | 12,716 | **1.32** | **F** | 9,434 | 0.98 | E |
| | | SB | 4+1H | 9,600 | 9,333 | 0.97 | E | 10,094 | **1.05** | **F** | 9,253 | 0.96 | E | 10,308 | **1.07** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,203 | **1.27** | **F** | 8,465 | 0.88 | D | 12,429 | **1.29** | **F** | 8,464 | 0.88 | D |
| | | SB | 4+1H | 9,600 | 8,206 | 0.85 | D | 9,624 | 1.00 | E | 8,138 | 0.85 | D | 9,791 | **1.02** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,145 | **1.06** | **F** | 7,222 | 0.75 | C | 10,299 | **1.07** | **F** | 7,212 | 0.75 | C |
| | | SB | 4+1H | 9,600 | 7,072 | 0.74 | C | 8,449 | 0.88 | D | 7,000 | 0.73 | C | 8,486 | 0.88 | D |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,398 | 0.77 | C | 4,108 | 0.43 | A | 7,383 | 0.77 | C | 4,109 | 0.43 | A |
| | | SB | 4+1H | 9,600 | 6,202 | 0.65 | B | 8,286 | 0.86 | D | 6,114 | 0.64 | B | 8,271 | 0.86 | D |
| SR-133 | n/o Irvine Blvd | NB | 4+1H | 9,600 | 2,534 | 0.26 | A | 5,777 | 0.60 | A | 2,704 | 0.28 | A | 5,739 | 0.60 | A |
| | | SB | 4+1H | 9,600 | 7,253 | 0.76 | C | 2,957 | 0.31 | A | 7,209 | 0.75 | C | 2,967 | 0.31 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 2,261 | 0.30 | A | 5,559 | 0.73 | C | 2,305 | 0.30 | A | 5,568 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,668 | 0.88 | D | 2,816 | 0.37 | A | 6,691 | 0.88 | D | 2,817 | 0.37 | A |
| | n/o I-5 | NB | 3+1H | 7,600 | 2,118 | 0.28 | A | 4,994 | 0.66 | B | 2,148 | 0.28 | A | 5,008 | 0.66 | B |
| | | SB | 3+1H | 7,600 | 4,684 | 0.62 | B | 2,077 | 0.27 | A | 4,685 | 0.62 | B | 2,100 | 0.28 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,366 | 0.56 | A | 4,913 | 0.82 | D | 3,406 | 0.57 | A | 4,950 | 0.83 | D |
| | | SB | 3 | 6,000 | 5,437 | 0.91 | E | 3,352 | 0.56 | A | 5,460 | 0.91 | E | 3,336 | 0.56 | A |
| | n/o I-405 | NB | 3 | 6,000 | 3,969 | 0.66 | B | 3,747 | 0.62 | B | 3,964 | 0.66 | B | 3,846 | 0.64 | B |
| | | SB | 3 | 6,000 | 3,730 | 0.62 | B | 3,359 | 0.56 | A | 3,762 | 0.63 | B | 3,356 | 0.56 | A |
| SR-241 | n/o SR-133 | NB | 3+1H | 7,600 | 5,613 | 0.74 | C | 5,643 | 0.74 | C | 5,853 | 0.77 | C | 5,574 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,612 | 0.87 | D | 4,952 | 0.65 | B | 6,466 | 0.85 | D | 5,069 | 0.67 | B |
| | n/o Portola (West) | NB | 4+1H | 9,600 | 6,833 | 0.71 | C | 3,260 | 0.34 | A | 6,932 | 0.72 | C | 3,202 | 0.33 | A |
| | | SB | 4+1H | 9,600 | 3,113 | 0.32 | A | 5,389 | 0.56 | A | 3,039 | 0.32 | A | 5,470 | 0.57 | A |
| | n/o Alton | NB | 4+1H | 9,600 | 6,960 | 0.73 | C | 3,345 | 0.35 | A | 7,034 | 0.73 | C | 3,286 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,235 | 0.34 | A | 5,531 | 0.58 | A | 3,164 | 0.33 | A | 5,588 | 0.58 | A |
| | n/o Lake Forest | NB | 4+1H | 9,600 | 7,728 | 0.81 | D | 3,106 | 0.32 | A | 7,730 | 0.81 | D | 3,070 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 2,787 | 0.29 | A | 5,988 | 0.62 | B | 2,757 | 0.29 | A | 6,004 | 0.63 | B |

## Table 9-20 Cont.

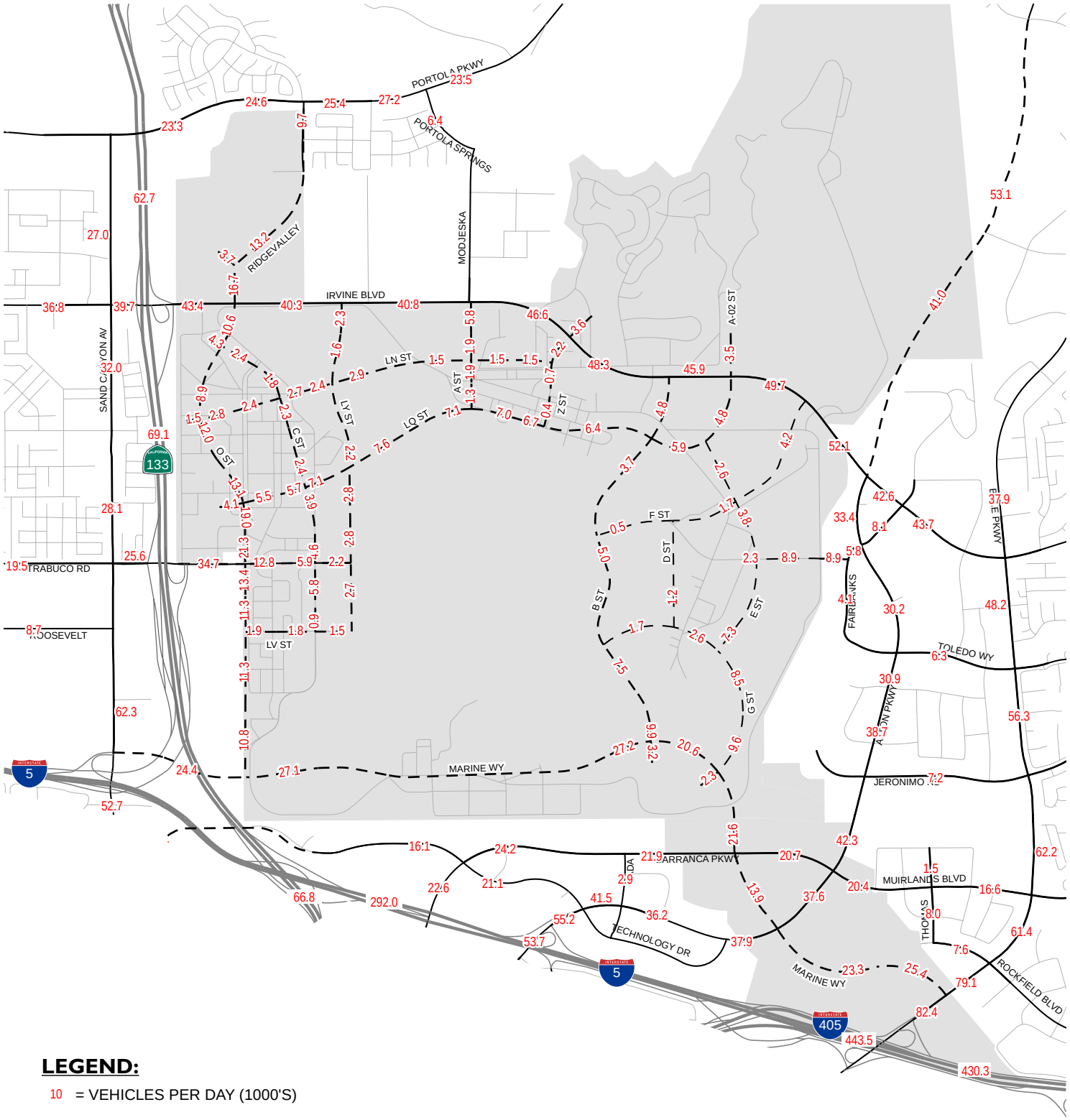
## Pending Post 2030 Freeway Mainline LOS Summary, Option 1

| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-261 | n/o Portola | NB | 3+1H | 7,600 | 1,185 | 0.16 | A | 3,119 | 0.41 | A | 1,208 | 0.16 | A | 3,115 | 0.41 | A |
| | | SB | 3+1H | 7,600 | 3,956 | 0.52 | A | 1,286 | 0.17 | A | 3,976 | 0.52 | A | 1,310 | 0.17 | A |
| | n/o irvine Blvd | NB | 3+1H | 7,600 | 684 | 0.09 | A | 2,778 | 0.37 | A | 699 | 0.09 | A | 2,788 | 0.37 | A |
| | | SB | 3+1H | 7,600 | 3,660 | 0.48 | A | 909 | 0.12 | A | 3,683 | 0.48 | A | 930 | 0.12 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 980 | 0.13 | A | 3,527 | 0.46 | A | 984 | 0.13 | A | 3,550 | 0.47 | A |
| | | SB | 3+1H | 7,600 | 4,294 | 0.57 | A | 1,299 | 0.17 | A | 4,328 | 0.57 | A | 1,322 | 0.17 | A |
| | n/o Chapman/Sant. Cyn | NB | 3+1H | 7,600 | 6,031 | 0.79 | C | 8,159 | **1.07** | **F** | 6,130 | 0.81 | D | 8,009 | **1.05** | **F** |
| | | SB | 3+1H | 7,600 | 10,280 | **1.35** | **F** | 5,627 | 0.74 | C | 10,047 | **1.32** | **F** | 5,668 | 0.75 | C |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 2 ADT VOLUMES, PROJECT AREA



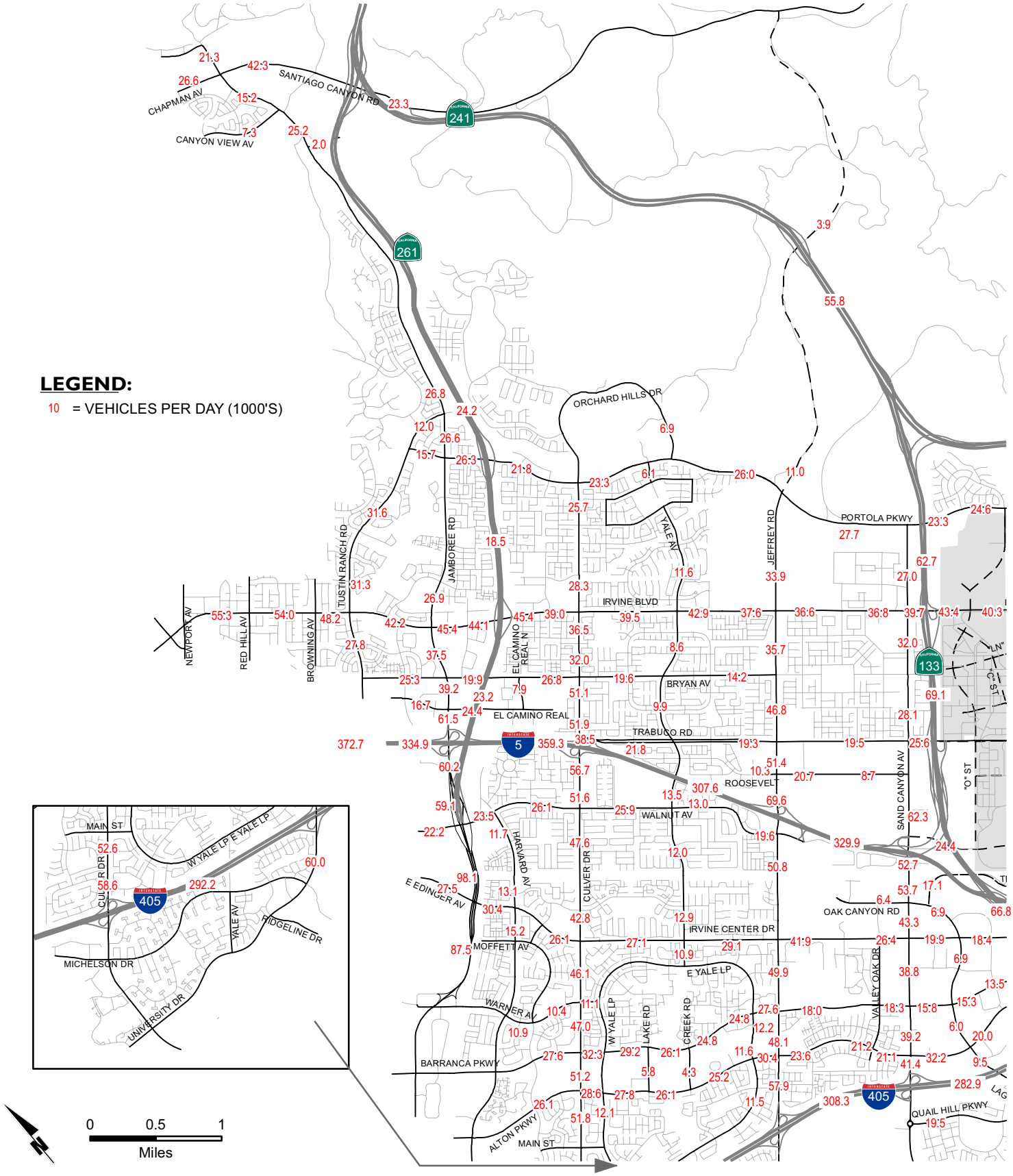

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

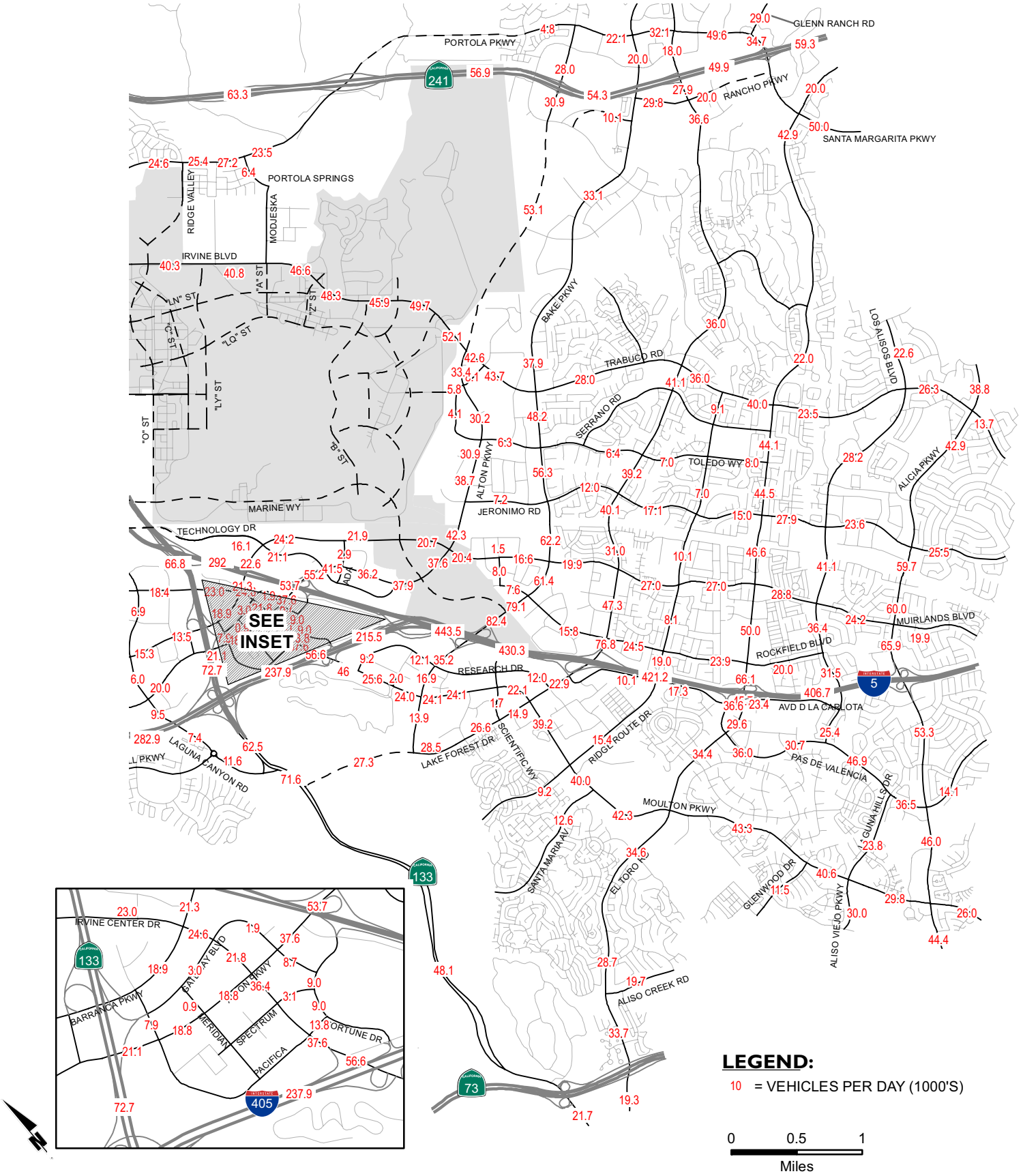
0 1,400 2,800

Feet

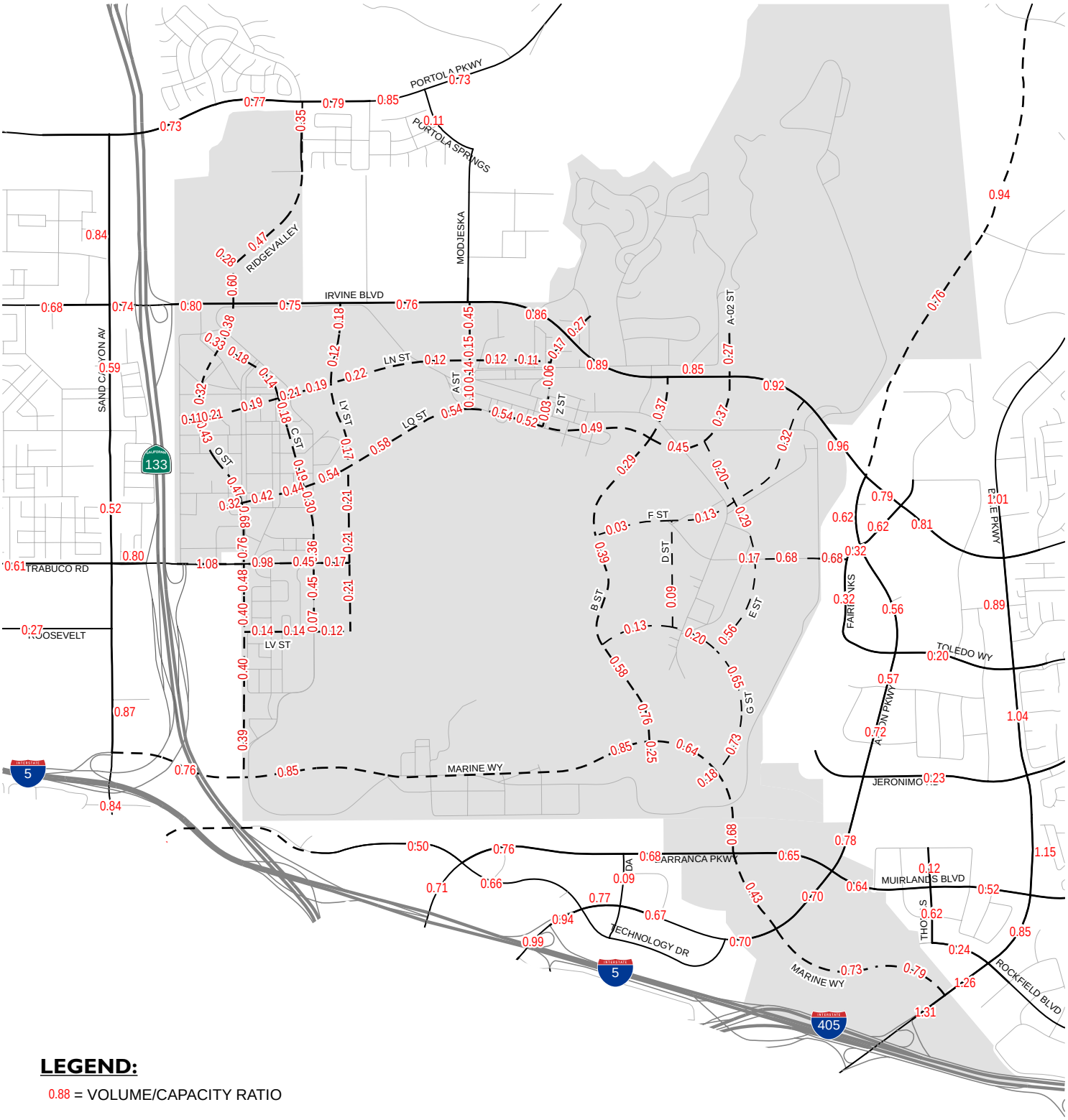
# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 2 ADT VOLUMES, WEST STUDY AREA



# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 2 ADT VOLUMES, EAST STUDY AREA



# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 2 ADT V/C RATIOS, PROJECT AREA




**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

0 1,400 2,800

Feet

# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 2 ADT V/C RATIOS, WEST STUDY AREA

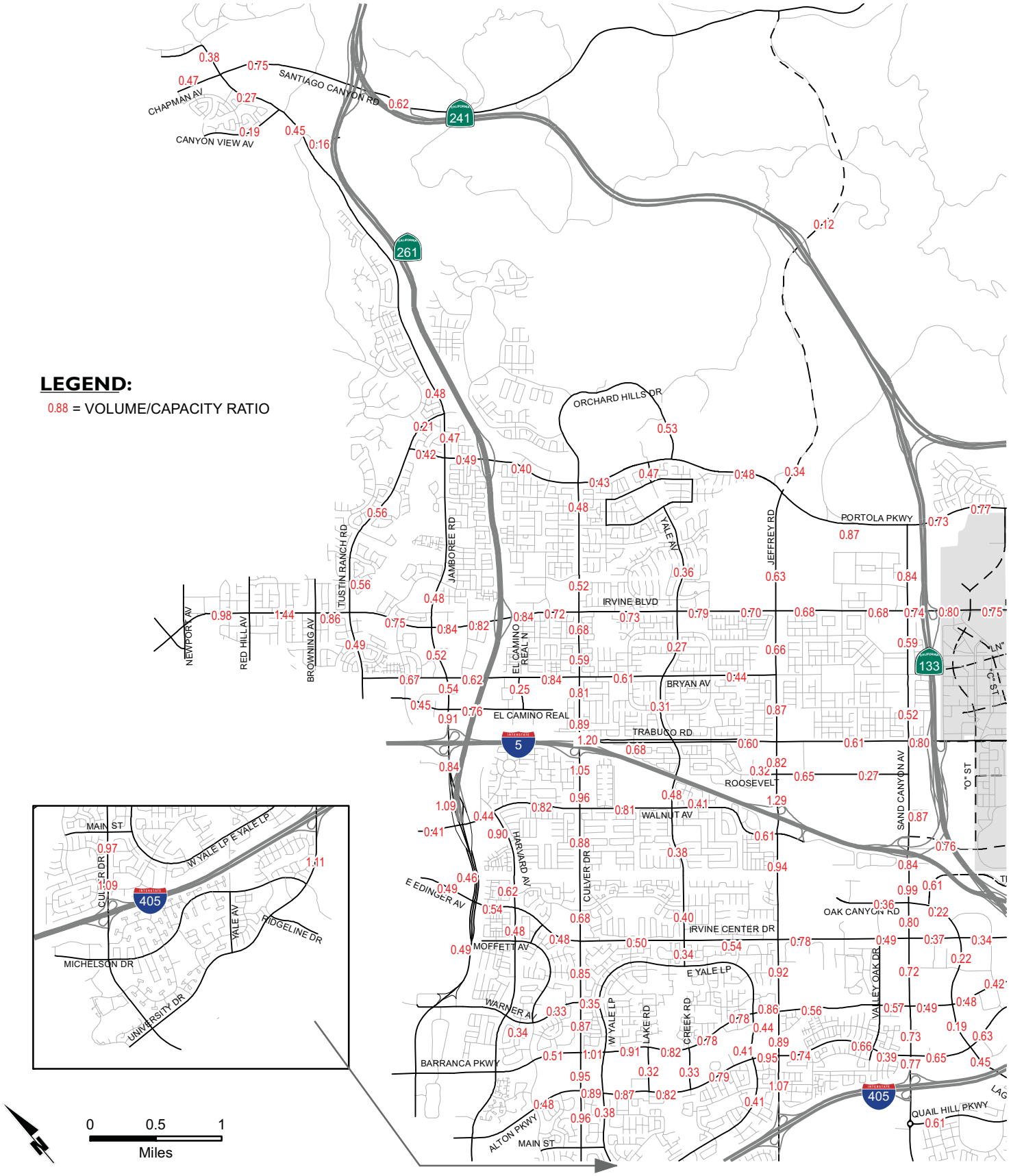
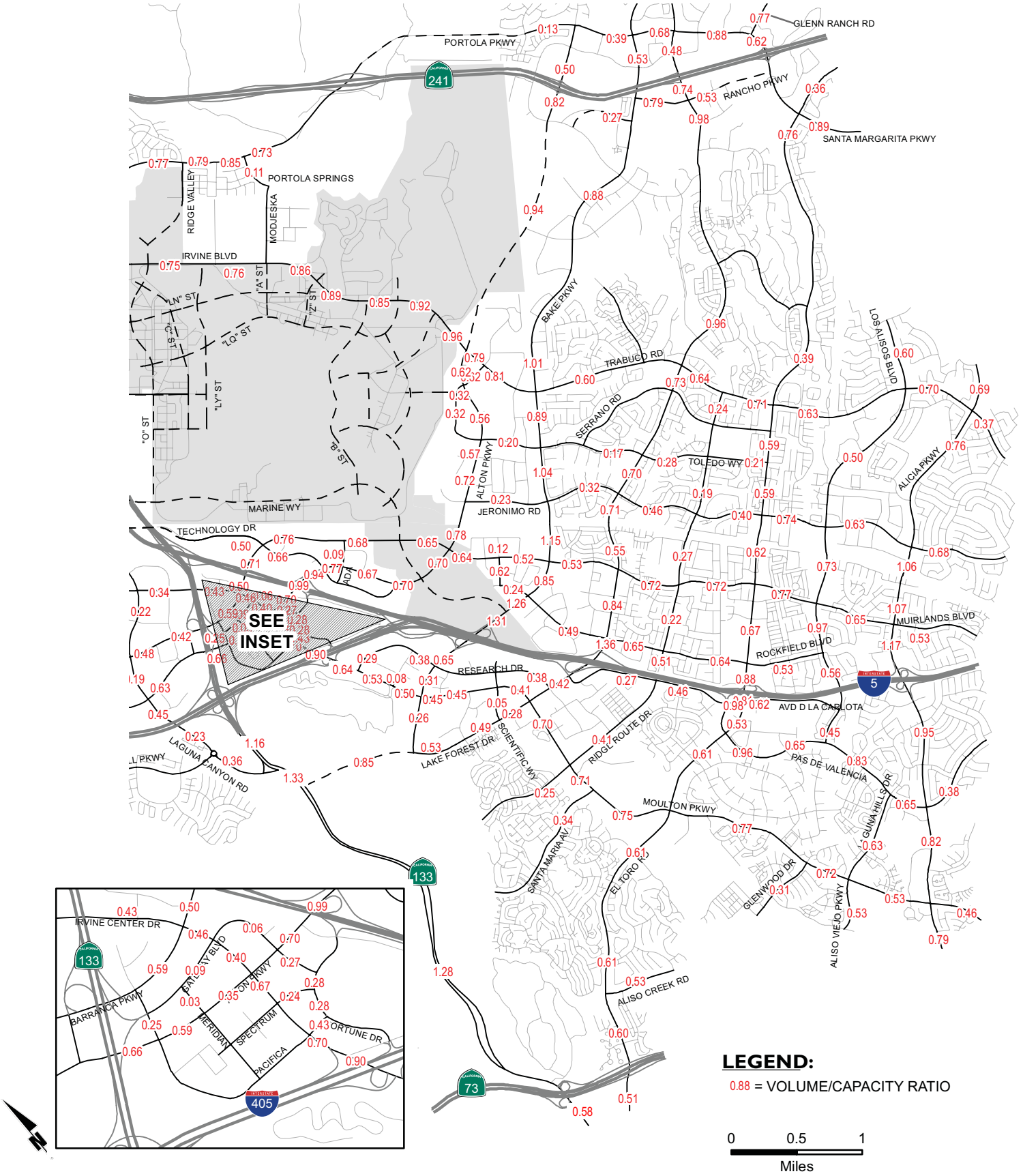


EXHIBIT 9-18 (3 OF 3)

# POST-2030 PENDING PROJECTS WITH 2012 MODIFIED PROJECT OPTION 2 ADT V/C RATIOS, EAST STUDY AREA



Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Post-2030 with Option 2, with Pending Projects conditions are summarized in Table 9-21. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

**Table 9-21**

**Pending Post 2030 Arterial Roadway Peak Hour Analysis, Option 2**

| | | Pending P2030 With 2012 Modified Project Option 2 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Arterial | ADT Segment Limits | Juris | # of Lanes | Peak Hour Capacity | ADT | Highest Peak Volume | | Peak Hour V/C | Peak Hour LOS |
| Bake Pkwy. | b/w Rockfield Bl. & Marine Wy. | Irv | 8D | 6400 | 79,100 | 4,124 | AM NB | 0.64 | B |
| Jeffrey Rd. | b/w Roosevelt & I-5 NB Ramps | Irv | 6D | 4800 | 69,600 | 3,491 | AM SB | 0.73 | C |

9.1.22 Post-2030 Peak Hour Intersection Levels of Service, with Option 2, with Pending Projects

Post-2030 with Option 2, with Pending Projects AM and PM peak hour intersection capacity utilization (ICU) results are summarized in Table 9-22. Actual turn volumes, lane geometrics and ICU calculation worksheets for Post-2030 with Option 2, with Pending Projects are included in Appendix 9.9. Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that the following two intersections exceed adopted impact thresholds for the 2012 Modified Project Option 2, with Pending Projects (see Table 9-26):

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.

9.1.23 Post-2030 Peak Hour Freeway/Tollway Ramp Levels of Service with Option 2, with Pending Projects

Post-2030 with Option 2, with Pending Projects AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-23.

## Table 9-22

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | | 2011 Approved Project with Pending Projects | | | | 2012 Modified Project with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | Yes | Yes | | 0.78 | C | 0.89 | D | 0.79 | C | 0.90 | D |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | Yes | Yes | | 0.75 | C | 0.85 | D | 0.77 | C | 0.86 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | | 0.85 | D | 0.76 | C | 0.85 | D | 0.74 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | Yes | Yes | | 0.78 | C | 0.85 | D | 0.79 | C | 0.85 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | | 0.64 | B | 0.54 | A | 0.64 | B | 0.54 | A |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | | 0.74 | C | 0.70 | B | 0.75 | C | 0.70 | B |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | | Yes | 0.81 | D | 0.79 | C | 0.81 | D | 0.78 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | | 0.70 | B | 0.62 | B | 0.69 | B | 0.63 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | | 0.71 | C | 0.70 | B | 0.72 | C | 0.70 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | | 0.62 | B | 0.71 | C | 0.65 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | | 0.64 | B | 0.64 | B | 0.64 | B | 0.63 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | | 0.46 | A | 0.57 | A | 0.47 | A | 0.58 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | | 0.54 | A | 0.74 | C | 0.53 | A | 0.75 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | | Yes | 0.50 | A | 0.70 | B | 0.50 | A | 0.70 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | Yes | | | 0.40 | A | 0.44 | A | 0.40 | A | 0.45 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | | Yes | 0.87 | D | 0.97 | E | 0.87 | D | 0.98 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | | 0.47 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | | 0.47 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | | 0.58 | A | 0.52 | A | 0.57 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | | 0.70 | B | 0.62 | B | 0.71 | C | 0.62 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | | 0.71 | C | 0.67 | B | 0.73 | C | 0.67 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | | 0.78 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | | 0.88 | D | 0.74 | C | 0.89 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | | 0.74 | C | 0.76 | C | 0.77 | C | 0.78 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | | 0.59 | A | 0.65 | B | 0.60 | A | 0.66 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | Yes | | | 0.81 | D | 0.87 | D | 0.82 | D | 0.88 | D |
| 226 | Culver Dr at ICD | Irv | | Yes | | | 0.77 | C | 0.70 | B | 0.77 | C | 0.71 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | | 0.81 | D | 0.66 | B | 0.83 | D | 0.65 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | Yes | | | 0.88 | D | 0.80 | C | 0.88 | D | 0.80 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | Yes | | | 0.81 | D | 0.88 | D | 0.83 | D | 0.88 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | | 0.76 | C | 0.73 | C | 0.81 | D | 0.73 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | | 0.55 | A | 0.62 | B | 0.57 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | **F** | Yes | | | 0.63 | B | 0.77 | C | 0.62 | B | 0.78 | C |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | | 0.75 | C | 0.88 | D | 0.75 | C | 0.88 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | | 0.46 | A | 0.45 | A | 0.47 | A | 0.44 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | | 0.60 | A | 0.50 | A | 0.62 | B | 0.51 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | | 0.58 | A | 0.72 | C | 0.61 | B | 0.74 | C |
| 261 | Yale Av at ICD | Irv | | | | | 0.69 | B | 0.69 | B | 0.67 | B | 0.69 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | | 0.64 | B | 0.63 | B | 0.65 | B | 0.63 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | | 0.68 | B | 0.65 | B | 0.69 | B | 0.66 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | | 0.65 | B | 0.66 | B | 0.67 | B | 0.65 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | | 0.74 | C | 0.67 | B | 0.74 | C | 0.67 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | | 0.68 | B | 0.64 | B | 0.68 | B | 0.64 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | Yes | | | 0.74 | C | 0.71 | C | 0.74 | C | 0.73 | C |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | | 0.73 | C | 0.67 | B | 0.73 | C | 0.68 | B |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | Yes | | | 0.66 | B | 0.74 | C | 0.65 | B | 0.75 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | | 0.89 | D | 0.88 | D | **0.92** | **E** | 0.88 | D |

## Table 9-22 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | | 2011 Approved Project with Pending Projects | | | | 2012 Modified Project with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | | 0.73 | C | 0.81 | D | 0.75 | C | 0.82 | D |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | | 0.79 | C | 0.80 | C | 0.79 | C | 0.80 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | Yes | | | 0.82 | D | 0.79 | C | 0.84 | D | 0.81 | D |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | Yes | | | 0.85 | D | 0.75 | C | 0.84 | D | 0.75 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | Yes | | 0.90 | D | 0.80 | C | **0.92** | **E** | 0.80 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | | 0.68 | B | 0.79 | C | 0.69 | B | 0.78 | C |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | | 0.68 | B | 0.70 | B | 0.68 | B | 0.71 | C |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | | 0.48 | A | 0.59 | A | 0.48 | A | 0.60 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | | 0.74 | C | 0.76 | C | 0.73 | C | 0.76 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | Yes | | | 0.77 | C | 0.76 | C | 0.76 | C | 0.77 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | | 0.81 | D | 0.83 | D | 0.86 | D | 0.88 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | | 0.88 | D | 0.84 | D | 0.90 | D | 0.88 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | | 0.87 | D | 0.78 | C | 0.86 | D | 0.79 | C |
| 307 | Sand Canyon Av at ICD | Irv | | | | | 0.60 | A | 0.67 | B | 0.61 | B | 0.67 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | | 0.57 | A | 0.61 | B | 0.55 | A | 0.60 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | | 0.64 | B | 0.74 | C | 0.64 | B | 0.75 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | | 0.66 | B | 0.48 | A | 0.66 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | | 0.80 | C | 0.53 | A | 0.80 | C | 0.54 | A |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | | 0.35 | A | 0.44 | A | 0.36 | A | 0.43 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | | 0.45 | A | 0.46 | A | 0.45 | A | 0.46 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | | 0.53 | A | 0.59 | A | 0.53 | A | 0.58 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | | 0.55 | A | 0.58 | A | 0.54 | A | 0.58 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | | 0.75 | C | 0.76 | C | 0.71 | C | 0.81 | D |
| 318 | Banting at Barranca Pkwy | Irv | | | | | 0.73 | C | 0.54 | A | 0.73 | C | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | | 0.58 | A | 0.54 | A | 0.59 | A | 0.55 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | | 0.85 | D | 0.76 | C | 0.86 | D | 0.77 | C |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | Irv | | | | Yes | 0.98 | E | 0.65 | B | 0.98 | E | 0.66 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | | Yes | 0.40 | A | 0.44 | A | 0.40 | A | 0.44 | A |
| 324 | Portola Pw at SR-241 NB Ramps | LB | | | | | 0.59 | A | 0.40 | A | 0.59 | A | 0.40 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | | 0.44 | A | 0.44 | A | 0.43 | A | 0.43 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | | 0.59 | A | 0.70 | B | 0.61 | B | 0.70 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | | Yes | 0.66 | B | 0.45 | A | 0.64 | B | 0.45 | A |
| 329 | Barranca Pw at ICD | Irv | | | | Yes | 0.68 | B | 0.68 | B | 0.68 | B | 0.69 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | | Yes | 0.60 | A | 0.79 | C | 0.60 | A | 0.77 | C |
| 333 | Pacifica at Gateway | Irv | | | | Yes | 0.73 | C | 0.78 | C | 0.75 | C | 0.79 | C |
| 335 | Alton Pw at Portola Pw | LF | | | | | 0.49 | A | 0.37 | A | 0.49 | A | 0.36 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | | 0.65 | B | 0.58 | A | 0.66 | B | 0.58 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | | Yes | 0.91 | E | 0.93 | E | 0.94 | E | 0.90 | D |
| 339 | Alton Pw at Toledo Wy | Irv | | | | | 0.70 | B | 0.63 | B | 0.81 | D | 0.67 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | | 0.66 | B | 0.54 | A | 0.67 | B | 0.53 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | | 0.59 | A | 0.75 | C | 0.57 | A | 0.73 | C |
| 343 | Alton Pw at Ada | Irv | | | | | 0.48 | A | 0.75 | C | 0.51 | A | 0.78 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | | 0.58 | A | 0.88 | D | 0.59 | A | 0.87 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | | Yes | 0.90 | D | 0.54 | A | 0.89 | D | 0.54 | A |
| 346 | Alton Pw at Enterprise | Irv | | | | Yes | 0.72 | C | 0.79 | C | 0.71 | C | 0.81 | D |
| 348 | Alton Pw at ICD | Irv | **P** | | | Yes | 0.58 | A | 0.77 | C | 0.57 | A | 0.76 | C |
| 350 | Alton Pw at Pacifica | Irv | | | | Yes | 0.59 | A | 0.58 | A | 0.59 | A | 0.59 | A |

## Table 9-22 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | | 2011 Approved Project with Pending Projects | | | | 2012 Modified Project with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | | Yes | 0.57 | A | 0.87 | D | 0.57 | A | 0.87 | D |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | | Yes | 0.52 | A | 0.55 | A | 0.50 | A | 0.55 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | | Yes | 0.65 | B | 0.54 | A | 0.66 | B | 0.54 | A |
| 359 | ICD at I-405 SB Ramps | LF | **P** | | | Yes | 0.59 | A | 0.55 | A | 0.60 | A | 0.56 | A |
| 361 | Bake Pw at Portola Pw | Irv | | | | | 0.56 | A | 0.83 | D | 0.55 | A | 0.82 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | | Yes | 0.81 | D | 0.90 | D | 0.82 | D | 0.91 | E |
| 363 | Bake Pw at Toledo Wy | Irv | | | | | 0.79 | C | 0.66 | B | 0.78 | C | 0.66 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | | 0.82 | D | 0.68 | B | 0.81 | D | 0.67 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | | 0.74 | C | **0.93** | **E** | 0.74 | C | **0.92** | **E** |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | | 0.72 | C | 0.87 | D | 0.71 | C | 0.88 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | | Yes | 0.84 | D | 0.57 | A | 0.81 | D | 0.58 | A |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | | Yes | 0.81 | D | 0.86 | D | 0.80 | C | 0.88 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | | 0.58 | A | 0.81 | D | 0.58 | A | 0.82 | D |
| 372 | Bake Pw at ICD | LF | | | | | 0.55 | A | 0.54 | A | 0.57 | A | 0.53 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | | 0.34 | A | 0.45 | A | 0.34 | A | 0.43 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | | 0.64 | B | 0.90 | D | 0.62 | B | 0.89 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | | 0.57 | A | 0.53 | A | 0.54 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | | 0.84 | D | 0.90 | D | 0.84 | D | 0.90 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | | 0.61 | B | 0.57 | A | 0.64 | B | 0.60 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | | 0.69 | B | 0.87 | D | 0.70 | B | 0.87 | D |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | | 0.74 | C | 0.85 | D | 0.73 | C | 0.85 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | | 0.85 | D | 0.87 | D | 0.85 | D | 0.88 | D |
| 381 | Lake Forest Dr at I-5 NB Ramps | Irv | | | | | 0.70 | B | 0.75 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | Yes | | Yes | 0.63 | B | 0.78 | C | 0.63 | B | 0.78 | C |
| 385 | Lake Forest Dr at ICD | LF | | | | Yes | 0.50 | A | 0.72 | C | 0.50 | A | 0.72 | C |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | | 0.57 | A | 0.70 | B | 0.58 | A | 0.69 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LH | **P** | | | | 0.51 | A | 0.61 | B | 0.49 | A | 0.61 | B |
| 388 | Ridge Route Dr at Aveninda Carlota | LH/LW | | | | | 0.47 | A | 0.69 | B | 0.48 | A | 0.69 | B |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | | 0.56 | A | 0.61 | B | 0.55 | A | 0.62 | B |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | | 0.79 | C | 0.89 | D | 0.79 | C | 0.89 | D |
| 391 | Santa Maria Av at Moulton Pw | LF | | | | | 0.50 | A | 0.78 | C | 0.50 | A | 0.77 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | | 0.73 | C | 0.84 | D | 0.73 | C | 0.83 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | | 0.60 | A | 0.75 | C | 0.62 | B | 0.75 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LH | | | | Yes | 0.82 | D | 0.85 | D | 0.83 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH/LW | **P** | | | Yes | 0.62 | B | 0.89 | D | 0.62 | B | 0.89 | D |
| 397 | El Toro Rd at Paseo de Valencia | LW | | | | | 0.68 | B | 0.85 | D | 0.68 | B | 0.85 | D |
| 398 | El Toro Rd at Moulton Pw | AV | | | | Yes | 0.83 | D | 0.91 | E | 0.83 | D | 0.91 | E |
| 399 | El Toro Rd at Aliso Creek Rd | LB | | | | | 0.56 | A | 0.70 | B | 0.56 | A | 0.70 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | | Yes | 0.63 | B | 0.63 | B | 0.63 | B | 0.64 | B |
| 401 | El Toro Rd at SR-73 SB Ramps | Irv | | | | Yes | 0.46 | A | 0.66 | B | 0.46 | A | 0.66 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | OC | | | | | 0.63 | B | 0.64 | B | 0.63 | B | 0.66 | B |
| 403 | SR-241 NB Ramps at Jeffery Rd | OC | | | | | 0.35 | A | 0.27 | A | 0.34 | A | 0.26 | A |
| 404 | SR-241 SB Ramps at Jeffery Rd | Irv | | | | | 0.26 | A | 0.22 | A | 0.28 | A | 0.22 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | | 0.41 | A | 0.37 | A | 0.43 | A | 0.37 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | | 0.59 | A | 0.52 | A | 0.59 | A | 0.53 | A |
| 407 | Laguna Canyon Rd at Bake Pw | OC | **F** | | | | 0.49 | A | 0.41 | A | 0.49 | A | 0.41 | A |
| 408 | Laguna Canyon Rd at Santa Maria Dr | LF | | | | | 0.70 | B | 0.60 | A | 0.70 | B | 0.60 | A |

## Table 9-22 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | | 2011 Approved Project with Pending Projects | | | | 2012 Modified Project with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 409 | Bake Pw at Commercentre Dr | Irv | | | | | 0.66 | B | 0.73 | C | 0.66 | B | 0.74 | C |
| 410 | Bake Pw at Lake Forest Dr | Irv | | | | | 0.50 | A | 0.45 | A | 0.52 | A | 0.45 | A |
| 411 | Bake Pw at Ridge Route | LF | | | | | 0.05 | A | 0.05 | A | 0.05 | A | 0.05 | A |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | | 0.58 | A | 0.70 | B | 0.58 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | | 0.43 | A | 0.40 | A | 0.43 | A | 0.40 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | | 0.50 | A | 0.66 | B | 0.52 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | | 0.65 | B | 0.67 | B | 0.65 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | | 0.51 | A | 0.68 | B | 0.51 | A | 0.67 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | | 0.82 | D | **1.00** | **E** | 0.82 | D | **1.01** | **F** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | | Yes | 0.77 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | | 0.54 | A | 0.52 | A | 0.54 | A | 0.52 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | | 0.74 | C | 0.68 | B | 0.73 | C | 0.68 | B |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | | 0.77 | C | 0.70 | B | 0.77 | C | 0.70 | B |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | | **0.91** | **E** | 0.89 | D | **0.91** | **E** | 0.89 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | | 0.85 | D | 0.84 | D | 0.85 | D | 0.84 | D |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | | 0.63 | B | 0.80 | C | 0.64 | B | 0.80 | C |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | | 0.52 | A | 0.61 | B | 0.53 | A | 0.60 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | | 0.58 | A | 0.83 | D | 0.57 | A | 0.84 | D |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | | 0.69 | B | 0.69 | B | 0.70 | B | 0.69 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | | 0.74 | C | 0.83 | D | 0.75 | C | 0.84 | D |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | | 0.82 | D | 0.81 | D | 0.82 | D | 0.80 | C |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | | 0.72 | C | 0.72 | C | 0.71 | C | 0.73 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | | 0.78 | C | 0.78 | C | 0.78 | C | 0.76 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | | 0.67 | B | 0.85 | D | 0.67 | B | 0.82 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | | 0.43 | A | 0.69 | B | 0.43 | A | 0.69 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | | 0.67 | B | 0.75 | C | 0.67 | B | 0.75 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | | 0.68 | B | 0.79 | C | 0.68 | B | 0.79 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | | 0.74 | C | 0.76 | C | 0.74 | C | 0.76 | C |
| 437 | Scientific Wy at ICD | Irv | | | | | 0.32 | A | 0.42 | A | 0.32 | A | 0.40 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | | 0.27 | A | 0.19 | A | 0.27 | A | 0.19 | A |
| 444 | Sand Canyon Av at Burt Rd | OC | | | | | 0.87 | D | 0.87 | D | 0.90 | D | 0.90 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Irv | | | | | 0.67 | B | 0.67 | B | 0.72 | C | 0.69 | B |
| 459 | Jeffrey at Santiago Canyon Rd | Ora | | | | | 0.29 | A | 0.26 | A | 0.31 | A | 0.27 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | | 0.76 | C | 0.84 | D | 0.80 | C | 0.87 | D |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | Ora | | | | | 0.68 | B | 0.64 | B | 0.68 | B | 0.64 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | | 0.60 | A | 0.68 | B | 0.62 | B | 0.66 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | | 0.58 | A | 0.63 | B | 0.64 | B | 0.64 | B |
| 468 | Jamboree Rd at Canyon View | OC | | | | | 0.65 | B | 0.41 | A | 0.65 | B | 0.43 | A |
| 469 | Jamboree Rd at Handy Creek Rd | Ora | | | | | 0.54 | A | 0.50 | A | 0.54 | A | 0.52 | A |
| 470 | SR-261 SB Ramps at Handy Creek Rd | Ora | | | | | 0.34 | A | 0.15 | A | 0.34 | A | 0.14 | A |
| 471 | SR-261 NB Ramps at Handy Creek Rd | OC | | | | | 0.15 | A | 0.29 | A | 0.14 | A | 0.29 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | | 0.44 | A | 0.47 | A | 0.43 | A | 0.48 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | | 0.46 | A | 0.43 | A | 0.44 | A | 0.43 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | | 0.38 | A | 0.32 | A | 0.41 | A | 0.34 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | | 0.35 | A | 0.34 | A | 0.38 | A | 0.35 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | | 0.68 | B | 0.54 | A | 0.69 | B | 0.53 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | | 0.80 | C | 0.61 | B | 0.77 | C | 0.61 | B |

## Table 9-22 Cont.

## Pending Post 2030 Intersection LOS Summary (ICU Methodology), Option 2

| | | | | | | | 2011 Approved Project with Pending Projects | | | | 2012 Modified Project with Pending Projects | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | | 0.57 | A | 0.59 | A | 0.58 | A | 0.61 | B |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | | 0.54 | A | 0.67 | B | 0.55 | A | 0.69 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | | 0.64 | B | 0.77 | C | 0.63 | B | 0.75 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | | 0.66 | B | 0.85 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | | 0.70 | B | 0.89 | D | 0.70 | B | 0.89 | D |
| 517 | Portola Pw at Rancho Pw | LF | | | | | 0.64 | B | 0.70 | B | 0.63 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | | 0.63 | B | 0.77 | C | 0.62 | B | 0.77 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | | 0.70 | B | 0.73 | C | 0.69 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | | 0.71 | C | 0.68 | B | 0.69 | B | 0.67 | B |
| 557 | O St at C St | Irv | | | | | 0.39 | A | 0.36 | A | 0.39 | A | 0.36 | A |
| 558 | O St at Irvine Bl | Irv | | | | | 0.64 | B | 0.80 | C | 0.63 | B | 0.80 | C |
| 559 | O St at Trabuco Rd | Irv | | | | | 0.72 | C | 0.69 | B | 0.78 | C | 0.68 | B |
| 560 | O St at Marine Wy | Irv | | | | | 0.46 | A | 0.61 | B | 0.50 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | | 0.43 | A | 0.69 | B | 0.54 | A | 0.73 | C |
| 563 | B St. at Irvine Bl | Irv | | | | | 0.68 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | | 0.47 | A | 0.60 | A | 0.62 | B | 0.64 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | | 0.65 | B | 0.63 | B | 0.63 | B | 0.62 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | | 0.63 | B | 0.67 | B | 0.66 | B | 0.61 | B |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | | 0.72 | C | 0.59 | A | 0.46 | A | 0.42 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | | 0.67 | B | 0.63 | B | 0.78 | C | 0.72 | C |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | | 0.62 | B | 0.60 | A | 0.61 | B | 0.59 | A |
| 572 | Modjeska / A St at Irvine Bl | Irv | | | | | 0.67 | B | 0.73 | C | 0.65 | B | 0.72 | C |
| 603 | O St at LN St | Irv | | | | | 0.38 | A | 0.32 | A | 0.36 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | | 0.55 | A | 0.53 | A | 0.58 | A | 0.55 | A |
| 608 | O St at LV St | Irv | | | | | 0.36 | A | 0.33 | A | 0.34 | A | 0.35 | A |
| 626 | LY St at LQ St | Irv | | | | | 0.37 | A | 0.36 | A | 0.42 | A | 0.39 | A |
| 627 | LY St at Irvine Bl | Irv | | | | | 0.53 | A | 0.59 | A | 0.52 | A | 0.59 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | | 0.11 | A | 0.13 | A | 0.13 | A | 0.16 | A |
| 633 | Sterling at Rockfield | Irv | | | | | 0.25 | A | 0.30 | A | Not Applicable | | | |
| 637 | Sterling at Muirlands Bl | Irv | | | | | 0.33 | A | 0.39 | A | 0.35 | A | 0.47 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | | 0.26 | A | 0.41 | A | 0.26 | A | 0.43 | A |
| 782 | A St at LQ St | Irv | | | | | 0.31 | A | 0.28 | A | 0.31 | A | 0.31 | A |
| 787 | Z St at LQ St | Irv | | | | | 0.30 | A | 0.26 | A | 0.25 | A | 0.26 | A |
| 790 | Z St at Irvine Bl | Irv | | | | | 0.72 | C | 0.70 | B | 0.70 | B | 0.69 | B |
| 798 | B St. at LQ St | Irv | | | | | 0.46 | A | 0.37 | A | 0.32 | A | 0.38 | A |
| 799 | "B" St. at Marine Wy. | Irv | | | | | 0.47 | A | 0.55 | A | 0.69 | B | 0.67 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | | 0.82 | D | 0.73 | C | 0.77 | C | 0.71 | C |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | | 0.71 | C | 0.80 | C | 0.71 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | | 0.55 | A | 0.56 | A | 0.66 | B | 0.68 | B |
| 822 | "F" Street at Irvine Bl. | Irv | | | | | Not Applicable | | | | 0.70 | B | 0.72 | C |
| 831 | "G" Street at Marine Way | Irv | | | | | Not Applicable | | | | 0.55 | A | 0.60 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | | 0.14 | A | 0.17 | A | 0.55 | A | 0.58 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

## Table 9-23

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 394 | 0.26 | A | 1,110 | 0.74 | C | 438 | 0.29 | A | 1,160 | 0.77 | C |
| | SB Loop On | 1 | 1,080 | 556 | 0.51 | A | 470 | 0.44 | A | 570 | 0.53 | A | 480 | 0.44 | A |
| | NB Direct On | 1 | 1,080 | 475 | 0.44 | A | 480 | 0.44 | A | 475 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 677 | 0.63 | B | 670 | 0.62 | B | 677 | 0.63 | B | 660 | 0.61 | B |
| | SB Off | 1 | 1,500 | 1,429 | 0.95 | E | 1,449 | 0.97 | E | 1,429 | 0.95 | E | 1,465 | 0.98 | E |
| | NB Off | 1 | 1,500 | 1,519 | **1.01** | **F** | 1,306 | 0.87 | D | 1,610 | **1.07** | **F** | 1,330 | 0.89 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 350 | 0.39 | A | 260 | 0.29 | A | 350 | 0.39 | A | 250 | 0.28 | A |
| | NB Direct On | 1 | 900 | 723 | 0.80 | C | 178 | 0.20 | A | 713 | 0.79 | C | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,063 | 0.71 | C | 590 | 0.39 | A | 1,123 | 0.75 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 934 | 0.42 | A | 2,037 | 0.91 | E | 933 | 0.41 | A | 2,080 | 0.92 | E |
| | NB Off | 1 | 1,500 | 341 | 0.23 | A | 489 | 0.33 | A | 343 | 0.23 | A | 488 | 0.33 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,300 | **1.20** | **F** | 869 | 0.80 | C | 1,264 | **1.17** | **F** | 870 | 0.81 | D |
| | NB Direct On | 1 | 1,080 | 620 | 0.57 | A | 240 | 0.22 | A | 660 | 0.61 | B | 230 | 0.21 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 1,110 | 0.74 | C | 609 | 0.41 | A | 1,099 | 0.73 | C |
| | NB Off | 2 | 2,250 | 957 | 0.43 | A | 1,450 | 0.64 | B | 961 | 0.43 | A | 1,440 | 0.64 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 660 | 0.44 | A | 770 | 0.51 | A | 650 | 0.43 | A | 760 | 0.51 | A |
| | NB On | 1 | 1,500 | 770 | 0.51 | A | 1,599 | **1.07** | **F** | 943 | 0.63 | B | 1,600 | **1.07** | **F** |
| | SB Off | 1 | 1,500 | 1,877 | **1.25** | **F** | 829 | 0.55 | A | 1,794 | **1.20** | **F** | 911 | 0.61 | B |
| | NB Off | 2 | 2,250 | 720 | 0.32 | A | 730 | 0.32 | A | 711 | 0.32 | A | 721 | 0.32 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 30 | 0.02 | A | 270 | 0.18 | A | 30 | 0.02 | A | 250 | 0.17 | A |
| | SB Off | 1 | 1,500 | 289 | 0.19 | A | 110 | 0.07 | A | 268 | 0.18 | A | 110 | 0.07 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 440 | 0.29 | A | 670 | 0.45 | A | 520 | 0.35 | A | 710 | 0.47 | A |
| | NB Direct On | 2 | 1,800 | 301 | 0.17 | A | 1,270 | 0.71 | C | 321 | 0.18 | A | 1,262 | 0.70 | B |
| | NB Loop On | 1 | 1,500 | 582 | 0.39 | A | 149 | 0.10 | A | 572 | 0.38 | A | 149 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,296 | **1.02** | **F** | 1,083 | 0.48 | A | 2,304 | **1.02** | **F** | 1,104 | 0.49 | A |
| | NB Off | 2 | 2,250 | 1,172 | 0.52 | A | 319 | 0.14 | A | 1,151 | 0.51 | A | 319 | 0.14 | A |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 100 | 0.07 | A | 142 | 0.09 | A | 110 | 0.07 | A | 136 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 360 | 0.33 | A | 903 | 0.84 | D | 400 | 0.37 | A | 875 | 0.81 | D |
| | NB Direct On | 2 | 3,400 | 1,368 | 0.40 | A | 1,212 | 0.36 | A | 1,392 | 0.41 | A | 1,209 | 0.36 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 3,052 | **1.02** | **F** | 2,433 | 0.81 | D | 3,007 | 1.00 | E | 2,434 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,489 | 0.50 | A | 626 | 0.21 | A | 1,341 | 0.45 | A | 618 | 0.21 | A |

## Table 9-23 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 310 | 0.21 | A | 843 | 0.56 | A | 310 | 0.21 | A | 834 | 0.56 | A |
| | SB Loop On | 1 | 1,080 | 403 | 0.37 | A | 660 | 0.61 | B | 408 | 0.38 | A | 651 | 0.60 | A |
| | NB On | 2 | 1,800 | 1,393 | 0.77 | C | 1,087 | 0.60 | A | 1,377 | 0.77 | C | 1,097 | 0.61 | B |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,324 | 0.77 | C | 1,761 | 0.59 | A | 2,324 | 0.77 | C |
| | NB Off | 1 | 1,500 | 1,491 | 0.99 | E | 717 | 0.48 | A | 1,472 | 0.98 | E | 717 | 0.48 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 106 | 0.10 | A | 141 | 0.13 | A | 125 | 0.12 | A | 138 | 0.13 | A |
| | SB Loop On | 1 | 1,500 | 454 | 0.30 | A | 503 | 0.34 | A | 457 | 0.30 | A | 502 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,529 | **1.02** | **F** | 1,121 | 0.75 | C | 1,570 | **1.05** | **F** | 1,132 | 0.75 | C |
| | NB Loop On | 1 | 1,500 | 1,359 | 0.91 | E | 1,283 | 0.86 | D | 1,370 | 0.91 | E | 1,276 | 0.85 | D |
| | SB Off | 2 | 2,250 | 2,931 | **1.30** | **F** | 3,050 | **1.36** | **F** | 2,952 | **1.31** | **F** | 3,070 | **1.36** | **F** |
| | NB Off | 1 | 1,500 | 1,322 | 0.88 | D | 1,204 | 0.80 | C | 1,354 | 0.90 | D | 1,209 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 150 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 204 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 820 | 0.55 | A | 752 | 0.50 | A | 823 | 0.55 | A | 754 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 900 | 0.60 | A | 1,230 | 0.82 | D | 900 | 0.60 | A |
| | NB Loop On | 1 | 1,500 | 1,330 | 0.89 | D | 840 | 0.56 | A | 1,350 | 0.90 | D | 840 | 0.56 | A |
| | SB Off | 2 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,097 | 0.70 | B | 2,199 | 0.73 | C |
| | NB Off | 1 | 1,500 | 311 | 0.21 | A | 1,093 | 0.73 | C | 310 | 0.21 | A | 1,093 | 0.73 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 271 | 0.18 | A | 740 | 0.49 | A | 281 | 0.19 | A | 760 | 0.51 | A |
| | SB Loop On | 1 | 900 | 251 | 0.28 | A | 330 | 0.37 | A | 251 | 0.28 | A | 330 | 0.37 | A |
| | NB Direct On | 1 | 1,500 | 932 | 0.62 | B | 660 | 0.44 | A | 930 | 0.62 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 591 | 0.39 | A | 400 | 0.27 | A | 580 | 0.39 | A | 400 | 0.27 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,380 | 0.46 | A | 830 | 0.28 | A | 1,401 | 0.47 | A |
| | NB Off | 1 | 1,500 | 1,281 | 0.85 | D | 1,296 | 0.86 | D | 1,343 | 0.90 | D | 1,294 | 0.86 | D |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,060 | 0.71 | C | 1,120 | 0.75 | C | 1,080 | 0.72 | C | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 300 | 0.33 | A | 290 | 0.32 | A | 280 | 0.31 | A | 300 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,350 | 0.90 | D | 600 | 0.40 | A | 1,352 | 0.90 | D | 601 | 0.40 | A |
| | NB Loop On | 1 | 900 | 340 | 0.38 | A | 110 | 0.12 | A | 320 | 0.36 | A | 100 | 0.11 | A |
| | SB Off | 1 | 1,500 | 634 | 0.42 | A | 777 | 0.52 | A | 626 | 0.42 | A | 785 | 0.52 | A |
| | NB Off | 2 | 2,250 | 1,473 | 0.65 | B | 1,920 | 0.85 | D | 1,438 | 0.64 | B | 1,881 | 0.84 | D |
| I-405 at Sand Canyon | SB Direct On | 1 | 1,500 | 320 | 0.21 | A | 250 | 0.17 | A | 310 | 0.21 | A | 230 | 0.15 | A |
| | SB Loop On | 1 | 1,500 | 190 | 0.13 | A | 430 | 0.29 | A | 190 | 0.13 | A | 430 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,232 | 0.82 | D | 1,370 | 0.91 | E | 1,273 | 0.85 | D | 1,360 | 0.91 | E |
| | NB Loop On | 1 | 1,500 | 641 | 0.43 | A | 350 | 0.23 | A | 641 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,972 | **1.31** | **F** | 1,065 | 0.71 | C | 1,947 | **1.30** | **F** | 1,095 | 0.73 | C |
| | NB Off | 1 | 1,500 | 708 | 0.47 | A | 516 | 0.34 | A | 698 | 0.47 | A | 537 | 0.36 | A |

## Table 9-23 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 270 | 0.30 | A | 400 | 0.44 | A | 260 | 0.29 | A | 391 | 0.43 | A |
| | NB Direct On | 1 | 1,500 | 291 | 0.19 | A | 606 | 0.40 | A | 332 | 0.22 | A | 587 | 0.39 | A |
| | NB Loop On | 1 | 1,500 | 283 | 0.19 | A | 1,293 | 0.86 | D | 287 | 0.19 | A | 1,294 | 0.86 | D |
| | SB Off | 2 | 2,250 | 2,032 | 0.90 | D | 1,432 | 0.64 | B | 2,073 | 0.92 | E | 1,479 | 0.66 | B |
| | NB Off | 2 | 3,000 | 1,259 | 0.42 | A | 520 | 0.17 | A | 1,250 | 0.42 | A | 510 | 0.17 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 592 | 0.15 | A | 2,390 | 0.60 | A | 555 | 0.14 | A | 2,410 | 0.60 | A |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,162 | 0.79 | C | 1,005 | 0.25 | A | 3,219 | 0.80 | C | 942 | 0.24 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,942 | 0.49 | A | 3,387 | 0.85 | D | 2,144 | 0.54 | A | 3,321 | 0.83 | D |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 4,091 | **1.02** | **F** | 1,952 | 0.49 | A | 3,988 | 1.00 | E | 2,016 | 0.50 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 374 | 0.25 | A | 340 | 0.23 | A | 406 | 0.27 | A | 340 | 0.23 | A |
| | NB Direct On | 1 | 1,500 | 190 | 0.13 | A | 280 | 0.19 | A | 300 | 0.20 | A | 260 | 0.17 | A |
| | NB Loop On | 1 | 1,500 | 130 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 441 | 0.20 | A | 199 | 0.09 | A | 441 | 0.20 | A | 210 | 0.09 | A |
| | NB Off | 1 | 1,500 | 190 | 0.13 | A | 586 | 0.39 | A | 170 | 0.11 | A | 610 | 0.41 | A |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 762 | 0.51 | A | 682 | 0.45 | A | 780 | 0.52 | A | 670 | 0.45 | A |
| | NB On | 1 | 1,500 | 150 | 0.10 | A | 570 | 0.38 | A | 160 | 0.11 | A | 560 | 0.37 | A |
| | SB Off | 1 | 1,500 | 700 | 0.47 | A | 289 | 0.19 | A | 692 | 0.46 | A | 290 | 0.19 | A |
| | NB Off | 1 | 1,500 | 860 | 0.57 | A | 952 | 0.63 | B | 827 | 0.55 | A | 950 | 0.63 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,203 | 0.60 | A | 1,674 | 0.84 | D | 1,220 | 0.61 | B | 1,673 | 0.84 | D |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,959 | 0.98 | E | 1,215 | 0.61 | B | 1,944 | 0.97 | E | 1,242 | 0.62 | B |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,308 | 0.65 | B | 460 | 0.23 | A | 1,342 | 0.67 | B | 424 | 0.21 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 632 | 0.32 | A | 1,406 | 0.70 | B | 576 | 0.29 | A | 1,420 | 0.71 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 1,973 | 0.49 | A | 1,816 | 0.45 | A | 2,037 | 0.51 | A | 1,843 | 0.46 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,232 | 0.56 | A | 2,047 | 0.51 | A | 2,254 | 0.56 | A | 2,089 | 0.52 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 141 | 0.13 | A | 1,190 | **1.10** | **F** | 150 | 0.14 | A | 1,200 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 262 | 0.24 | A | 640 | 0.59 | A | 288 | 0.27 | A | 630 | 0.58 | A |
| | NB Loop On | 1 | 1,080 | 490 | 0.45 | A | 1,551 | **1.44** | **F** | 502 | 0.46 | A | 1,550 | **1.44** | **F** |
| | SB Off | 2 | 3,000 | 2,280 | 0.76 | C | 620 | 0.21 | A | 2,280 | 0.76 | C | 621 | 0.21 | A |
| | NB Off | 2 | 2,250 | 1,525 | 0.68 | B | 450 | 0.20 | A | 1,520 | 0.68 | B | 500 | 0.22 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 1,044 | 0.52 | A | 1,076 | 0.54 | A | 1,060 | 0.53 | A | 1,070 | 0.54 | A |

## Table 9-23 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 55 | 0.03 | A | 76 | 0.04 | A | 53 | 0.03 | A | 68 | 0.03 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 1,165 | 0.29 | A | 617 | 0.15 | A | 1,241 | 0.31 | A | 619 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,141 | 0.29 | A | 941 | 0.24 | A | 1,162 | 0.29 | A | 951 | 0.24 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,679 | 0.84 | D | 1,724 | 0.86 | D | 1,645 | 0.82 | D | 1,814 | 0.91 | E |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 555 | 0.28 | A | 603 | 0.30 | A | 555 | 0.28 | A | 614 | 0.31 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 249 | 0.12 | A | 205 | 0.10 | A | 270 | 0.14 | A | 325 | 0.16 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 1,098 | 0.61 | B | 498 | 0.28 | A | 1,120 | 0.62 | B | 582 | 0.32 | A |
| | NB On | 1 | 1,500 | 481 | 0.32 | A | 350 | 0.23 | A | 471 | 0.31 | A | 314 | 0.21 | A |
| | SB Off | 1 | 1,500 | 885 | 0.59 | A | 521 | 0.35 | A | 774 | 0.52 | A | 509 | 0.34 | A |
| | NB Off | 1 | 1,500 | 896 | 0.60 | A | 1,174 | 0.78 | C | 1,048 | 0.70 | B | 1,203 | 0.80 | C |
| SR-241 at Jeffrey | SB On | 1 | 1,500 | 38 | 0.03 | A | 23 | 0.02 | A | 34 | 0.02 | A | 17 | 0.01 | A |
| | NB On | 1 | 1,500 | 390 | 0.26 | A | 355 | 0.24 | A | 390 | 0.26 | A | 350 | 0.23 | A |
| | SB Off | 1 | 1,500 | 519 | 0.35 | A | 384 | 0.26 | A | 529 | 0.35 | A | 394 | 0.26 | A |
| | NB Off | 1 | 1,500 | 22 | 0.01 | A | 71 | 0.05 | A | 22 | 0.01 | A | 61 | 0.04 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 170 | 0.11 | A | 410 | 0.27 | A | 170 | 0.11 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 120 | 0.08 | A | 33 | 0.02 | A | 123 | 0.08 | A | 33 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 135 | 0.09 | A | 49 | 0.03 | A | 150 | 0.10 | A |
| | NB Off | 1 | 1,500 | 591 | 0.39 | A | 209 | 0.14 | A | 589 | 0.39 | A | 208 | 0.14 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 429 | 0.29 | A | 1,154 | 0.77 | C | 445 | 0.30 | A | 1,119 | 0.75 | C |
| | NB On | 1 | 1,500 | 432 | 0.29 | A | 618 | 0.41 | A | 427 | 0.28 | A | 601 | 0.40 | A |
| | SB Off | 1 | 1,500 | 721 | 0.48 | A | 456 | 0.30 | A | 694 | 0.46 | A | 465 | 0.31 | A |
| | NB Off | 2 | 2,250 | 1,075 | 0.48 | A | 629 | 0.28 | A | 999 | 0.44 | A | 635 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 210 | 0.09 | A | 854 | 0.38 | A | 207 | 0.09 | A | 830 | 0.37 | A |
| | SB Off | 1 | 1,500 | 822 | 0.55 | A | 413 | 0.28 | A | 796 | 0.53 | A | 423 | 0.28 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 327 | 0.22 | A | 1,427 | 0.95 | E | 330 | 0.22 | A | 1,420 | 0.95 | E |
| | NB On | 2 | 2,250 | 815 | 0.36 | A | 440 | 0.20 | A | 837 | 0.37 | A | 428 | 0.19 | A |
| | SB Off | 1 | 1,500 | 532 | 0.35 | A | 617 | 0.41 | A | 528 | 0.35 | A | 606 | 0.40 | A |
| | NB Off | 2 | 2,250 | 2,176 | 0.97 | E | 580 | 0.26 | A | 2,171 | 0.96 | E | 582 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 920 | 0.61 | B | 240 | 0.16 | A | 910 | 0.61 | B | 240 | 0.16 | A |
| | NB Off | 1 | 1,500 | 141 | 0.09 | A | 702 | 0.47 | A | 141 | 0.09 | A | 694 | 0.46 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 175 | 0.12 | A | 100 | 0.07 | A | 175 | 0.12 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 210 | 0.14 | A | 140 | 0.09 | A | 210 | 0.14 | A | 140 | 0.09 | A |
| | SB Off | 1 | 1,500 | 103 | 0.07 | A | 89 | 0.06 | A | 103 | 0.07 | A | 89 | 0.06 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 106 | 0.07 | A | 100 | 0.07 | A | 107 | 0.07 | A |

## Table 9-23 Cont.

### Pending Post 2030 Freeway/Tollway Ramp LOS Summary, Option 2

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, with Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-261 at Irvine | SB On | 1 | 1,500 | 780 | 0.52 | A | 330 | 0.22 | A | 780 | 0.52 | A | 330 | 0.22 | A |
| | NB On | 1 | 1,500 | 220 | 0.15 | A | 160 | 0.11 | A | 220 | 0.15 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 80 | 0.05 | A | 70 | 0.05 | A | 70 | 0.05 | A | 70 | 0.05 | A |
| | NB Off | 1 | 1,500 | 223 | 0.15 | A | 381 | 0.25 | A | 212 | 0.14 | A | 393 | 0.26 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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Option 2 with the pending projects exceed adopted impact thresholds at one freeway interchange off-ramps: I-5 Northbound off-ramp to Jamboree Road.

9.1.24 Post-2030 Peak Hour Freeway/Tollway Mainline Levels of Service, with Option 2, with Pending Projects

Post-2030 with Option 2, with Pending Projects AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-24.

Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, none of the directional mainline segments are forecast to exceed impact thresholds based on Post-2030 with Option 2, with Pending Projects.

9.1.25 2030 Mitigation Measures, with Options 1 and 2, with Pending Projects

For 2030 pending-plus-project conditions, there are seven intersection impacts for Option 1, six intersection impacts for Option 2 (six are previously identified locations with no additional mitigation for the pending condition), one ramp impact for Options 1 and 2 (previously identified location with no additional mitigation for the pending condition), and one directional mainline fair share impact for Options 1 and 2 as shown in Table 9-25.

If pending projects are approved, Project mitigation at the El Toro Road / Portola Parkway intersection consists of fair share participation in the addition of a southbound right turn overlap phase.

If pending projects are approved, Project fair share participation in a directional capacity enhancement (equivalent to a single general purpose lane) at one freeway mainline segment (I-5 Northbound, n/o Culver) mitigates the Project Option 1 or Option 2 contribution to a cumulative impact. Fair share will be calculated based on the methodology applied pursuant to the NITM Program (Per NITM, the fair share of improvement cost is calculated based the incremental daily volume change from the 2011 Approved Project to the 2012 Modified Project, divided by all traffic at that improvement location, including existing and future traffic).

## Table 9-24

## Pending Post 2030 Freeway Mainline LOS Summary, Option 2

| | Location | Direction | Lanes | Capacity | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 14,958 | **1.29** | **F** | 11,892 | **1.03** | **F** | 15,194 | **1.31** | **F** | 11,871 | **1.02** | **F** |
| | | SB | 5+1H | 11,600 | 9,689 | 0.84 | D | 9,948 | 0.86 | D | 9,625 | 0.83 | D | 10,118 | 0.87 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,205 | **1.22** | **F** | 11,304 | 0.97 | E | 14,457 | **1.25** | **F** | 11,257 | 0.97 | E |
| | | SB | 5+1H | 11,600 | 11,619 | 1.00 | E | 11,956 | **1.03** | **F** | 11,481 | 0.99 | E | 12,125 | **1.05** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 14,834 | **1.28** | **F** | 11,959 | **1.03** | **F** | 15,095 | **1.30** | **F** | 11,918 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,351 | **1.06** | **F** | 12,669 | **1.09** | **F** | 12,225 | **1.05** | **F** | 12,853 | **1.11** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,468 | **1.25** | **F** | 11,676 | **1.01** | **F** | 14,749 | **1.27** | **F** | 11,647 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 12,062 | **1.04** | **F** | 12,332 | **1.06** | **F** | 11,938 | **1.03** | **F** | 12,523 | **1.08** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,627 | **1.26** | **F** | 11,634 | 1.00 | E | 14,991 | **1.29** | **F** | 11,641 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 11,732 | **1.01** | **F** | 12,342 | **1.06** | **F** | 11,678 | **1.01** | **F** | 12,576 | **1.08** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 12,789 | **1.10** | **F** | 10,897 | 0.94 | E | 13,146 | **1.13** | **F** | 10,882 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 11,389 | 0.98 | E | 11,171 | 0.96 | E | 11,340 | 0.98 | E | 11,340 | 0.98 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 12,781 | **1.10** | **F** | 11,041 | 0.95 | E | 13,113 | **1.13** | **F** | 11,018 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,922 | **1.03** | **F** | 11,501 | 0.99 | E | 11,821 | **1.02** | **F** | 11,685 | **1.01** | **F** |
| | n/o Alton | NB | 4+1H | 9,600 | 10,302 | **1.07** | **F** | 8,887 | 0.93 | E | 10,413 | **1.08** | **F** | 8,870 | 0.92 | E |
| | | SB | 4+1H | 9,600 | 9,549 | 0.99 | E | 9,266 | 0.97 | E | 9,513 | 0.99 | E | 9,342 | 0.97 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,771 | **1.12** | **F** | 7,751 | 0.81 | D | 10,844 | **1.13** | **F** | 7,755 | 0.81 | D |
| | | SB | 4+1H | 9,600 | 7,861 | 0.82 | D | 9,577 | 1.00 | E | 7,833 | 0.82 | D | 9,621 | 1.00 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 21,181 | 0.99 | E | 14,272 | 0.66 | B | 21,347 | 0.99 | E | 14,288 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 11,993 | 0.56 | A | 16,356 | 0.76 | C | 11,952 | 0.56 | A | 16,398 | 0.76 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 21,129 | **1.08** | **F** | 13,150 | 0.67 | B | 21,123 | **1.08** | **F** | 13,169 | 0.68 | B |
| | | SB | 8+2H | 19,500 | 12,294 | 0.63 | B | 17,046 | 0.87 | D | 12,297 | 0.63 | B | 17,056 | 0.87 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 20,121 | **1.49** | **F** | 12,185 | 0.90 | D | 20,113 | **1.49** | **F** | 12,193 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,166 | 0.75 | C | 15,573 | **1.15** | **F** | 10,191 | 0.75 | C | 15,516 | **1.15** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 16,987 | **1.77** | **F** | 10,162 | **1.06** | **F** | 16,924 | **1.76** | **F** | 10,171 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,880 | 0.82 | D | 12,511 | **1.30** | **F** | 7,919 | 0.82 | D | 12,264 | **1.28** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,084 | **1.36** | **F** | 7,652 | 0.80 | C | 13,002 | **1.35** | **F** | 7,654 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,409 | 0.67 | B | 10,339 | **1.08** | **F** | 6,428 | 0.67 | B | 10,298 | **1.07** | **F** |

## Table 9-24 Cont.

## Pending Post 2030 Freeway Mainline LOS Summary, Option 2

| | | | | | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | Location | Direction | Lanes | Capacity | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,067 | **1.26** | **F** | 9,003 | 0.94 | E | 12,376 | **1.29** | **F** | 9,026 | 0.94 | E |
| | | SB | 4+1H | 9,600 | 9,140 | 0.95 | E | 10,224 | **1.07** | **F** | 9,065 | 0.94 | E | 10,431 | **1.09** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,422 | **1.29** | **F** | 9,442 | 0.98 | E | 12,707 | **1.32** | **F** | 9,434 | 0.98 | E |
| | | SB | 4+1H | 9,600 | 9,333 | 0.97 | E | 10,094 | **1.05** | **F** | 9,254 | 0.96 | E | 10,314 | **1.07** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,203 | **1.27** | **F** | 8,465 | 0.88 | D | 12,429 | **1.29** | **F** | 8,471 | 0.88 | D |
| | | SB | 4+1H | 9,600 | 8,206 | 0.85 | D | 9,624 | 1.00 | E | 8,148 | 0.85 | D | 9,790 | **1.02** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,145 | **1.06** | **F** | 7,222 | 0.75 | C | 10,295 | **1.07** | **F** | 7,226 | 0.75 | C |
| | | SB | 4+1H | 9,600 | 7,072 | 0.74 | C | 8,449 | 0.88 | D | 7,063 | 0.74 | C | 8,501 | 0.89 | D |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,398 | 0.77 | C | 4,108 | 0.43 | A | 7,322 | 0.76 | C | 4,125 | 0.43 | A |
| | | SB | 4+1H | 9,600 | 6,202 | 0.65 | B | 8,286 | 0.86 | D | 6,143 | 0.64 | B | 8,279 | 0.86 | D |
| SR-133 | n/o Irvine Blvd | NB | 4+1H | 9,600 | 2,534 | 0.26 | A | 5,777 | 0.60 | A | 2,699 | 0.28 | A | 5,731 | 0.60 | A |
| | | SB | 4+1H | 9,600 | 7,253 | 0.76 | C | 2,957 | 0.31 | A | 7,208 | 0.75 | C | 2,959 | 0.31 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 2,261 | 0.30 | A | 5,559 | 0.73 | C | 2,293 | 0.30 | A | 5,563 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,668 | 0.88 | D | 2,816 | 0.37 | A | 6,678 | 0.88 | D | 2,809 | 0.37 | A |
| | n/o I-5 | NB | 3+1H | 7,600 | 2,118 | 0.28 | A | 4,994 | 0.66 | B | 2,137 | 0.28 | A | 5,002 | 0.66 | B |
| | | SB | 3+1H | 7,600 | 4,684 | 0.62 | B | 2,077 | 0.27 | A | 4,670 | 0.61 | B | 2,104 | 0.28 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,366 | 0.56 | A | 4,913 | 0.82 | D | 3,413 | 0.57 | A | 4,949 | 0.82 | D |
| | | SB | 3 | 6,000 | 5,437 | 0.91 | E | 3,352 | 0.56 | A | 5,514 | 0.92 | E | 3,365 | 0.56 | A |
| | n/o I-405 | NB | 3 | 6,000 | 3,969 | 0.66 | B | 3,747 | 0.62 | B | 3,971 | 0.66 | B | 3,841 | 0.64 | B |
| | | SB | 3 | 6,000 | 3,730 | 0.62 | B | 3,359 | 0.56 | A | 3,823 | 0.64 | B | 3,381 | 0.56 | A |
| SR-241 | n/o SR-133 | NB | 3+1H | 7,600 | 5,613 | 0.74 | C | 5,643 | 0.74 | C | 5,850 | 0.77 | C | 5,583 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,612 | 0.87 | D | 4,952 | 0.65 | B | 6,471 | 0.85 | D | 5,073 | 0.67 | B |
| | n/o Portola (West) | NB | 4+1H | 9,600 | 6,833 | 0.71 | C | 3,260 | 0.34 | A | 6,926 | 0.72 | C | 3,204 | 0.33 | A |
| | | SB | 4+1H | 9,600 | 3,113 | 0.32 | A | 5,389 | 0.56 | A | 3,037 | 0.32 | A | 5,466 | 0.57 | A |
| | n/o Alton | NB | 4+1H | 9,600 | 6,960 | 0.73 | C | 3,345 | 0.35 | A | 7,024 | 0.73 | C | 3,288 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,235 | 0.34 | A | 5,531 | 0.58 | A | 3,162 | 0.33 | A | 5,580 | 0.58 | A |
| | n/o Lake Forest | NB | 4+1H | 9,600 | 7,728 | 0.81 | D | 3,106 | 0.32 | A | 7,722 | 0.80 | C | 3,071 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 2,787 | 0.29 | A | 5,988 | 0.62 | B | 2,757 | 0.29 | A | 5,993 | 0.62 | B |

## Table 9-24 Cont.

## Pending Post 2030 Freeway Mainline LOS Summary, Option 2

| | | | | | 2011 Approved Project, with Pending Projects | | | | | | 2012 Modified Project, With Pending Projects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | Location | Direction | Lanes | Capacity | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-261 | n/o Portola | NB | 3+1H | 7,600 | 1,185 | 0.16 | A | 3,119 | 0.41 | A | 1,205 | 0.16 | A | 3,111 | 0.41 | A |
| | | SB | 3+1H | 7,600 | 3,956 | 0.52 | A | 1,286 | 0.17 | A | 3,961 | 0.52 | A | 1,305 | 0.17 | A |
| | n/o irvine Blvd | NB | 3+1H | 7,600 | 684 | 0.09 | A | 2,778 | 0.37 | A | 697 | 0.09 | A | 2,784 | 0.37 | A |
| | | SB | 3+1H | 7,600 | 3,660 | 0.48 | A | 909 | 0.12 | A | 3,669 | 0.48 | A | 923 | 0.12 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 980 | 0.13 | A | 3,527 | 0.46 | A | 981 | 0.13 | A | 3,546 | 0.47 | A |
| | | SB | 3+1H | 7,600 | 4,294 | 0.57 | A | 1,299 | 0.17 | A | 4,310 | 0.57 | A | 1,315 | 0.17 | A |
| | n/o Chapman/Sant. Cyn | NB | 3+1H | 7,600 | 6,031 | 0.79 | C | 8,159 | **1.07** | **F** | 6,130 | 0.81 | D | 8,013 | **1.05** | **F** |
| | | SB | 3+1H | 7,600 | 10,280 | **1.35** | **F** | 5,627 | 0.74 | C | 10,035 | **1.32** | **F** | 5,659 | 0.74 | C |

**Bold =** Deficient Segment

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**Table 9-25**

**Year 2030 with Pending Projects and 2012 Modified Project**
**Impact Locations with Proposed Mitigation**

| Location | Peak Hour | 2011 Approved Project With Pending Projects | | 2012 Modified Project With Pending Projects | | With Improvement | |
|---|---|---|---|---|---|---|---|
| | | ICU / V/C Ratio | LOS | ICU / V/C Ratio | LOS | ICU / V/C Ratio | LOS |
| **Intersections** | | | | | | | |
| 54. Browning Ave. & Irvine Blvd. | | | | | | | |
| - Option 1 | AM | 1.00 | E | 1.03 | F | 0.98[1] | E |
| - Option 2 | AM | 1.00 | E | 1.03 | F | 0.98[1] | E |
| 228. Culver Dr. & Barranca Pkwy. | | | | | | | |
| - Option 1 | AM | 0.91 | E | 0.93 | E | 0.90 | D |
| - Option 2 | AM | 0.91 | E | 0.94 | E | 0.90 | D |
| 290. Jeffrey Rd. & Barranca Pkwy. | | | | | | | |
| - Option 1 | AM | 0.90 | D | 0.92 | E | 0.84 | D |
| - Option 2 | AM | 0.90 | D | 0.92 | E | 0.84 | D |
| 291. Jeffrey Rd. & Alton Pkwy. | | | | | | | |
| - Option 1 | AM | 0.93[1] | E | 0.95[1] | E | 0.91[1] | E |
| 303. Sand Canyon & I-5 NB Ramp/Marine | | | | | | | |
| - Option 1 | PM | 0.85 | D | 0.94 | E | 0.89 | D |
| - Option 2 | PM | 0.85 | D | 0.95 | E | 0.90 | D |
| 366. Bake Pkwy. & Rockfield Blvd. | | | | | | | |
| - Option 1 | PM | 0.98 | E | 1.02 | F | 0.92 | E |
| - Option 2 | PM | 0.98 | E | 1.02 | F | 0.91 | E |
| 417. El Toro Rd. & Portola Pkwy. | | | | | | | |
| - Option 1 | PM | 0.99 | E | 1.01 | F | 0.96 | E |
| - Option 2 | PM | 0.99 | E | 1.01 | F | 0.96 | E |
| **Ramp** | | | | | | | |
| I-5 NB Off-Ramp to Jamboree | | | | | | | |
| - Option 1[2] | AM | 1.04 | F | 1.09 | F | 0.73 | C |
| - Option 2[3] | AM | 1.04 | F | 1.07 | F | 0.71 | C |
| **Mainline (Directional Segments)** | | | | | | | |
| I-5 Northbound, n/o Culver | | | | | | | |
| - Option 1 | AM | 1.32 | F | 1.36 | F | 1.16 | F |
| - Option 2 | AM | 1.32 | F | 1.36 | F | 1.16 | F |

[1] ATMS credit (0.05) hase been applied.

[2] Improvement Capacity - 2,250, PM peak hour V/C = 0.58 (LOS A)

[3] Improvement Capacity - 2,250, PM peak hour V/C = 0.57 (LOS A)

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### 9.1.26 Post-2030 Mitigation Measures, Options 1 and 2, with Pending Projects

For Post-2030 pending conditions, there are two intersection impacts for Options 1 and 2 (previously identified locations with no additional mitigation for the pending condition), one ramp impact for Options 1 and 2 (previously identified location with no additional mitigation for the pending condition), and no directional mainline fair share impacts as shown in Table 9-26.

## 9.2 Rockfield Boulevard MPAH Network, Sensitivity Analysis

Buildout conditions for Options 1 and 2 are analyzed to determine if any level of service deficiencies are created within the study area with the buildout of Rockfield Boulevard as currently included on the Orange County Master Plan of Arterial Highways (MPAH), when compared against the buildout of the proposed project with the deletion of Rockfield Blvd extension to Marine Way. This analysis will be used to process the proposed MPAH amendment to delete the extension of Rockfield to Marine Way. The deletion of the Rockfield extension is subject to coordination with adjacent cities and approval by the OCTA Board of Directors.

### 9.2.1 Post-2030 Average Daily Traffic Volumes, Existing MPAH Network with Option 1

Average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios without the MPAH change and with buildout of the 2012 Modified Project Option 1 land uses are illustrated in Exhibits 9-19 through 9-20, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, no arterial roadway segments are impacted by Option 1 with future construction of the Rockfield extension to Marine Way, in comparison to the network alternative which deletes the Rockfield extension.

### 9.2.2 Post-2030 Peak Hour Intersection Levels of Service, Existing MPAH Network with Option 1

2012 Modified Project Option 1 with Existing MPAH Network AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 8-5

**Table 9-26**

**Post-2030 with Pending Projects and 2012 Modified Project**
**Impact Locations with Proposed Mitigation**

| Location | Peak Hour | 2011 Approved Project With Pending Projects | | 2012 Modified Project With Pending Projects | | With Improvement | |
|---|---|---|---|---|---|---|---|
| | | ICU / V/C Ratio | LOS | ICU / V/C Ratio | LOS | ICU / V/C Ratio | LOS |
| **Intersections** | | | | | | | |
| 286. Jeffrey Rd. & Roosevelt | | | | | | | |
| - Option 1 | AM | 0.89 | D | 0.91 | E | 0.88 | D |
| - Option 2 | AM | 0.89 | D | 0.92 | E | 0.88 | D |
| 291. Jeffrey Rd. & Alton Pkwy. | | | | | | | |
| - Option 1 | AM | 0.90[1] | D | 0.92[1] | E | 0.89[1] | D |
| - Option 2 | AM | 0.90[1] | D | 0.92[1] | E | 0.89[1] | D |
| **Ramp** | | | | | | | |
| I-5 NB Off-Ramp to Jamboree Rd. | | | | | | | |
| - Option 1 | AM | 1.01 | F | 1.07 | F | 0.72 | C |
| - Option 2 | AM | 1.01 | F | 1.07 | F | 0.72 | C |

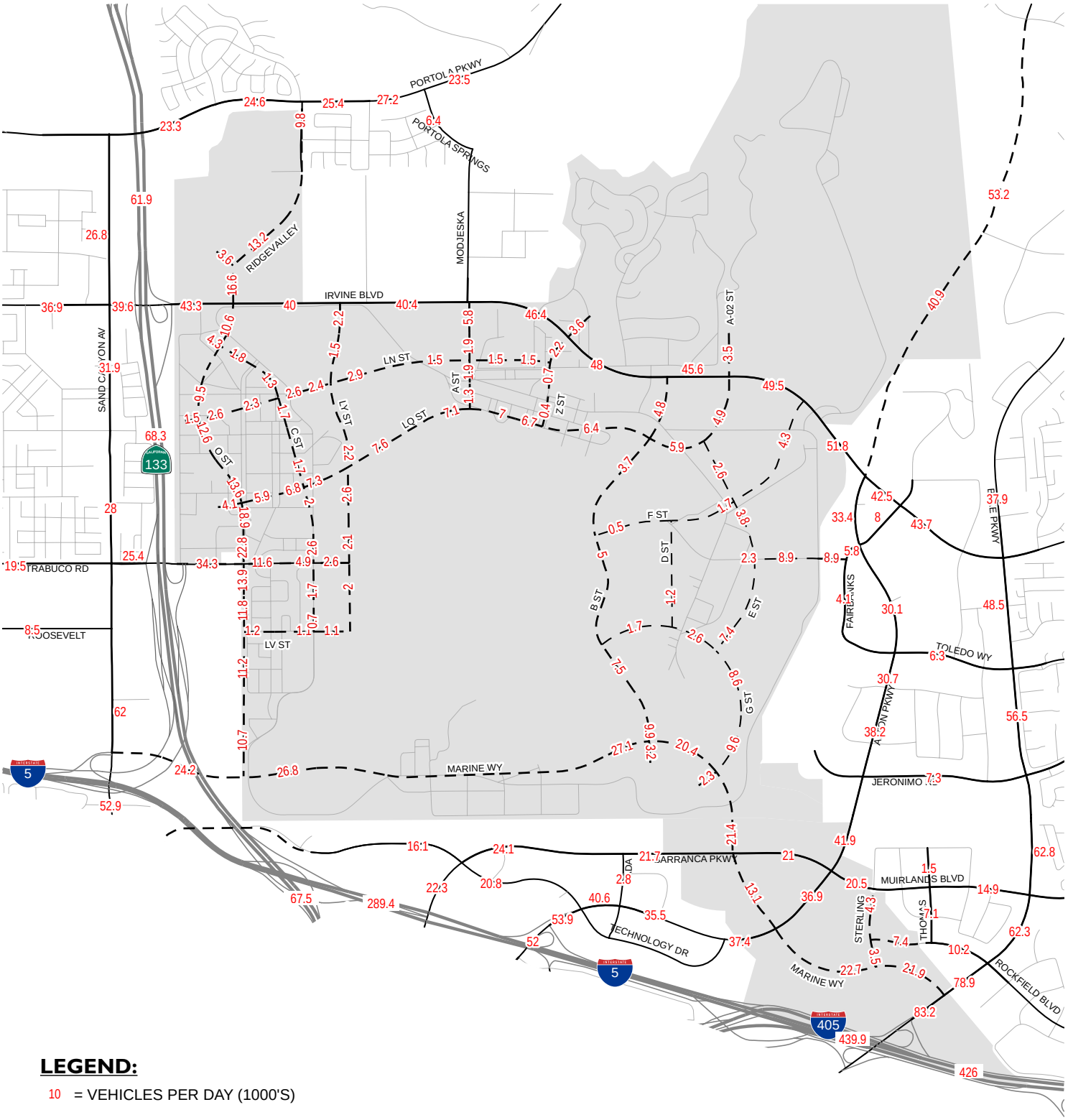
[1] ATMS credit (0.05) hase been applied.

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# POST-2030 ADT VOLUMES - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 1, PROJECT AREA



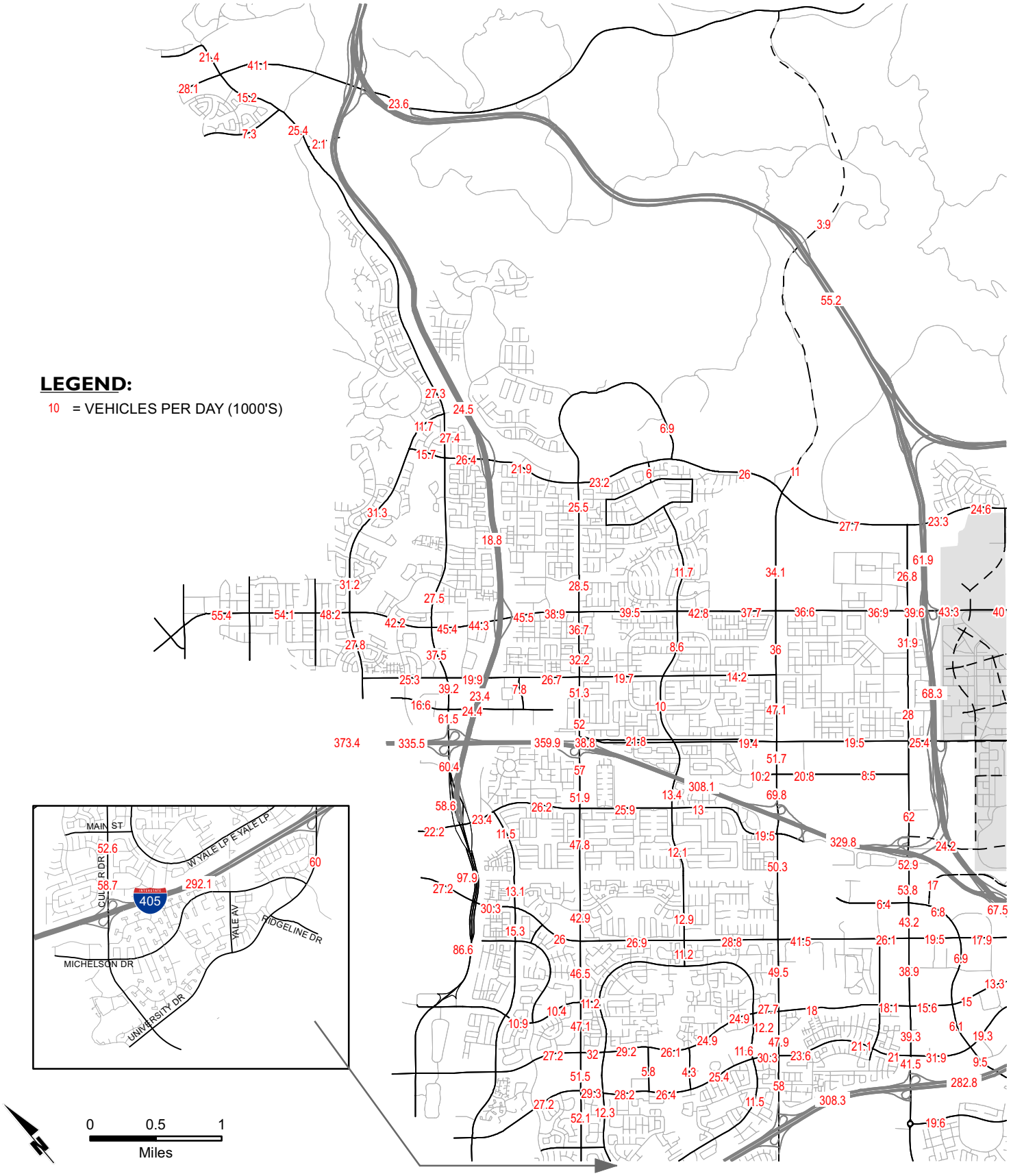

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

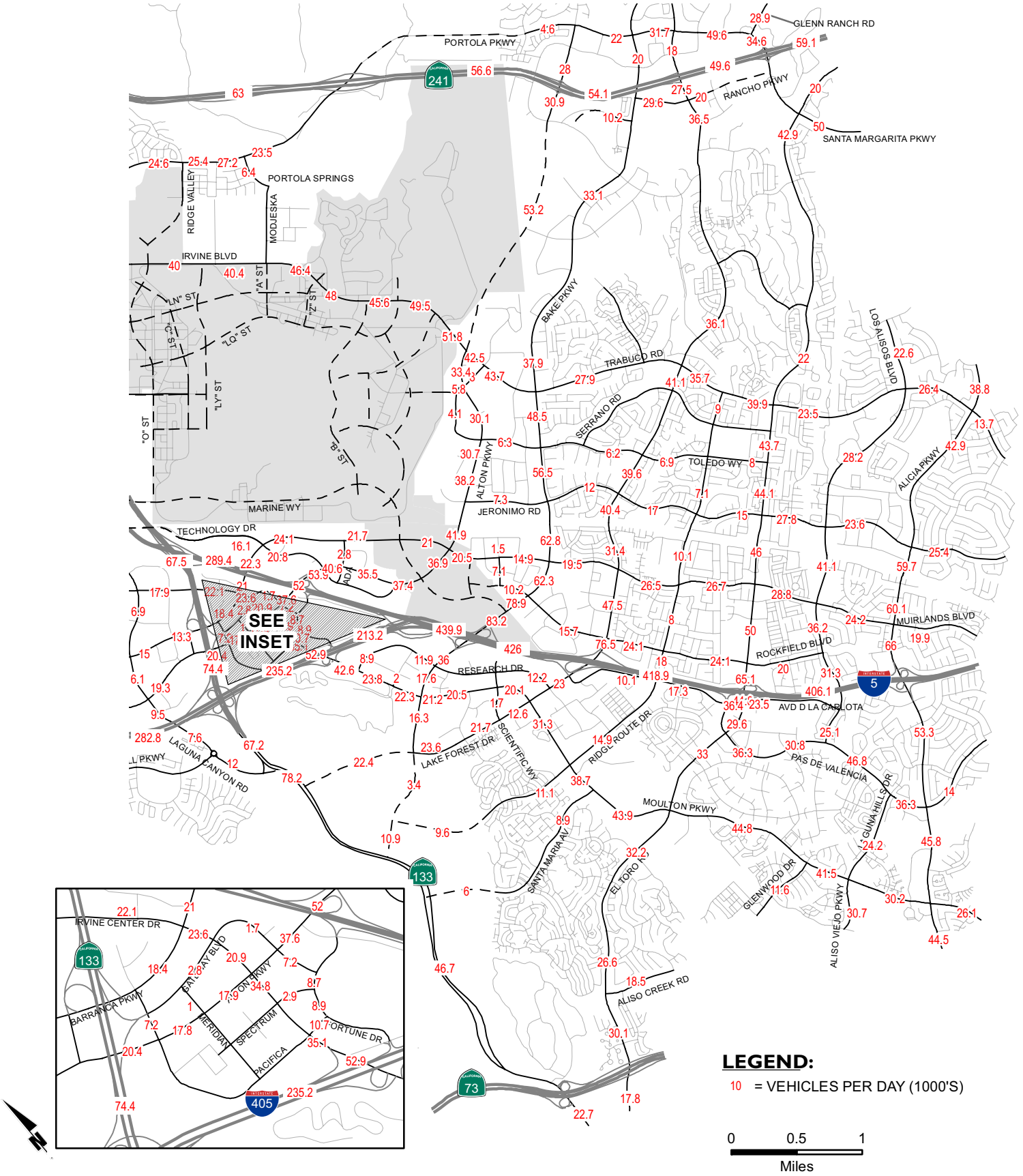
0 1,400 2,800

Feet

# POST-2030 ADT VOLUMES - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 1, WEST STUDY AREA



# POST-2030 ADT VOLUMES - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 1, EAST STUDY AREA



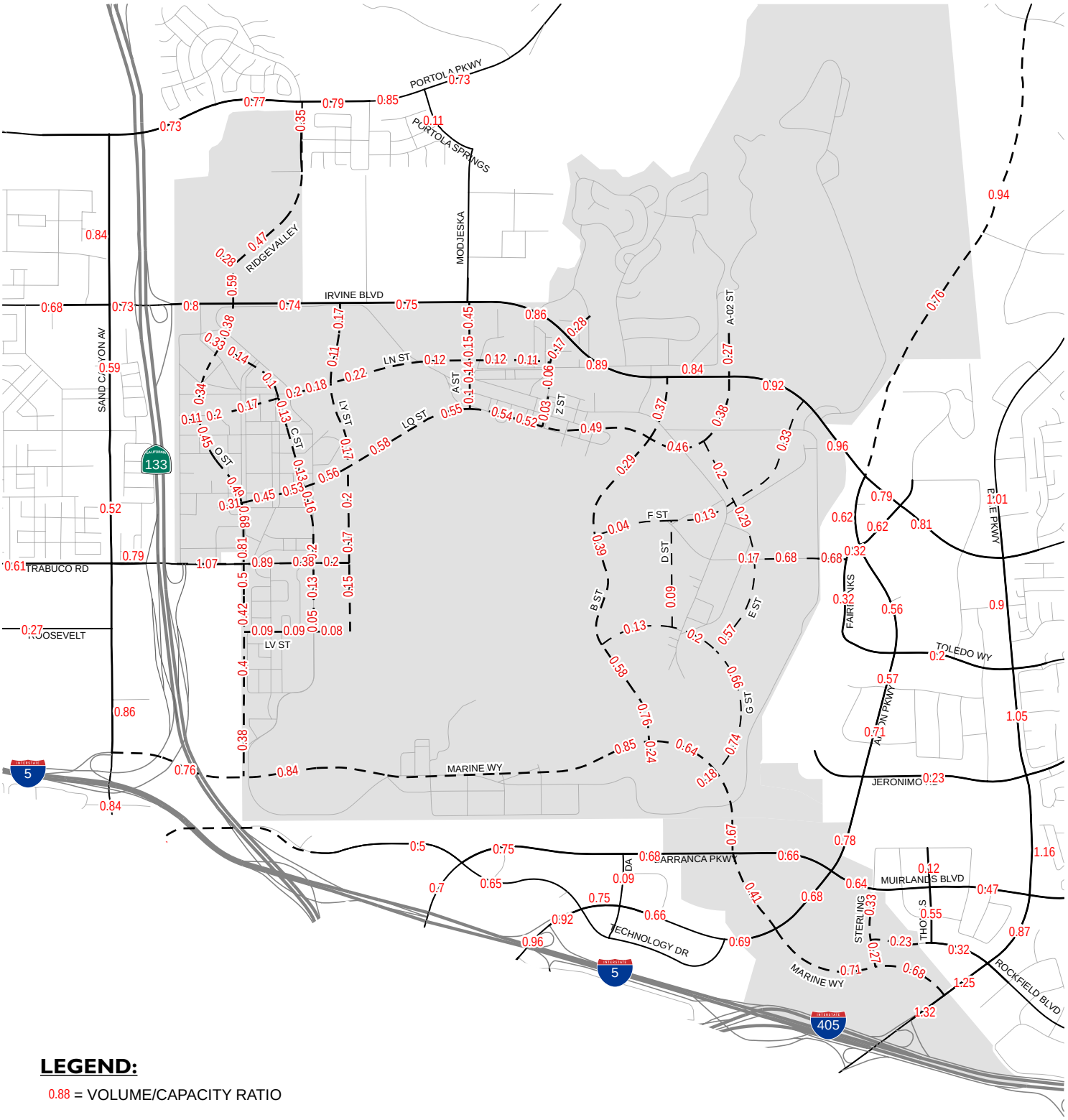

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

0 0.5 1

Miles

# POST-2030 ADT V/C RATIOS - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 1, PROJECT AREA



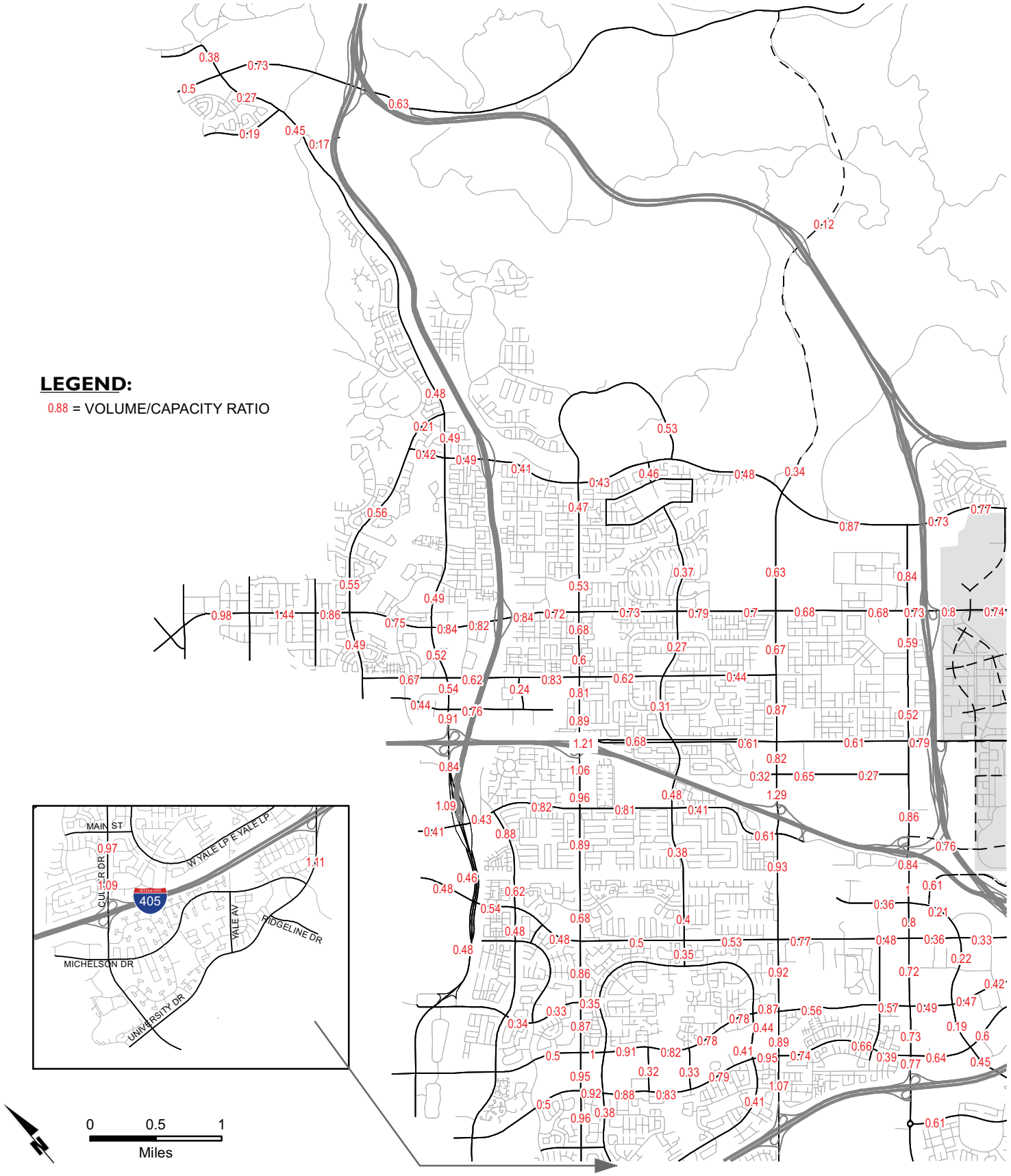

**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

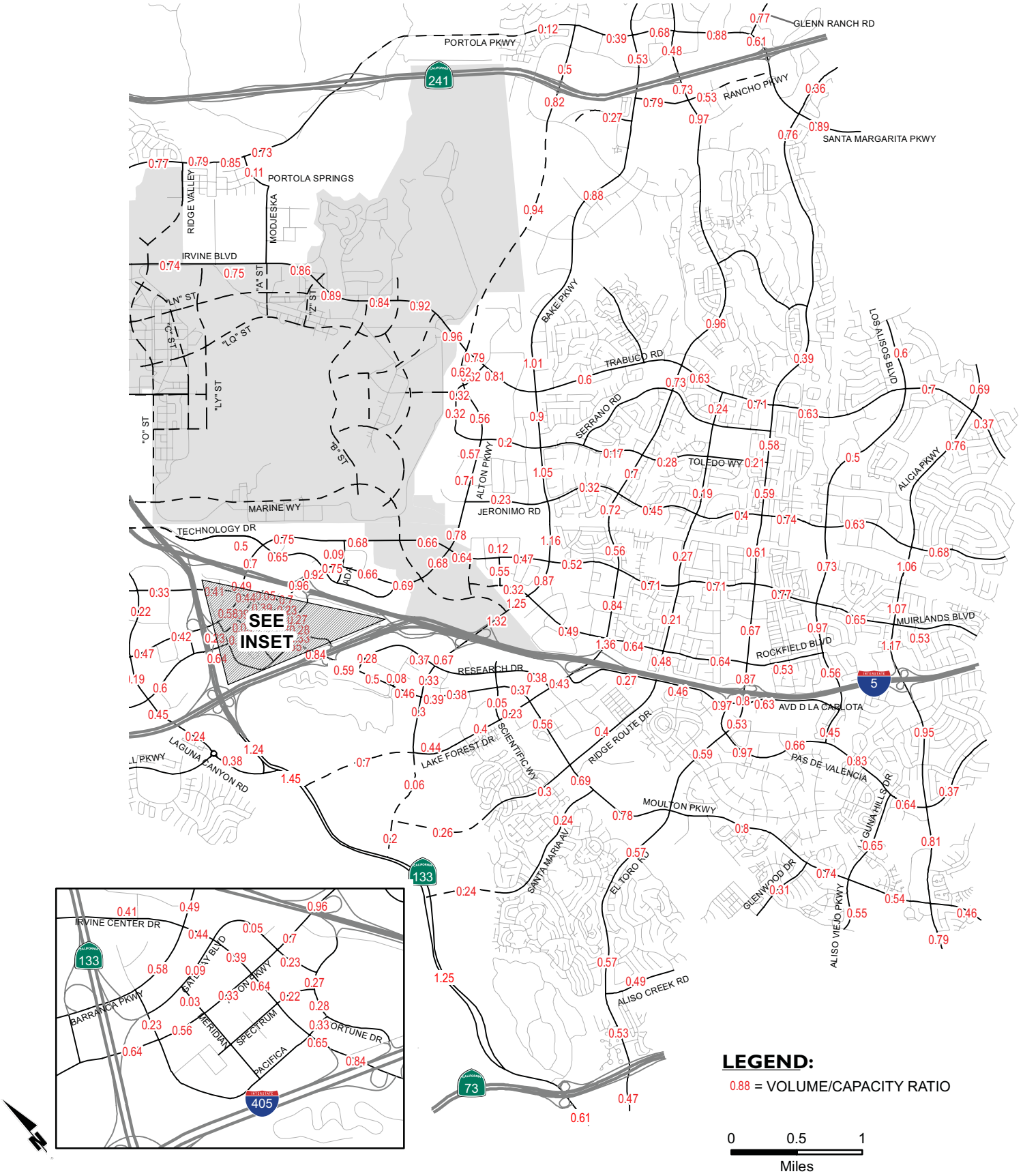
0 1,400 2,800

Feet

# POST-2030 ADT V/C RATIOS - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 1, WEST STUDY AREA



# POST-2030 ADT V/C RATIOS - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 1, EAST STUDY AREA



that are analyzed in this traffic study are summarized in Table 9-27. Actual turn volumes, lane geometrics and ICU calculation worksheets for 2012 Modified Project Option 1 without the Rockfield MPAH change are included in Appendix 9.10. Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that no intersections exceed adopted impact thresholds with Option 1 with future construction of the Rockfield extension to Marine Way, in comparison to the network alternative which deletes the Rockfield extension.

9.2.3 Post-2030 Peak Hour Freeway/Tollway Ramp Levels of Service, Existing MPAH Network with Option 1

2012 Modified Project Option 1 with Existing MPAH Network AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-28. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, the SR-133 NB Loop On-Ramp at Barranca Parkway is forecast to exceed adopted impact thresholds with Option 1 and with the Rockfield extension to Marine Way based on Post-2030 conditions.

9.2.4 Post-2030 Peak Hour Freeway/Tollway Mainline Levels of Service, Existing MPAH Network with Option 1

2012 Modified Project Option 1 Existing MPAH Network AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-29. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-4, none of the freeway mainline segments are forecast to exceed adopted impact thresholds with Option 1 and with the Rockfield extension to Marine Way based on Post-2030 conditions, in comparison to the network alternative which deletes the Rockfield extension.

9.2.5 Post-2030 Average Daily Traffic Volumes, Existing MPAH Network with Option 2

Average daily traffic (ADT) volumes and corresponding volume/capacity (V/C) ratios without the MPAH change and with buildout of the 2012 Modified Project Option 2 land uses are illustrated in Exhibits 9-21 through 9-22, respectively.

## Table 9-27

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 1
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project, without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | Yes | Yes | | 0.80 | C | 0.89 | D | 0.78 | C | 0.89 | D |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | F | Yes | Yes | | 0.77 | C | 0.85 | D | 0.77 | C | 0.85 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | | 0.86 | D | 0.77 | C | 0.88 | D | 0.76 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | F | Yes | Yes | | 0.80 | C | 0.85 | D | 0.80 | C | 0.85 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | P | | | | 0.66 | B | 0.55 | A | 0.65 | B | 0.55 | A |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | | 0.76 | C | 0.70 | B | 0.75 | C | 0.71 | C |
| 125 | Jamboree Rd at Irvine Bl | Tus | F | | | Yes | 0.82 | D | 0.81 | D | 0.82 | D | 0.80 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | | 0.70 | B | 0.63 | B | 0.69 | B | 0.63 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | | 0.71 | C | 0.70 | B | 0.71 | C | 0.70 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | | 0.64 | B | 0.71 | C | 0.63 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | | 0.63 | B | 0.64 | B | 0.63 | B | 0.64 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | | 0.47 | A | 0.58 | A | 0.47 | A | 0.58 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | | 0.53 | A | 0.74 | C | 0.52 | A | 0.75 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | | Yes | 0.51 | A | 0.70 | B | 0.51 | A | 0.70 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | Yes | | | 0.40 | A | 0.45 | A | 0.40 | A | 0.43 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | | Yes | 0.85 | D | 0.95 | E | 0.84 | D | 0.96 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | | 0.49 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | | 0.49 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | | 0.57 | A | 0.53 | A | 0.57 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | | 0.71 | C | 0.63 | B | 0.71 | C | 0.63 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | | 0.71 | C | 0.67 | B | 0.71 | C | 0.67 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | | 0.79 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | | 0.90 | D | 0.74 | C | 0.90 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | F | | | | 0.75 | C | 0.78 | C | 0.77 | C | 0.78 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | F | | | | 0.60 | A | 0.67 | B | 0.60 | A | 0.67 | B |
| 224 | Culver Dr at Walnut Av | Irv | F | Yes | | | 0.82 | D | 0.88 | D | 0.82 | D | 0.89 | D |
| 226 | Culver Dr at ICD | Irv | | Yes | | | 0.77 | C | 0.72 | C | 0.78 | C | 0.72 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | | 0.82 | D | 0.66 | B | 0.82 | D | 0.65 | B |
| 228 | Culver Dr at Barranca Pw | Irv | P | Yes | | | 0.89 | D | 0.80 | C | 0.90 | D | 0.80 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | Yes | | | 0.87 | D | 0.89 | D | 0.86 | D | 0.89 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | | 0.80 | C | 0.72 | C | 0.81 | D | 0.72 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | | 0.57 | A | 0.62 | B | 0.57 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | F | Yes | | | 0.63 | B | 0.77 | C | 0.62 | B | 0.78 | C |
| 249 | Yale Av at Irvine Bl | Irv | F | | | | 0.75 | C | 0.89 | D | 0.75 | C | 0.88 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | | 0.48 | A | 0.45 | A | 0.48 | A | 0.44 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | | 0.62 | B | 0.51 | A | 0.62 | B | 0.51 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | | 0.60 | A | 0.73 | C | 0.61 | B | 0.73 | C |
| 261 | Yale Av at ICD | Irv | | | | | 0.67 | B | 0.69 | B | 0.67 | B | 0.69 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | | 0.64 | B | 0.62 | B | 0.64 | B | 0.62 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | | 0.69 | B | 0.65 | B | 0.70 | B | 0.65 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | | 0.70 | B | 0.68 | B | 0.69 | B | 0.69 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | | 0.74 | C | 0.68 | B | 0.74 | C | 0.68 | B |

## Table 9-27 Cont.

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 1
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project, without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | | 0.68 | B | 0.64 | B | 0.68 | B | 0.64 | B |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | Yes | | | 0.76 | C | 0.72 | C | 0.75 | C | 0.71 | C |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | | 0.74 | C | 0.67 | B | 0.73 | C | 0.68 | B |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | Yes | | | 0.65 | B | 0.75 | C | 0.66 | B | 0.75 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | | **0.91** | **E** | 0.89 | D | **0.91** | **E** | 0.88 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | | 0.73 | C | 0.82 | D | 0.74 | C | 0.83 | D |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | | 0.79 | C | 0.80 | C | 0.79 | C | 0.80 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | Yes | | | 0.84 | D | 0.79 | C | 0.84 | D | 0.79 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | Yes | | | 0.84 | D | 0.74 | C | 0.85 | D | 0.76 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | Yes | | **0.91** | **E** | 0.80 | C | **0.92** | **E** | 0.80 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | | 0.69 | B | 0.79 | C | 0.69 | B | 0.79 | C |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | | 0.68 | B | 0.71 | C | 0.68 | B | 0.71 | C |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | | 0.48 | A | 0.60 | A | 0.48 | A | 0.60 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | | 0.73 | C | 0.75 | C | 0.73 | C | 0.76 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | Yes | | | 0.76 | C | 0.77 | C | 0.76 | C | 0.77 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | | 0.85 | D | 0.87 | D | 0.85 | D | 0.87 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | | 0.90 | D | 0.87 | D | 0.90 | D | 0.87 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | | 0.86 | D | 0.79 | C | 0.86 | D | 0.79 | C |
| 307 | Sand Canyon Av at ICD | Irv | | | | | 0.60 | A | 0.67 | B | 0.60 | A | 0.67 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | | 0.56 | A | 0.61 | B | 0.57 | A | 0.60 | A |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | | 0.62 | B | 0.75 | C | 0.63 | B | 0.75 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | | 0.66 | B | 0.47 | A | 0.66 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | | 0.80 | C | 0.55 | A | 0.80 | C | 0.55 | A |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | | 0.33 | A | 0.43 | A | 0.34 | A | 0.42 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | | 0.44 | A | 0.45 | A | 0.45 | A | 0.45 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | | 0.53 | A | 0.58 | A | 0.52 | A | 0.58 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | | 0.54 | A | 0.58 | A | 0.54 | A | 0.58 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | | 0.71 | C | 0.81 | D | 0.71 | C | 0.81 | D |
| 318 | Banting at Barranca Pkwy | Irv | | | | | 0.72 | C | 0.53 | A | 0.72 | C | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | | 0.58 | A | 0.53 | A | 0.58 | A | 0.53 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | | **0.94** | **E** | 0.81 | D | **0.94** | **E** | 0.81 | D |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | LB | | | | Yes | 0.93 | E | 0.62 | B | 0.93 | E | 0.62 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | | Yes | 0.40 | A | 0.45 | A | 0.40 | A | 0.45 | A |
| 324 | Portola Pw at SR-241 NB Ramps | Irv | | | | | 0.58 | A | 0.39 | A | 0.59 | A | 0.39 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | | 0.43 | A | 0.44 | A | 0.43 | A | 0.44 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | | 0.60 | A | 0.69 | B | 0.60 | A | 0.69 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | | Yes | 0.64 | B | 0.43 | A | 0.64 | B | 0.43 | A |
| 329 | Barranca Pw at ICD | Irv | | | | Yes | 0.68 | B | 0.66 | B | 0.68 | B | 0.67 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | | Yes | 0.59 | A | 0.77 | C | 0.59 | A | 0.76 | C |
| 333 | Pacifica at Gateway | Irv | | | | Yes | | | | | 0.00 | A | 0.00 | A |
| 335 | Alton Pw at Portola Pw | LF | | | | | 0.55 | A | 0.48 | A | 0.49 | A | 0.37 | A |
| 336 | Alton Pw at SR-241 Ramps | Irv | | | | | 0.66 | B | 0.58 | A | 0.66 | B | 0.58 | A |

## Table 9-27 Cont.

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 1
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project, without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | | Yes | 0.93 | E | 0.88 | D | 0.93 | E | 0.88 | D |
| 339 | Alton Pw at Toledo Wy | Irv | | | | | 0.79 | C | 0.67 | B | 0.80 | C | 0.67 | B |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | | 0.66 | B | 0.54 | A | 0.66 | B | 0.54 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | | 0.57 | A | 0.74 | C | 0.57 | A | 0.74 | C |
| 343 | Alton Pw at Ada | Irv | | | | | 0.51 | A | 0.77 | C | 0.51 | A | 0.76 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | | 0.59 | A | 0.87 | D | 0.59 | A | 0.87 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | | Yes | 0.88 | D | 0.52 | A | 0.89 | D | 0.52 | A |
| 346 | Alton Pw at Enterprise | Irv | | | | Yes | 0.70 | B | 0.78 | C | 0.71 | C | 0.77 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | | Yes | 0.57 | A | 0.75 | C | 0.57 | A | 0.75 | C |
| 350 | Alton Pw at Pacifica | Irv | | | | Yes | 0.58 | A | 0.56 | A | 0.57 | A | 0.56 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | | Yes | 0.49 | A | 0.77 | C | 0.50 | A | 0.77 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | | Yes | 0.49 | A | 0.49 | A | 0.48 | A | 0.49 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | | Yes | 0.64 | B | 0.52 | A | 0.63 | B | 0.52 | A |
| 359 | ICD at I-405 SB Ramps | LF | **P** | | | Yes | 0.58 | A | 0.53 | A | 0.57 | A | 0.53 | A |
| 361 | Bake Pw at Portola Pw | Irv | | | | | 0.55 | A | 0.81 | D | 0.55 | A | 0.82 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | | Yes | 0.81 | D | 0.91 | E | 0.81 | D | 0.91 | E |
| 363 | Bake Pw at Toledo Wy | Irv | | | | | 0.77 | C | 0.66 | B | 0.77 | C | 0.66 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | | 0.81 | D | 0.67 | B | 0.82 | D | 0.68 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | | 0.74 | C | **0.91** | **E** | 0.72 | C | 0.89 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | | 0.70 | B | 0.88 | D | 0.71 | C | 0.88 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | | Yes | 0.82 | D | 0.59 | A | 0.82 | D | 0.59 | A |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | | Yes | 0.81 | D | 0.87 | D | 0.81 | D | 0.86 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | | 0.57 | A | 0.81 | D | 0.58 | A | 0.81 | D |
| 372 | Bake Pw at ICD | LF | | | | | 0.54 | A | 0.52 | A | 0.53 | A | 0.51 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | | 0.33 | A | 0.42 | A | 0.33 | A | 0.42 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | | 0.62 | B | 0.89 | D | 0.62 | B | 0.89 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | | 0.56 | A | 0.51 | A | 0.55 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | | 0.84 | D | 0.89 | D | 0.84 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | | 0.65 | B | 0.59 | A | 0.64 | B | 0.59 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | | 0.73 | C | 0.86 | D | 0.74 | C | 0.86 | D |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | | 0.74 | C | 0.85 | D | 0.73 | C | 0.85 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | | 0.85 | D | 0.86 | D | 0.86 | D | 0.88 | D |
| 381 | Lake Forest Dr at I-5 NB Ramps | Irv | | | | | 0.70 | B | 0.75 | C | 0.70 | B | 0.76 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | Yes | | Yes | 0.63 | B | 0.79 | C | 0.64 | B | 0.79 | C |
| 385 | Lake Forest Dr at ICD | LF | | | | Yes | 0.43 | A | 0.56 | A | 0.44 | A | 0.55 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | | 0.57 | A | 0.69 | B | 0.56 | A | 0.69 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LH | **P** | | | | 0.51 | A | 0.74 | C | 0.48 | A | 0.60 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | LH/LW | | | | | 0.53 | A | 0.68 | B | 0.53 | A | 0.68 | B |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | | 0.53 | A | 0.77 | C | 0.52 | A | 0.77 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | | 0.79 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 391 | Santa Maria Av at Moulton Pw | LF | | | | | 0.50 | A | 0.75 | C | 0.50 | A | 0.75 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | | 0.70 | B | 0.84 | D | 0.71 | C | 0.85 | D |

## Table 9-27 Cont.

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 1
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project, without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | | 0.61 | B | 0.73 | C | 0.61 | B | 0.74 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LH | | | | Yes | 0.82 | D | 0.85 | D | 0.82 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH/LW | **P** | | | Yes | 0.59 | A | 0.87 | D | 0.60 | A | 0.86 | D |
| 397 | El Toro Rd at Paseo de Valencia | LW | | | | | 0.68 | B | 0.85 | D | 0.69 | B | 0.85 | D |
| 398 | El Toro Rd at Moulton Pw | AV | | | | Yes | 0.84 | D | 0.92 | E | 0.85 | D | 0.92 | E |
| 399 | El Toro Rd at Aliso Creek Rd | LB | | | | | 0.53 | A | 0.64 | B | 0.53 | A | 0.64 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | | Yes | 0.58 | A | 0.58 | A | 0.58 | A | 0.58 | A |
| 401 | El Toro Rd at SR-73 SB Ramps | Irv | | | | Yes | 0.44 | A | 0.61 | B | 0.44 | A | 0.61 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | OC | | | | | 0.62 | B | 0.66 | B | 0.60 | A | 0.65 | B |
| 403 | SR-241 NB Ramps at Jeffery Rd | OC | | | | | 0.34 | A | 0.26 | A | 0.34 | A | 0.26 | A |
| 404 | SR-241 SB Ramps at Jeffery Rd | Irv | | | | | 0.27 | A | 0.21 | A | 0.27 | A | 0.22 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | | 0.43 | A | 0.38 | A | 0.42 | A | 0.38 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | LF | **F** | | | | 0.66 | B | 0.55 | A | 0.67 | B | 0.55 | A |
| 407 | Laguna Canyon Rd at Bake Pw | LF | **F** | | | | 0.76 | C | 0.67 | B | 0.76 | C | 0.67 | B |
| 408 | Laguna Canyon Rd at Santa Maria Dr | LF | | | | | 0.80 | C | 0.60 | A | 0.79 | C | 0.60 | A |
| 409 | Bake Pw at Commercentre Dr | Irv | | | | | 0.66 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 410 | Bake Pw at Lake Forest Dr | Irv | | | | | 0.48 | A | 0.45 | A | 0.47 | A | 0.45 | A |
| 411 | Bake Pw at Ridge Route | LF | | | | | 0.51 | A | 0.46 | A | 0.52 | A | 0.47 | A |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | | 0.57 | A | 0.71 | C | 0.57 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | | 0.43 | A | 0.39 | A | 0.43 | A | 0.39 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | | 0.52 | A | 0.66 | B | 0.51 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | | 0.64 | B | 0.66 | B | 0.64 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | | 0.51 | A | 0.66 | B | 0.51 | A | 0.66 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | | 0.83 | D | **0.99** | **E** | 0.83 | D | **0.99** | **E** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | | Yes | 0.76 | C | 0.77 | C | 0.76 | C | 0.77 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | | 0.53 | A | 0.52 | A | 0.53 | A | 0.52 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | | 0.72 | C | 0.67 | B | 0.72 | C | 0.68 | B |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | | 0.76 | C | 0.72 | C | 0.76 | C | 0.72 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | | 0.89 | D | 0.89 | D | 0.89 | D | 0.90 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | | 0.85 | D | 0.84 | D | 0.86 | D | 0.84 | D |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | | 0.64 | B | 0.80 | C | 0.64 | B | 0.80 | C |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | | 0.52 | A | 0.60 | A | 0.53 | A | 0.60 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | | 0.60 | A | 0.84 | D | 0.60 | A | 0.84 | D |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | | 0.72 | C | 0.68 | B | 0.71 | C | 0.69 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | | 0.75 | C | 0.83 | D | 0.76 | C | 0.83 | D |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | | 0.82 | D | 0.83 | D | 0.83 | D | 0.82 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | | 0.72 | C | 0.73 | C | 0.72 | C | 0.73 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | | 0.78 | C | 0.76 | C | 0.78 | C | 0.75 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | | 0.67 | B | 0.82 | D | 0.67 | B | 0.82 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | | 0.43 | A | 0.69 | B | 0.44 | A | 0.68 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | | 0.67 | B | 0.75 | C | 0.67 | B | 0.75 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | | 0.68 | B | 0.79 | C | 0.68 | B | 0.78 | C |

## Table 9-27 Cont.

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 1
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project, without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 436 | Moulton Pw at Alicia Pw | LH | | | | | 0.74 | C | 0.77 | C | 0.74 | C | 0.77 | C |
| 437 | Scientific Wy at ICD | Irv | | | | | 0.33 | A | 0.38 | A | 0.33 | A | 0.38 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | | 0.27 | A | 0.18 | A | 0.27 | A | 0.18 | A |
| 444 | Sand Canyon Av at Burt Rd | OC | | | | | 0.90 | D | 0.89 | D | 0.90 | D | 0.90 | D |
| 452 | Jamboree Rd at Santiago Canyon Rd | Irv | | | | | 0.74 | C | 0.70 | B | 0.74 | C | 0.70 | B |
| 459 | Jeffrey at Santiago Canyon Rd | Ora | | | | | 0.29 | A | 0.27 | A | 0.29 | A | 0.27 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | | 0.77 | C | 0.84 | D | 0.78 | C | 0.85 | D |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | Ora | | | | | 0.66 | B | 0.63 | B | 0.66 | B | 0.63 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | | 0.60 | A | 0.61 | B | 0.60 | A | 0.61 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | | 0.60 | A | 0.64 | B | 0.59 | A | 0.64 | B |
| 468 | Jamboree Rd at Canyon View | OC | | | | | 0.65 | B | 0.42 | A | 0.65 | B | 0.42 | A |
| 469 | Jamboree Rd at Handy Creek Rd | Ora | | | | | 0.55 | A | 0.52 | A | 0.55 | A | 0.52 | A |
| 470 | SR-261 SB Ramps at Handy Creek Rd | Ora | | | | | 0.33 | A | 0.14 | A | 0.33 | A | 0.14 | A |
| 471 | SR-261 NB Ramps at Handy Creek Rd | OC | | | | | 0.15 | A | 0.29 | A | 0.15 | A | 0.29 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | | 0.43 | A | 0.47 | A | 0.43 | A | 0.47 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | | 0.46 | A | 0.43 | A | 0.46 | A | 0.43 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | | 0.40 | A | 0.34 | A | 0.40 | A | 0.33 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | | 0.37 | A | 0.34 | A | 0.37 | A | 0.34 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | | 0.68 | B | 0.54 | A | 0.68 | B | 0.54 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | | 0.77 | C | 0.61 | B | 0.77 | C | 0.61 | B |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | | 0.58 | A | 0.60 | A | 0.57 | A | 0.60 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | | 0.54 | A | 0.69 | B | 0.54 | A | 0.69 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | | 0.63 | B | 0.77 | C | 0.63 | B | 0.77 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | | 0.66 | B | 0.86 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | | 0.70 | B | 0.89 | D | 0.70 | B | 0.89 | D |
| 517 | Portola Pw at Rancho Pw | LF | | | | | 0.62 | B | 0.70 | B | 0.62 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | | 0.62 | B | 0.76 | C | 0.62 | B | 0.77 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | | 0.69 | B | 0.74 | C | 0.70 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | | 0.70 | B | 0.67 | B | 0.70 | B | 0.67 | B |
| 557 | O St at C St | Irv | | | | | 0.37 | A | 0.35 | A | 0.37 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | | 0.62 | B | 0.80 | C | 0.63 | B | 0.79 | C |
| 559 | O St at Trabuco Rd | Irv | | | | | 0.75 | C | 0.67 | B | 0.75 | C | 0.67 | B |
| 560 | O St at Marine Wy | Irv | | | | | 0.48 | A | 0.62 | B | 0.48 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | | 0.53 | A | 0.71 | C | 0.53 | A | 0.71 | C |
| 563 | B St. at Irvine Bl | Irv | | | | | 0.66 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | | 0.62 | B | 0.63 | B | 0.62 | B | 0.63 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | | 0.63 | B | 0.62 | B | 0.63 | B | 0.61 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | | 0.65 | B | 0.61 | B | 0.66 | B | 0.60 | A |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | | 0.46 | A | 0.42 | A | 0.45 | A | 0.41 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | | 0.76 | C | 0.72 | C | 0.70 | B | 0.66 | B |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | | 0.70 | B | 0.58 | A | 0.70 | B | 0.58 | A |
| 572 | Modjeska / A St at Irvine Bl | Irv | | | | | 0.66 | B | 0.72 | C | 0.66 | B | 0.72 | C |

## Table 9-27 Cont.

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 1
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project, without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 603 | O St at LN St | Irv | | | | | 0.36 | A | 0.30 | A | 0.36 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | | 0.58 | A | 0.54 | A | 0.58 | A | 0.54 | A |
| 608 | O St at LV St | Irv | | | | | 0.34 | A | 0.33 | A | 0.34 | A | 0.33 | A |
| 626 | LY St at LQ St | Irv | | | | | 0.41 | A | 0.41 | A | 0.41 | A | 0.41 | A |
| 627 | LY St at Irvine Bl | Irv | | | | | 0.52 | A | 0.59 | A | 0.52 | A | 0.59 | A |
| 631 | LY St at Trabuco Rd | Irv | | | | | 0.12 | A | 0.16 | A | 0.12 | A | 0.16 | A |
| 633 | Sterling at Rockfield Bl | Irv | | | | | Not Applicable | | | | 0.40 | A | 0.40 | A |
| 637 | Sterling at Muirlands Bl | Irv | | | | | 0.35 | A | 0.47 | A | 0.37 | A | 0.53 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | | 0.26 | A | 0.43 | A | 0.26 | A | 0.41 | A |
| 782 | A St at LQ St | Irv | | | | | 0.31 | A | 0.31 | A | 0.31 | A | 0.31 | A |
| 787 | Z St at LQ St | Irv | | | | | 0.25 | A | 0.26 | A | 0.25 | A | 0.26 | A |
| 790 | Z St at Irvine Bl | Irv | | | | | 0.69 | B | 0.70 | B | 0.70 | B | 0.70 | B |
| 798 | B St. at LQ St | Irv | | | | | 0.33 | A | 0.38 | A | 0.33 | A | 0.38 | A |
| 799 | "B" St. at Marine Wy. | Irv | | | | | 0.68 | B | 0.66 | B | 0.68 | B | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | | 0.77 | C | 0.71 | C | 0.77 | C | 0.71 | C |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | | 0.71 | C | 0.81 | D | 0.71 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | | 0.66 | B | 0.69 | B | 0.66 | B | 0.69 | B |
| 822 | "F" Street at Irvine Bl. | Irv | | | | | 0.69 | B | 0.73 | C | 0.69 | B | 0.73 | C |
| 831 | "G" Street at Marine Way | Irv | | | | | 0.55 | A | 0.59 | A | 0.55 | A | 0.59 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | | 0.54 | A | 0.58 | A | 0.54 | A | 0.58 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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## Table 9-28

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 1
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 416 | 0.28 | A | 1,130 | 0.75 | C | 415 | 0.28 | A | 1,130 | 0.75 | C |
| | SB Loop On | 1 | 1,080 | 568 | 0.53 | A | 490 | 0.45 | A | 567 | 0.53 | A | 490 | 0.45 | A |
| | NB Direct On | 1 | 1,080 | 474 | 0.44 | A | 480 | 0.44 | A | 475 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 676 | 0.63 | B | 690 | 0.64 | B | 677 | 0.63 | B | 690 | 0.64 | B |
| | SB Off | 1 | 1,500 | 1,429 | 0.95 | E | 1,460 | 0.97 | E | 1,429 | 0.95 | E | 1,457 | 0.97 | E |
| | NB Off | 1 | 1,500 | 1,569 | **1.05** | **F** | 1,325 | 0.88 | D | 1,569 | **1.05** | **F** | 1,317 | 0.88 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 340 | 0.38 | A | 240 | 0.27 | A | 340 | 0.38 | A | 240 | 0.27 | A |
| | NB Direct On | 1 | 900 | 712 | 0.79 | C | 179 | 0.20 | A | 717 | 0.80 | C | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,120 | 0.75 | C | 590 | 0.39 | A | 1,080 | 0.72 | C | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 933 | 0.41 | A | 2,060 | 0.92 | E | 934 | 0.42 | A | 2,050 | 0.91 | E |
| | NB Off | 1 | 1,500 | 332 | 0.22 | A | 480 | 0.32 | A | 334 | 0.22 | A | 476 | 0.32 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,264 | **1.17** | **F** | 841 | 0.78 | C | 1,254 | **1.16** | **F** | 840 | 0.78 | C |
| | NB Direct On | 1 | 1,080 | 670 | 0.62 | B | 260 | 0.24 | A | 690 | 0.64 | B | 260 | 0.24 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 280 | 0.19 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 609 | 0.41 | A | 1,119 | 0.75 | C | 610 | 0.41 | A | 1,120 | 0.75 | C |
| | NB Off | 2 | 2,250 | 940 | 0.42 | A | 1,420 | 0.63 | B | 949 | 0.42 | A | 1,420 | 0.63 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 630 | 0.42 | A | 750 | 0.50 | A | 630 | 0.42 | A | 750 | 0.50 | A |
| | NB On | 1 | 1,500 | 940 | 0.63 | B | 1,590 | **1.06** | **F** | 940 | 0.63 | B | 1,580 | **1.05** | **F** |
| | SB Off | 1 | 1,500 | 1,775 | **1.18** | **F** | 899 | 0.60 | A | 1,785 | **1.19** | **F** | 900 | 0.60 | A |
| | NB Off | 2 | 2,250 | 702 | 0.31 | A | 711 | 0.32 | A | 710 | 0.32 | A | 710 | 0.32 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 30 | 0.02 | A | 210 | 0.14 | A | 20 | 0.01 | A | 210 | 0.14 | A |
| | SB Off | 1 | 1,500 | 268 | 0.18 | A | 102 | 0.07 | A | 268 | 0.18 | A | 93 | 0.06 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 361 | 0.24 | A | 610 | 0.41 | A | 360 | 0.24 | A | 610 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 300 | 0.17 | A | 1,260 | 0.70 | B | 311 | 0.17 | A | 1,260 | 0.70 | B |
| | NB Loop On | 1 | 1,500 | 565 | 0.38 | A | 149 | 0.10 | A | 571 | 0.38 | A | 147 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,160 | 0.96 | E | 974 | 0.43 | A | 2,188 | 0.97 | E | 980 | 0.44 | A |
| | NB Off | 2 | 2,250 | 1,141 | 0.51 | A | 310 | 0.14 | A | 1,151 | 0.51 | A | 310 | 0.14 | A |

**Table 9-28 Cont.**

**Post-2030 Freeway/Tollway Ramp LOS Summary – Option 1**
**Without Rockfield Boulevard MPAH Change**

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 98 | 0.07 | A | 131 | 0.09 | A | 97 | 0.06 | A | 135 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 403 | 0.37 | A | 866 | 0.80 | C | 403 | 0.37 | A | 875 | 0.81 | D |
| | NB Direct On | 2 | 3,400 | 1,369 | 0.40 | A | 1,189 | 0.35 | A | 1,381 | 0.41 | A | 1,187 | 0.35 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,991 | 1.00 | E | 2,436 | 0.81 | D | 2,990 | 1.00 | E | 2,435 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,397 | 0.47 | A | 616 | 0.21 | A | 1,387 | 0.46 | A | 616 | 0.21 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 307 | 0.20 | A | 868 | 0.58 | A | 307 | 0.20 | A | 869 | 0.58 | A |
| | SB Loop On | 1 | 1,080 | 416 | 0.39 | A | 686 | 0.64 | B | 416 | 0.39 | A | 682 | 0.63 | B |
| | NB On | 2 | 1,800 | 1,379 | 0.77 | C | 1,055 | 0.59 | A | 1,346 | 0.75 | C | 1,054 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,759 | 0.59 | A | 2,324 | 0.77 | C | 1,760 | 0.59 | A | 2,324 | 0.77 | C |
| | NB Off | 1 | 1,500 | 1,495 | 1.00 | E | 725 | 0.48 | A | 1,490 | 0.99 | E | 728 | 0.49 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 248 | 0.23 | A | 143 | 0.13 | A | 157 | 0.15 | A | 146 | 0.14 | A |
| | SB Loop On | 1 | 1,500 | 427 | 0.28 | A | 501 | 0.33 | A | 428 | 0.29 | A | 501 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,545 | **1.03** | **F** | 1,117 | 0.74 | C | 1,559 | **1.04** | **F** | 1,117 | 0.74 | C |
| | NB Loop On | 1 | 1,500 | 1,241 | 0.83 | D | 1,264 | 0.84 | D | 1,253 | 0.84 | D | 1,263 | 0.84 | D |
| | SB Off | 2 | 2,250 | 2,911 | **1.29** | **F** | 2,998 | **1.33** | **F** | 2,910 | **1.29** | **F** | 3,008 | **1.34** | **F** |
| | NB Off | 1 | 1,500 | 1,344 | 0.90 | D | 1,213 | 0.81 | D | 1,347 | 0.90 | D | 1,210 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 151 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 204 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 826 | 0.55 | A | 752 | 0.50 | A | 823 | 0.55 | A | 754 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 901 | 0.60 | A | 1,230 | 0.82 | D | 900 | 0.60 | A |
| | NB Loop On | 1 | 1,500 | 1,290 | 0.86 | D | 831 | 0.55 | A | 1,300 | 0.87 | D | 830 | 0.55 | A |
| | SB Off | 2 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,096 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 311 | 0.21 | A | 1,089 | 0.73 | C | 311 | 0.21 | A | 1,091 | 0.73 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 273 | 0.18 | A | 734 | 0.49 | A | 273 | 0.18 | A | 734 | 0.49 | A |
| | SB Loop On | 1 | 900 | 252 | 0.28 | A | 342 | 0.38 | A | 253 | 0.28 | A | 342 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 660 | 0.44 | A | 930 | 0.62 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 580 | 0.39 | A | 400 | 0.27 | A | 580 | 0.39 | A | 400 | 0.27 | A |
| | SB Off | 2 | 3,000 | 831 | 0.28 | A | 1,380 | 0.46 | A | 830 | 0.28 | A | 1,381 | 0.46 | A |
| | NB Off | 1 | 1,500 | 1,322 | 0.88 | D | 1,278 | 0.85 | D | 1,340 | 0.89 | D | 1,276 | 0.85 | D |

## Table 9-28 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 1
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,050 | 0.70 | B | 1,120 | 0.75 | C | 1,060 | 0.71 | C | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 280 | 0.31 | A | 290 | 0.32 | A | 280 | 0.31 | A | 310 | 0.34 | A |
| | NB Direct On | 1 | 1,500 | 1,340 | 0.89 | D | 601 | 0.40 | A | 1,344 | 0.90 | D | 600 | 0.40 | A |
| | NB Loop On | 1 | 900 | 320 | 0.36 | A | 100 | 0.11 | A | 321 | 0.36 | A | 110 | 0.12 | A |
| | SB Off | 1 | 1,500 | 614 | 0.41 | A | 776 | 0.52 | A | 616 | 0.41 | A | 786 | 0.52 | A |
| | NB Off | 2 | 2,250 | 1,459 | 0.65 | B | 1,900 | 0.84 | D | 1,487 | 0.66 | B | 1,900 | 0.84 | D |
| I-405 at Sand Canyon | SB Direct On | 1 | 1,500 | 300 | 0.20 | A | 231 | 0.15 | A | 300 | 0.20 | A | 230 | 0.15 | A |
| | SB Loop On | 1 | 1,500 | 190 | 0.13 | A | 421 | 0.28 | A | 190 | 0.13 | A | 430 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,260 | 0.84 | D | 1,360 | 0.91 | E | 1,260 | 0.84 | D | 1,360 | 0.91 | E |
| | NB Loop On | 1 | 1,500 | 640 | 0.43 | A | 370 | 0.25 | A | 640 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,947 | **1.30** | **F** | 1,105 | 0.74 | C | 1,947 | **1.30** | **F** | 1,108 | 0.74 | C |
| | NB Off | 1 | 1,500 | 699 | 0.47 | A | 517 | 0.34 | A | 669 | 0.45 | A | 527 | 0.35 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 260 | 0.29 | A | 410 | 0.46 | A | 260 | 0.29 | A | 410 | 0.46 | A |
| | NB Direct On | 1 | 1,500 | 251 | 0.17 | A | 580 | 0.39 | A | 249 | 0.17 | A | 580 | 0.39 | A |
| | NB Loop On | 1 | 1,500 | 255 | 0.17 | A | 1,209 | 0.81 | D | 253 | 0.17 | A | 1,209 | 0.81 | D |
| | SB Off | 2 | 2,250 | 2,033 | 0.90 | D | 1,469 | 0.65 | B | 2,022 | 0.90 | D | 1,459 | 0.65 | B |
| | NB Off | 2 | 3,000 | 1,189 | 0.40 | A | 420 | 0.14 | A | 1,191 | 0.40 | A | 420 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 576 | 0.14 | A | 2,376 | 0.59 | A | 569 | 0.14 | A | 2,378 | 0.59 | A |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,133 | 0.78 | C | 964 | 0.24 | A | 3,150 | 0.79 | C | 965 | 0.24 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,992 | 0.50 | A | 3,351 | 0.84 | D | 1,986 | 0.50 | A | 3,347 | 0.84 | D |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 4,035 | **1.01** | **F** | 1,969 | 0.49 | A | 4,021 | **1.01** | **F** | 1,971 | 0.49 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 408 | 0.27 | A | 320 | 0.21 | A | 408 | 0.27 | A | 320 | 0.21 | A |
| | NB Direct On | 1 | 1,500 | 251 | 0.17 | A | 270 | 0.18 | A | 250 | 0.17 | A | 280 | 0.19 | A |
| | NB Loop On | 1 | 1,500 | 130 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 440 | 0.20 | A | 210 | 0.09 | A | 440 | 0.20 | A | 209 | 0.09 | A |
| | NB Off | 1 | 1,500 | 180 | 0.12 | A | 617 | 0.41 | A | 181 | 0.12 | A | 618 | 0.41 | A |

**Table 9-28 Cont.**

**Post-2030 Freeway/Tollway Ramp LOS Summary – Option 1**
**Without Rockfield Boulevard MPAH Change**

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 750 | 0.50 | A | 670 | 0.45 | A | 760 | 0.51 | A | 680 | 0.45 | A |
| | NB On | 1 | 1,500 | 160 | 0.11 | A | 560 | 0.37 | A | 160 | 0.11 | A | 560 | 0.37 | A |
| | SB Off | 1 | 1,500 | 701 | 0.47 | A | 290 | 0.19 | A | 692 | 0.46 | A | 291 | 0.19 | A |
| | NB Off | 1 | 1,500 | 816 | 0.54 | A | 970 | 0.65 | B | 816 | 0.54 | A | 980 | 0.65 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,121 | 0.56 | A | 1,701 | 0.85 | D | 1,129 | 0.56 | A | 1,691 | 0.85 | D |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 2,001 | 1.00 | E | 1,188 | 0.59 | A | 1,981 | 0.99 | E | 1,215 | 0.61 | B |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,319 | 0.66 | B | 453 | 0.23 | A | 1,321 | 0.66 | B | 453 | 0.23 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 608 | 0.30 | A | 1,409 | 0.70 | B | 596 | 0.30 | A | 1,419 | 0.71 | C |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,121 | 0.53 | A | 1,800 | 0.45 | A | 2,112 | 0.53 | A | 1,825 | 0.46 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,245 | 0.56 | A | 2,166 | 0.54 | A | 2,215 | 0.55 | A | 2,192 | 0.55 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 150 | 0.14 | A | 1,200 | **1.11** | **F** | 150 | 0.14 | A | 1,199 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 173 | 0.16 | A | 617 | 0.57 | A | 176 | 0.16 | A | 611 | 0.57 | A |
| | NB Loop On | 1 | 1,080 | 430 | 0.40 | A | 1,490 | **1.38** | **F** | 420 | 0.39 | A | 1,515 | **1.40** | **F** |
| | SB Off | 2 | 3,000 | 2,330 | 0.78 | C | 592 | 0.20 | A | 2,330 | 0.78 | C | 590 | 0.20 | A |
| | NB Off | 2 | 2,250 | 1,506 | 0.67 | B | 400 | 0.18 | A | 1,500 | 0.67 | B | 401 | 0.18 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 936 | 0.47 | A | 999 | 0.50 | A | 954 | 0.48 | A | 1,007 | 0.50 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 48 | 0.02 | A | 24 | 0.01 | A | 48 | 0.02 | A | 22 | 0.01 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 1,178 | 0.29 | A | 602 | 0.15 | A | 1,190 | 0.30 | A | 601 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,370 | 0.34 | A | 1,016 | 0.25 | A | 1,386 | 0.35 | A | 1,015 | 0.25 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,621 | 0.81 | D | 1,720 | 0.86 | D | 1,627 | 0.81 | D | 1,730 | 0.87 | D |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 613 | 0.31 | A | 704 | 0.35 | A | 608 | 0.30 | A | 712 | 0.36 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 205 | 0.10 | A | 255 | 0.13 | A | 202 | 0.10 | A | 255 | 0.13 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 1,080 | 0.60 | A | 432 | 0.24 | A | 1,080 | 0.60 | A | 434 | 0.24 | A |
| | NB On | 1 | 1,500 | 440 | 0.29 | A | 215 | 0.14 | A | 440 | 0.29 | A | 218 | 0.15 | A |
| | SB Off | 1 | 1,500 | 550 | 0.37 | A | 472 | 0.31 | A | 550 | 0.37 | A | 469 | 0.31 | A |
| | NB Off | 1 | 1,500 | 910 | 0.61 | B | 1,164 | 0.78 | C | 906 | 0.60 | A | 1,164 | 0.78 | C |

## Table 9-28 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 1
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Jeffrey | SB On | 1 | 1,500 | 38 | 0.03 | A | 16 | 0.01 | A | 38 | 0.03 | A | 17 | 0.01 | A |
| | NB On | 1 | 1,500 | 400 | 0.27 | A | 350 | 0.23 | A | 400 | 0.27 | A | 350 | 0.23 | A |
| | SB Off | 1 | 1,500 | 522 | 0.35 | A | 395 | 0.26 | A | 529 | 0.35 | A | 395 | 0.26 | A |
| | NB Off | 1 | 1,500 | 22 | 0.01 | A | 71 | 0.05 | A | 22 | 0.01 | A | 71 | 0.05 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 170 | 0.11 | A | 410 | 0.27 | A | 170 | 0.11 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 122 | 0.08 | A | 33 | 0.02 | A | 121 | 0.08 | A | 33 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 151 | 0.10 | A | 49 | 0.03 | A | 151 | 0.10 | A |
| | NB Off | 1 | 1,500 | 589 | 0.39 | A | 209 | 0.14 | A | 588 | 0.39 | A | 209 | 0.14 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 456 | 0.30 | A | 1,113 | 0.74 | C | 456 | 0.30 | A | 1,109 | 0.74 | C |
| | NB On | 1 | 1,500 | 435 | 0.29 | A | 605 | 0.40 | A | 435 | 0.29 | A | 606 | 0.40 | A |
| | SB Off | 1 | 1,500 | 656 | 0.46 | A | 443 | 0.30 | A | 694 | 0.46 | A | 444 | 0.30 | A |
| | NB Off | 2 | 2,250 | 1,006 | 0.45 | A | 627 | 0.28 | A | 1,005 | 0.45 | A | 626 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 220 | 0.10 | A | 840 | 0.37 | A | 219 | 0.10 | A | 839 | 0.37 | A |
| | SB Off | 1 | 1,500 | 823 | 0.55 | A | 419 | 0.28 | A | 822 | 0.55 | A | 417 | 0.28 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 331 | 0.22 | A | 1,417 | 0.94 | E | 331 | 0.22 | A | 1,416 | 0.94 | E |
| | NB On | 2 | 2,250 | 827 | 0.37 | A | 432 | 0.19 | A | 830 | 0.37 | A | 429 | 0.19 | A |
| | SB Off | 1 | 1,500 | 529 | 0.35 | A | 619 | 0.41 | A | 528 | 0.35 | A | 617 | 0.41 | A |
| | NB Off | 2 | 2,250 | 2,172 | 0.97 | E | 583 | 0.26 | A | 2,173 | 0.97 | E | 583 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 900 | 0.60 | A | 250 | 0.17 | A | 901 | 0.60 | A | 249 | 0.17 | A |
| | NB Off | 1 | 1,500 | 150 | 0.10 | A | 691 | 0.46 | A | 150 | 0.10 | A | 691 | 0.46 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 175 | 0.12 | A | 100 | 0.07 | A | 175 | 0.12 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 210 | 0.14 | A | 140 | 0.09 | A | 210 | 0.14 | A | 140 | 0.09 | A |
| | SB Off | 1 | 1,500 | 102 | 0.07 | A | 89 | 0.06 | A | 103 | 0.07 | A | 89 | 0.06 | A |
| | NB Off | 1 | 1,500 | 101 | 0.07 | A | 106 | 0.07 | A | 101 | 0.07 | A | 107 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 790 | 0.53 | A | 340 | 0.23 | A | 791 | 0.53 | A | 340 | 0.23 | A |
| | NB On | 1 | 1,500 | 220 | 0.15 | A | 160 | 0.11 | A | 220 | 0.15 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 80 | 0.05 | A | 70 | 0.05 | A | 80 | 0.05 | A | 70 | 0.05 | A |
| | NB Off | 1 | 1,500 | 222 | 0.15 | A | 393 | 0.26 | A | 223 | 0.15 | A | 392 | 0.26 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*

U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_6.12.12.xlsx]9-28

## Table 9-29

### Post-2030 Freeway Mainline LOS Summary – Option 1
### Without Rockfield Boulevard MPAH Change

| | Location | Direction | Lanes | Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,119 | **1.30** | **F** | 11,912 | **1.03** | **F** | 15,149 | **1.31** | **F** | 11,919 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 9,574 | 0.83 | D | 10,073 | 0.87 | D | 9,591 | 0.83 | D | 10,086 | 0.87 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,371 | **1.24** | **F** | 11,313 | 0.98 | E | 14,396 | **1.24** | **F** | 11,318 | 0.98 | E |
| | | SB | 5+1H | 11,600 | 11,520 | 0.99 | E | 12,106 | **1.04** | **F** | 11,502 | 0.99 | E | 12,119 | **1.04** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,001 | **1.29** | **F** | 11,957 | **1.03** | **F** | 15,020 | **1.29** | **F** | 11,965 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,265 | **1.06** | **F** | 12,813 | **1.10** | **F** | 12,251 | **1.06** | **F** | 12,827 | **1.11** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,662 | **1.26** | **F** | 11,680 | **1.01** | **F** | 14,683 | **1.27** | **F** | 11,694 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 11,976 | **1.03** | **F** | 12,480 | **1.08** | **F** | 11,965 | **1.03** | **F** | 12,490 | **1.08** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,896 | **1.28** | **F** | 11,640 | 1.00 | E | 14,907 | **1.29** | **F** | 11,646 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 11,658 | **1.01** | **F** | 12,514 | **1.08** | **F** | 11,660 | **1.01** | **F** | 12,525 | **1.08** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 13,057 | **1.13** | **F** | 10,896 | 0.94 | E | 13,067 | **1.13** | **F** | 10,878 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 11,320 | 0.98 | E | 11,291 | 0.97 | E | 11,314 | 0.98 | E | 11,313 | 0.98 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 13,002 | **1.12** | **F** | 10,975 | 0.95 | E | 12,995 | **1.12** | **F** | 10,969 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,786 | **1.02** | **F** | 11,596 | 1.00 | E | 11,773 | **1.01** | **F** | 11,614 | 1.00 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 10,240 | **1.07** | **F** | 8,780 | 0.91 | E | 10,277 | **1.07** | **F** | 8,751 | 0.91 | E |
| | | SB | 4+1H | 9,600 | 9,424 | 0.98 | E | 9,257 | 0.96 | E | 9,408 | 0.98 | E | 9,279 | 0.97 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,684 | **1.11** | **F** | 7,687 | 0.80 | C | 10,715 | **1.12** | **F** | 7,681 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 7,782 | 0.81 | D | 9,504 | 0.99 | E | 7,739 | 0.81 | D | 9,528 | 0.99 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 21,053 | 0.98 | E | 14,103 | 0.66 | B | 21,055 | 0.98 | E | 14,100 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 11,832 | 0.55 | A | 16,186 | 0.75 | C | 11,827 | 0.55 | A | 16,206 | 0.75 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 20,911 | **1.07** | **F** | 13,062 | 0.67 | B | 20,897 | **1.07** | **F** | 13,063 | 0.67 | B |
| | | SB | 8+2H | 19,500 | 12,167 | 0.62 | B | 16,828 | 0.86 | D | 12,162 | 0.62 | B | 16,864 | 0.86 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 19,921 | **1.48** | **F** | 12,135 | 0.90 | D | 19,937 | **1.48** | **F** | 12,141 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,129 | 0.75 | C | 15,457 | **1.14** | **F** | 10,133 | 0.75 | C | 15,461 | **1.15** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 16,884 | **1.76** | **F** | 10,144 | **1.06** | **F** | 16,880 | **1.76** | **F** | 10,148 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,943 | 0.83 | D | 12,179 | **1.27** | **F** | 7,879 | 0.82 | D | 12,267 | **1.28** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,024 | **1.36** | **F** | 7,632 | 0.80 | C | 13,016 | **1.36** | **F** | 7,636 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 6,416 | 0.67 | B | 10,312 | **1.07** | **F** | 6,411 | 0.67 | B | 10,316 | **1.07** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,352 | **1.29** | **F** | 9,018 | 0.94 | E | 12,353 | **1.29** | **F** | 9,015 | 0.94 | E |
| | | SB | 4+1H | 9,600 | 9,096 | 0.95 | E | 10,414 | **1.08** | **F** | 9,096 | 0.95 | E | 10,405 | **1.08** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,708 | **1.32** | **F** | 9,446 | 0.98 | E | 12,738 | **1.33** | **F** | 9,437 | 0.98 | E |
| | | SB | 4+1H | 9,600 | 9,267 | 0.97 | E | 10,289 | **1.07** | **F** | 9,269 | 0.97 | E | 10,287 | **1.07** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,446 | **1.30** | **F** | 8,461 | 0.88 | D | 12,452 | **1.30** | **F** | 8,462 | 0.88 | D |
| | | SB | 4+1H | 9,600 | 8,152 | 0.85 | D | 9,757 | **1.02** | **F** | 8,157 | 0.85 | D | 9,754 | **1.02** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,099 | **1.05** | **F** | 7,098 | 0.74 | C | 10,078 | **1.05** | **F** | 7,100 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,900 | 0.72 | C | 8,357 | 0.87 | D | 6,925 | 0.72 | C | 8,340 | 0.87 | D |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,338 | 0.76 | C | 4,074 | 0.42 | A | 7,407 | 0.77 | C | 4,077 | 0.42 | A |
| | | SB | 4+1H | 9,600 | 6,021 | 0.63 | B | 8,167 | 0.85 | D | 6,059 | 0.63 | B | 8,158 | 0.85 | D |

**Table 9-29 Cont.**

## Post-2030 Freeway Mainline LOS Summary – Option 1
## Without Rockfield Boulevard MPAH Change

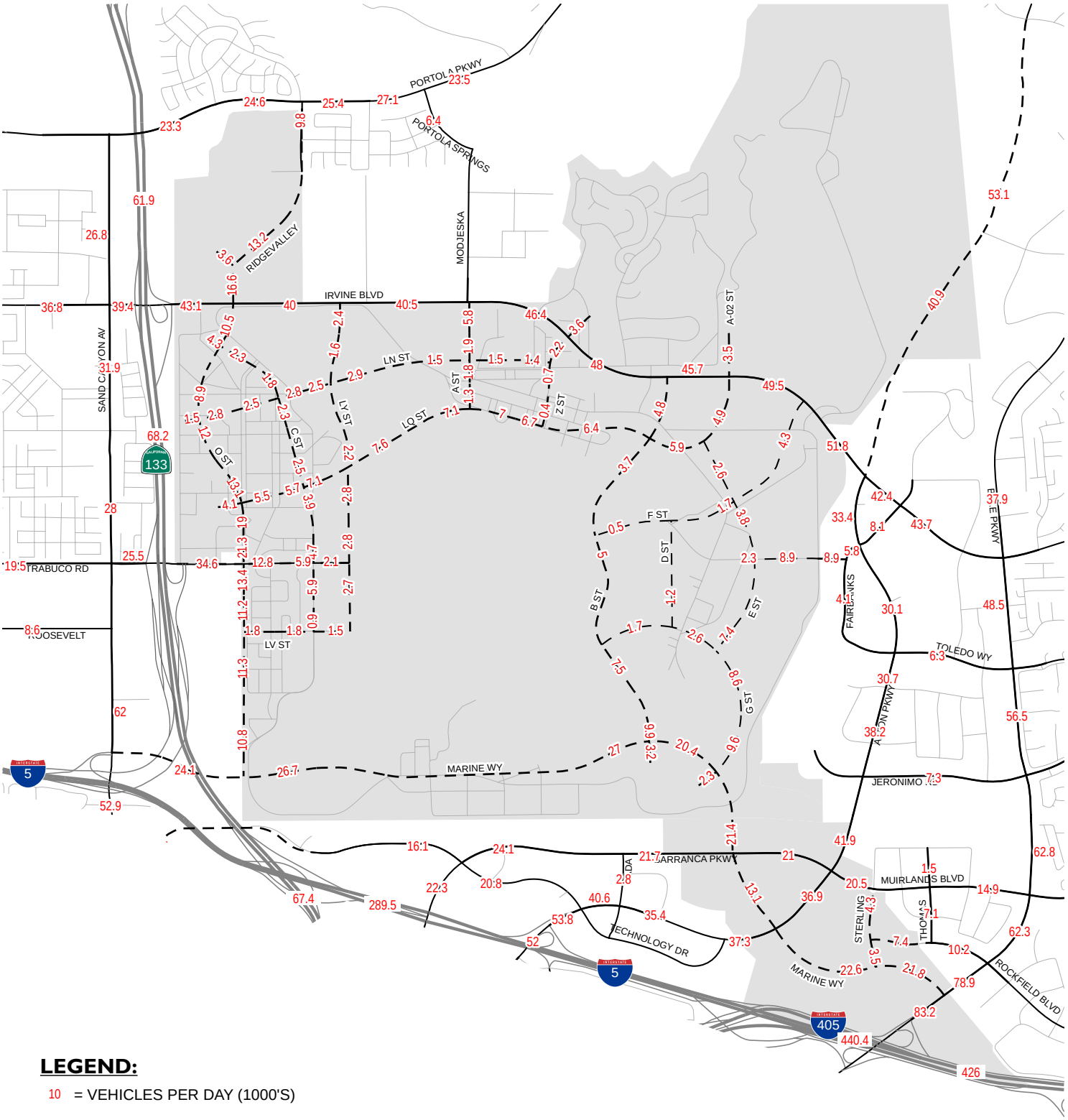
| | | | | | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | Location | Direction | Lanes | Capacity | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4+1H | 9,600 | 2,568 | 0.27 | A | 5,728 | 0.60 | A | 2,555 | 0.27 | A | 5,726 | 0.60 | A |
| | | SB | 4+1H | 9,600 | 7,168 | 0.75 | C | 2,934 | 0.31 | A | 7,171 | 0.75 | C | 2,935 | 0.31 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 2,221 | 0.29 | A | 5,556 | 0.73 | C | 2,206 | 0.29 | A | 5,545 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,657 | 0.88 | D | 2,766 | 0.36 | A | 6,663 | 0.88 | D | 2,765 | 0.36 | A |
| | n/o I-5 | NB | 3+1H | 7,600 | 2,062 | 0.27 | A | 5,000 | 0.66 | B | 2,047 | 0.27 | A | 4,987 | 0.66 | B |
| | | SB | 3+1H | 7,600 | 4,661 | 0.61 | B | 2,029 | 0.27 | A | 4,672 | 0.61 | B | 2,026 | 0.27 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,388 | 0.56 | A | 5,019 | 0.84 | D | 3,342 | 0.56 | A | 5,043 | 0.84 | D |
| | | SB | 3 | 6,000 | 5,512 | 0.92 | E | 3,305 | 0.55 | A | 5,536 | 0.92 | E | 3,305 | 0.55 | A |
| | n/o I-405 | NB | 3 | 6,000 | 4,120 | 0.69 | B | 3,878 | 0.65 | B | 4,082 | 0.68 | B | 3,892 | 0.65 | B |
| | | SB | 3 | 6,000 | 3,768 | 0.63 | B | 3,347 | 0.56 | A | 3,795 | 0.63 | B | 3,349 | 0.56 | A |
| SR-241 | n/o SR-133 | NB | 3+1H | 7,600 | 5,748 | 0.76 | C | 5,617 | 0.74 | C | 5,735 | 0.75 | C | 5,610 | 0.74 | C |
| | | SB | 3+1H | 7,600 | 6,522 | 0.86 | D | 5,025 | 0.66 | B | 6,513 | 0.86 | D | 5,031 | 0.66 | B |
| | n/o Portola (West) | NB | 4+1H | 9,600 | 6,889 | 0.72 | C | 3,229 | 0.34 | A | 6,899 | 0.72 | C | 3,226 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,063 | 0.32 | A | 5,431 | 0.57 | A | 3,061 | 0.32 | A | 5,440 | 0.57 | A |
| | n/o Alton | NB | 4+1H | 9,600 | 6,986 | 0.73 | C | 3,308 | 0.34 | A | 6,997 | 0.73 | C | 3,306 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,180 | 0.33 | A | 5,549 | 0.58 | A | 3,178 | 0.33 | A | 5,558 | 0.58 | A |
| | n/o Lake Forest | NB | 4+1H | 9,600 | 7,682 | 0.80 | C | 3,080 | 0.32 | A | 7,692 | 0.80 | C | 3,075 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 2,784 | 0.29 | A | 5,979 | 0.62 | B | 2,785 | 0.29 | A | 5,983 | 0.62 | B |
| SR-261 | n/o Portola | NB | 3+1H | 7,600 | 1,192 | 0.16 | A | 3,164 | 0.42 | A | 1,191 | 0.16 | A | 3,159 | 0.42 | A |
| | | SB | 3+1H | 7,600 | 4,042 | 0.53 | A | 1,303 | 0.17 | A | 4,045 | 0.53 | A | 1,301 | 0.17 | A |
| | n/o irvine Blvd | NB | 3+1H | 7,600 | 686 | 0.09 | A | 2,839 | 0.37 | A | 687 | 0.09 | A | 2,838 | 0.37 | A |
| | | SB | 3+1H | 7,600 | 3,752 | 0.49 | A | 923 | 0.12 | A | 3,755 | 0.49 | A | 921 | 0.12 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 984 | 0.13 | A | 3,603 | 0.47 | A | 983 | 0.13 | A | 3,601 | 0.47 | A |
| | | SB | 3+1H | 7,600 | 4,408 | 0.58 | A | 1,326 | 0.17 | A | 4,409 | 0.58 | A | 1,328 | 0.17 | A |
| | n/o Chapman/Sant. Cyn | NB | 3+1H | 7,600 | 6,133 | 0.81 | D | 8,002 | **1.05** | **F** | 6,123 | 0.81 | D | 7,993 | **1.05** | **F** |
| | | SB | 3+1H | 7,600 | 9,962 | **1.31** | **F** | 5,650 | 0.74 | C | 9,957 | **1.31** | **F** | 5,651 | 0.74 | C |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
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EXHIBIT 9-21 (1 OF 3)

# POST-2030 ADT VOLUMES - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 2, PROJECT AREA



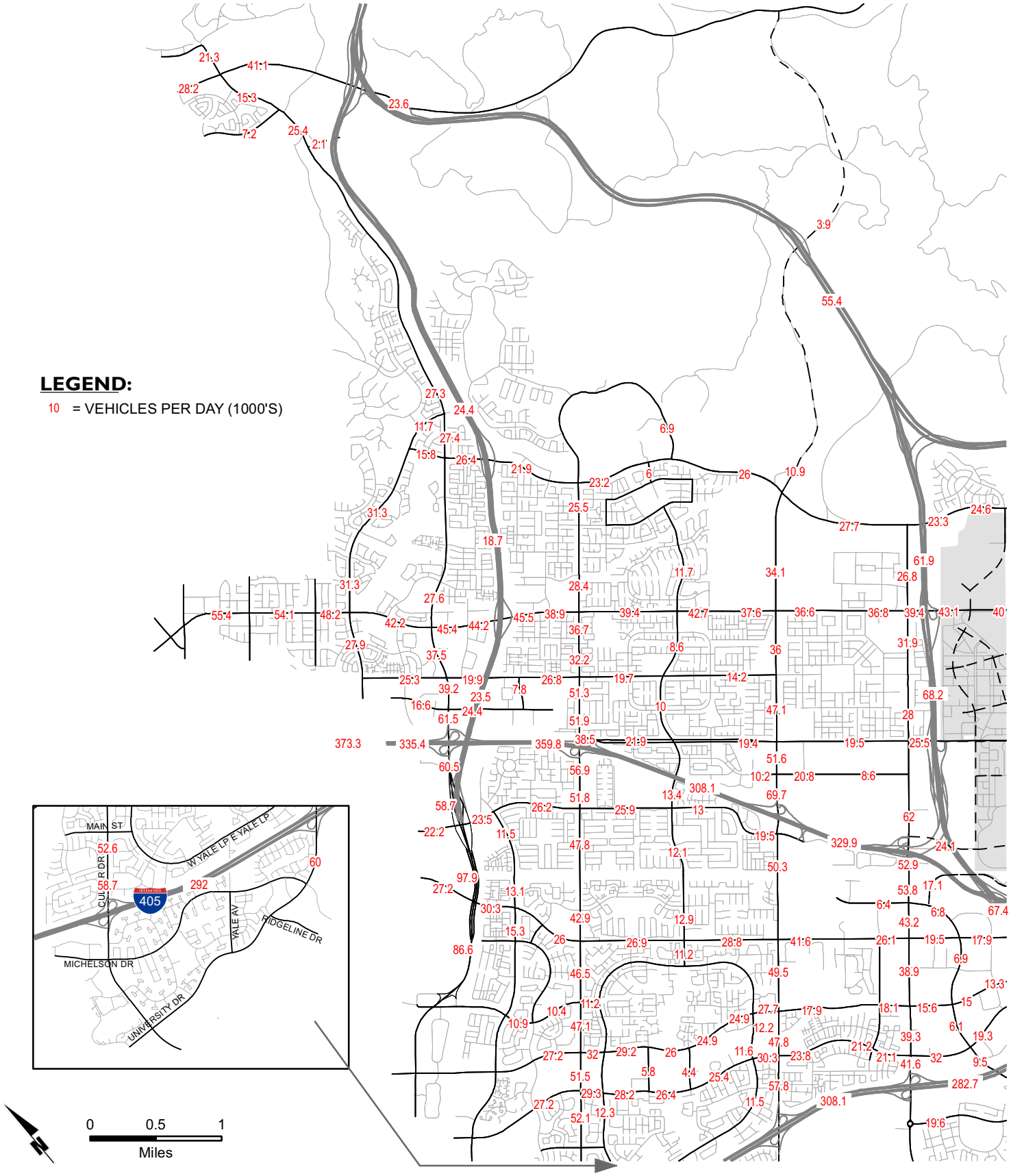

**LEGEND:**

10 = VEHICLES PER DAY (1000'S)

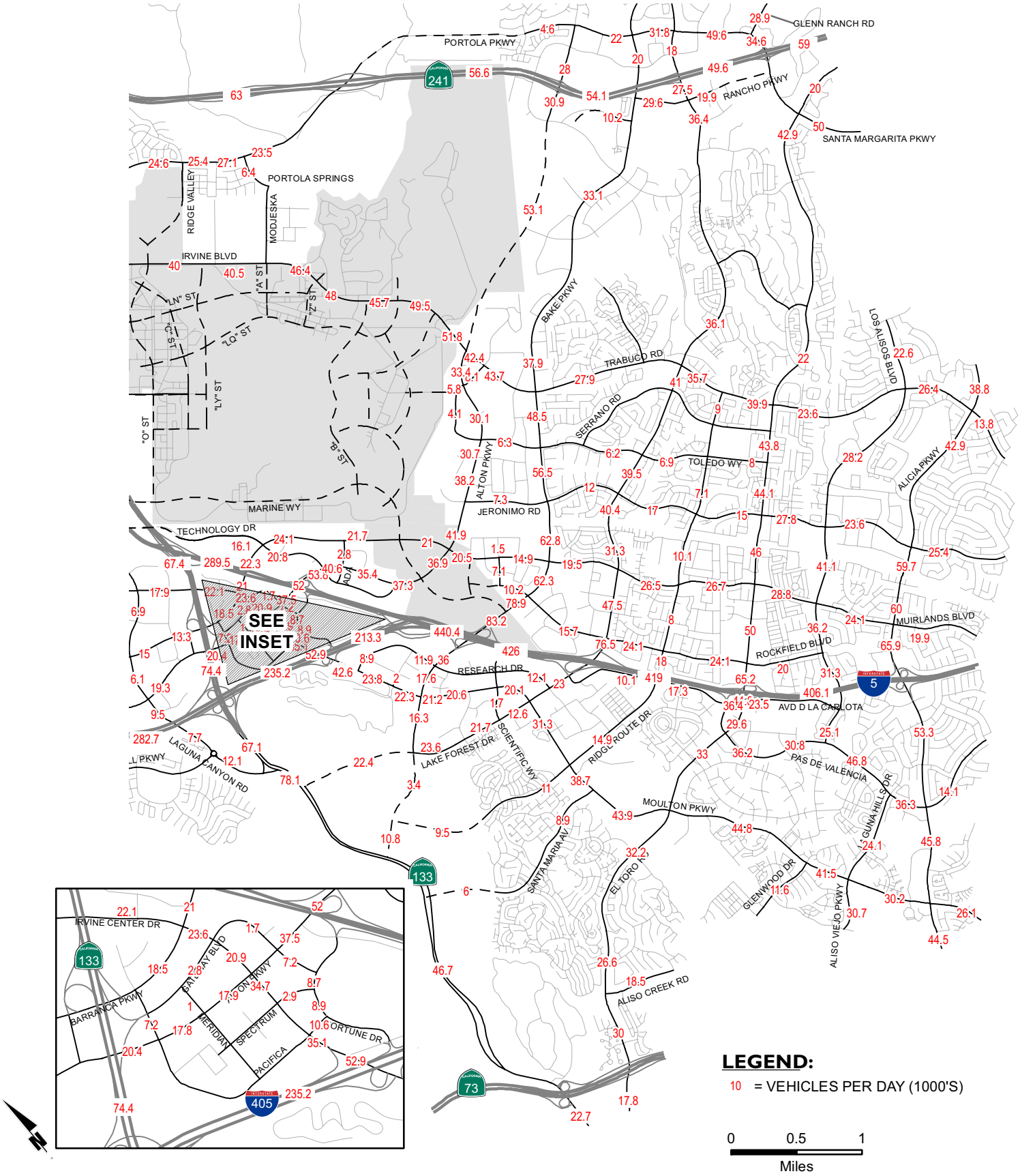
0 1,400 2,800

Feet

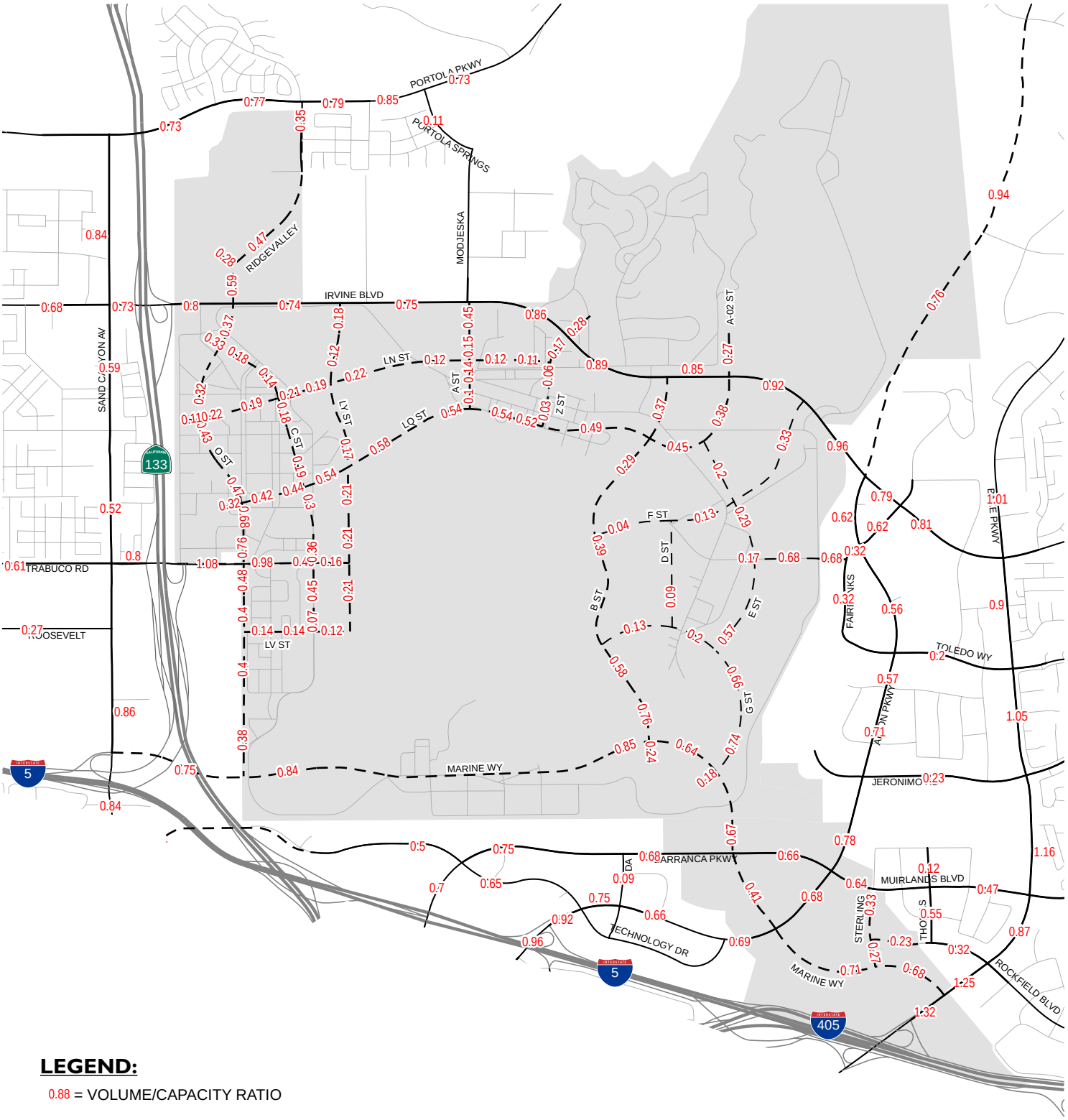
# POST-2030 ADT VOLUMES - WITHOUT ROCKFIELD BLVD.
# MPAH CHANGE, OPTION 2, WEST STUDY AREA



# POST-2030 ADT VOLUMES - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 2, EAST STUDY AREA



# POST-2030 ADT V/C RATIOS - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 2, PROJECT AREA



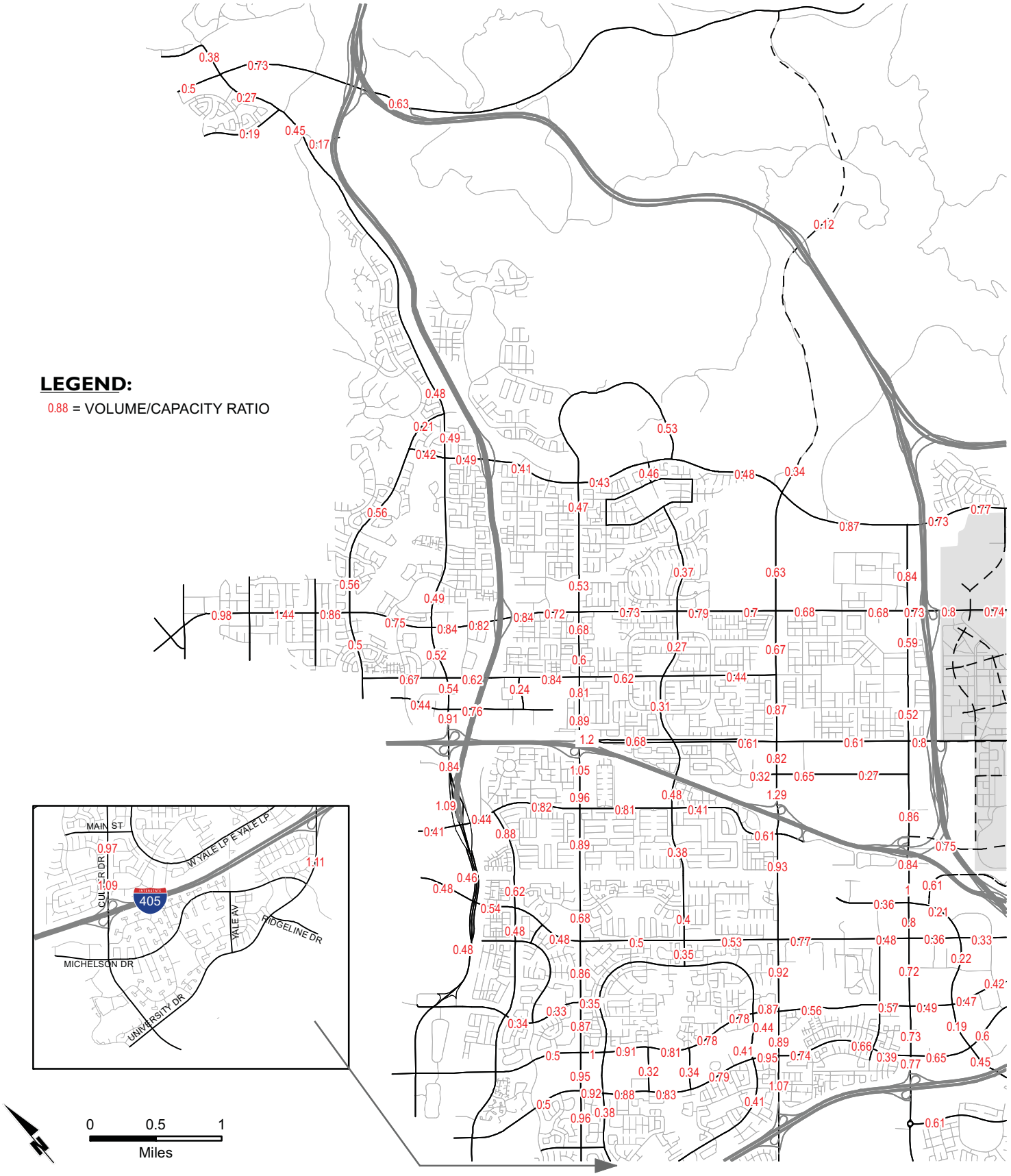

**LEGEND:**

0.88 = VOLUME/CAPACITY RATIO

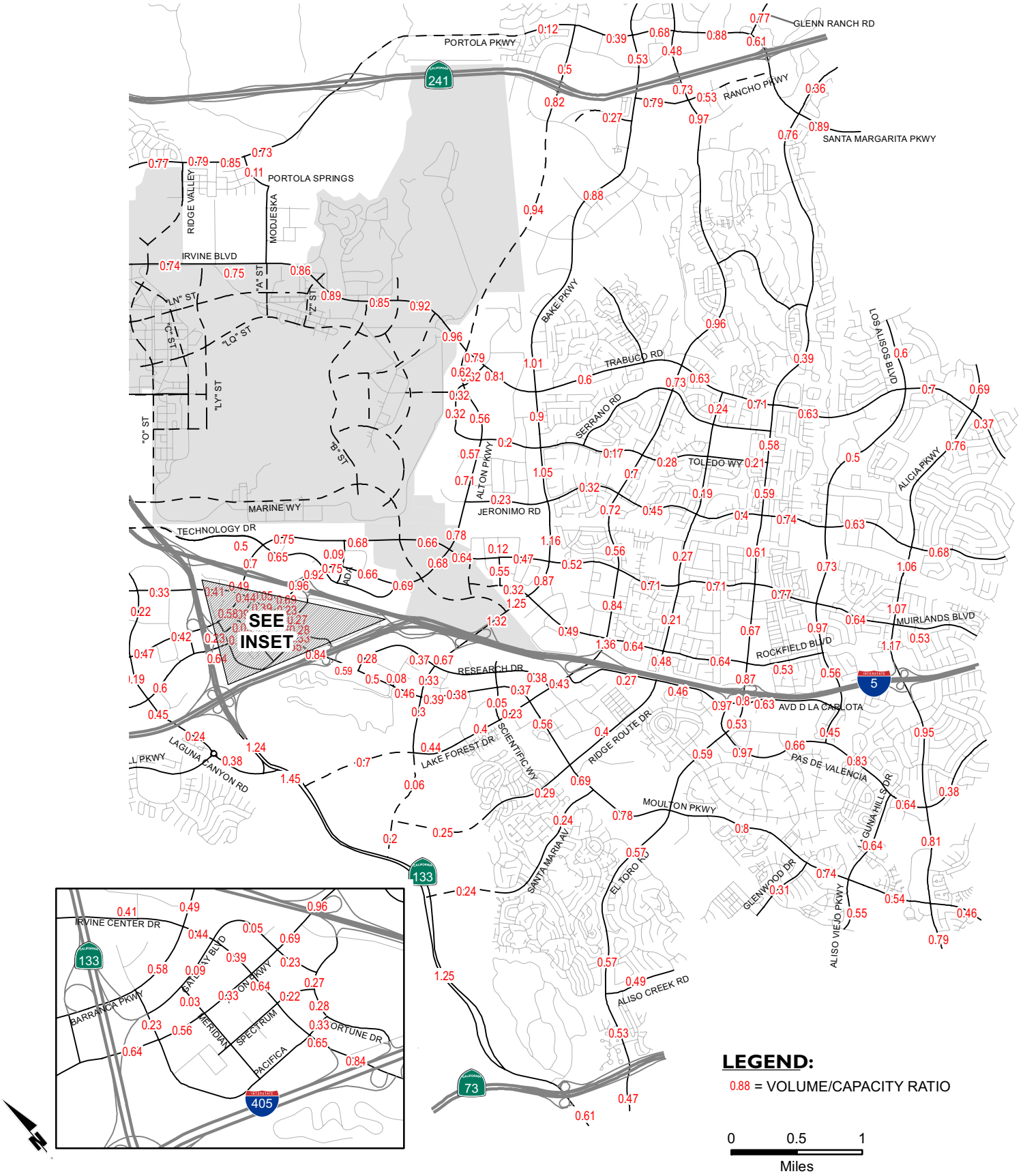
0 1,400 2,800

Feet

# POST-2030 ADT V/C RATIOS - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 2, WEST STUDY AREA



# POST-2030 ADT V/C RATIOS - WITHOUT ROCKFIELD BLVD. MPAH CHANGE, OPTION 2, EAST STUDY AREA



Based on the ADT V/C performance criteria and impact thresholds discussed in Table 2-4, no arterial roadway segments are potentially impacted by Option 2 with future construction of the Rockfield extension to Marine Way, in comparison to the network alternative which deletes the Rockfield extension.

### 9.2.6 Post-2030 Peak Hour Intersection Levels of Service, Existing MPAH Network with Option 2

2012 Modified Project Option 2 with Existing MPAH Network AM and PM peak hour intersection capacity utilization (ICU) results for the intersections illustrated in Exhibit 8-5 that are analyzed in this traffic study are summarized in Table 9-30. Actual turn volumes, lane geometrics and ICU calculation worksheets for 2012 Modified Project Option 2 without the Rockfield MPAH change are included in Appendix 9.11. Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that no intersections exceed adopted impact thresholds with Option 2 with future construction of the Rockfield extension to Marine Way, in comparison to the network alternative which deletes the Rockfield extension.

### 9.2.7 Post-2030 Peak Hour Freeway/Tollway Ramp Levels of Service, Existing MPAH Network with Option 2

2012 Modified Project Option 2 with Existing MPAH Network AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 9-31. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, none of the freeway ramps are forecast exceed adopted impact thresholds with Option 2 and with the Rockfield extension to Marine Way based on Post-2030 conditions, in comparison to the network alternative which deletes the Rockfield extension.

### 9.2.8 Post-2030 Peak Hour Freeway/Tollway Mainline Levels of Service, Existing MPAH Network with Option 2

2012 Modified Project Option 2 Existing MPAH Network AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 9-32. Based on the peak hour mainline performance criteria and impact thresholds discussed in Table 2-

## Table 9-30

### Post-2030 Intersection LOS Summary (ICU Methodology) – Option 2
### Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project Without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 16 | Newport Av at Irvine Bl | Tus | | Yes | Yes | | 0.79 | C | 0.88 | D | 0.78 | C | 0.88 | D |
| 34 | Red Hill Av at Irvine Bl | Tus/OC | **F** | Yes | Yes | | 0.77 | C | 0.85 | D | 0.77 | C | 0.85 | D |
| 54 | Browning Av at Irvine Bl | Tus/OC | | | | | 0.87 | D | 0.75 | C | 0.87 | D | 0.75 | C |
| 91 | Tustin Ranch Rd at Irvine Bl | Tus | **F** | Yes | Yes | | 0.80 | C | 0.85 | D | 0.80 | C | 0.85 | D |
| 123 | Jamboree Rd at Tustin Ranch Rd | Tus | **P** | | | | 0.65 | B | 0.55 | A | 0.65 | B | 0.55 | A |
| 124 | Jamboree Rd at Portola Pw | Tus | | | | | 0.76 | C | 0.70 | B | 0.75 | C | 0.71 | C |
| 125 | Jamboree Rd at Irvine Bl | Tus | **F** | | | Yes | 0.82 | D | 0.80 | C | 0.82 | D | 0.80 | C |
| 126 | Jamboree Rd at Bryan Av | Tus | | | | | 0.70 | B | 0.63 | B | 0.69 | B | 0.63 | B |
| 127 | Jamboree Rd at El Camino Real | Tus | | | | | 0.71 | C | 0.70 | B | 0.71 | C | 0.70 | B |
| 128 | Jamboree Rd at I-5 NB Ramps | Irv/Tus | | | | | 0.64 | B | 0.71 | C | 0.64 | B | 0.71 | C |
| 129 | Jamboree Rd at I-5 SB Ramps | Irv | | | | | 0.63 | B | 0.63 | B | 0.63 | B | 0.64 | B |
| 131 | Jamboree Rd SB at Walnut Av | Irv | | | | | 0.47 | A | 0.58 | A | 0.46 | A | 0.58 | A |
| 132 | Jamboree Rd NB at Walnut Av | Irv | | | | | 0.52 | A | 0.75 | C | 0.53 | A | 0.75 | C |
| 133 | Jamboree Rd at Edinger Av | Tus | | | | Yes | 0.51 | A | 0.69 | B | 0.51 | A | 0.69 | B |
| 135 | Jamboree Rd NB at Warner Av | Irv | | Yes | | | 0.41 | A | 0.45 | A | 0.40 | A | 0.45 | A |
| 136 | Jamboree Rd at Barranca Pw | Irv | | | | Yes | 0.84 | D | 0.95 | E | 0.85 | D | 0.96 | E |
| 157 | SR-261 SB Ramps at Portola Pw | Irv | | | | | 0.49 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 158 | SR-261 NB Ramps at Portola Pw | Irv | | | | | 0.49 | A | 0.46 | A | 0.49 | A | 0.46 | A |
| 159 | SR-261 SB Ramps at Irvine Bl | Irv | | | | | 0.57 | A | 0.53 | A | 0.57 | A | 0.53 | A |
| 160 | SR-261 NB Ramps at Irvine Bl | Irv | | | | | 0.71 | C | 0.63 | B | 0.71 | C | 0.63 | B |
| 218 | Culver Dr at Portola Pk | Irv | | | | | 0.73 | C | 0.67 | B | 0.71 | C | 0.67 | B |
| 220 | Culver Dr at Irvine Bl | Irv | | | | | 0.79 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 221 | Culver Dr at Bryan Av | Irv | | | | | 0.90 | D | 0.74 | C | 0.90 | D | 0.74 | C |
| 222 | Culver Dr at Trabuco Rd | Irv | **F** | | | | 0.75 | C | 0.78 | C | 0.75 | C | 0.78 | C |
| 223 | Culver Dr at I-5 SB Ramps | Irv | **F** | | | | 0.60 | A | 0.67 | B | 0.60 | A | 0.67 | B |
| 224 | Culver Dr at Walnut Av | Irv | **F** | Yes | | | 0.82 | D | 0.88 | D | 0.82 | D | 0.89 | D |
| 226 | Culver Dr at ICD | Irv | | Yes | | | 0.77 | C | 0.72 | C | 0.78 | C | 0.72 | C |
| 227 | Culver Dr at Warner Av | Irv | | | | | 0.82 | D | 0.66 | B | 0.82 | D | 0.65 | B |
| 228 | Culver Dr at Barranca Pw | Irv | **P** | Yes | | | 0.89 | D | 0.80 | C | 0.89 | D | 0.80 | C |
| 229 | Culver Dr at Alton Pkwy | Irv | | Yes | | | 0.86 | D | 0.89 | D | 0.86 | D | 0.89 | D |
| 232 | Culver Dr at I-405 NB Ramps | Irv | | | | | 0.79 | C | 0.72 | C | 0.79 | C | 0.73 | C |
| 233 | Culver Dr at I-405 SB Ramps | Irv | | | | | 0.57 | A | 0.62 | B | 0.56 | A | 0.62 | B |
| 235 | Culver Dr at University | Irv | **F** | Yes | | | 0.63 | B | 0.77 | C | 0.63 | B | 0.77 | C |
| 249 | Yale Av at Irvine Bl | Irv | **F** | | | | 0.75 | C | 0.88 | D | 0.75 | C | 0.88 | D |
| 252 | Yale Av at Bryan Av | Irv | | | | | 0.47 | A | 0.45 | A | 0.48 | A | 0.44 | A |
| 255 | Yale Av at Trabuco Rd | Irv | | | | | 0.62 | B | 0.51 | A | 0.62 | B | 0.50 | A |
| 259 | Yale Av at Walnut Av | Irv | | | | | 0.60 | A | 0.74 | C | 0.60 | A | 0.74 | C |
| 261 | Yale Av at ICD | Irv | | | | | 0.67 | B | 0.69 | B | 0.67 | B | 0.69 | B |
| 264 | W Yale Lp at Barranca Pw | Irv | | | | | 0.64 | B | 0.62 | B | 0.64 | B | 0.62 | B |
| 267 | E Yale Lp at Barranca Pw | Irv | | | | | 0.69 | B | 0.65 | B | 0.70 | B | 0.65 | B |
| 268 | W Yale Loop at Alton Pw | Irv | | | | | 0.70 | B | 0.68 | B | 0.69 | B | 0.68 | B |
| 271 | E Yale Lp at Alton Pw | Irv | | | | | 0.74 | C | 0.68 | B | 0.74 | C | 0.68 | B |
| 282 | Jeffrey Rd at Portola Pw | Irv | | | | | 0.68 | B | 0.64 | B | 0.68 | B | 0.64 | B |

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 2
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project Without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 283 | Jeffrey Rd at Irvine Bl | Irv | | Yes | | | 0.75 | C | 0.71 | C | 0.75 | C | 0.71 | C |
| 284 | Jeffrey Rd at Bryan Av | Irv | | | | | 0.74 | C | 0.68 | B | 0.74 | C | 0.68 | B |
| 285 | Jeffrey Rd at Trabuco Rd | Irv | | Yes | | | 0.65 | B | 0.75 | C | 0.65 | B | 0.75 | C |
| 286 | Jeffrey Rd at Roosevelt | Irv | | | | | **0.92** | **E** | 0.88 | D | **0.91** | **E** | 0.88 | D |
| 287 | Jeffrey Rd at I-5 NB Ramps | Irv | | | | | 0.74 | C | 0.82 | D | 0.73 | C | 0.83 | D |
| 288 | Jeffrey Rd at Walnut Av | Irv | **F** | | | | 0.79 | C | 0.80 | C | 0.79 | C | 0.80 | C |
| 289 | Jeffrey Rd at ICD | Irv | **F** | Yes | | | 0.84 | D | 0.79 | C | 0.83 | D | 0.79 | C |
| 290 | Jeffrey Rd at Barranca Pw | Irv | **P** | Yes | | | 0.85 | D | 0.74 | C | 0.84 | D | 0.74 | C |
| 291 | Jeffrey Rd at Alton Pw | Irv | **F** | Yes | Yes | | **0.92** | **E** | 0.79 | C | **0.91** | **E** | 0.80 | C |
| 293 | Jeffrey Rd at I-405 NB Ramps | Irv | **P** | | | | 0.69 | B | 0.78 | C | 0.69 | B | 0.79 | C |
| 294 | University Dr at I-405 SB Ramps | Irv | | | | | 0.68 | B | 0.71 | C | 0.69 | B | 0.70 | B |
| 300 | Sand Canyon Av at Portola Pw | Irv | | | | | 0.48 | A | 0.60 | A | 0.48 | A | 0.60 | A |
| 301 | Sand Canyon Av at Irvine Bl | Irv | | | | | 0.73 | C | 0.76 | C | 0.73 | C | 0.76 | C |
| 302 | Sand Canyon Av at Trabuco Pw | Irv | **F** | Yes | | | 0.76 | C | 0.77 | C | 0.76 | C | 0.77 | C |
| 303 | Sand Canyon Av at I-5 NB Ramps/Marine Wy | Irv | **F** | | | | 0.85 | D | 0.87 | D | 0.85 | D | 0.87 | D |
| 305 | Sand Canyon Av at I-5 SB Ramps | Irv | **F** | | | | 0.90 | D | 0.87 | D | 0.90 | D | 0.87 | D |
| 306 | Sand Canyon Av at Oak Canyon | Irv | **F** | | | | 0.86 | D | 0.79 | C | 0.86 | D | 0.79 | C |
| 307 | Sand Canyon Av at ICD | Irv | | | | | 0.60 | A | 0.67 | B | 0.60 | A | 0.67 | B |
| 309 | Sand Canyon Av at Barranca Pw | Irv | | | | | 0.57 | A | 0.60 | A | 0.57 | A | 0.61 | B |
| 310 | Sand Canyon Av at Alto | Irv | **F** | | | | 0.62 | B | 0.75 | C | 0.62 | B | 0.75 | C |
| 311 | Sand Canyon Av at I-405 NB Ramps | Irv | **F** | | | | 0.66 | B | 0.47 | A | 0.66 | B | 0.47 | A |
| 312 | Sand Canyon Av at I-405 SB Ramps | Irv | | | | | 0.80 | C | 0.54 | A | 0.80 | C | 0.55 | A |
| 313 | Laguna Canyon Rd at ICD | Irv | | | | | 0.33 | A | 0.43 | A | 0.34 | A | 0.42 | A |
| 314 | Laguna Canyon Rd at Barranca Pw | Irv | | | | | 0.45 | A | 0.45 | A | 0.45 | A | 0.45 | A |
| 315 | Laguna Canyon Rd at Alton Pw | Irv | | | | | 0.52 | A | 0.58 | A | 0.52 | A | 0.58 | A |
| 316 | SR-133 SB Ramps at Irvine Bl | Irv | | | | | 0.54 | A | 0.58 | A | 0.54 | A | 0.58 | A |
| 317 | SR-133 NB Ramps at Irvine Bl | Irv | | | | | 0.71 | C | 0.80 | C | 0.71 | C | 0.80 | C |
| 318 | Banting at Barranca Pkwy | Irv | | | | | 0.73 | C | 0.53 | A | 0.72 | C | 0.53 | A |
| 319 | Banting at Alton Pw | Irv | | | | | 0.58 | A | 0.53 | A | 0.58 | A | 0.53 | A |
| 321 | Laguna Canyon Rd at Old Laguna Canyon Rd | Irv | **F** | | | | **0.94** | **E** | 0.81 | D | **0.94** | **E** | 0.81 | D |
| 322 | Laguna Canyon Rd at SR-73 NB Ramps | Irv | | | | Yes | 0.93 | E | 0.62 | B | 0.93 | E | 0.62 | B |
| 323 | Laguna Canyon Rd at SR-73 SB Ramps | LB | | | | Yes | 0.40 | A | 0.45 | A | 0.40 | A | 0.45 | A |
| 324 | Portola Pw at SR-241 NB Ramps | LB | | | | | 0.59 | A | 0.39 | A | 0.59 | A | 0.39 | A |
| 325 | Portola Pw at SR-241 SB Ramps | Irv | | | | | 0.43 | A | 0.44 | A | 0.43 | A | 0.44 | A |
| 327 | Barranca Pw at Technology | Irv | **P** | | | | 0.60 | A | 0.69 | B | 0.60 | A | 0.69 | B |
| 328 | Barranca Pw at I-5 HOV Ramp | Irv | | | | Yes | 0.64 | B | 0.43 | A | 0.64 | B | 0.43 | A |
| 329 | Barranca Pw at ICD | Irv | | | | Yes | 0.68 | B | 0.68 | B | 0.68 | B | 0.67 | B |
| 330 | Barranca Pw at Pacifica | Irv | | | | Yes | 0.59 | A | 0.77 | C | 0.59 | A | 0.77 | C |
| 333 | Pacifica at Gateway | Irv | | | | | | | | | 0.00 | A | 0.00 | A |
| 335 | Alton Pw at Portola Pw | LF | | | | | 0.55 | A | 0.48 | A | 0.49 | A | 0.37 | A |
| 336 | Alton Pw at SR-241 Ramps | LF | | | | | 0.66 | B | 0.58 | A | 0.66 | B | 0.58 | A |
| 338 | Alton Pw at Irvine Bl | Irv | **F** | | | Yes | 0.93 | E | 0.88 | D | 0.93 | E | 0.89 | D |
| 339 | Alton Pw at Toledo Wy | Irv | | | | | 0.79 | C | 0.67 | B | 0.79 | C | 0.67 | B |

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 2
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project Without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 340 | Alton Pw at Jeronimo Rd | Irv | | | | | 0.66 | B | 0.54 | A | 0.66 | B | 0.54 | A |
| 341 | Alton Pw at Barranca Pw | Irv | | | | | 0.57 | A | 0.73 | C | 0.58 | A | 0.74 | C |
| 343 | Alton Pw at Ada | Irv | | | | | 0.51 | A | 0.76 | C | 0.51 | A | 0.76 | C |
| 344 | Alton Pw at Technology | Irv | **P** | | | | 0.59 | A | 0.87 | D | 0.59 | A | 0.87 | D |
| 345 | Alton Pw at I-5 NB Ramps | Irv | **F** | | | Yes | 0.89 | D | 0.52 | A | 0.89 | D | 0.52 | A |
| 346 | Alton Pw at Enterprise | Irv | | | | Yes | 0.70 | B | 0.77 | C | 0.71 | C | 0.77 | C |
| 348 | Alton Pw at ICD | Irv | **P** | | | Yes | 0.57 | A | 0.75 | C | 0.57 | A | 0.75 | C |
| 350 | Alton Pw at Pacifica | Irv | | | | Yes | 0.57 | A | 0.56 | A | 0.58 | A | 0.56 | A |
| 351 | Fortune Dr /I-5 SB Ramps | Irv | | | | Yes | 0.50 | A | 0.78 | C | 0.50 | A | 0.78 | C |
| 357 | Enterprise Dr at Fortune Dr | Irv | | | | Yes | 0.50 | A | 0.50 | A | 0.50 | A | 0.50 | A |
| 358 | ICD at Enterprise Dr | Irv | **P** | | | Yes | 0.64 | B | 0.52 | A | 0.64 | B | 0.52 | A |
| 359 | ICD at I-405 SB Ramps | LF | **P** | | | Yes | 0.57 | A | 0.53 | A | 0.57 | A | 0.53 | A |
| 361 | Bake Pw at Portola Pw | Irv | | | | | 0.55 | A | 0.82 | D | 0.55 | A | 0.82 | D |
| 362 | Bake Pw at Irvine Bl | Irv | **F** | | | Yes | 0.81 | D | 0.91 | E | 0.81 | D | 0.91 | E |
| 363 | Bake Pw at Toledo Wy | Irv | | | | | 0.77 | C | 0.66 | B | 0.77 | C | 0.66 | B |
| 364 | Bake Pw at Jeronimo Rd | Irv | **F** | | | | 0.81 | D | 0.67 | B | 0.81 | D | 0.68 | B |
| 365 | Bake Pw at Muirlands Bl | Irv | | | | | 0.74 | C | 0.90 | D | 0.72 | C | 0.88 | D |
| 366 | Bake Pw at Rockfield Bl | Irv | | | | | 0.70 | B | 0.88 | D | 0.71 | C | 0.88 | D |
| 367 | Bake Pw at I-5 NB Ramps | Irv | | | | Yes | 0.82 | D | 0.59 | A | 0.82 | D | 0.59 | A |
| 368 | Bake Pw at I-5 SB Ramps | Irv | **F** | | | Yes | 0.81 | D | 0.87 | D | 0.81 | D | 0.86 | D |
| 371 | Bake Pw at Research Dr | Irv | | | | | 0.58 | A | 0.81 | D | 0.58 | A | 0.81 | D |
| 372 | Bake Pw at ICD | LF | | | | | 0.53 | A | 0.51 | A | 0.54 | A | 0.51 | A |
| 373 | Lake Forest Dr at SR-241 NB Ramp | LF | | | | | 0.33 | A | 0.42 | A | 0.33 | A | 0.42 | A |
| 374 | Lake Forest Dr at Portola Pw | LF | | | | | 0.62 | B | 0.89 | D | 0.62 | B | 0.89 | D |
| 375 | Lake Forest Dr at SR-241 SB Ramp | LF | | | | | 0.54 | A | 0.51 | A | 0.56 | A | 0.51 | A |
| 376 | Lake Forest Dr at Trabuco Rd | LF | | | | | 0.84 | D | 0.89 | D | 0.84 | D | 0.89 | D |
| 377 | Lake Forest Dr at Toledo Wy | LF | | | | | 0.64 | B | 0.59 | A | 0.63 | B | 0.58 | A |
| 378 | Lake Forest Dr at Jeronimo Rd | LF | **P** | | | | 0.73 | C | 0.86 | D | 0.73 | C | 0.86 | D |
| 379 | Lake Forest Dr at Muirlands Bl | LF | **F** | | | | 0.74 | C | 0.84 | D | 0.73 | C | 0.85 | D |
| 380 | Lake Forest Dr at Rockfield Bl | LF | **P** | | | | 0.85 | D | 0.88 | D | 0.86 | D | 0.87 | D |
| 381 | Lake Forest Dr at I-5 NB Ramps | Irv | | | | | 0.70 | B | 0.76 | C | 0.70 | B | 0.75 | C |
| 383 | Lake Forest Dr at Avenida Carlota/I-5 SB | Irv | **F** | Yes | | Yes | 0.64 | B | 0.79 | C | 0.63 | B | 0.79 | C |
| 385 | Lake Forest Dr at ICD | LF | | | | Yes | 0.44 | A | 0.56 | A | 0.44 | A | 0.55 | A |
| 386 | Ridge Route Dr at Muirlands Bl | LF | | | | | 0.57 | A | 0.69 | B | 0.56 | A | 0.69 | B |
| 387 | Ridge Route Dr at Rockfield Bl | LH | **P** | | | | 0.51 | A | 0.73 | C | 0.48 | A | 0.60 | A |
| 388 | Ridge Route Dr at Aveninda Carlota | LH/LW | | | | | 0.53 | A | 0.68 | B | 0.53 | A | 0.68 | B |
| 389 | Ridge Route at Moulton Pw | LH/LW | | | | | 0.52 | A | 0.77 | C | 0.52 | A | 0.77 | C |
| 390 | Paseo de Valencia at Ave | LH/LW | **P** | | | | 0.79 | C | 0.88 | D | 0.79 | C | 0.88 | D |
| 391 | Santa Maria Av at Moulton Pw | LF | | | | | 0.50 | A | 0.75 | C | 0.49 | A | 0.75 | C |
| 392 | El Toro Rd at Muirlands Bl | LF | | | | | 0.70 | B | 0.85 | D | 0.72 | C | 0.85 | D |
| 393 | El Toro Rd at Rockfield Bl | LF | | | | | 0.61 | B | 0.74 | C | 0.62 | B | 0.74 | C |
| 394 | El Toro Rd at I-5 NB Ramps | LH | | | | Yes | 0.82 | D | 0.85 | D | 0.82 | D | 0.85 | D |
| 396 | El Toro Rd at Avenida Carlota | LH/LW | **P** | | | Yes | 0.59 | A | 0.87 | D | 0.60 | A | 0.87 | D |

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 2
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project Without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 397 | El Toro Rd at Paseo de Valencia | LW | | | | | 0.69 | B | 0.84 | D | 0.69 | B | 0.85 | D |
| 398 | El Toro Rd at Moulton Pw | AV | | | | Yes | 0.84 | D | 0.93 | E | 0.85 | D | 0.92 | E |
| 399 | El Toro Rd at Aliso Creek Rd | LB | | | | | 0.53 | A | 0.64 | B | 0.53 | A | 0.63 | B |
| 400 | El Toro Rd at SR-73 NB Ramps | LB | | | | Yes | 0.58 | A | 0.58 | A | 0.58 | A | 0.58 | A |
| 401 | El Toro Rd at SR-73 SB Ramps | Irv | | | | Yes | 0.44 | A | 0.61 | B | 0.44 | A | 0.61 | B |
| 402 | I-5 NB Ramps at Trabuco Rd | OC | | | | | 0.62 | B | 0.66 | B | 0.62 | B | 0.65 | B |
| 403 | SR-241 NB Ramps at Jeffery Rd | OC | | | | | 0.34 | A | 0.26 | A | 0.34 | A | 0.26 | A |
| 404 | SR-241 SB Ramps at Jeffery Rd | Irv | | | | | 0.28 | A | 0.22 | A | 0.27 | A | 0.21 | A |
| 405 | Laguna Canyon Rd at Quail Hill Pw | Irv | | | | | 0.42 | A | 0.38 | A | 0.42 | A | 0.38 | A |
| 406 | Laguna Canyon Rd at Lake Forest Dr | Irv | **F** | | | | 0.67 | B | 0.55 | A | 0.66 | B | 0.55 | A |
| 407 | Laguna Canyon Rd at Bake Pw | OC | **F** | | | | 0.76 | C | 0.67 | B | 0.76 | C | 0.67 | B |
| 408 | Laguna Canyon Rd at Santa Maria Dr | LF | | | | | 0.80 | C | 0.60 | A | 0.80 | C | 0.59 | A |
| 409 | Bake Pw at Commercentre Dr | Irv | | | | | 0.66 | B | 0.74 | C | 0.66 | B | 0.74 | C |
| 410 | Bake Pw at Lake Forest Dr | Irv | | | | | 0.46 | A | 0.45 | A | 0.47 | A | 0.45 | A |
| 411 | Bake Pw at Ridge Route | LF | | | | | 0.52 | A | 0.46 | A | 0.51 | A | 0.47 | A |
| 412 | Ridge Route Dr at Trabuco Rd | LF | | | | | 0.57 | A | 0.71 | C | 0.57 | A | 0.71 | C |
| 413 | Ridge Route Dr at Toledo Wy | LF | | | | | 0.43 | A | 0.39 | A | 0.43 | A | 0.39 | A |
| 414 | Ridge Route Dr at Jeronimo Rd | LF | | | | | 0.52 | A | 0.66 | B | 0.52 | A | 0.66 | B |
| 415 | Glenn Ranch Rd at Portola Pw | LF | | | | | 0.64 | B | 0.66 | B | 0.65 | B | 0.66 | B |
| 416 | Portola Pw East at SR-241 Ramps | LF | | | | | 0.51 | A | 0.67 | B | 0.51 | A | 0.67 | B |
| 417 | El Toro Rd at Portola Pw | LF | | | | | 0.82 | D | **0.99** | **E** | 0.82 | D | **0.99** | **E** |
| 418 | El Toro Rd at Trabuco Rd | LF | | | | Yes | 0.76 | C | 0.77 | C | 0.76 | C | 0.77 | C |
| 419 | El Toro Rd at Toledo Wy | LF | | | | | 0.53 | A | 0.52 | A | 0.53 | A | 0.52 | A |
| 420 | El Toro Rd at Jeronimo Rd | LF | **P** | | | | 0.72 | C | 0.67 | B | 0.72 | C | 0.68 | B |
| 421 | Los Alisos Bl at Trabuco Rd | MV | | | | | 0.76 | C | 0.72 | C | 0.76 | C | 0.72 | C |
| 422 | Los Alisos Bl at Jeronimo Rd | LF/MV | **P** | | | | 0.89 | D | 0.89 | D | 0.89 | D | 0.90 | D |
| 423 | Muirlands Bl at Los Alisos Bl | LF/MV | **P** | | | | 0.86 | D | 0.84 | D | 0.86 | D | 0.84 | D |
| 424 | Los Alisos Bl at Rockfield Bl | LF | **P** | | | | 0.64 | B | 0.80 | C | 0.64 | B | 0.80 | C |
| 425 | Los Alisos Bl at Avenido Carlota | LH | | | | | 0.53 | A | 0.60 | A | 0.53 | A | 0.60 | A |
| 426 | Los Alisos Bl at Paseo de Valencia | LH/LW | | | | | 0.60 | A | 0.84 | D | 0.60 | A | 0.84 | D |
| 427 | Moulton Pw at Glenwood/Indian Creek | AV/LH | | | | | 0.72 | C | 0.69 | B | 0.71 | C | 0.69 | B |
| 428 | Laguna Hills Dr at Paseo de Valencia | LH/LW | | | | | 0.75 | C | 0.83 | D | 0.75 | C | 0.83 | D |
| 429 | Moulton Pw at Laguna Hills Dr | AV/LH | | | | | 0.82 | D | 0.82 | D | 0.83 | D | 0.82 | D |
| 430 | Trabuco Rd at Alicia Pw | MV | | | | | 0.71 | C | 0.73 | C | 0.72 | C | 0.74 | C |
| 431 | Jeronimo Rd at Alicia Pw | MV | | | | | 0.78 | C | 0.76 | C | 0.78 | C | 0.76 | C |
| 432 | Alicia Pw at Muirlands Bl | MV | **P** | | | | 0.67 | B | 0.82 | D | 0.67 | B | 0.82 | D |
| 433 | I-5 NB Ramps at Alicia Pw | MV | | | | | 0.44 | A | 0.69 | B | 0.43 | A | 0.69 | B |
| 434 | I-5 SB Ramps at Alicia Pw | LH | | | | | 0.67 | B | 0.75 | C | 0.67 | B | 0.75 | C |
| 435 | Alicia Pw at Paseo de Valencia | LH | | | | | 0.68 | B | 0.79 | C | 0.68 | B | 0.78 | C |
| 436 | Moulton Pw at Alicia Pw | LH | | | | | 0.74 | C | 0.77 | C | 0.74 | C | 0.77 | C |
| 437 | Scientific Wy at ICD | Irv | | | | | 0.33 | A | 0.38 | A | 0.33 | A | 0.38 | A |
| 441 | Loop Rd at Jamboree Rd | Tus | | | | | 0.27 | A | 0.18 | A | 0.27 | A | 0.18 | A |
| 444 | Sand Canyon Av at Burt Rd | OC | | | | | 0.90 | D | 0.90 | D | 0.90 | D | 0.90 | D |

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 2
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project Without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 452 | Jamboree Rd at Santiago Canyon Rd | Irv | | | | | 0.74 | C | 0.70 | B | 0.74 | C | 0.70 | B |
| 459 | Jeffrey at Santiago Canyon Rd | Ora | | | | | 0.29 | A | 0.27 | A | 0.29 | A | 0.27 | A |
| 463 | Jamboree Rd at Chapman Av | OC | | | | | 0.78 | C | 0.84 | D | 0.78 | C | 0.85 | D |
| 464 | SR-241/SR-261 SB Ramps at Champman Av | Ora | | | | | 0.66 | B | 0.63 | B | 0.66 | B | 0.63 | B |
| 465 | SR-241/SR-261 NB Ramps at Chapman Av | OC | | | | | 0.60 | A | 0.61 | B | 0.60 | A | 0.61 | B |
| 466 | SR-241 NB Ramp at Santiago Canyon Rd | OC | | | | | 0.60 | A | 0.64 | B | 0.59 | A | 0.64 | B |
| 468 | Jamboree Rd at Canyon View | OC | | | | | 0.64 | B | 0.42 | A | 0.64 | B | 0.42 | A |
| 469 | Jamboree Rd at Handy Creek Rd | Ora | | | | | 0.55 | A | 0.52 | A | 0.55 | A | 0.52 | A |
| 470 | SR-261 SB Ramps at Handy Creek Rd | Ora | | | | | 0.33 | A | 0.14 | A | 0.33 | A | 0.14 | A |
| 471 | SR-261 NB Ramps at Handy Creek Rd | OC | | | | | 0.15 | A | 0.29 | A | 0.15 | A | 0.29 | A |
| 477 | El Camino Real N at Bryan Av | Irv | | | | | 0.43 | A | 0.47 | A | 0.43 | A | 0.47 | A |
| 481 | Laguna Canyon Rd at Technology | Irv | | | | | 0.45 | A | 0.42 | A | 0.46 | A | 0.43 | A |
| 482 | Visions (formerly Road A) at Trabuco Rd | Irv | | | | | 0.40 | A | 0.34 | A | 0.40 | A | 0.33 | A |
| 483 | Road C at Trabuco Rd | Irv | | | | | 0.37 | A | 0.34 | A | 0.38 | A | 0.34 | A |
| 484 | Sand Canyon at Roosevelt | Irv | | | | | 0.69 | B | 0.54 | A | 0.68 | B | 0.54 | A |
| 485 | Sand Canyon at Nightmist | Irv | | | | | 0.77 | C | 0.61 | B | 0.77 | C | 0.61 | B |
| 486 | SR-133 SB Ramps at Trabuco Rd | Irv | | | | | 0.57 | A | 0.60 | A | 0.58 | A | 0.60 | A |
| 487 | SR-133 NB Ramps at Trabuco Rd | Irv | | | | | 0.54 | A | 0.68 | B | 0.54 | A | 0.68 | B |
| 514 | Alton Pw at Rancho Pw | LF | | | | | 0.63 | B | 0.77 | C | 0.63 | B | 0.77 | C |
| 515 | Bake Pw N at Rancho Pw North | LF | | | | | 0.65 | B | 0.86 | D | 0.65 | B | 0.86 | D |
| 516 | Lake Forest Dr at Rancho Pw North | LF | | | | | 0.70 | B | 0.89 | D | 0.70 | B | 0.89 | D |
| 517 | Portola Pw at Rancho Pw | LF | | | | | 0.62 | B | 0.70 | B | 0.61 | B | 0.70 | B |
| 518 | Alton Pw at Commercentre | LF | | | | | 0.62 | B | 0.78 | C | 0.62 | B | 0.78 | C |
| 555 | Bake Pw at Rancho Pkw | LF | | | | | 0.70 | B | 0.74 | C | 0.69 | B | 0.74 | C |
| 556 | Ridge Valley at Portola Pw | Irv | | | | | 0.69 | B | 0.67 | B | 0.70 | B | 0.67 | B |
| 557 | O St at C St | Irv | | | | | 0.38 | A | 0.35 | A | 0.38 | A | 0.35 | A |
| 558 | O St at Irvine Bl | Irv | | | | | 0.62 | B | 0.80 | C | 0.62 | B | 0.80 | C |
| 559 | O St at Trabuco Rd | Irv | | | | | 0.76 | C | 0.67 | B | 0.77 | C | 0.67 | B |
| 560 | O St at Marine Wy | Irv | | | | | 0.48 | A | 0.62 | B | 0.49 | A | 0.62 | B |
| 562 | D St. at Marine Wy | Irv | | | | | 0.53 | A | 0.71 | C | 0.53 | A | 0.71 | C |
| 563 | B St. at Irvine Bl | Irv | | | | | 0.66 | B | 0.71 | C | 0.66 | B | 0.71 | C |
| 564 | C St. at Marine Wy | Irv | | | | | 0.62 | B | 0.63 | B | 0.62 | B | 0.63 | B |
| 566 | Marine Wy at Barranca Pw | Irv | | | | | 0.63 | B | 0.62 | B | 0.63 | B | 0.61 | B |
| 567 | Marine Wy at Alton Pw | Irv | | | | | 0.65 | B | 0.61 | B | 0.66 | B | 0.60 | A |
| 568 | Marine Wy at Rockfield Bl | Irv | | | | | 0.46 | A | 0.42 | A | 0.45 | A | 0.41 | A |
| 569 | Bake Pw at Marine Wy | Irv | | | | | 0.77 | C | 0.72 | C | 0.70 | B | 0.66 | B |
| 571 | Portola Springs at Portola Pkwy | Irv | | | | | 0.70 | B | 0.58 | A | 0.70 | B | 0.58 | A |
| 572 | Modjeska / A St at Irvine Bl | Irv | | | | | 0.66 | B | 0.72 | C | 0.65 | B | 0.72 | C |
| 603 | O St at LN St | Irv | | | | | 0.36 | A | 0.30 | A | 0.36 | A | 0.30 | A |
| 605 | O St at LQ St | Irv | | | | | 0.57 | A | 0.54 | A | 0.57 | A | 0.54 | A |
| 608 | O St at LV St | Irv | | | | | 0.34 | A | 0.35 | A | 0.34 | A | 0.35 | A |
| 626 | LY St at LQ St | Irv | | | | | 0.41 | A | 0.39 | A | 0.41 | A | 0.39 | A |
| 627 | LY St at Irvine Bl | Irv | | | | | 0.52 | A | 0.59 | A | 0.52 | A | 0.59 | A |

## Post-2030 Intersection LOS Summary (ICU Methodology) – Option 2
## Without Rockfield Boulevard MPAH Change

| | | | | | | | 2012 Modified Project | | | | 2012 Modified Project Without MPAH Amendment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| ID | Intersection | Juris. | Funded NITM[1] | ATMS OK | ATMS App. | LOS E OK | ICU | LOS | ICU | LOS | ICU | LOS | ICU | LOS |
| 631 | LY St at Trabuco Rd | Irv | | | | | 0.13 | A | 0.16 | A | 0.13 | A | 0.16 | A |
| 633 | Sterling at Rockfield | Irv | | | | | Not Applicable | | | | 0.40 | A | 0.40 | A |
| 637 | Sterling at Muirlands Bl | Irv | | | | | 0.35 | A | 0.47 | A | 0.37 | A | 0.53 | A |
| 640 | Thomas at Muirlands Bl. | Irv | | | | | 0.26 | A | 0.43 | A | 0.26 | A | 0.41 | A |
| 782 | A St at LQ St | Irv | | | | | 0.30 | A | 0.31 | A | 0.31 | A | 0.31 | A |
| 787 | Z St at LQ St | Irv | | | | | 0.24 | A | 0.26 | A | 0.24 | A | 0.26 | A |
| 790 | Z St at Irvine Bl | Irv | | | | | 0.69 | B | 0.70 | B | 0.69 | B | 0.70 | B |
| 798 | B St. at LQ St | Irv | | | | | 0.32 | A | 0.38 | A | 0.32 | A | 0.38 | A |
| 799 | "B" St. at Marine Wy. | Irv | | | | | 0.68 | B | 0.66 | B | 0.68 | B | 0.66 | B |
| 800 | LQ St at Irvine Bl | Irv | | | | | 0.77 | C | 0.71 | C | 0.77 | C | 0.71 | C |
| 820 | Fairbanks at Irvine Bl. | Irv | | | | | 0.71 | C | 0.81 | D | 0.71 | C | 0.81 | D |
| 821 | Alton Pkwy. at Fairbanks | Irv | | | | | 0.66 | B | 0.69 | B | 0.66 | B | 0.69 | B |
| 822 | "F" Street at Irvine Bl. | Irv | | | | | 0.69 | B | 0.72 | C | 0.69 | B | 0.72 | C |
| 831 | "G" Street at Marine Way | Irv | | | | | 0.55 | A | 0.58 | A | 0.55 | A | 0.58 | A |
| 832 | Fairbanks at Astor St. | Irv | | | | | 0.54 | A | 0.58 | A | 0.54 | A | 0.58 | A |

**Bold =** Deficient Intersection

1. Fully Funded (F), Partially Funded (P)

*Heritage Fields Project 2012 GPA/ZC Traffic Study*
*City of Irvine, CA (JN:07151-12.1 Report Tables)*
U:\UcJobs_07100-07500_07100\07151\Project 2012 GPAZC\[07151-12.1 Report Tables_9.14.12.xlsx]9-30

## Table 9-31

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 2
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Jamboree | SB Direct On | 1 | 1,500 | 416 | 0.28 | A | 1,130 | 0.75 | C | 416 | 0.28 | A | 1,130 | 0.75 | C |
| | SB Loop On | 1 | 1,080 | 569 | 0.53 | A | 490 | 0.45 | A | 569 | 0.53 | A | 480 | 0.44 | A |
| | NB Direct On | 1 | 1,080 | 474 | 0.44 | A | 480 | 0.44 | A | 473 | 0.44 | A | 480 | 0.44 | A |
| | NB Loop On | 1 | 1,080 | 676 | 0.63 | B | 690 | 0.64 | B | 675 | 0.63 | B | 700 | 0.65 | B |
| | SB Off | 1 | 1,500 | 1,429 | 0.95 | E | 1,457 | 0.97 | E | 1,429 | 0.95 | E | 1,456 | 0.97 | E |
| | NB Off | 1 | 1,500 | 1,580 | **1.05** | **F** | 1,328 | 0.89 | D | 1,570 | **1.05** | **F** | 1,320 | 0.88 | D |
| I-5 at Culver | SB Direct On | 1 | 900 | 240 | 0.27 | A | 300 | 0.33 | A | 240 | 0.27 | A | 300 | 0.33 | A |
| | SB Loop On | 1 | 900 | 340 | 0.38 | A | 240 | 0.27 | A | 340 | 0.38 | A | 240 | 0.27 | A |
| | NB Direct On | 1 | 900 | 714 | 0.79 | C | 179 | 0.20 | A | 722 | 0.80 | C | 179 | 0.20 | A |
| | NB Loop On | 1 | 1,500 | 1,100 | 0.73 | C | 590 | 0.39 | A | 1,040 | 0.69 | B | 590 | 0.39 | A |
| | SB Off | 2 | 2,250 | 931 | 0.41 | A | 2,060 | 0.92 | E | 933 | 0.41 | A | 2,054 | 0.91 | E |
| | NB Off | 1 | 1,500 | 333 | 0.22 | A | 482 | 0.32 | A | 333 | 0.22 | A | 470 | 0.31 | A |
| I-5 at Jeffrey | SB On | 1 | 1,080 | 1,264 | **1.17** | **F** | 841 | 0.78 | C | 1,264 | **1.17** | **F** | 841 | 0.78 | C |
| | NB Direct On | 1 | 1,080 | 690 | 0.64 | B | 260 | 0.24 | A | 680 | 0.63 | B | 260 | 0.24 | A |
| | NB Loop On | 1 | 1,500 | 250 | 0.17 | A | 280 | 0.19 | A | 250 | 0.17 | A | 270 | 0.18 | A |
| | SB Off | 1 | 1,500 | 610 | 0.41 | A | 1,119 | 0.75 | C | 609 | 0.41 | A | 1,119 | 0.75 | C |
| | NB Off | 2 | 2,250 | 949 | 0.42 | A | 1,422 | 0.63 | B | 951 | 0.42 | A | 1,425 | 0.63 | B |
| I-5 at Sand Canyon | SB On | 1 | 1,500 | 641 | 0.43 | A | 740 | 0.49 | A | 631 | 0.42 | A | 740 | 0.49 | A |
| | NB On | 1 | 1,500 | 930 | 0.62 | B | 1,590 | **1.06** | **F** | 933 | 0.62 | B | 1,580 | **1.05** | **F** |
| | SB Off | 1 | 1,500 | 1,774 | **1.18** | **F** | 900 | 0.60 | A | 1,775 | **1.18** | **F** | 900 | 0.60 | A |
| | NB Off | 2 | 2,250 | 710 | 0.32 | A | 711 | 0.32 | A | 711 | 0.32 | A | 710 | 0.32 | A |
| I-5 at Barranca | NB On | 1 | 1,500 | 30 | 0.02 | A | 210 | 0.14 | A | 20 | 0.01 | A | 210 | 0.14 | A |
| | SB Off | 1 | 1,500 | 268 | 0.18 | A | 93 | 0.06 | A | 268 | 0.18 | A | 93 | 0.06 | A |
| I-5 at Alton | SB On | 1 | 1,500 | 360 | 0.24 | A | 610 | 0.41 | A | 361 | 0.24 | A | 610 | 0.41 | A |
| | NB Direct On | 2 | 1,800 | 311 | 0.17 | A | 1,270 | 0.71 | C | 311 | 0.17 | A | 1,250 | 0.69 | B |
| | NB Loop On | 1 | 1,500 | 571 | 0.38 | A | 149 | 0.10 | A | 570 | 0.38 | A | 149 | 0.10 | A |
| | SB Off | 2 | 2,250 | 2,159 | 0.96 | E | 970 | 0.43 | A | 2,180 | 0.97 | E | 983 | 0.44 | A |
| | NB Off | 2 | 2,250 | 1,151 | 0.51 | A | 310 | 0.14 | A | 1,131 | 0.50 | A | 310 | 0.14 | A |

## Table 9-31 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 2
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-5 at Bake | SB Direct On | 1 | 1,500 | 98 | 0.07 | A | 131 | 0.09 | A | 98 | 0.07 | A | 135 | 0.09 | A |
| | SB Loop On | 1 | 1,080 | 401 | 0.37 | A | 874 | 0.81 | D | 403 | 0.37 | A | 876 | 0.81 | D |
| | NB Direct On | 2 | 3,400 | 1,383 | 0.41 | A | 1,196 | 0.35 | A | 1,368 | 0.40 | A | 1,189 | 0.35 | A |
| | NB Loop On | 1 | 1,500 | 320 | 0.21 | A | 1,000 | 0.67 | B | 320 | 0.21 | A | 1,000 | 0.67 | B |
| | SB Off | 2 | 3,000 | 2,993 | 1.00 | E | 2,436 | 0.81 | D | 2,990 | 1.00 | E | 2,433 | 0.81 | D |
| | NB Off | 2 | 3,000 | 1,399 | 0.47 | A | 615 | 0.21 | A | 1,389 | 0.46 | A | 616 | 0.21 | A |
| I-5 at Lake Forest | SB Direct On | 1 | 1,500 | 307 | 0.20 | A | 865 | 0.58 | A | 306 | 0.20 | A | 866 | 0.58 | A |
| | SB Loop On | 1 | 1,080 | 415 | 0.38 | A | 682 | 0.63 | B | 416 | 0.39 | A | 685 | 0.63 | B |
| | NB On | 2 | 1,800 | 1,360 | 0.76 | C | 1,055 | 0.59 | A | 1,355 | 0.75 | C | 1,055 | 0.59 | A |
| | SB Off | 2 | 3,000 | 1,760 | 0.59 | A | 2,324 | 0.77 | C | 1,759 | 0.59 | A | 2,324 | 0.77 | C |
| | NB Off | 1 | 1,500 | 1,493 | 1.00 | E | 724 | 0.48 | A | 1,495 | 1.00 | E | 723 | 0.48 | A |
| I-5 at El Toro | SB Direct On | 1 | 1,080 | 164 | 0.15 | A | 141 | 0.13 | A | 159 | 0.15 | A | 146 | 0.14 | A |
| | SB Loop On | 1 | 1,500 | 425 | 0.28 | A | 500 | 0.33 | A | 428 | 0.29 | A | 500 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,551 | **1.03** | **F** | 1,121 | 0.75 | C | 1,568 | **1.05** | **F** | 1,122 | 0.75 | C |
| | NB Loop On | 1 | 1,500 | 1,243 | 0.83 | D | 1,259 | 0.84 | D | 1,237 | 0.82 | D | 1,268 | 0.85 | D |
| | SB Off | 2 | 2,250 | 2,922 | **1.30** | **F** | 2,979 | **1.32** | **F** | 2,912 | **1.29** | **F** | 2,998 | **1.33** | **F** |
| | NB Off | 1 | 1,500 | 1,321 | 0.88 | D | 1,212 | 0.81 | D | 1,344 | 0.90 | D | 1,211 | 0.81 | D |
| I-5 at Alicia | SB Direct On | 1 | 1,080 | 151 | 0.14 | A | 203 | 0.19 | A | 151 | 0.14 | A | 203 | 0.19 | A |
| | SB Loop On | 1 | 1,500 | 824 | 0.55 | A | 752 | 0.50 | A | 823 | 0.55 | A | 752 | 0.50 | A |
| | NB Direct On | 1 | 1,500 | 1,230 | 0.82 | D | 900 | 0.60 | A | 1,230 | 0.82 | D | 900 | 0.60 | A |
| | NB Loop On | 1 | 1,500 | 1,300 | 0.87 | D | 840 | 0.56 | A | 1,310 | 0.87 | D | 840 | 0.56 | A |
| | SB Off | 2 | 3,000 | 2,097 | 0.70 | B | 2,200 | 0.73 | C | 2,096 | 0.70 | B | 2,200 | 0.73 | C |
| | NB Off | 1 | 1,500 | 312 | 0.21 | A | 1,091 | 0.73 | C | 311 | 0.21 | A | 1,093 | 0.73 | C |
| I-405 at Culver | SB Direct On | 1 | 1,500 | 273 | 0.18 | A | 723 | 0.48 | A | 273 | 0.18 | A | 735 | 0.49 | A |
| | SB Loop On | 1 | 900 | 252 | 0.28 | A | 341 | 0.38 | A | 252 | 0.28 | A | 343 | 0.38 | A |
| | NB Direct On | 1 | 1,500 | 930 | 0.62 | B | 660 | 0.44 | A | 930 | 0.62 | B | 660 | 0.44 | A |
| | NB Loop On | 1 | 1,500 | 580 | 0.39 | A | 400 | 0.27 | A | 580 | 0.39 | A | 400 | 0.27 | A |
| | SB Off | 2 | 3,000 | 830 | 0.28 | A | 1,380 | 0.46 | A | 830 | 0.28 | A | 1,380 | 0.46 | A |
| | NB Off | 1 | 1,500 | 1,311 | 0.87 | D | 1,276 | 0.85 | D | 1,308 | 0.87 | D | 1,286 | 0.86 | D |

## Table 9-31 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 2
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| I-405 at Jeffrey | SB Direct On | 1 | 1,500 | 1,050 | 0.70 | B | 1,120 | 0.75 | C | 1,050 | 0.70 | B | 1,120 | 0.75 | C |
| | SB Loop On | 1 | 900 | 280 | 0.31 | A | 310 | 0.34 | A | 280 | 0.31 | A | 300 | 0.33 | A |
| | NB Direct On | 1 | 1,500 | 1,340 | 0.89 | D | 600 | 0.40 | A | 1,342 | 0.89 | D | 600 | 0.40 | A |
| | NB Loop On | 1 | 900 | 320 | 0.36 | A | 100 | 0.11 | A | 320 | 0.36 | A | 110 | 0.12 | A |
| | SB Off | 1 | 1,500 | 614 | 0.41 | A | 783 | 0.52 | A | 614 | 0.41 | A | 785 | 0.52 | A |
| | NB Off | 2 | 2,250 | 1,471 | 0.65 | B | 1,883 | 0.84 | D | 1,469 | 0.65 | B | 1,889 | 0.84 | D |
| I-405 at Sand Canyon | SB Direct On | 1 | 1,500 | 300 | 0.20 | A | 230 | 0.15 | A | 300 | 0.20 | A | 230 | 0.15 | A |
| | SB Loop On | 1 | 1,500 | 190 | 0.13 | A | 420 | 0.28 | A | 190 | 0.13 | A | 430 | 0.29 | A |
| | NB Direct On | 1 | 1,500 | 1,253 | 0.84 | D | 1,360 | 0.91 | E | 1,250 | 0.83 | D | 1,360 | 0.91 | E |
| | NB Loop On | 1 | 1,500 | 641 | 0.43 | A | 370 | 0.25 | A | 650 | 0.43 | A | 370 | 0.25 | A |
| | SB Off | 1 | 1,500 | 1,947 | **1.30** | **F** | 1,105 | 0.74 | C | 1,947 | **1.30** | **F** | 1,111 | 0.74 | C |
| | NB Off | 1 | 1,500 | 688 | 0.46 | A | 529 | 0.35 | A | 710 | 0.47 | A | 518 | 0.35 | A |
| I-405 at Irvine Center | SB Direct On | 1 | 900 | 60 | 0.07 | A | 90 | 0.10 | A | 60 | 0.07 | A | 90 | 0.10 | A |
| | SB Loop On | 1 | 900 | 260 | 0.29 | A | 410 | 0.46 | A | 260 | 0.29 | A | 410 | 0.46 | A |
| | NB Direct On | 1 | 1,500 | 243 | 0.16 | A | 568 | 0.38 | A | 240 | 0.16 | A | 568 | 0.38 | A |
| | NB Loop On | 1 | 1,500 | 255 | 0.17 | A | 1,219 | 0.81 | D | 255 | 0.17 | A | 1,219 | 0.81 | D |
| | SB Off | 2 | 2,250 | 2,012 | 0.89 | D | 1,429 | 0.64 | B | 2,022 | 0.90 | D | 1,459 | 0.65 | B |
| | NB Off | 2 | 3,000 | 1,200 | 0.40 | A | 420 | 0.14 | A | 1,210 | 0.40 | A | 420 | 0.14 | A |
| SR-133 at SR-241 | | | | | | | | | | | | | | | |
| NB SR-133 to SB SR-241 | | 2 | 4,000 | 571 | 0.14 | A | 2,372 | 0.59 | A | 574 | 0.14 | A | 2,366 | 0.59 | A |
| NB SR-241 to SB SR-133 | | 2 | 4,000 | 3,140 | 0.79 | C | 973 | 0.24 | A | 3,158 | 0.79 | C | 967 | 0.24 | A |
| NB SR-133 to NB SR-241 | | 2 | 4,000 | 1,984 | 0.50 | A | 3,344 | 0.84 | D | 1,988 | 0.50 | A | 3,348 | 0.84 | D |
| SB SR-241 to SB SR-133 | | 2 | 4,000 | 4,025 | **1.01** | **F** | 1,978 | 0.49 | A | 4,021 | **1.01** | **F** | 1,965 | 0.49 | A |
| SR-133 at Irvine | SB On | 1 | 1,500 | 407 | 0.27 | A | 320 | 0.21 | A | 407 | 0.27 | A | 320 | 0.21 | A |
| | NB Direct On | 1 | 1,500 | 250 | 0.17 | A | 270 | 0.18 | A | 260 | 0.17 | A | 280 | 0.19 | A |
| | NB Loop On | 1 | 1,500 | 130 | 0.09 | A | 200 | 0.13 | A | 130 | 0.09 | A | 200 | 0.13 | A |
| | SB Off | 2 | 2,250 | 440 | 0.20 | A | 209 | 0.09 | A | 440 | 0.20 | A | 209 | 0.09 | A |
| | NB Off | 1 | 1,500 | 181 | 0.12 | A | 618 | 0.41 | A | 181 | 0.12 | A | 619 | 0.41 | A |

## Table 9-31 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 2
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-133 at Trabuco | SB On | 1 | 1,500 | 760 | 0.51 | A | 670 | 0.45 | A | 760 | 0.51 | A | 680 | 0.45 | A |
| | NB On | 1 | 1,500 | 160 | 0.11 | A | 560 | 0.37 | A | 160 | 0.11 | A | 560 | 0.37 | A |
| | SB Off | 1 | 1,500 | 700 | 0.47 | A | 290 | 0.19 | A | 700 | 0.47 | A | 291 | 0.19 | A |
| | NB Off | 1 | 1,500 | 828 | 0.55 | A | 970 | 0.65 | B | 828 | 0.55 | A | 970 | 0.65 | B |
| SR-133 at I-5 | | | | | | | | | | | | | | | |
| NB I-5 to NB SR-133 | | 1 | 2,000 | 1,112 | 0.56 | A | 1,697 | 0.85 | D | 1,121 | 0.56 | A | 1,686 | 0.84 | D |
| SB SR-133 to SB I-5 | | 1 | 2,000 | 1,962 | 0.98 | E | 1,172 | 0.59 | A | 1,993 | 1.00 | E | 1,201 | 0.60 | A |
| SB SR-133 to NB I-5 | | 1 | 2,000 | 1,319 | 0.66 | B | 465 | 0.23 | A | 1,325 | 0.66 | B | 457 | 0.23 | A |
| SB I-5 to NB SR-133 | | 1 | 2,000 | 608 | 0.30 | A | 1,411 | 0.71 | C | 614 | 0.31 | A | 1,409 | 0.70 | B |
| SB I-5 to SB SR-133 | | 2 | 4,000 | 2,126 | 0.53 | A | 1,814 | 0.45 | A | 2,107 | 0.53 | A | 1,824 | 0.46 | A |
| NB SR-133 to NB I-5 | | 2 | 4,000 | 2,222 | 0.56 | A | 2,165 | 0.54 | A | 2,208 | 0.55 | A | 2,158 | 0.54 | A |
| SR-133 at Barranca | SB Loop On | 1 | 1,080 | 150 | 0.14 | A | 1,199 | **1.11** | **F** | 161 | 0.15 | A | 1,204 | **1.11** | **F** |
| | NB Direct On | 1 | 1,080 | 173 | 0.16 | A | 621 | 0.58 | A | 172 | 0.16 | A | 607 | 0.56 | A |
| | NB Loop On | 1 | 1,080 | 430 | 0.40 | A | 1,490 | **1.38** | **F** | 430 | 0.40 | A | 1,500 | **1.39** | **F** |
| | SB Off | 2 | 3,000 | 2,330 | 0.78 | C | 590 | 0.20 | A | 2,326 | 0.78 | C | 589 | 0.20 | A |
| | NB Off | 2 | 2,250 | 1,496 | 0.66 | B | 402 | 0.18 | A | 1,506 | 0.67 | B | 410 | 0.18 | A |
| SR-133 at I-405 | | | | | | | | | | | | | | | |
| SB SR-133 to SB I-405 | | 1 | 2,000 | 969 | 0.48 | A | 1,028 | 0.51 | A | 932 | 0.47 | A | 1,030 | 0.52 | A |
| NB SR-133 to SB I-405 | | 1 | 2,000 | 48 | 0.02 | A | 22 | 0.01 | A | 49 | 0.02 | A | 24 | 0.01 | A |
| SB SR-133 to NB I-405 | | 2 | 4,000 | 1,182 | 0.30 | A | 598 | 0.15 | A | 1,199 | 0.30 | A | 599 | 0.15 | A |
| NB SR-133 to NB I-405 | | 2 | 4,000 | 1,379 | 0.34 | A | 1,017 | 0.25 | A | 1,380 | 0.35 | A | 1,015 | 0.25 | A |
| SB I-405 to NB SR-133 | | 1 | 2,000 | 1,622 | 0.81 | D | 1,719 | 0.86 | D | 1,623 | 0.81 | D | 1,718 | 0.86 | D |
| SB I-405 to SB SR-133 | | 1 | 2,000 | 611 | 0.31 | A | 710 | 0.36 | A | 609 | 0.30 | A | 724 | 0.36 | A |
| NB I-405 to SB SR-133 | | 1 | 2,000 | 205 | 0.10 | A | 258 | 0.13 | A | 205 | 0.10 | A | 256 | 0.13 | A |
| SR-241 at Chapman / Santiago Cyn | SB On | 2 | 1,800 | 1,080 | 0.60 | A | 428 | 0.24 | A | 1,080 | 0.60 | A | 418 | 0.23 | A |
| | NB On | 1 | 1,500 | 440 | 0.29 | A | 216 | 0.14 | A | 440 | 0.29 | A | 216 | 0.14 | A |
| | SB Off | 1 | 1,500 | 551 | 0.37 | A | 469 | 0.31 | A | 542 | 0.36 | A | 469 | 0.31 | A |
| | NB Off | 1 | 1,500 | 916 | 0.61 | B | 1,164 | 0.78 | C | 906 | 0.60 | A | 1,164 | 0.78 | C |

## Table 9-31 Cont.

### Post-2030 Freeway/Tollway Ramp LOS Summary – Option 2
### Without Rockfield Boulevard MPAH Change

| Interchange | Ramp[1] | Lanes | Peak Hour Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS | Volume | V/C[2] | LOS |
| SR-241 at Jeffrey | SB On | 1 | 1,500 | 37 | 0.02 | A | 17 | 0.01 | A | 38 | 0.03 | A | 18 | 0.01 | A |
| | NB On | 1 | 1,500 | 400 | 0.27 | A | 350 | 0.23 | A | 400 | 0.27 | A | 355 | 0.24 | A |
| | SB Off | 1 | 1,500 | 533 | 0.36 | A | 395 | 0.26 | A | 529 | 0.35 | A | 397 | 0.26 | A |
| | NB Off | 1 | 1,500 | 22 | 0.01 | A | 71 | 0.05 | A | 22 | 0.01 | A | 70 | 0.05 | A |
| SR-241 at Portola (West) | SB On | 1 | 1,500 | 170 | 0.11 | A | 410 | 0.27 | A | 170 | 0.11 | A | 410 | 0.27 | A |
| | NB On | 1 | 1,500 | 121 | 0.08 | A | 33 | 0.02 | A | 121 | 0.08 | A | 33 | 0.02 | A |
| | SB Off | 1 | 1,500 | 49 | 0.03 | A | 152 | 0.10 | A | 49 | 0.03 | A | 151 | 0.10 | A |
| | NB Off | 1 | 1,500 | 588 | 0.39 | A | 209 | 0.14 | A | 588 | 0.39 | A | 209 | 0.14 | A |
| SR-241 at Alton | SB On | 1 | 1,500 | 457 | 0.30 | A | 1,114 | 0.74 | C | 457 | 0.30 | A | 1,112 | 0.74 | C |
| | NB On | 1 | 1,500 | 435 | 0.29 | A | 607 | 0.40 | A | 435 | 0.29 | A | 606 | 0.40 | A |
| | SB Off | 1 | 1,500 | 696 | 0.46 | A | 444 | 0.30 | A | 696 | 0.46 | A | 442 | 0.29 | A |
| | NB Off | 2 | 2,250 | 1,003 | 0.45 | A | 627 | 0.28 | A | 1,003 | 0.45 | A | 626 | 0.28 | A |
| SR-241 at Lake Forest | NB On | 2 | 2,250 | 219 | 0.10 | A | 842 | 0.37 | A | 221 | 0.10 | A | 842 | 0.37 | A |
| | SB Off | 1 | 1,500 | 821 | 0.55 | A | 418 | 0.28 | A | 821 | 0.55 | A | 416 | 0.28 | A |
| SR-241 at Portola (East) | SB On | 1 | 1,500 | 331 | 0.22 | A | 1,417 | 0.94 | E | 331 | 0.22 | A | 1,417 | 0.94 | E |
| | NB On | 2 | 2,250 | 826 | 0.37 | A | 430 | 0.19 | A | 834 | 0.37 | A | 430 | 0.19 | A |
| | SB Off | 1 | 1,500 | 529 | 0.35 | A | 619 | 0.41 | A | 528 | 0.35 | A | 619 | 0.41 | A |
| | NB Off | 2 | 2,250 | 2,173 | 0.97 | E | 583 | 0.26 | A | 2,175 | 0.97 | E | 583 | 0.26 | A |
| SR-261 at Chapman | SB On | 1 | 1,500 | 900 | 0.60 | A | 249 | 0.17 | A | 899 | 0.60 | A | 249 | 0.17 | A |
| | NB Off | 1 | 1,500 | 150 | 0.10 | A | 691 | 0.46 | A | 150 | 0.10 | A | 691 | 0.46 | A |
| SR-261 at Portola | SB On | 1 | 1,500 | 175 | 0.12 | A | 100 | 0.07 | A | 175 | 0.12 | A | 100 | 0.07 | A |
| | NB On | 1 | 1,500 | 210 | 0.14 | A | 140 | 0.09 | A | 210 | 0.14 | A | 140 | 0.09 | A |
| | SB Off | 1 | 1,500 | 102 | 0.07 | A | 89 | 0.06 | A | 103 | 0.07 | A | 89 | 0.06 | A |
| | NB Off | 1 | 1,500 | 100 | 0.07 | A | 106 | 0.07 | A | 100 | 0.07 | A | 106 | 0.07 | A |
| SR-261 at Irvine | SB On | 1 | 1,500 | 791 | 0.53 | A | 341 | 0.23 | A | 791 | 0.53 | A | 340 | 0.23 | A |
| | NB On | 1 | 1,500 | 220 | 0.15 | A | 160 | 0.11 | A | 220 | 0.15 | A | 160 | 0.11 | A |
| | SB Off | 1 | 1,500 | 81 | 0.05 | A | 70 | 0.05 | A | 80 | 0.05 | A | 70 | 0.05 | A |
| | NB Off | 1 | 1,500 | 222 | 0.15 | A | 393 | 0.26 | A | 223 | 0.15 | A | 393 | 0.26 | A |

[1] NB = Northbound; SB = Southbound.

[2] V/C = Volume/Capacity Ratio.

**BOLD** = Unsatisfactory level of service.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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## Table 9-32

### Post-2030 Freeway Mainline LOS Summary – Option 2
### Without Rockfield Boulevard MPAH Change

| | Location | Direction | Lanes | Capacity | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | | | | | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| I-5 | n/o Newport | NB | 5+1H | 11,600 | 15,165 | **1.31** | **F** | 11,929 | **1.03** | **F** | 15,169 | **1.31** | **F** | 11,915 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 9,577 | 0.83 | D | 10,088 | 0.87 | D | 9,543 | 0.82 | D | 10,089 | 0.87 | D |
| | n/o Red Hill | NB | 5+1H | 11,600 | 14,403 | **1.24** | **F** | 11,329 | 0.98 | E | 14,414 | **1.24** | **F** | 11,318 | 0.98 | E |
| | | SB | 5+1H | 11,600 | 11,496 | 0.99 | E | 12,126 | **1.05** | **F** | 11,507 | 0.99 | E | 12,123 | **1.05** | **F** |
| | n/o Tustin Ranch | NB | 5+1H | 11,600 | 15,026 | **1.30** | **F** | 11,971 | **1.03** | **F** | 15,040 | **1.30** | **F** | 11,960 | **1.03** | **F** |
| | | SB | 5+1H | 11,600 | 12,248 | **1.06** | **F** | 12,831 | **1.11** | **F** | 12,237 | **1.05** | **F** | 12,822 | **1.11** | **F** |
| | n/o Jamboree | NB | 5+1H | 11,600 | 14,681 | **1.27** | **F** | 11,693 | **1.01** | **F** | 14,694 | **1.27** | **F** | 11,688 | **1.01** | **F** |
| | | SB | 5+1H | 11,600 | 11,961 | **1.03** | **F** | 12,496 | **1.08** | **F** | 11,955 | **1.03** | **F** | 12,485 | **1.08** | **F** |
| | n/o Culver | NB | 5+1H | 11,600 | 14,919 | **1.29** | **F** | 11,658 | **1.01** | **F** | 14,910 | **1.29** | **F** | 11,640 | 1.00 | E |
| | | SB | 5+1H | 11,600 | 11,649 | 1.00 | E | 12,532 | **1.08** | **F** | 11,654 | 1.00 | E | 12,521 | **1.08** | **F** |
| | n/o Jeffrey | NB | 5+1H | 11,600 | 13,074 | **1.13** | **F** | 10,907 | 0.94 | E | 13,061 | **1.13** | **F** | 10,873 | 0.94 | E |
| | | SB | 5+1H | 11,600 | 11,321 | 0.98 | E | 11,311 | 0.98 | E | 11,319 | 0.98 | E | 11,309 | 0.97 | E |
| | n/o Sand Cyn | NB | 5+1H | 11,600 | 13,000 | **1.12** | **F** | 10,992 | 0.95 | E | 13,001 | **1.12** | **F** | 10,972 | 0.95 | E |
| | | SB | 5+1H | 11,600 | 11,790 | **1.02** | **F** | 11,614 | 1.00 | E | 11,785 | **1.02** | **F** | 11,613 | 1.00 | E |
| | n/o Alton | NB | 4+1H | 9,600 | 10,259 | **1.07** | **F** | 8,780 | 0.91 | E | 10,280 | **1.07** | **F** | 8,771 | 0.91 | E |
| | | SB | 4+1H | 9,600 | 9,388 | 0.98 | E | 9,244 | 0.96 | E | 9,424 | 0.98 | E | 9,269 | 0.97 | E |
| | n/o I-405 | NB | 4+1H | 9,600 | 10,695 | **1.11** | **F** | 7,685 | 0.80 | C | 10,701 | **1.11** | **F** | 7,682 | 0.80 | C |
| | | SB | 4+1H | 9,600 | 7,744 | 0.81 | D | 9,489 | 0.99 | E | 7,757 | 0.81 | D | 9,513 | 0.99 | E |
| | n/o Bake | NB | 9+2H | 21,500 | 21,062 | 0.98 | E | 14,104 | 0.66 | B | 21,060 | 0.98 | E | 14,100 | 0.66 | B |
| | | SB | 9+2H | 21,500 | 11,837 | 0.55 | A | 16,206 | 0.75 | C | 11,824 | 0.55 | A | 16,210 | 0.75 | C |
| | n/o Lake Forest | NB | 8+2H | 19,500 | 20,904 | **1.07** | **F** | 13,067 | 0.67 | B | 20,908 | **1.07** | **F** | 13,063 | 0.67 | B |
| | | SB | 8+2H | 19,500 | 12,174 | 0.62 | B | 16,854 | 0.86 | D | 12,158 | 0.62 | B | 16,862 | 0.86 | D |
| | n/o El Toro | NB | 5+2H | 13,500 | 19,932 | **1.48** | **F** | 12,140 | 0.90 | D | 19,943 | **1.48** | **F** | 12,135 | 0.90 | D |
| | | SB | 5+2H | 13,500 | 10,129 | 0.75 | C | 15,460 | **1.15** | **F** | 10,130 | 0.75 | C | 15,470 | **1.15** | **F** |
| | n/o Alicia | NB | 4+1H | 9,600 | 16,889 | **1.76** | **F** | 10,150 | **1.06** | **F** | 16,890 | **1.76** | **F** | 10,133 | **1.06** | **F** |
| | | SB | 4+1H | 9,600 | 7,844 | 0.82 | D | 12,330 | **1.28** | **F** | 7,896 | 0.82 | D | 12,286 | **1.28** | **F** |
| | s/o Alicia | NB | 4+1H | 9,600 | 13,026 | **1.36** | **F** | 7,639 | 0.80 | C | 13,009 | **1.36** | **F** | 7,627 | 0.79 | C |
| | | SB | 4+1H | 9,600 | 6,414 | 0.67 | B | 10,320 | **1.08** | **F** | 6,411 | 0.67 | B | 10,312 | **1.07** | **F** |
| I-405 | n/o Jeffrey | NB | 4+1H | 9,600 | 12,336 | **1.29** | **F** | 9,018 | 0.94 | E | 12,327 | **1.28** | **F** | 9,021 | 0.94 | E |
| | | SB | 4+1H | 9,600 | 9,088 | 0.95 | E | 10,391 | **1.08** | **F** | 9,090 | 0.95 | E | 10,404 | **1.08** | **F** |
| | n/o Sand Cyn | NB | 4+1H | 9,600 | 12,716 | **1.32** | **F** | 9,426 | 0.98 | E | 12,697 | **1.32** | **F** | 9,435 | 0.98 | E |
| | | SB | 4+1H | 9,600 | 9,262 | 0.96 | E | 10,292 | **1.07** | **F** | 9,260 | 0.96 | E | 10,283 | **1.07** | **F** |
| | n/o SR-133 | NB | 4+1H | 9,600 | 12,443 | **1.30** | **F** | 8,458 | 0.88 | D | 12,440 | **1.30** | **F** | 8,458 | 0.88 | D |
| | | SB | 4+1H | 9,600 | 8,147 | 0.85 | D | 9,752 | **1.02** | **F** | 8,149 | 0.85 | D | 9,747 | **1.02** | **F** |
| | n/o Irvine Center | NB | 4+1H | 9,600 | 10,087 | **1.05** | **F** | 7,101 | 0.74 | C | 10,066 | **1.05** | **F** | 7,100 | 0.74 | C |
| | | SB | 4+1H | 9,600 | 6,933 | 0.72 | C | 8,373 | 0.87 | D | 6,898 | 0.72 | C | 8,360 | 0.87 | D |
| | n/o I-5 | NB | 4+1H | 9,600 | 7,424 | 0.77 | C | 4,077 | 0.42 | A | 7,241 | 0.75 | C | 4,076 | 0.42 | A |
| | | SB | 4+1H | 9,600 | 6,072 | 0.63 | B | 8,222 | 0.86 | D | 6,032 | 0.63 | B | 8,178 | 0.85 | D |

**Table 9-32 Cont.**

## Post-2030 Freeway Mainline LOS Summary – Option 2
## Without Rockfield Boulevard MPAH Change

| | | | | | 2012 Modified Project | | | | | | 2012 Modified Project, without MPAH Amendment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AM Peak | | | PM Peak | | | AM Peak | | | PM Peak | | |
| | Location | Direction | Lanes | Capacity | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS | Volume | V/C Ratio | LOS |
| SR-133 | n/o Irvine Blvd | NB | 4+1H | 9,600 | 2,556 | 0.27 | A | 5,716 | 0.60 | A | 2,562 | 0.27 | A | 5,714 | 0.60 | A |
| | | SB | 4+1H | 9,600 | 7,165 | 0.75 | C | 2,951 | 0.31 | A | 7,178 | 0.75 | C | 2,932 | 0.31 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 2,211 | 0.29 | A | 5,544 | 0.73 | C | 2,215 | 0.29 | A | 5,529 | 0.73 | C |
| | | SB | 3+1H | 7,600 | 6,647 | 0.87 | D | 2,783 | 0.37 | A | 6,668 | 0.88 | D | 2,762 | 0.36 | A |
| | n/o I-5 | NB | 3+1H | 7,600 | 2,052 | 0.27 | A | 4,987 | 0.66 | B | 2,056 | 0.27 | A | 4,972 | 0.65 | B |
| | | SB | 3+1H | 7,600 | 4,656 | 0.61 | B | 2,033 | 0.27 | A | 4,666 | 0.61 | B | 2,018 | 0.27 | A |
| | s/o I-5 | NB | 3 | 6,000 | 3,371 | 0.56 | A | 5,015 | 0.84 | D | 3,346 | 0.56 | A | 5,007 | 0.83 | D |
| | | SB | 3 | 6,000 | 5,555 | 0.93 | E | 3,339 | 0.56 | A | 5,519 | 0.92 | E | 3,309 | 0.55 | A |
| | n/o I-405 | NB | 3 | 6,000 | 4,100 | 0.68 | B | 3,877 | 0.65 | B | 4,081 | 0.68 | B | 3,875 | 0.65 | B |
| | | SB | 3 | 6,000 | 3,814 | 0.64 | B | 3,389 | 0.56 | A | 3,789 | 0.63 | B | 3,358 | 0.56 | A |
| SR-241 | n/o SR-133 | NB | 3+1H | 7,600 | 5,741 | 0.76 | C | 5,602 | 0.74 | C | 5,739 | 0.76 | C | 5,607 | 0.74 | C |
| | | SB | 3+1H | 7,600 | 6,514 | 0.86 | D | 5,030 | 0.66 | B | 6,508 | 0.86 | D | 5,023 | 0.66 | B |
| | n/o Portola (West) | NB | 4+1H | 9,600 | 6,897 | 0.72 | C | 3,231 | 0.34 | A | 6,909 | 0.72 | C | 3,227 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,061 | 0.32 | A | 5,424 | 0.57 | A | 3,060 | 0.32 | A | 5,425 | 0.57 | A |
| | n/o Alton | NB | 4+1H | 9,600 | 6,993 | 0.73 | C | 3,310 | 0.34 | A | 7,004 | 0.73 | C | 3,306 | 0.34 | A |
| | | SB | 4+1H | 9,600 | 3,177 | 0.33 | A | 5,537 | 0.58 | A | 3,177 | 0.33 | A | 5,537 | 0.58 | A |
| | n/o Lake Forest | NB | 4+1H | 9,600 | 7,686 | 0.80 | C | 3,079 | 0.32 | A | 7,696 | 0.80 | C | 3,076 | 0.32 | A |
| | | SB | 4+1H | 9,600 | 2,782 | 0.29 | A | 5,968 | 0.62 | B | 2,782 | 0.29 | A | 5,967 | 0.62 | B |
| SR-261 | n/o Portola | NB | 3+1H | 7,600 | 1,191 | 0.16 | A | 3,161 | 0.42 | A | 1,189 | 0.16 | A | 3,157 | 0.42 | A |
| | | SB | 3+1H | 7,600 | 4,039 | 0.53 | A | 1,299 | 0.17 | A | 4,047 | 0.53 | A | 1,299 | 0.17 | A |
| | n/o irvine Blvd | NB | 3+1H | 7,600 | 686 | 0.09 | A | 2,838 | 0.37 | A | 684 | 0.09 | A | 2,836 | 0.37 | A |
| | | SB | 3+1H | 7,600 | 3,749 | 0.49 | A | 920 | 0.12 | A | 3,758 | 0.49 | A | 919 | 0.12 | A |
| | s/o Irvine Blvd | NB | 3+1H | 7,600 | 987 | 0.13 | A | 3,598 | 0.47 | A | 982 | 0.13 | A | 3,598 | 0.47 | A |
| | | SB | 3+1H | 7,600 | 4,396 | 0.58 | A | 1,324 | 0.17 | A | 4,411 | 0.58 | A | 1,327 | 0.17 | A |
| | n/o Chapman/Sant. Cyn | NB | 3+1H | 7,600 | 6,123 | 0.81 | D | 7,990 | **1.05** | **F** | 6,126 | 0.81 | D | 7,991 | **1.05** | **F** |
| | | SB | 3+1H | 7,600 | 9,959 | **1.31** | **F** | 5,647 | 0.74 | C | 9,958 | **1.31** | **F** | 5,643 | 0.74 | C |

**Bold =** Deficient Segment

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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4, none of the freeway mainline segments are forecast to exceed adopted impact thresholds with Option 2 and with the Rockfield extension to Marine Way based on Post-2030 conditions, in comparison to the network alternative which deletes the Rockfield extension.

### 9.2.9 Existing MPAH Mitigation Measure

In the event that the Rockfield MPAH change does not occur and the Rockfield connection to Marine Way is ultimately constructed, no traffic impacts occur beyond these previously identified in Chapter 8 of this report for the 2012 Modified Project with Option 2 based upon Post-2030 conditions. With Option 1, the SR-133 NB Loop On-Ramp at Barranca Parkway is impacted if the Rockfield MPAH change does not occur and the Rockfield connection to Marine Way is ultimately constructed.

The SR-133 northbound loop on-ramp at Barranca Parkway is impacted under the 2015 pending plus project condition with the 2012 Modified Project Option 2. The proposed mitigation improvement for this ramp is not a NITM Program improvement. In the event that the MPAH change is not approved and the 2012 Modified Project Option 1 is implemented with construction of the Rockfield extension to Marine Way, the Option 1 Project will also participate on a NITM methodology fair share basis in the conversion of the HOV preferential lane at the on-ramp to a second metered mixed-flow lane.

## 9.3 Analysis of Circulation Phasing Report Intersections

In this section, the Proposed Project's potential impact is addressed for intersections in the study area that are identified as locations subject to improvements based on the ICU analysis results presented in the 2008 City of Irvine Circulation Phasing Report. "Table 6.1 - Future Interim Year 2013 Intersection Mitigation" of the 2008 City of Irvine Circulation Phasing Report indicates the following six (6) intersections are "Priority Locations" and are subject to improvements for 2013 conditions:

- Jeffrey Road at Michelson Drive
- Harvard Avenue at Michelson Drive
- Jeffrey Road at Alton Parkway

- Sand Canyon Avenue at the I-5 Freeway Northbound Ramps
- Sand Canyon Avenue at Marine Way
- Sand Canyon Avenue at the I-5 Freeway Southbound Ramps

For Interim Year (2015) conditions, the Project does not create a potential impact for any of the Priority Locations (listed above).

For Long Range (Year 2030) conditions, the Project creates a potential impact at the intersection of Sand Canyon Avenue and the I-5 Freeway Northbound Ramps/Marine Way when Marine Way is relocated to the north. The project mitigation is the conversion of the northbound defacto right turn lane to a standard right turn lane with right turn overlap signal operation. An alternative operational improvement is to satisfy the requirements for LOS "E" acceptance at this location through TMSOS/ATMS participation.

For General Plan Buildout (Post-2030) conditions, the Project creates a potential impact at the intersection of Jeffrey/Alton. The mitigation is provision of an eastbound standard right-turn lane with right-turn overlap phase resulting in an ultimate eastbound lane configuration of 2 left-turn lanes, 2 through lanes, and 1 right-turn lane. The Project will not create an impact at the remaining Priority Locations (listed above).

## 9.4 Pedestrian and Bicycle Circulation

Within the Project area, the City's goal and policies set forth in the General Plan for effective non-motorized transportation (Objectives B-3 and B-4) are accomplished through enhanced local street connectivity, an extensive network of walkways and bikeways, and the arrangement of land uses for access by various modes. Objective B-3 of the City of Irvine General Plan Circulation Element calls for establishment of a pedestrian circulation system to support and encourage walking as a mode of transportation. The following policies support Objective B-3:

> Policy (a): Link residences with schools, shopping centers, and other public facilities, both within a PA and to adjacent PAs, through an internal system of trails.
>
> Policy (b): Require development to provide safe, convenient, and direct pedestrian access to surrounding land uses and transit stops. Issues such as anticipated

interaction between pedestrians and vehicles, proposed infrastructure improvements and design standards shall be considered.

Policy (c): Design and locate land uses to encourage access to them by nonautomotive means.

Objective B-4 of the City of Irvine General Plan Circulation Element focuses on a comprehensive bicycle trail network that together with the regional trail system encourages increased use of bicycle trails for commuters and recreational purposes. The following policies support Objective B-4:

Policy (a): Use the Trails Network diagram as a basis for detailed planning of the bicycle trail system. Detailed planning shall occur through the development processes outlined in the City's Zoning and Subdivision Ordinances.

Policy (b): Require a system of bicycle trails, both on- and off-street, in each planning area. Such trails shall be linked to the Trails Network. The on-street trails shall be designed for the safety of the cyclist.

Policy (c): The trail system shall be designed to accommodate cyclists of all levels of experience and shall provide for both recreation and transportation.

Policy (d): Require bicycle trail linkages between residential areas, employment areas, schools, parks, community facilities, commercial centers, and transit facilities.

Policy (e): Require pedestrian and bicycle circulation plans detailing access to the subject property, and adjacent properties in conjunction with new development.

Policy (f): Require that bicycle trip destinations, including community facilities, commercial centers, and transit facilities be equipped with appropriate bicycle facilities including, but not limited to, the provision of showers and bike racks.

Policy (g): Require traffic control devices and traffic signal phasing for bicycle crossing, turning, and through movements.

Policy (h): Require grade-separated crossings for Class 1 bikeways at major intersections, wherever feasible, to increase safety and efficiency.

Policy (i): Provide off-street bicycle trails in areas with minimal cross traffic, such as open space spine, flood control and utility easements, where possible.

Policy (j): Support programs to increase public awareness of bicycle safety and bicycling as an alternative mode of transportation.

Policy (k): Incorporate, where appropriate, school and park locations within the design of the bikeway system.

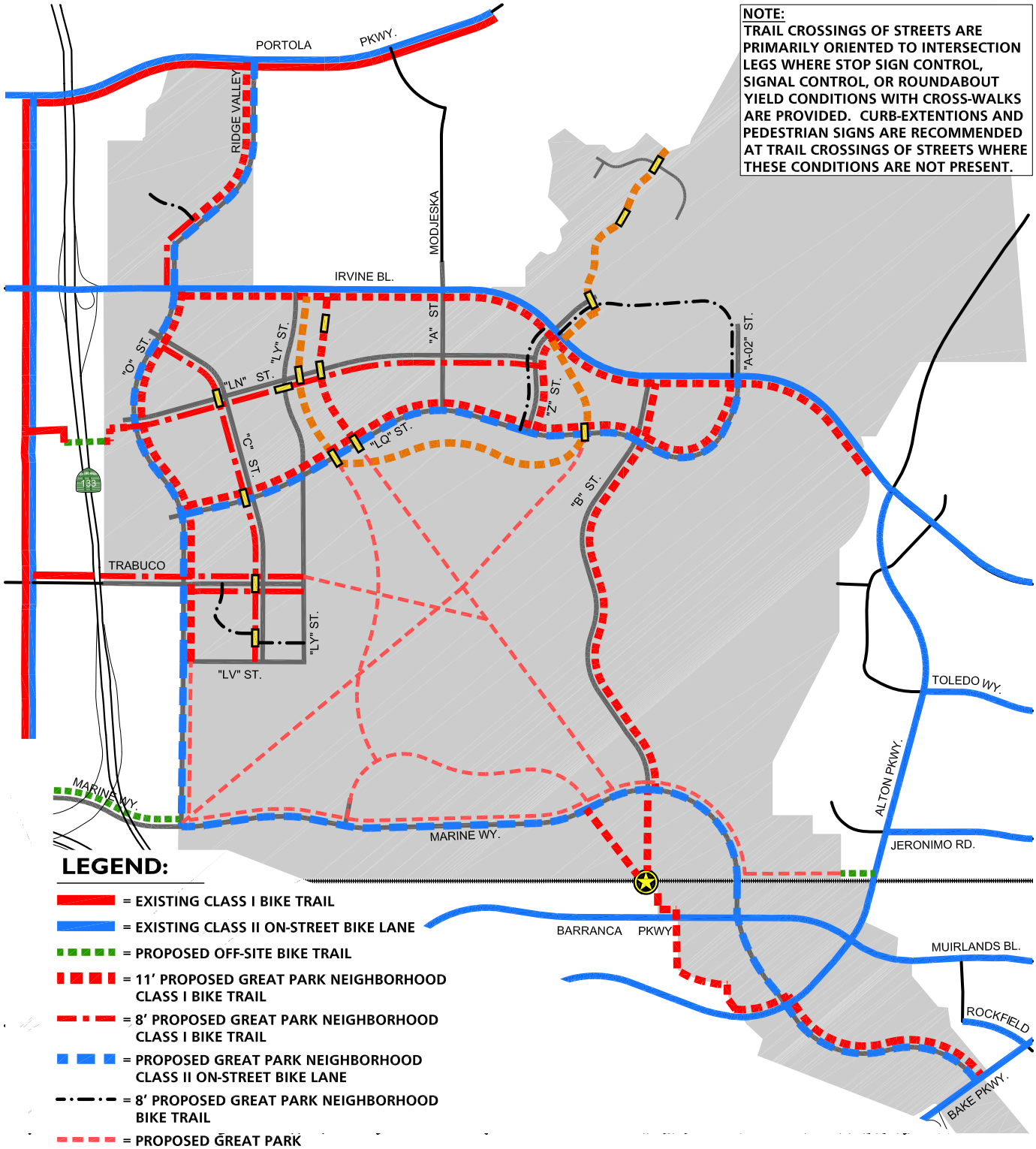
Various Class 1 (Off-Street) and Class 2 (On-Street) bikeways throughout the Project have been anticipated in the City of Irvine General Plan Trails Network. The proposed development in the 2012 Modified Project expands opportunities for bikeway and pedestrian facilities with consideration of additional bikeways in Districts 5 and 6, and improved connectivity to the new high school.

Exhibit 9-23 illustrates the planned on-site and adjacent bikeways and trails for the Project area. In addition to the extensive network of trails already approved as part of the 2011 Approved Project that will be expanded as part of the 2012 Modified Project, interconnected networks of two-lane roadways (local streets, local collectors and commuters) link the on-site schools, shopping centers, employment areas, and public facilities throughout the core of Combined PA 51.

The Project's trail system (already approved as part of the 2011 Approved Project that will be expanded as part of the 2012 Modified Project) has been designed to utilize crosswalks at traffic signals, stop signs and roundabouts in order to provide safe crossings of roadways at intersections. At mid-block crossings of two-lane roads, curb extensions (narrowing) and ped signs (see Exhibit 9-24) are recommended to improve safety for pedestrians.

EXHIBIT 9-23

# PROJECT AREA BIKEWAYS AND TRAILS



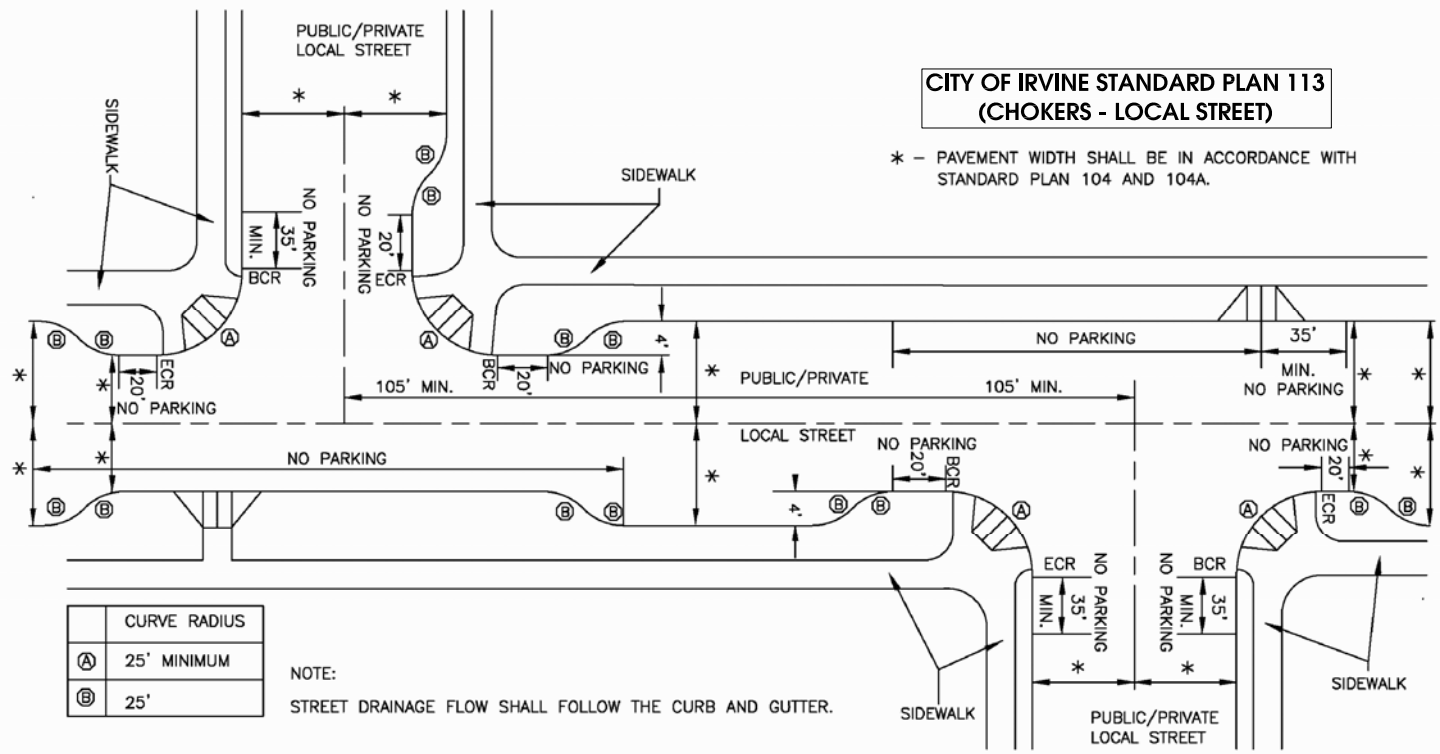

*Heritage Fields Project 2012 - GPA/ZC Traffic Study*
*City of Irvine, CA (JN - 07151:016.dwg)*

URBAN CROSSROADS

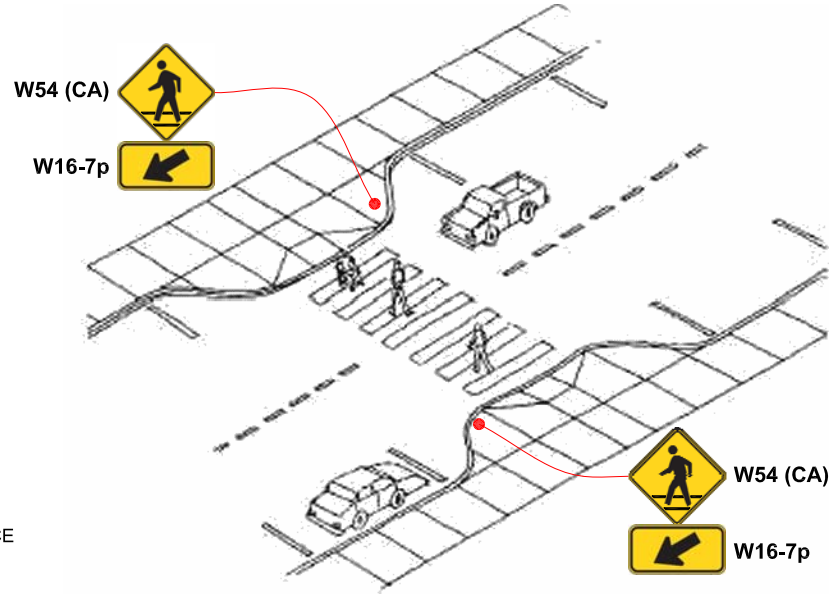
EXHIBIT 9-24

# SAMPLE SPEED MEASURES

## INTERSECTION CURB EXTENSIONS




## MID-BLOCK NARROWING




NOTE: THE MID-BLOCK NARROWING DESIGN IS SUBJECT TO CONCURRENCE AND APPROVAL BY CITY ENGINEER.

## 9.5 Transit Features

Various transit services to the Heritage Fields / Great Park Neighborhoods development districts have been anticipated in the Irvine Transit Vision, a framework for bus and shuttle services that connect with OCTA local and regional bus operations and regional rail services via the Irvine Metrolink Station. The 2012 Modified Project expands opportunities for such services to occur by providing improved connectivity through Districts 5 and 6.

Exhibit 9-25 illustrates potential transit services for the Project area which are comparable to the routes presented in the recommended Preferred Alternative and Complementary OCTA Services scenarios evaluated in the Irvine Transit Vision report. The potential service routes depicted on Exhibit 9-25 are conceptual; the routing, funding and operation of future City or OCTA services are yet to be determined. The purpose of this concept planning effort is to determine potential transit stop locations and ensure that physical site planning for the Project districts will accommodate appropriate pedestrian connectivity to the potential stop locations.

The potential Irvine Station Route is a variation of the "Irvine Station 1" Route shown in the Irvine Transit Vision Preferred Alternative. The potential Irvine Station Route alignment is shown in a configuration that maximizes accessibility to the project area. This alignment is shown for the potential of determining transit location stops. Its operational concept focuses on convenient peak-period shuttle services connecting the Irvine Metrolink Station to residents, employees and visitors in portions of PA 40, Woodbury, Woodbury East, Stonegate, Great Park Neighborhoods Districts 4, 5, 6, and the Great Park.

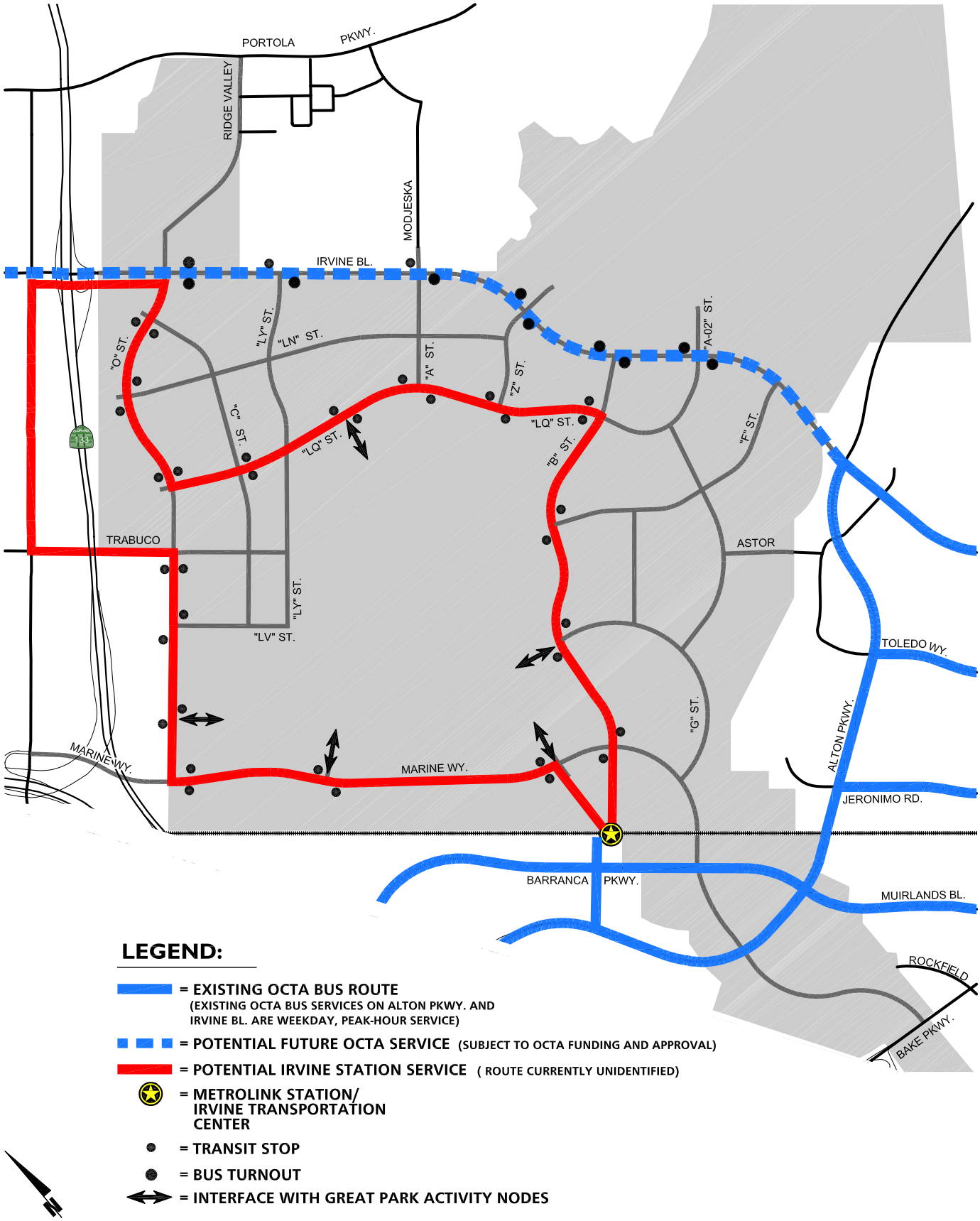
As part of the Irvine Transit Vision Preferred Alternative, new OCTA service is recommended along Irvine Boulevard in the Project area, running at 15 minute peak headways and 60 minute off-peak headways. The 2012 Modified Project improves the potential utilization of bus service on Irvine Boulevard by orienting the District 5 High School as well as other residential and nonresidential land uses for more convenient access along this corridor.

## 9.6 Congestion Management Program (CMP) Checklist

The Congestion Management Program (CMP) legislation requires that the CMP Agency monitor the implementation of the Orange County CMP, including CMP land use coordination

EXHIBIT 9-25

# PROJECT AREA TRANSIT FEATURES




## LEGEND:

- = EXISTING OCTA BUS ROUTE (EXISTING OCTA BUS SERVICES ON ALTON PKWY. AND IRVINE BL. ARE WEEKDAY, PEAK-HOUR SERVICE)
- = POTENTIAL FUTURE OCTA SERVICE (SUBJECT TO OCTA FUNDING AND APPROVAL)
- = POTENTIAL IRVINE STATION SERVICE ( ROUTE CURRENTLY UNIDENTIFIED)
- = METROLINK STATION/ IRVINE TRANSPORTATION CENTER
- = TRANSIT STOP
- = BUS TURNOUT
- = INTERFACE WITH GREAT PARK ACTIVITY NODES

component requirements. The goal of the CMP is to ensure that certain key intersections within the CMP Highway System (CMPHS) are operating at acceptable levels. The CMP has been developed to monitor impacts on CMPHS intersections. The CMP Monitoring Checklist for the Land Use Coordination Component can be found in Appendix 9.12. There are 19 study area intersections within the study area that are monitored as part of the CMP. As indicated in Table 9.12-1 of Appendix 9.12 contained within this traffic study, all of the CMP intersections in the study area are forecasted to operate at LOS "E" or better, which is within the CMP performance standard for CMP intersections, based on an analysis of short-term (the year 2015 with-project scenario in this case) traffic conditions that is required by the CMP.

## 9.7 Access Study

The Project backbone network establishes the framework for a high level of connectivity on local streets and collector roadways so that drivers, pedestrians and transit users can choose between alternative routes within the project area. A key component of sustainable transportation networks is a high level of connectivity between low speed streets that accommodate the complete range of travel modes (standard automobiles, low speed vehicles/NEVs, bicyclists, pedestrians, transit operations).

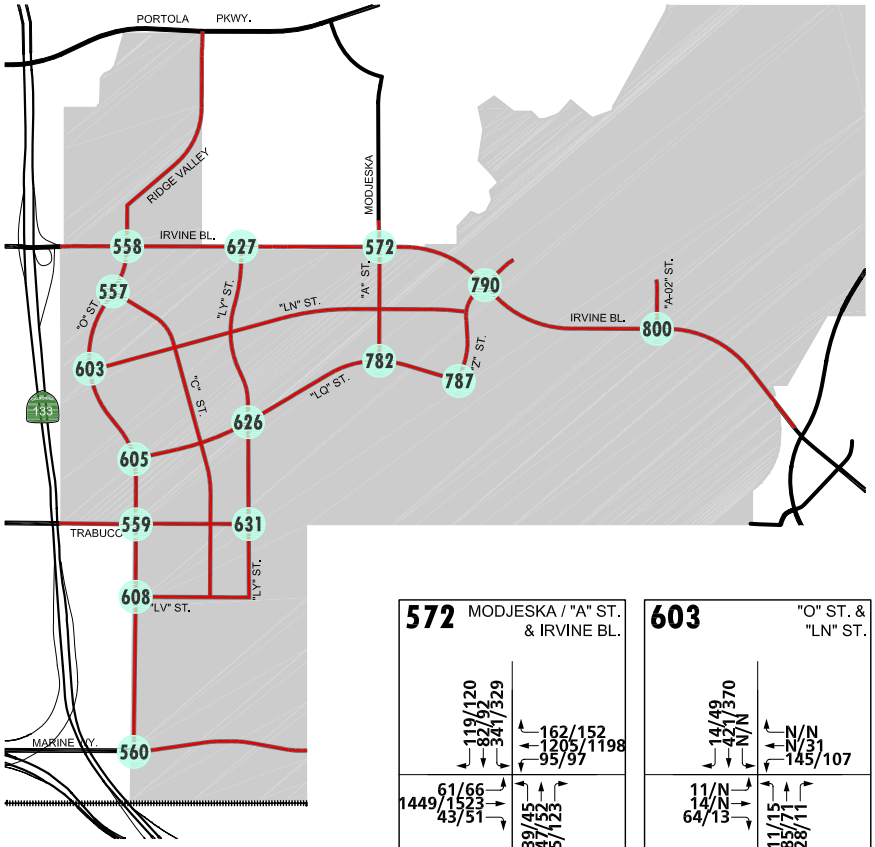
The AM and PM peak hour intersection volumes for 2015 and Post-2030 with the 2012 Modified Project Option 1 are illustrated in Exhibits 9-26 through 9-29. The peak hour forecast volumes are compared to 2011 Approved Project volumes which are used as the basis for the design of project level roadways and intersections during 2011.

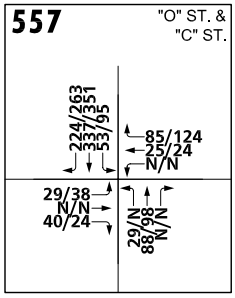
The AM and PM peak hour intersection volumes for 2015 and Post-2030 with the 2012 Modified Project Option 2 are illustrated in Exhibits 9-30 through 9-33. These peak hour forecast volumes are also compared to 2011 Approved Project volumes which are used as the basis for the design of project level roadways and intersections during 2011.

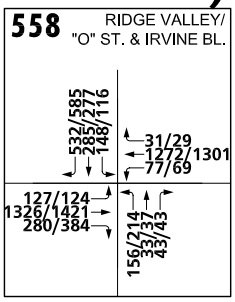
Intersection traffic controls recommended for 2015 conditions are shown in Exhibit 9-34, which include five (5) new signals previously warranted for the 2011 Approved Project. Intersection traffic controls for project buildout conditions (2030 and Post-2030) are shown in Exhibit 9-35. The intersection traffic control measures are a combination of cross-street stop signs, all-way stop signs, traffic signals, and roundabouts. On-site roadways shown in Districts 5 and 6 (east

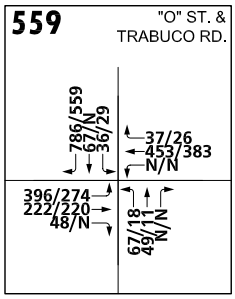
EXHIBIT 9-26

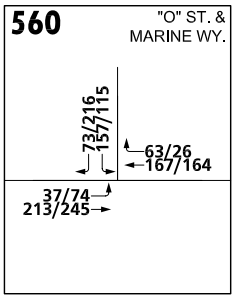
# INTERNAL CIRCULATION 2015 AM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 1)



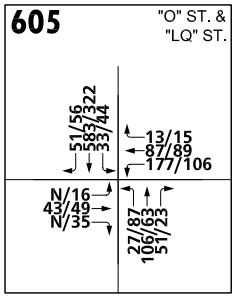



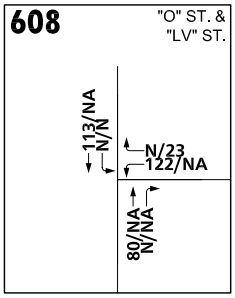



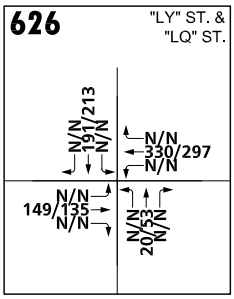


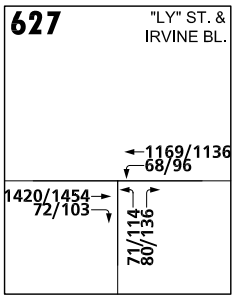


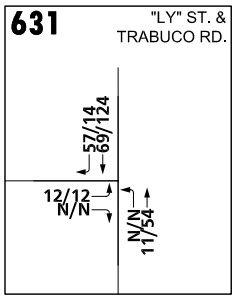


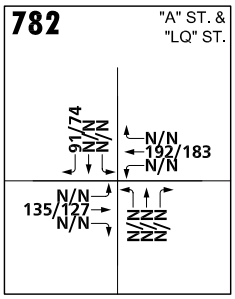



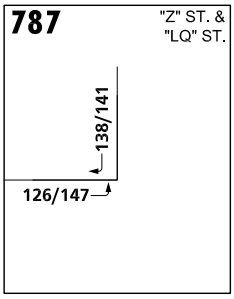



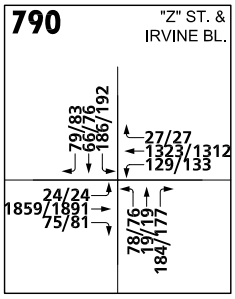



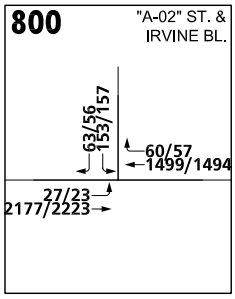



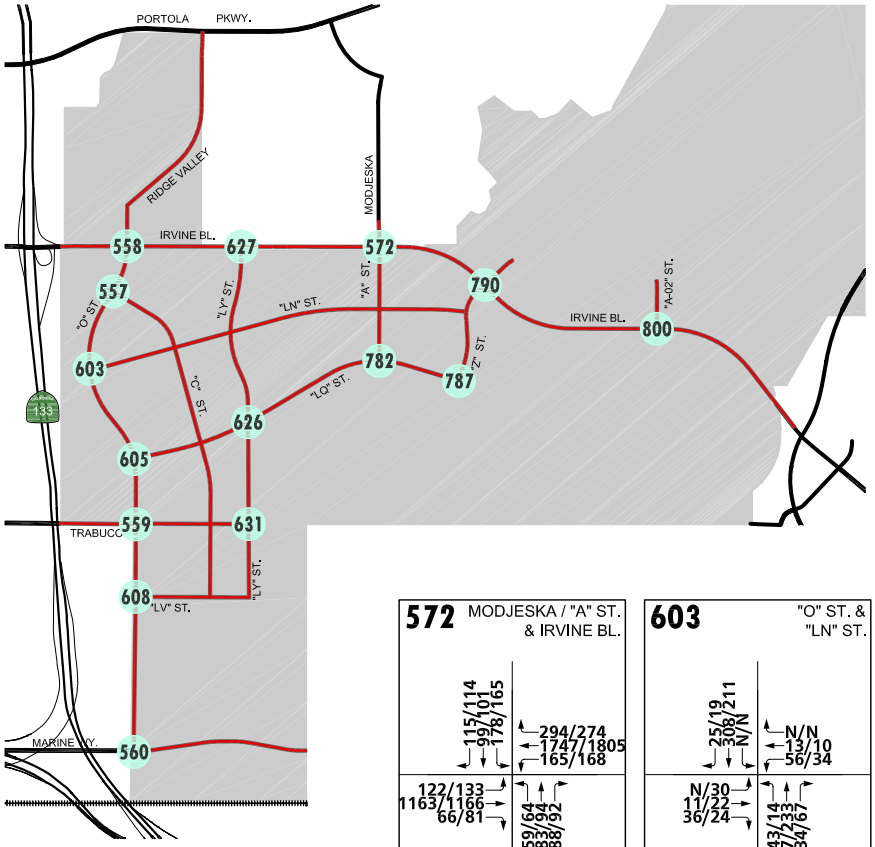

## LEGEND:

| | |
|---|---|
| 000 | = INTERSECTION ID |
| N | = NOMINAL, LESS THAN 10 VEHICLES PER HOUR |
| 138/135 | = 2012 MODIFIED PROJECT/ 2011 APPROVED PROJECT |
| NA | = NOT APPLICABLE TO 2011 APPROVED PROJECT |

NOTE: FOR PURPOSES OF EVALUATING DESIGN FEATURES, THE 2011 APPROVED PROJECT VOLUMES IN THIS EXHIBIT ARE OBTAINED FROM THE MAY 2011 GREAT PARK NEIGHBORHOODS GPA/ZC TRAFFIC IMPACT ANALYSIS.

EXHIBIT 9-27

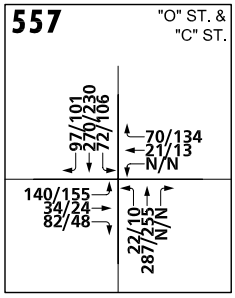
# INTERNAL CIRCULATION 2015 PM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 1)



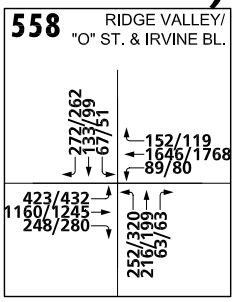

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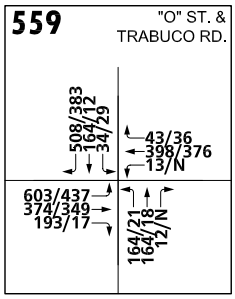
**557** "O" ST. & "C" ST.



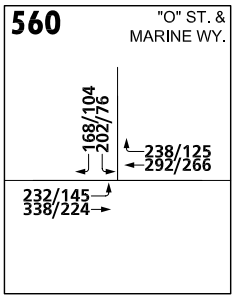

**558** RIDGE VALLEY/ "O" ST. & IRVINE BL.




**559** "O" ST. & TRABUCO RD.




**560** "O" ST. & MARINE WY.



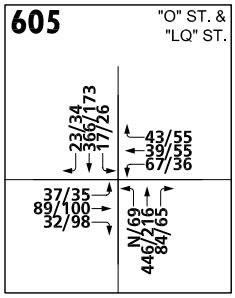

**572** MODJESKA / "A" ST. & IRVINE BL.



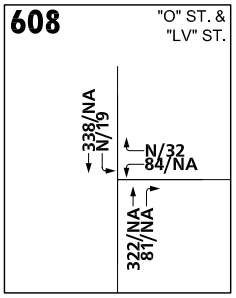

**603** "O" ST. & "LN" ST.



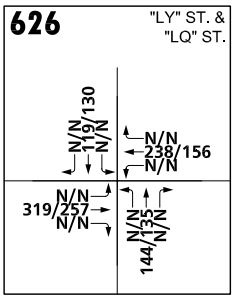

**605** "O" ST. & "LQ" ST.



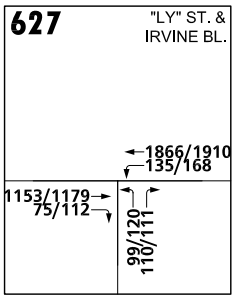

**608** "O" ST. & "LV" ST.



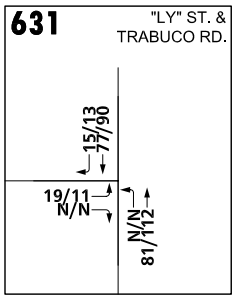

**626** "LY" ST. & "LQ" ST.



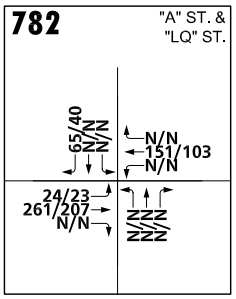

**627** "LY" ST. & IRVINE BL.



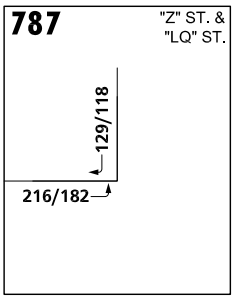

**631** "LY" ST. & TRABUCO RD.



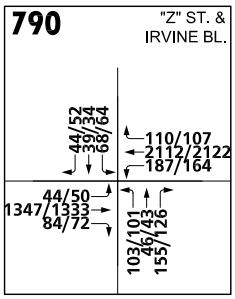

**782** "A" ST. & "LQ" ST.



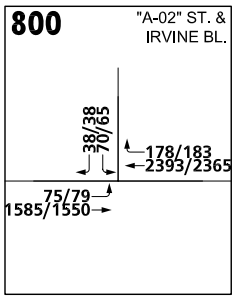

**787** "Z" ST. & "LQ" ST.




**790** "Z" ST. & IRVINE BL.



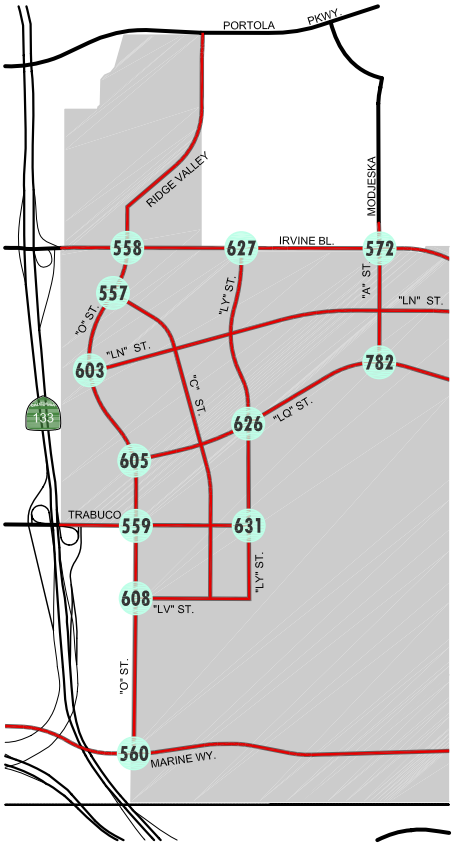

**800** "A-02" ST. & IRVINE BL.

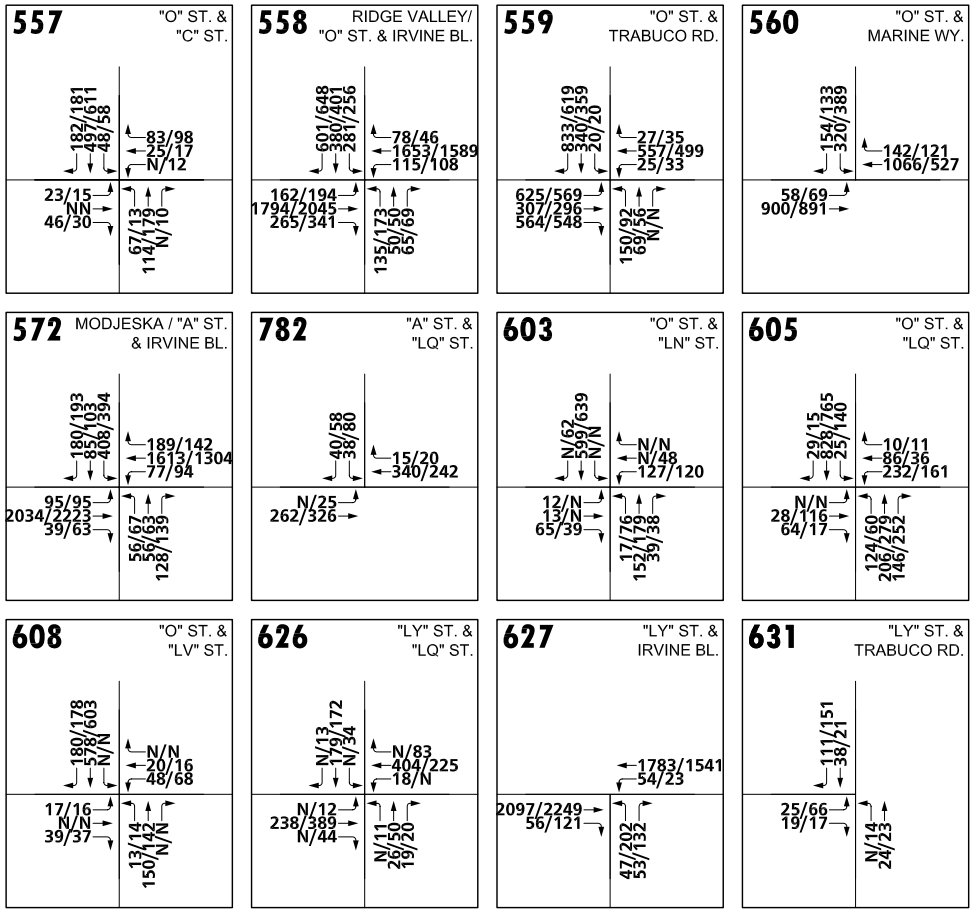



NOTE: FOR PURPOSES OF EVALUATING DESIGN FEATURES, THE 2011 APPROVED PROJECT VOLUMES IN THIS EXHIBIT ARE OBTAINED FROM THE MAY 2011 GREAT PARK NEIGHBORHOODS GPA/ZC TRAFFIC IMPACT ANALYSIS.

EXHIBIT 9-28 (1 OF 2)

# INTERNAL CIRCULATION POST-2030 AM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 1)



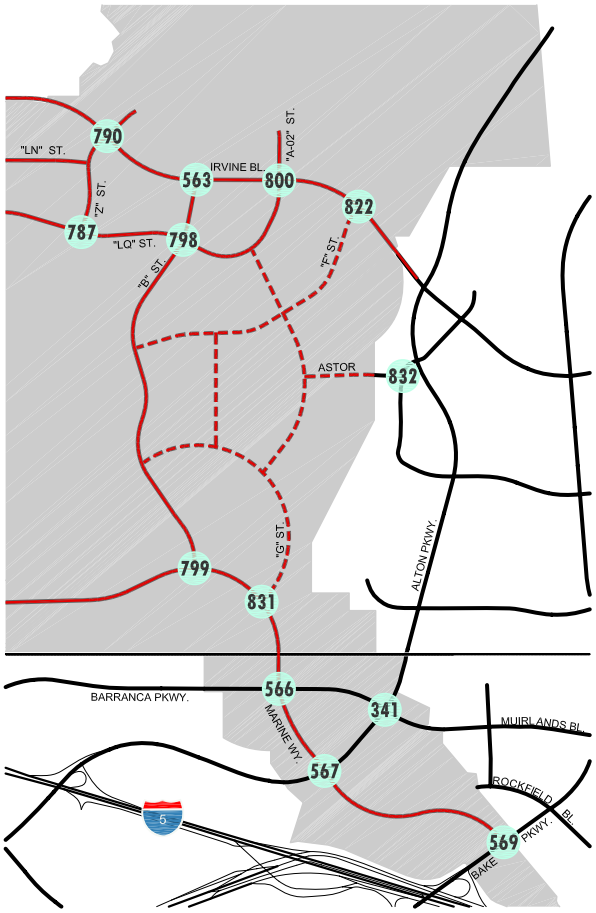

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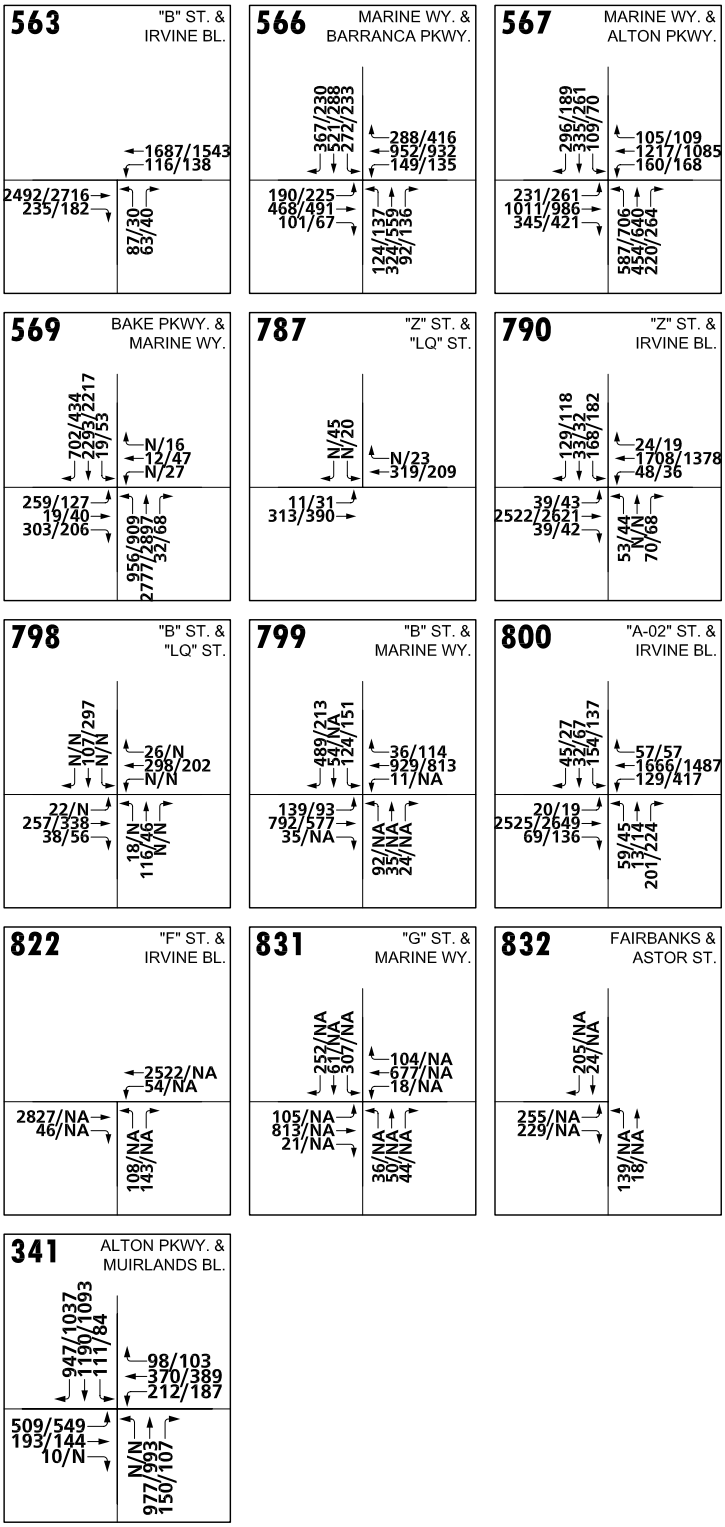
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| 000 | = INTERSECTION ID |
| N | = NOMINAL, LESS THAN 10 VEHICLES PER HOUR |
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EXHIBIT 9-28 (2 OF 2)

# INTERNAL CIRCULATION POST-2030 AM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 1)



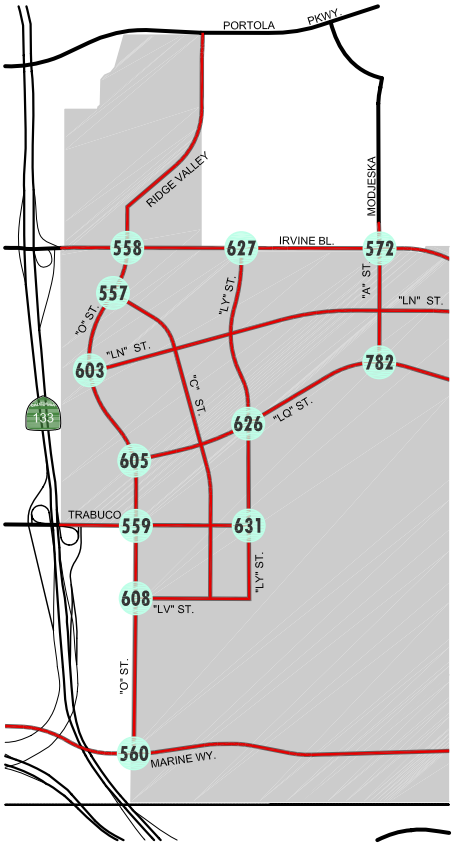

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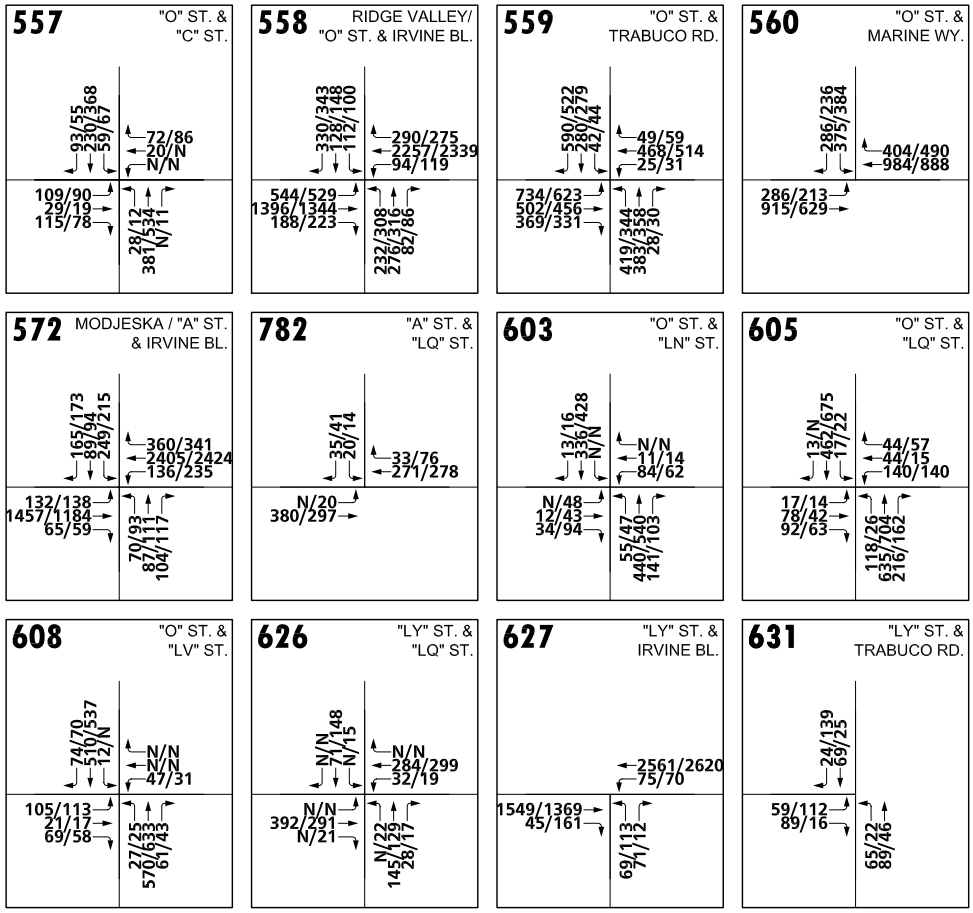
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EXHIBIT 9-29 (1 OF 2)

# INTERNAL CIRCULATION POST-2030 PM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 1)




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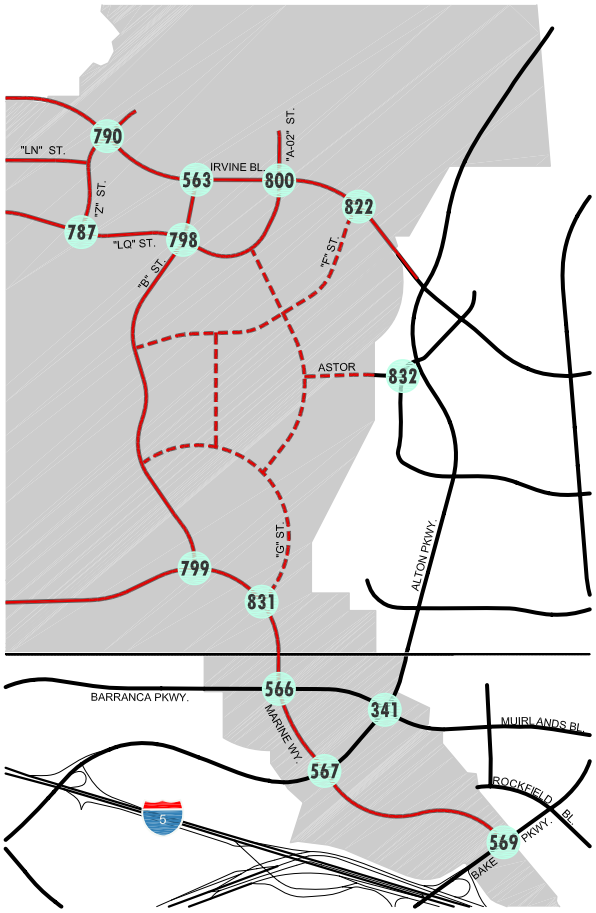
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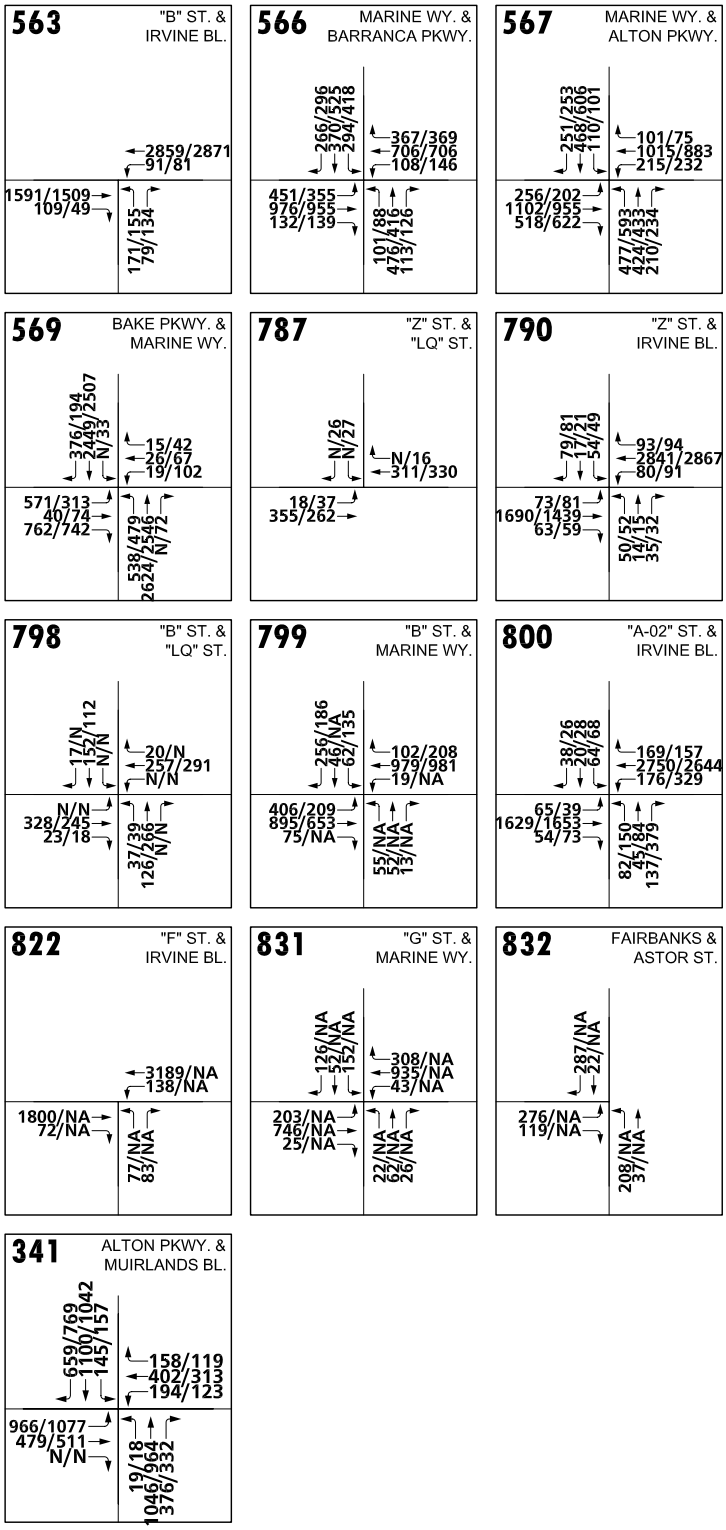
NA = NOT APPLICABLE TO 2011 APPROVED PROJECT

NOTE: FOR PURPOSES OF EVALUATING DESIGN FEATURES, THE 2011 APPROVED PROJECT VOLUMES IN THIS EXHIBIT ARE OBTAINED FROM THE MAY 2011 GREAT PARK NEIGHBORHOODS GPA/ZC TRAFFIC IMPACT ANALYSIS.

EXHIBIT 9-29 (2 OF 2)

# INTERNAL CIRCULATION POST-2030 PM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 1)




## LEGEND:

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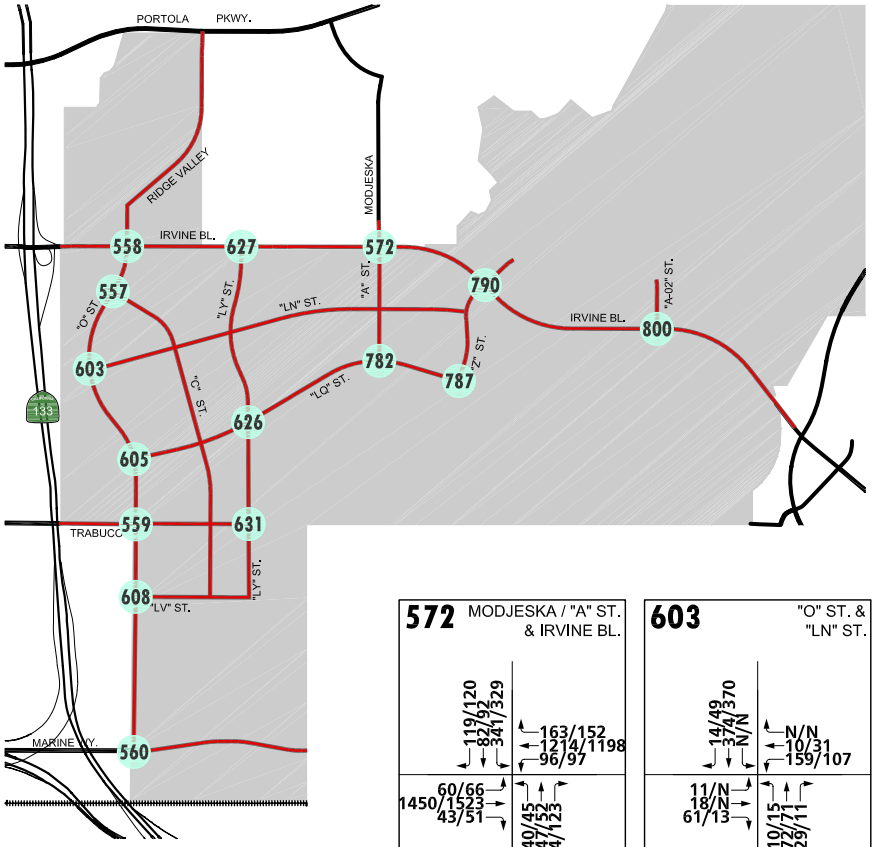
138/135 = 2012 MODIFIED PROJECT/ 2011 APPROVED PROJECT

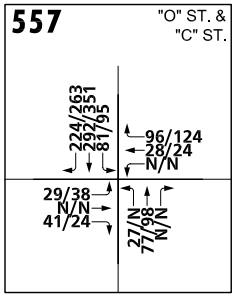
NA = NOT APPLICABLE TO 2011 APPROVED PROJECT

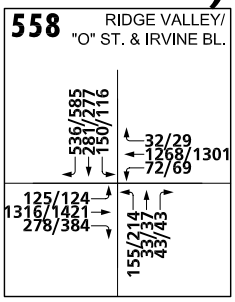
NOTE: FOR PURPOSES OF EVALUATING DESIGN FEATURES, THE 2011 APPROVED PROJECT VOLUMES IN THIS EXHIBIT ARE OBTAINED FROM THE MAY 2011 GREAT PARK NEIGHBORHOODS GPA/ZC TRAFFIC IMPACT ANALYSIS.

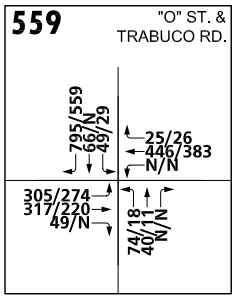
EXHIBIT 9-30

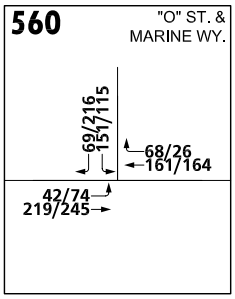
# INTERNAL CIRCULATION 2015 AM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 2)



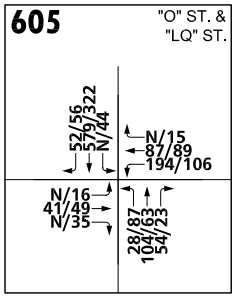



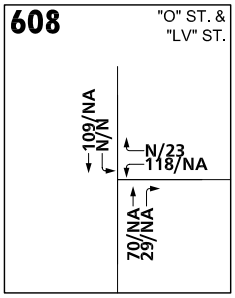



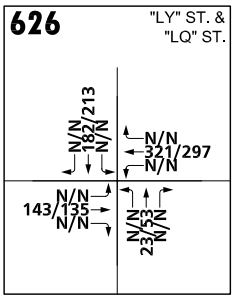


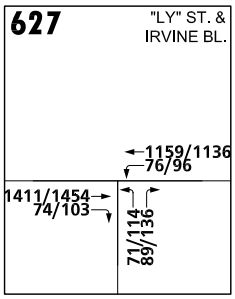


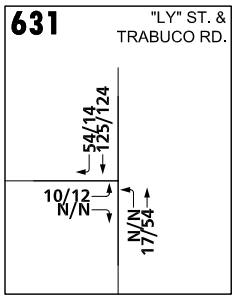


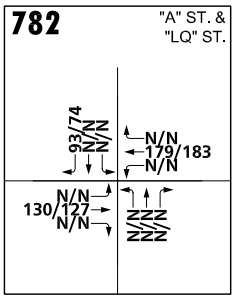



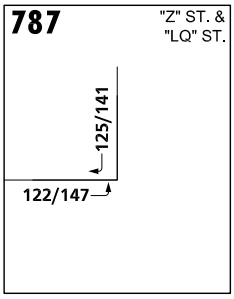



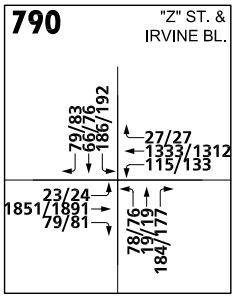



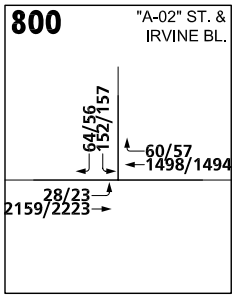



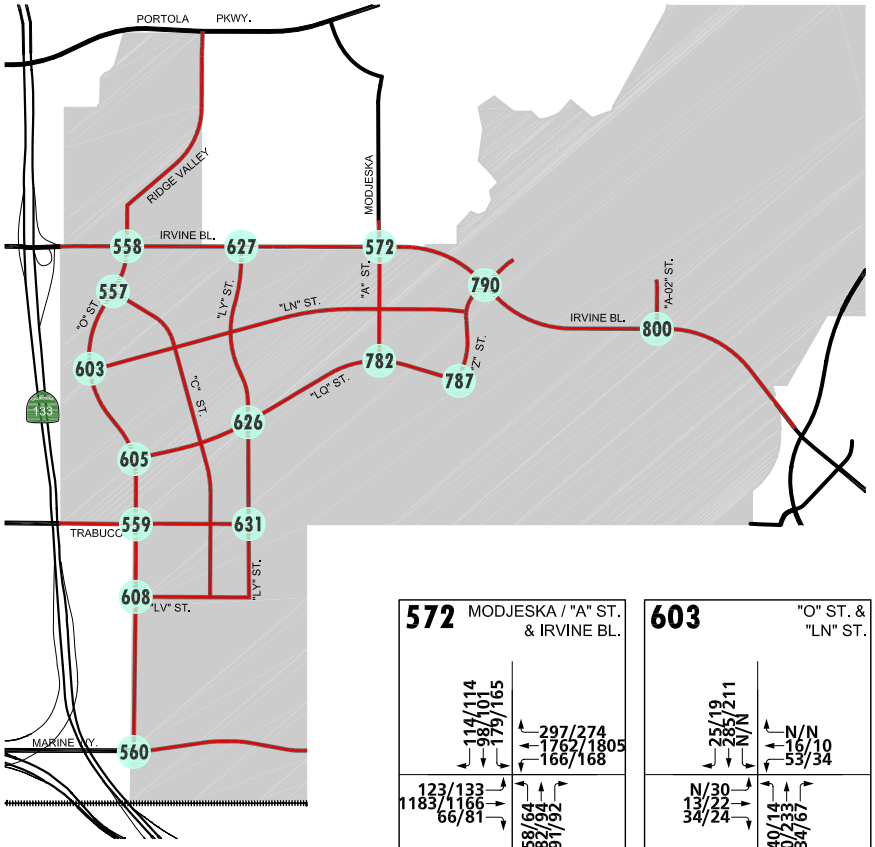

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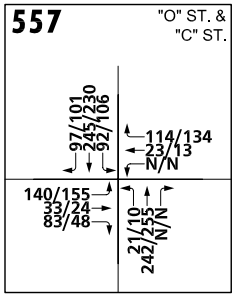
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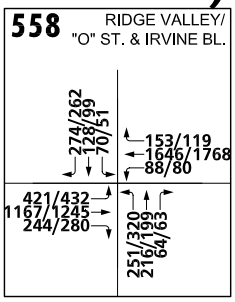
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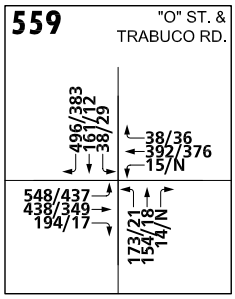
EXHIBIT 9-31

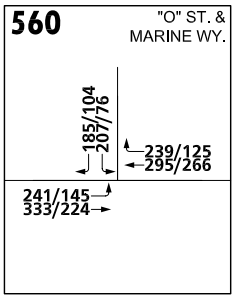
# INTERNAL CIRCULATION 2015 PM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 2)



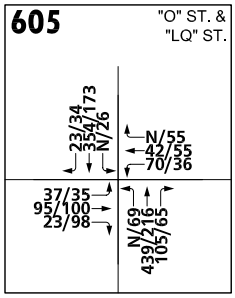



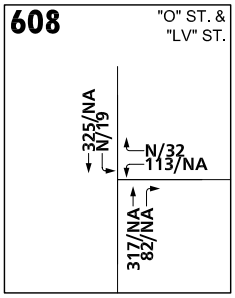



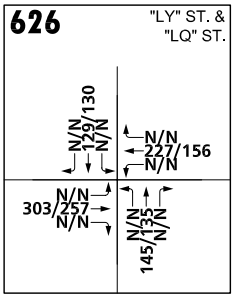


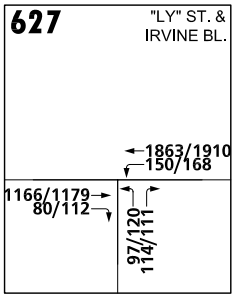


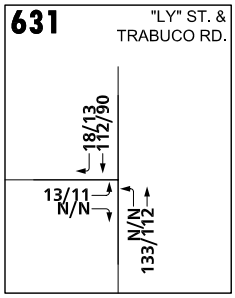


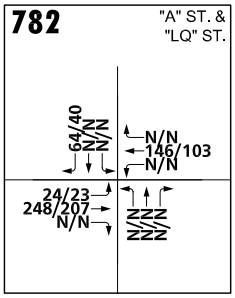



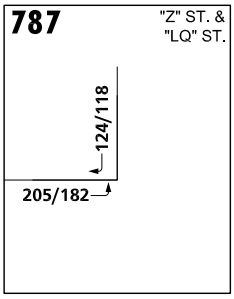



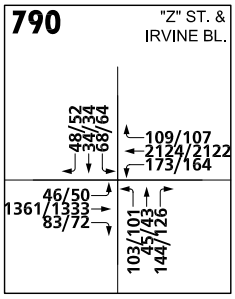



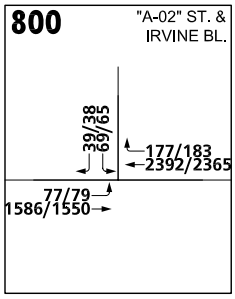



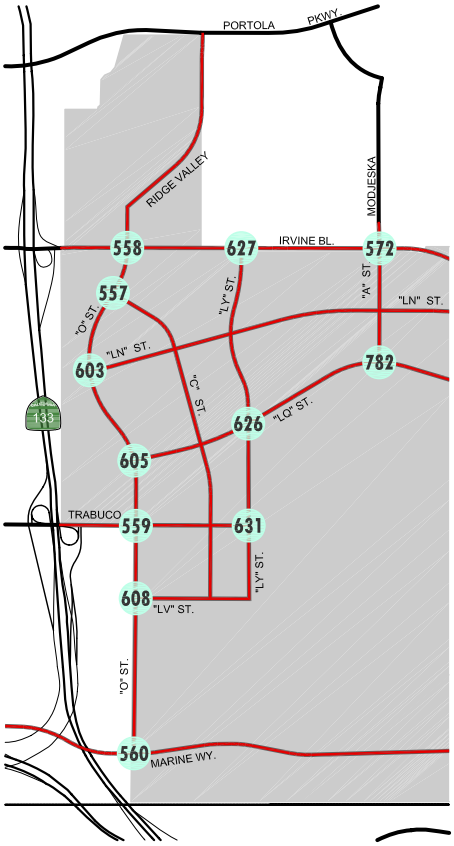

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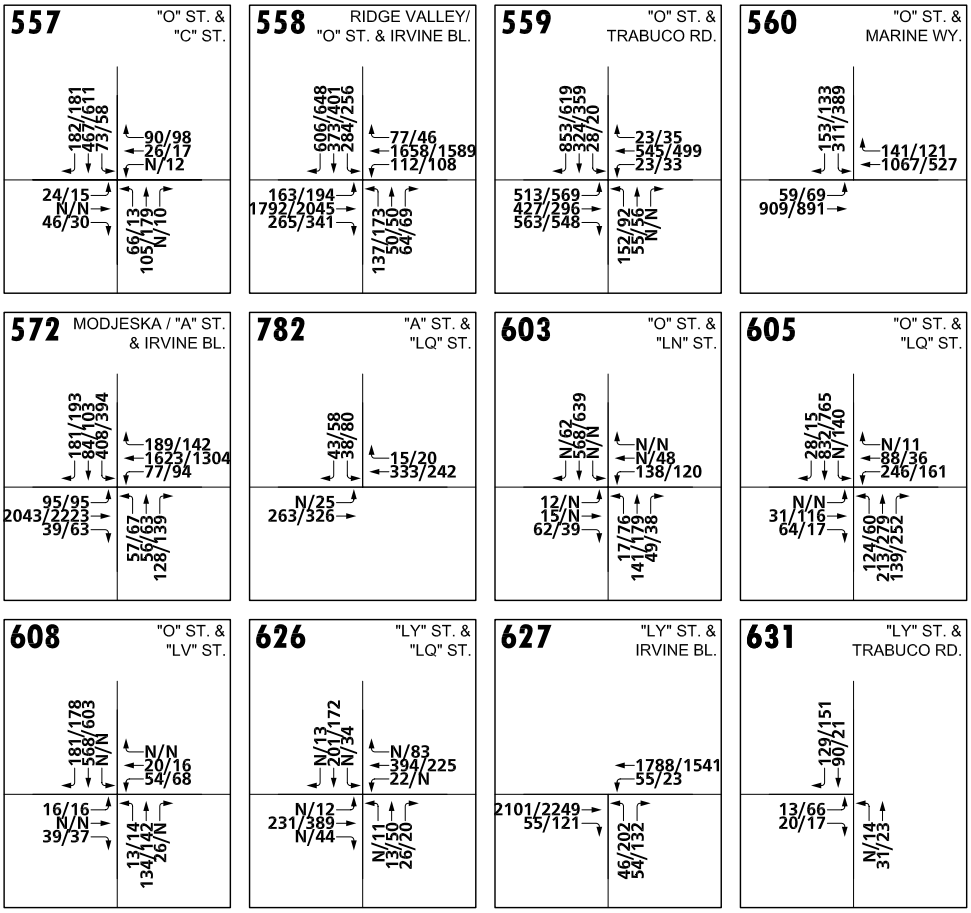
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EXHIBIT 9-32 (1 OF 2)

# INTERNAL CIRCULATION POST-2030 AM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 2)




## LEGEND:

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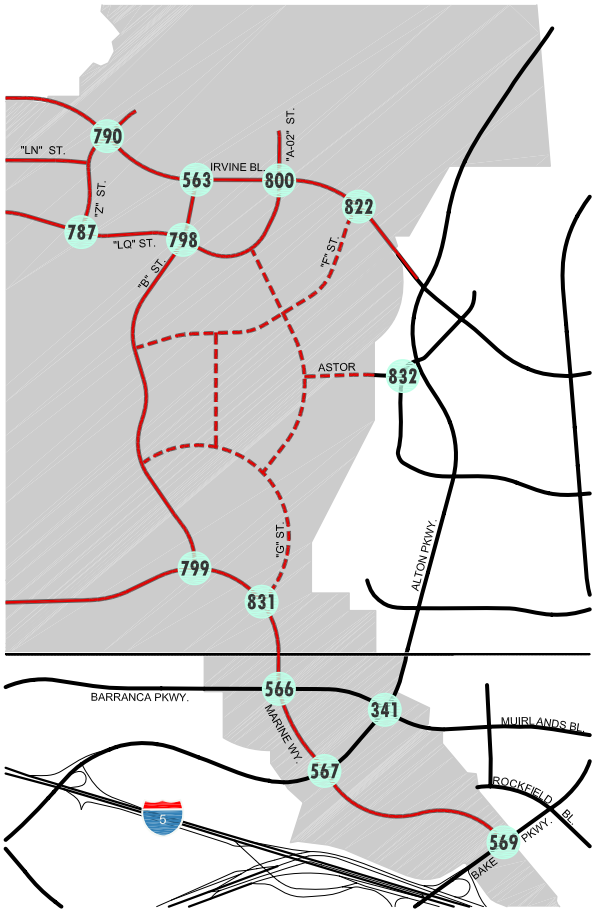
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EXHIBIT 9-32 (2 OF 2)

# INTERNAL CIRCULATION POST-2030 AM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 2)




**563** "B" ST. & IRVINE BL.

| | | |
|---|---|---|
| | | 1698/1543 ← 114/138 |
| 2501/2716 → 226/182 | | 86/30 ← 64/40 |

**566** MARINE WY. & BARRANCA PKWY.

| | | |
|---|---|---|
| | 367/230 → 521/288 ← 271/233 | 295/416 ← 953/932 ← 149/135 |
| 192/225 → 472/491 → 100/67 | | 119/137 ← 323/559 ← 90/136 |

**567** MARINE WY. & ALTON PKWY.

| | | |
|---|---|---|
| | 296/189 → 336/261 ← 108/70 | 103/109 ← 1221/1085 ← 159/168 |
| 231/261 → 1010/986 → 346/421 | | 594/706 ← 446/640 ← 221/264 |

**569** BAKE PKWY. & MARINE WY.

| | | |
|---|---|---|
| | 709/434 → 2295/2217 → 20/53 | N/16 ← 12/47 ← N/27 |
| 261/127 → 19/40 → 300/206 | | 949/909 ← 2775/2897 ← 31/68 |

**787** "Z" ST. & "LQ" ST.

| | | |
|---|---|---|
| | N/45 → N/20 | N/23 ← 312/209 |
| 11/31 → 313/390 | | |

**790** "Z" ST. & IRVINE BL.

| | | |
|---|---|---|
| | 129/118 → 333/32 ← 168/182 | 24/19 ← 1718/1378 ← 48/36 |
| 39/43 → 2522/2621 → 39/42 | | 53/44 → N/N ← 70/68 |

**798** "B" ST. & "LQ" ST.

| | | |
|---|---|---|
| | N/N → 107/297 ← N/N | 26/N ← 291/202 ← N/N |
| 21/N → 257/338 → 38/56 | | 18/N ← 116/46 ← N/N |

**799** "B" ST. & MARINE WY.

| | | |
|---|---|---|
| | 490/213 → 332/NA → 121/151 | 36/114 ← 927/813 ← 11/NA |
| 140/93 → 796/577 → 36/NA | | 93/NA ← 34/NA ← 23/NA |

**800** "A-02" ST. & IRVINE BL.

| | | |
|---|---|---|
| | 46/27 → 333/67 ← 153/137 | 56/57 ← 1673/1487 ← 127/417 |
| 21/19 → 2529/2649 → 70/136 | | 61/45 → 13/14 ← 198/224 |

**822** "F" ST. & IRVINE BL.

| | | |
|---|---|---|
| | | 2532/NA ← 54/NA |
| 2827/NA → 46/NA | | 108/NA ← 143/NA |

**831** "G" ST. & MARINE WY.

| | | |
|---|---|---|
| | 247/NA → 260/NA → 302/NA | 104/NA ← 677/NA ← 18/NA |
| 105/NA → 813/NA → 21/NA | | 36/NA ← 50/NA ← 44/NA |

**832** FAIRBANKS & ASTOR ST.

| | | |
|---|---|---|
| | 205/NA → 24/NA | |
| 255/NA → 229/NA | | 139/NA ← 18/NA |

**341** ALTON PKWY. & MUIRLANDS BL.

| | | |
|---|---|---|
| | 952/1037 → 1189/1093 → 110/84 | 94/103 ← 374/389 ← 213/187 |
| 510/549 → 200/144 → 10/N | | N/N → 970/993 → 154/107 |

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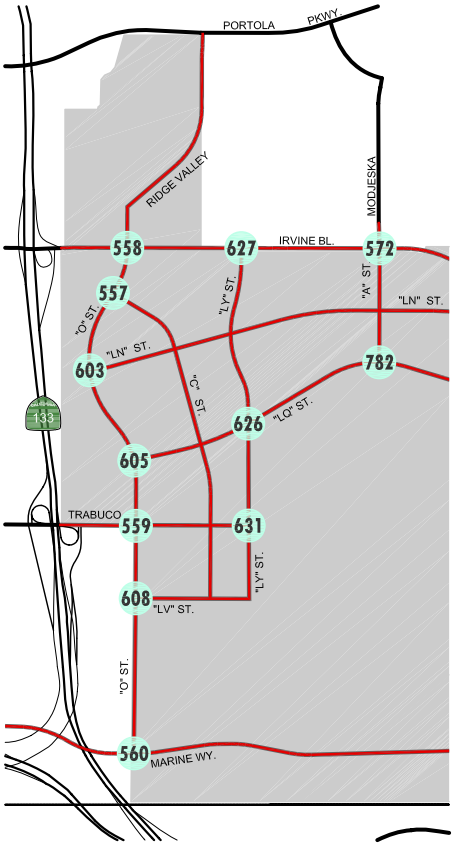
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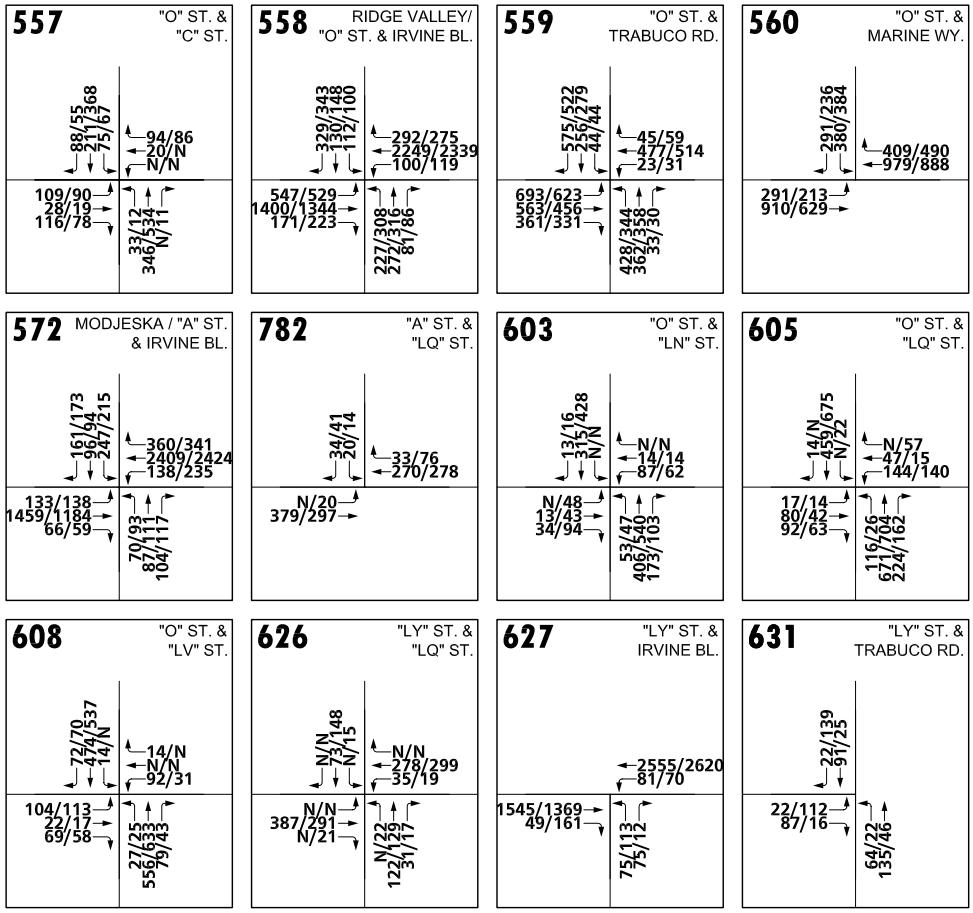
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EXHIBIT 9-33 (1 OF 2)

# INTERNAL CIRCULATION POST-2030 PM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 2)




## LEGEND:

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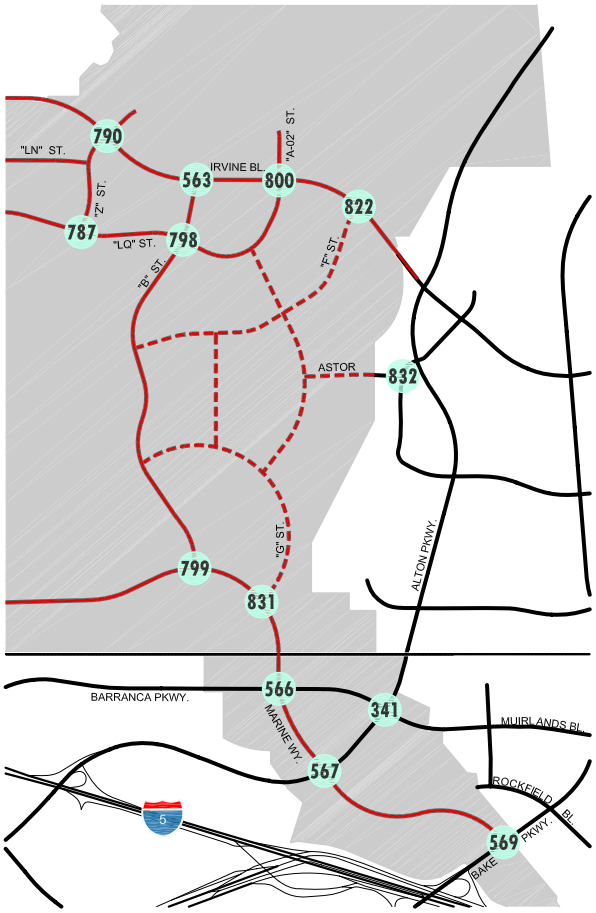
138/135 = 2012 MODIFIED PROJECT/ 2011 APPROVED PROJECT

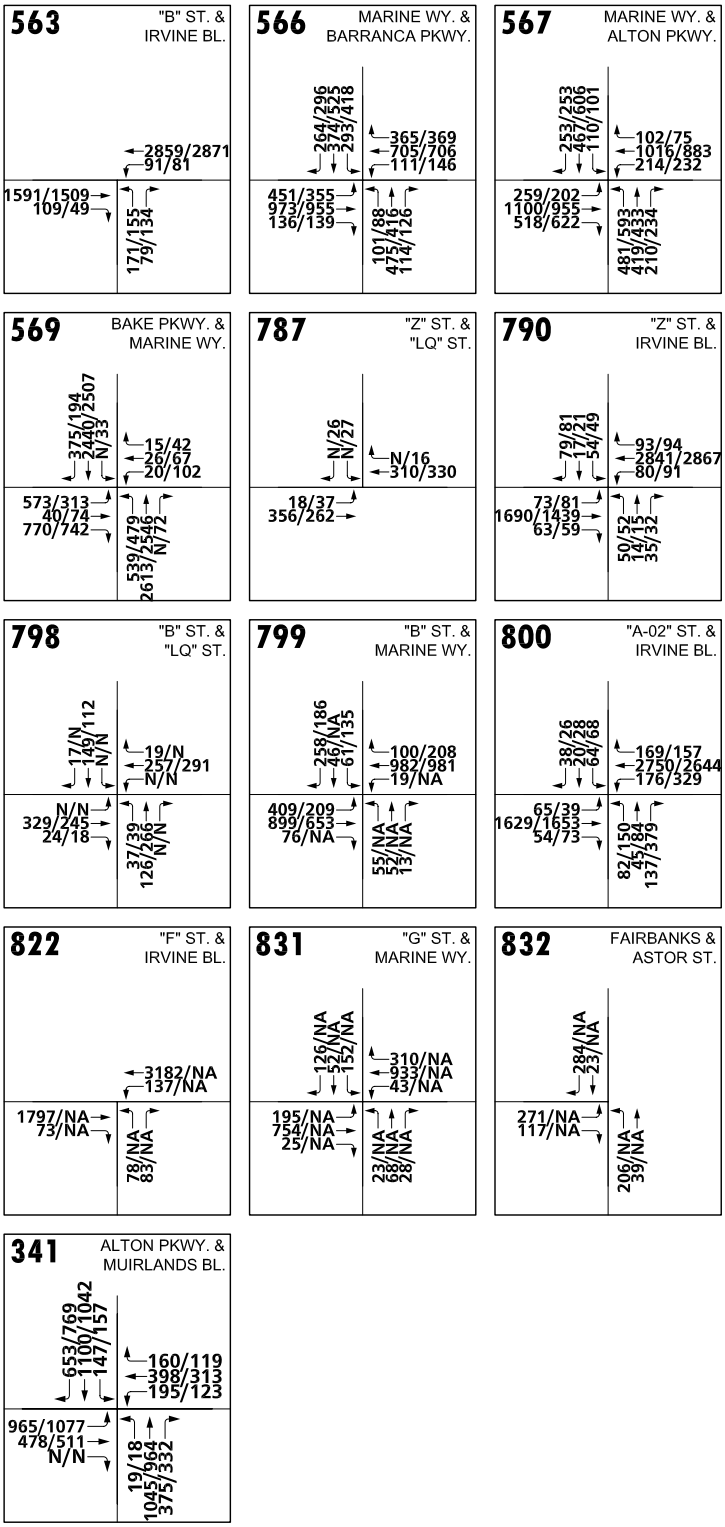
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EXHIBIT 9-33 (2 OF 2)

# INTERNAL CIRCULATION POST-2030 PM PEAK HOUR INTERSECTION VOLUMES (2012 MODIFIED PROJECT OPTION 2)




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EXHIBIT 9-34

# 2015 RECOMMENDED INTERSECTION CONTROLS
# 2012 MODIFIED PROJECT OPTIONS 1 AND 2

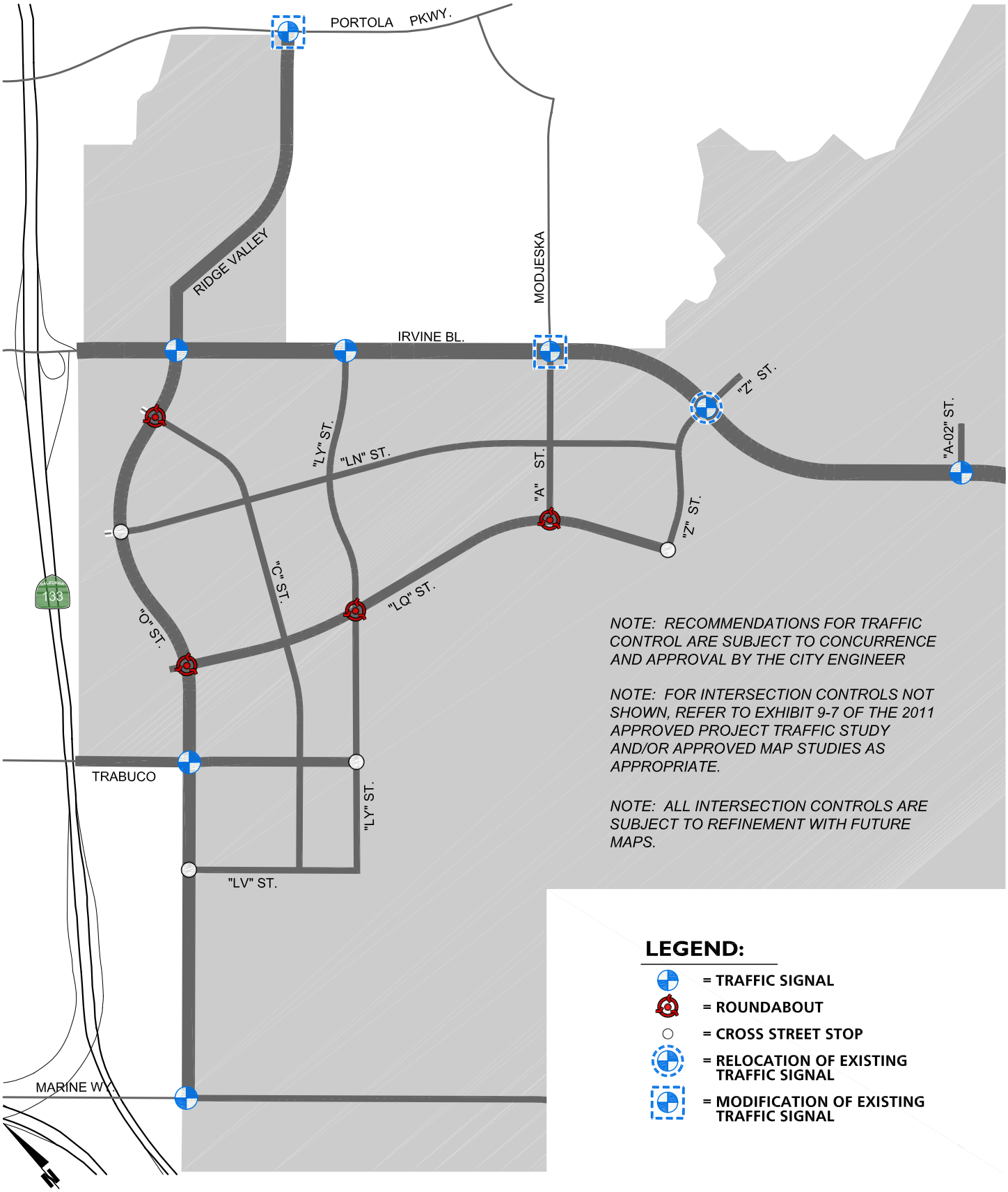
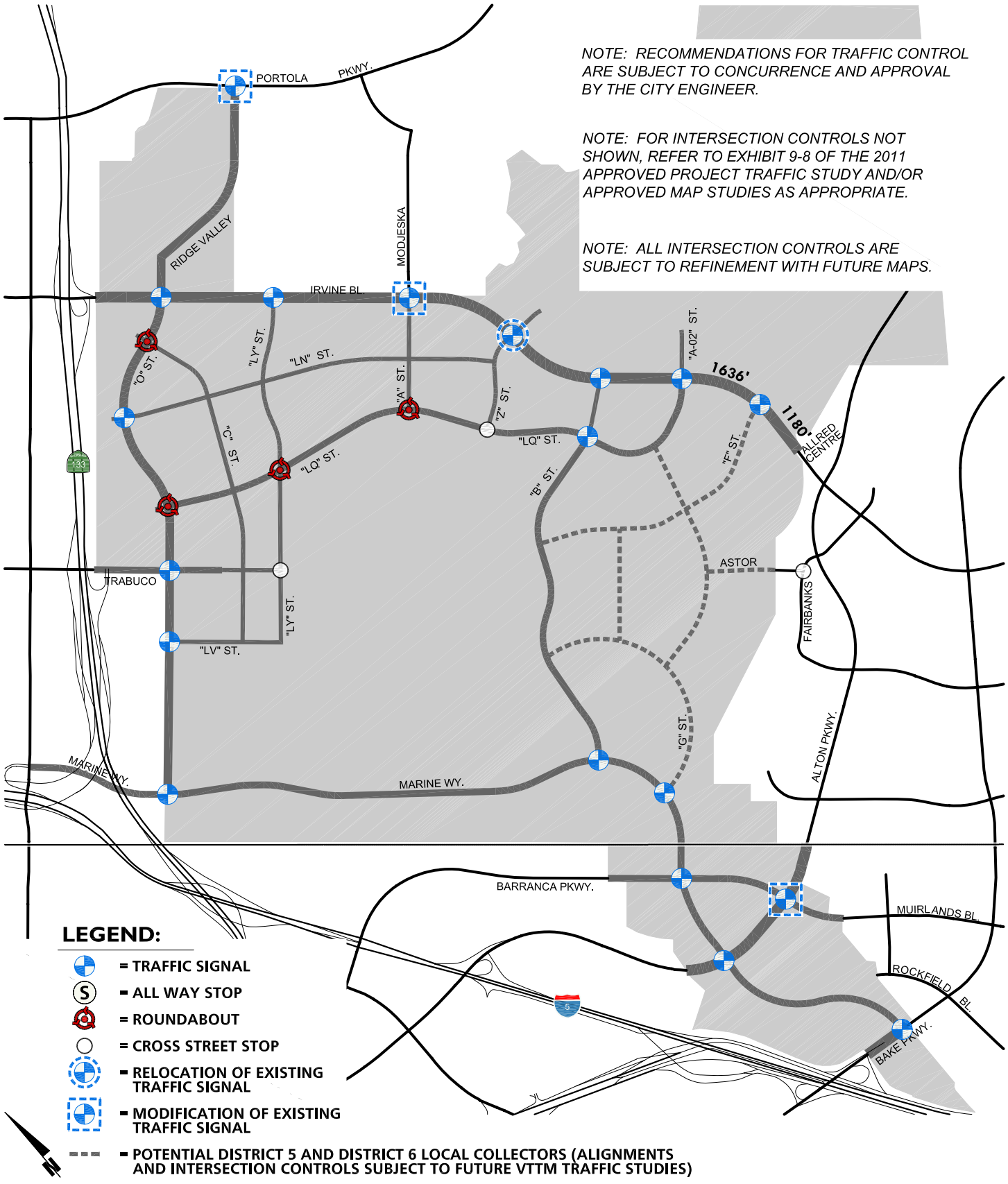


EXHIBIT 9-35

# 2030 & POST-2030 RECOMMENDED INTERSECTION CONTROLS
# 2012 MODIFIED PROJECT OPTIONS 1 AND 2



of “B” Street, south of “LQ” Street and north of Marine Way) are conceptual. The alignments of local streets in Districts 5 and 6 will be determined in future Vesting Tentative Tract Map (VTTM) traffic studies.

Traffic signal warrants based on peak hour volumes as adopted by the Federal Highway Administration and Caltrans were used here to determine the need for signalization. Determining the major street approach for the signal warrant involves calculating the number of vehicles approaching the intersection on both major street legs. The highest total volume for either the continuous east and west approach or the north and south approach during either AM or PM is determined to be the major street approach for both peak hours. The minor street peak hour signal warrant volume is the number of peak hour vehicles approaching the intersection on only the highest volume leg. The highest volume for either the AM or PM determines the minor approach for both peak hours. The peak hour volumes used in the warrant analysis for the major street and minor street are taken from the same hour of the day.

Rural or urban classifications are determined by the speed on the major street. Warrants are based on rural when the speed on the major street is 40 miles per hour (mph) or higher. For urban areas, the speed on the major street is 35 mph or lower. All major intersections in the Project vicinity (i.e., along the periphery of the Project site and intersections on-site), that are anticipated to warrant a traffic signal have been analyzed for 2015 and Post 2030 conditions. The signal warrant analysis for those locations have been based on rural due to the higher speeds expected along those roadways.

The signal warrant results are summarized in Table 9-33 for Year 2015 and Post-2030 conditions with the 2012 Modified Project. Consistent with the 2011 Approved Project for cumulative 2015 conditions, the following five locations meet signal warrants:

- #558 Ridge Valley at Irvine Boulevard
- #559 “O” Street at Trabuco Road
- #560 ”O” Street at Marine Way
- #627 “LY” Street at Irvine Boulevard
- #800 “A-02” Street at Irvine Boulevard

**Table 9-33**

**Year 2015 and Post-2030 Signal Warrant Summary**
**Options 1 and 2**

| ID | Intersection | ADT BASED WARRANT | | | | PEAK HOUR BASED WARRANT | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2015 With Project | | Post-2030 With Project | | 2015 With Project | | Post-2030 With Project | |
| | | Option 1 | Option 2 | Option 1 | Option 2 | Option 1 | Option 2 | Option 1 | Option 2 |
| 557 | "O" St at "C" St | Roundabout[1] | | | | Roundabout[1] | | | |
| 558 | Ridge Valley at Irvine Bl | X | X | X | X | X | X | X | X |
| 559 | "O" St at Trabuco Rd | X | X | X | X | X | X | X | X |
| 560 | "O" St at Marine Wy | X | X | X | X | X | X | X | X |
| 563 | "B" St at Irvine Bl | DNE | DNE | X | X | DNE | DNE | X | X |
| 566 | Marine Wy at Barranca Pw | DNE | DNE | X | X | DNE | DNE | X | X |
| 567 | Marine Wy at Alton Pw | DNE | DNE | X | X | DNE | DNE | X | X |
| 569 | Bake Pw at Marine Wy | DNE | DNE | X | X | DNE | DNE | X | X |
| 603 | "O" St at "LN" St | | | X | X | | | | |
| 605 | "O" St at "LQ" St | Roundabout[1] | | | | Roundabout[1] | | | |
| 608 | "O" St at "LV" St | | | | X | | | X | X |
| 626 | "LY" St at "LQ" St | Roundabout[1] | | | | Roundabout[1] | | | |
| 627 | "LY" St at Irvine Bl | X | X | X | X | X | X | X | X |
| 631 | "LY" St at Trabuco Rd | | | | | | | | |
| 782 | "A" St at "LQ" St | Roundabout[1] | | | | Roundabout[1] | | | |
| 787 | "Z" St at "LQ" St | | | | | | | | |
| 790 | "Z" St at Irvine Bl | X | X | X | X | X | X | X | X |
| 799 | "B" St at Marine Wy | DNE | DNE | X | X | DNE | DNE | X | X |
| 800 | "A-02" St at Irvine Bl | X | X | X | X | X | X | X | X |
| 822 | "F" Street at Irvine Bl | DNE | DNE | X | X | DNE | DNE | X | X |
| 831 | "G" St at Marine Wy | DNE | DNE | X | X | DNE | DNE | X | X |
| 832 | Fairbanks at Astor | | | | | | | | |

DNE = Does Not Exist

X = Intersection meets respective traffic signal warrant criteria.

Daily volume based traffic signal warrant uses the average ADT on the major road and half of the highest ADT on the minor leg.

Peak hour volume based traffic signal warrant uses the sun of all the turning movements on the major road and the sum of the highest volume on the minor leg.

[1] Roundabout intersection proposed.

Consistent with the 2011 Approved Project, modification of the existing Modjeska/Irvine Boulevard traffic signal will be required in conjunction with the connection of "A" Street. The existing Pusan Way/Irvine Boulevard traffic signal will also be relocated to the intersection of "A-02" Street/"Z" Street at Irvine Boulevard.

Consistent with the 2011 Approved Project, additional traffic signals are warranted at the following 8 intersections for cumulative (2030 and Post-2030) conditions with the 2012 Modified Project:

- #603 "O" Street at "LN" Street
- #608 "O" Street at "LV" Street
- #563 "B" Street at Irvine Boulevard
- #798 "B" Street at "LQ" Street
- # 799 "B" Street at Marine Way
- #567 Marine Way at Alton Pkwy
- #566 Marine Way at Barranca Pkwy
- #569 Bake Pkwy at Marine Way

Turn pocket lengths for new project access intersections with exclusive left-turn lanes or right turn lanes were previously estimated based on the peak hour volumes associated with the 2011 Approved Project. Where pocket lengths exceed the standard 150 feet for public arterials or 90 feet for lower classification roadways, the length is initially determined based on one foot per peak hour left-turn volume (highest of AM and PM) and rounded into increments of 10. The same methodology for previous NITM Program project traffic studies is used here. The approved turn lane storage length requirements for the analyzed intersections for Post-2030 conditions with the 2011 Approved Project also take into consideration queuing analysis (see Section 9.8 below) and signal operations such as right turn on red phasing.

Project access locations on-site and along the periphery of the Project site are examined for the need for geometric changes associated with the 2012 Modified Project. According to the methodology used in previous NITM Program project traffic studies, the need for separate right-turning lanes at intersections along the periphery of the Project site as well as arterial-to-arterial intersections on-site focuses on providing adequate room for right-turning traffic to slow down

and turn safely without impeding through traffic flow. In some cases, right-turning volumes and acceptable intersection levels of service also establish the need for right-turning lanes.

The estimated turn lane storage length requirements for the analyzed intersections for Post-2030 conditions with the 2012 Modified Project are summarized in Table 9-34. Transportation Guideline (TG) Deviations discussed in the 2011 Approved Project are still applicable with the 2012 Modified Project. The following turn lane capacity enhancements are recommended with the 2012 Modified Project:

- Intersection 559 ("O" St at Trabuco) – the northbound left and eastbound right are recommended to be increased by 20' and 30', respectively. Additional capacity on the southbound right is recommended to be accommodated by either (1) lengthening the right turn lane pocket by 200 feet, or (2) converting the standard right turn pocket to a channelized free right turn.
- Intersection 560 ("O" St at Marine Way) – The southbound right and eastbound left are recommended to increase by 50' and 70', respectively.
- Intersection 563 ("B" at Irvine Blvd) – the northbound left, eastbound right, and westbound left are recommended to increase by 30', 50', and 100', respectively.
- Intersection 566 (Marine Way at Barranca) – the southbound right and eastbound left are recommended to increase by 70' and 50', respectively.
- Intersection 576 (Marine Way at Alton) – the southbound right is recommended to increase by 40'.
- Intersection 569 (Bake at Marine Way) – the northbound left, eastbound left and eastbound right are recommended to increase by 20', 130' and 10', respectively.
- Intersection 790 ("Z" St at Irvine Blvd) – the southbound right and eastbound left are recommended to increase by 10' and 20', respectively.
- Intersection 798 ("B" St at "LQ") – left turn pockets in all directions are recommended to be increased from 90' to 150' due to the proximity to the high school site.
- Intersection 799 ("B" St at Marine Way) – the southbound right and eastbound left are recommended to increase by 80'and 200', respectively.
- Intersection 800 ("A-02" St at Irvine Blvd) – the southbound left and westbound right are recommended to increase by 40' and 10', respectively.

At intersection 559 ("O" St at Trabuco), there are existing right-of-way constraints in the northwest quadrant (SCE substation) of the intersection. The provision of a southbound channelized free right turn lane may not be feasible because of these physical constraints. The southbound channelized

## Table 9-34

### Post-2030 With 2012 Modified Project Option 1 or 2
### Turn Lane Storage Length Requirements

| ID | Intersection | Movement | Lanes | 2011 Approved Length | Higher Peak Hour Volume, 2012 Modified Project [3] | Recommended Length |
|---|---|---|---|---|---|---|
| 341 | Alton Pw at Muirlands Bl | NBL | 1 | 200 | -- | 200 |
| | | NBR | 1 | CFR[1] | PM-376 | CFR[1] |
| | | SBL | 2 | 240 | -- | 240 |
| | | SBR | 1 | CFR[1] | -- | CFR[1] |
| | | EBL | 2 | 540 | -- | 540 |
| | | WBL | 2 | 500 | AM-213 | 500 |
| 558 | "O" St at Irvine Bl | NBL | 2 | 230 | -- | 230 |
| | | SBL | 1 | 260 | AM-284 | 260 |
| | | SBR | 1 | CFR[1] | -- | CFR[1] |
| | | EBL | 2 | 325 | -- | 325 |
| | | EBR | 1 | 350 | -- | 350 |
| | | WBL | 2 | 250 | -- | 250 |
| | | WBR | 1 | 280 | -- | 280 |
| 559 | "O" St at Trabuco Rd | NBL | 2 | 200 | PM-428 | **220** |
| | | SBL | 1 | 170 | -- | 170 |
| | | SBR | 1 | 360[2] | AM-853 | **560[2] or CFR[1]** |
| | | EBL | 2 | 320 | PM-693 | **350** |
| | | EBR | 1 | 225[2] | AM-564 | 225[2] |
| | | WBL | 1 | 150 | -- | 150 |
| 560 | "O" St at Marine Wy | SBL | 2 | 200 | -- | 200 |
| | | SBR | 1 | 240 | PM-291 | **290** |
| | | EBL | 1 | 220 | PM-291 | **290** |
| | | WBR | 1 | 490 | -- | 490 |
| 563 | "B" St at Irvine Bl | NBL | 1 | 170 | PM-171 | **200[4]** |
| | | NBR | 1 | 150 | -- | 150 |
| | | EBR | 1 | 190 | AM-235 | **240** |
| | | WBL | 1 | 200 | -- | **300[4]** |
| 566 | Marine Wy at Barranca Pw | NBL | 1 | 150 | -- | 150 |
| | | NBR | 1 | 150 | -- | 150 |
| | | SBL | 2 | 210 | -- | 210 |
| | | SBR | 1 | 300 | AM-367 | **370** |
| | | EBL | 2 | 180 | PM-451 | **230** |
| | | EBR | 1 | 150 | -- | 150 |
| | | WBL | 2 | 150 | -- | 150 |
| | | WBR | 1 | 420 | -- | 420 |
| 567 | Marine Wy at Alton Pw | NBL | 2 | 360 | -- | 360 |
| | | NBR | 1 | 270 | -- | 270 |
| | | SBL | 1 | 150 | -- | 150 |
| | | SBR | 1 | 260 | AM-296 | **300** |
| | | EBL | 2 | 150 | -- | 150 |
| | | EBR | 1 | CFR[1] | -- | CFR[1] |
| | | WBL | 2 | 150 | -- | 150 |
| | | WBR | 1 | 150 | -- | 150 |

## Table 9-34 Cont.

### Post-2030 With 2012 Modified Project Option 1 or 2
### Turn Lane Storage Length Requirements

| ID | Intersection | Movement | Lanes | 2011 Approved Length | Higher Peak Hour Volume, 2012 Modified Project [3] | Recommended Length |
|---|---|---|---|---|---|---|
| 569 | Bake Pw at Marine Wy | NBL | 2 | 460 | AM-956 | **480** |
| | | NBR | 1 | 150 | -- | 150 |
| | | SBL | 1 | 150 | -- | 150 |
| | | EBL | 2 | 160 | PM-573 | **290** |
| | | EBR | 2 | 380 | PM-770 | **390** |
| | | WBL | 2 | 150 | -- | 150 |
| 572 | Modjeska at Irvine Bl | NBL | 1 | 230 | -- | 230 |
| | | NBR | 1 | 250 | -- | 250 |
| | | SBL | 2 | 240 | AM-408 | 240 |
| | | EBL | 1 | 180 | 180 | 180 |
| | | EBR | 1 | 150 | -- | 150 |
| | | WBL | 1 | 325 | -- | 325 |
| | | WBR | 1 | 290 | PM-360 | 290[2] |
| 603 | "O" St at "LN" St | NBL | 1 | 150 | -- | 150 |
| | | SBL | 1 | 150 | -- | 150 |
| | | EBL | 1 | 100 | -- | 100 |
| | | WBL | 1 | 120 | AM-138 | 140 |
| 608 | "O" St at "LV" St | NBL | 1 | 150 | -- | 150 |
| | | SBL | 1 | 150 | -- | 150 |
| | | EBL | 1 | 150 | -- | 150 |
| | | WBL | 1 | 110 | -- | 110 |
| 627 | "LY" St at Irvine Bl | NBL | 1 | 260 | -- | 260 |
| | | NBR | 1 | 140 | -- | 140 |
| | | EBR | 1 | 170 | -- | 170 |
| | | WBL | 1 | 300 | -- | 300 |
| 631 | "LY" St at Trabuco Rd | NBL | 1 | 90 | -- | 90 |
| | | SBR | 1 | 170 | -- | 170 |
| | | EBL | 1 | 150 | -- | 150 |
| | | EBR | 1 | 150 | -- | 150 |
| 787 | "Z" St at "LQ" St | EBL | 1 | 90 | -- | 90 |
| 790 | "Z" St at Irvine Bl | NBL | 1 | 150 | -- | 150 |
| | | NBR | 1 | 150 | -- | 150 |
| | | SBL | 1 | 220 | -- | 220 |
| | | SBR | 1 | 120 | AM-129 | **130** |
| | | EBL | 1 | 150 | -- | **170**[4] |
| | | EBR | 1 | 150 | -- | 150 |
| | | WBL | 1 | 190 | -- | 190 |
| | | WBR | 1 | 150 | -- | 150 |
| 798 | "B" St at "LQ" St | NBL | 1 | 90 | -- | **150**[5] |
| | | SBL | 1 | 90 | -- | **150**[5] |
| | | EBL | 1 | 90 | -- | **150**[5] |
| | | WBL | 1 | 90 | -- | **150**[5] |

## Table 9-34 Cont.

### Post-2030 With 2012 Modified Project Option 1 or 2
### Turn Lane Storage Length Requirements

| ID | Intersection | Movement | Lanes | 2011 Approved Length | Higher Peak Hour Volume, 2012 Modified Project [3] | Recommended Length |
|---|---|---|---|---|---|---|
| 799 | "B" St at Marine Wy | NBL | 1 | -- | AM-93 | **100** |
| | | SBL | 1 | 160 | -- | 160 |
| | | SBR | 1 | 220 | AM-490 | **300[2]** |
| | | EBL | 1 | 210 | AM-409 | **410** |
| | | WBL | 1 | -- | PM-19 | **150** |
| | | WBR | 1 | 210 | -- | 210 |
| 800 | "A-02" St at Irvine Bl | NBL | 1 | 200 | -- | 200 |
| | | NBR | 1 | 380 | -- | 380 |
| | | SBL | 1 | 140 | AM-154 | **180[2]** |
| | | EBL | 1 | 150 | -- | 150 |
| | | EBR | 1 | 220 | -- | 220 |
| | | WBL | 2 | 300 | -- | 300 |
| | | WBR | 1 | 160 | PM-169 | **170** |
| 822 | "F" St at Irvine Bl | NBL | 1 | -- | AM-108 | **150** |
| | | NBR | 1 | -- | AM-143 | **150** |
| | | EBR | 1 | -- | PM-73 | **150** |
| | | WBL | 1 | -- | PM-138 | **150** |
| 831 | "G" St at Marine Way | NBL | 1 | -- | AM-36 | **90** |
| | | SBL | 1 | -- | AM-307 | **310** |
| | | SBR | 1 | -- | AM-252 | **250** |
| | | EBL | 1 | -- | PM-203 | **200** |
| | | WBL | 1 | -- | PM-43 | **150** |
| | | WBR | 1 | -- | PM-310 | **310** |
| 832 | Fairbanks at Astor | NBL | 1 | -- | PM-208 | **210** |
| | | EBL | 1 | -- | PM-276 | **280** |

[1] CFR = Channelized Free Right turn lane design.

[2] The recommended pocket length has been adjusted to account for queue length estimates of the right turn lane and related through travel lanes, in conjunction with right turn overlap signal phasing. Existing adjacent land use constraints and intersection spacing are also a consideration.

[3] Volume change associated with the 2012 Modififed Project which potentially increases the turn pocket length requirement based on one foot per left turn vehicle during AM or PM peak hour.

[4] Extended pocket length based upon queuing analysis.

[5] Pocket length adjusted due to high school proximity.

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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free right turn lane may also present weaving issues on Trabuco Road for motorists who turn right onto Trabuco Road from "O" Street and then wish to turn left onto the future northbound SR-133 ramp (weaving across two through travel lanes and into a left turn pocket). The added turn pocket length on the standard SB right turn lane option at intersection 559 would extend the right turn lane northerly to the "GGG" Street intersection curb return. The SB right turn lane would therefore extend the entire length from the "O" Street/"GGG" Street intersection to the "O" Street/Trabuco intersection.

The "F" Street/Irvine Boulevard and "G" Street/Marine Way intersections are new signal locations planned in conjunction with the 2012 Modified Project. Intersection lane geometrics for 2015 conditions with the 2012 Modified Project are shown in Exhibit 9-36. Intersection lane geometrics for project buildout (2030 and Post-2030) with the 2012 Modified Project are shown in Exhibit 9-37. Intersection geometrics and traffic control at the "G"/Marine Way and "F"/Irvine intersections will be determined with subsequent tract maps.

Roundabouts have been previously approved at four (4) intersection locations on the Project backbone network to either (1) provide an efficient intersection treatment in place of a traditional traffic signal, or (2) provide a low speed intersection feature at a key juncture of two backbone local collector or commuter roadways. Consistent with the 2011 Approved Project findings, the following roundabout locations satisfy warrants for a traffic signal in Post-2030:

- #557 "O" Street / "C" Street
- #605 "O" Street / "LQ" Street

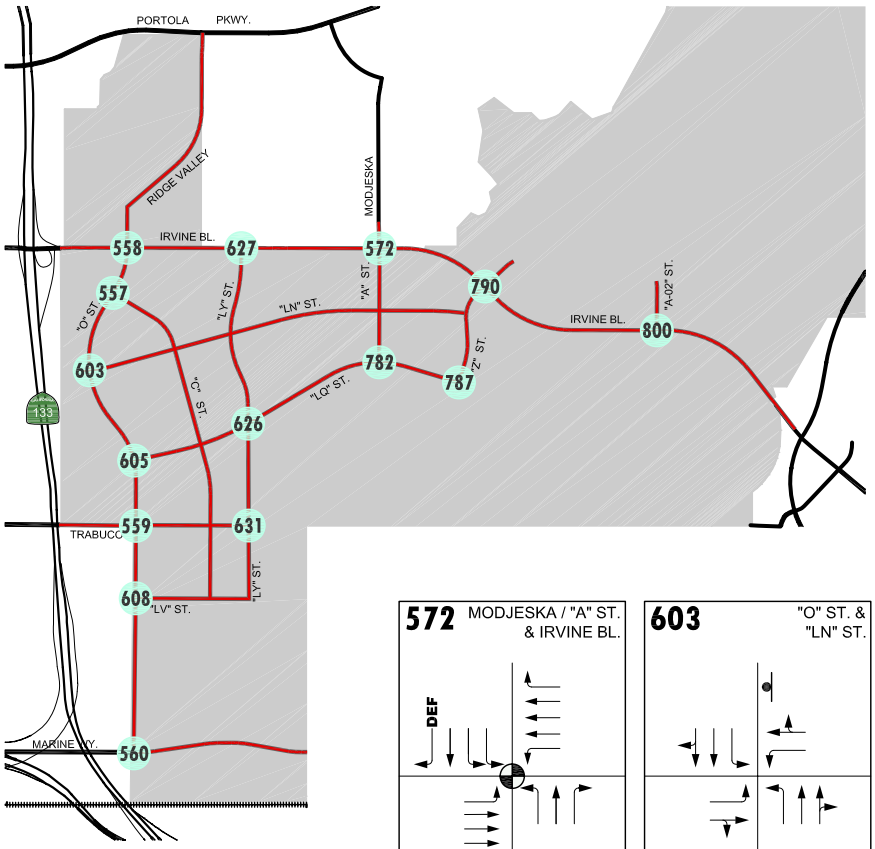
At the intersection of #626 "LY" Street / "LQ" Street a roundabout was previously approved to encourage a low speed environment on each of these straight two-lane roadways. The intersection of #782 "A" Street / "LQ" Street roundabout was also previously approved to encourage a low speed environment along "LQ" Street between District 1 North and District 5.

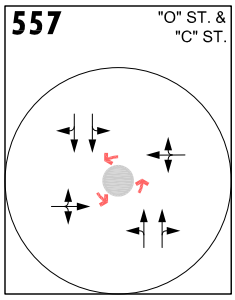
Signal warrant calculations for 2015 and Post-2030 conditions with the 2012 Modified Project are included in Appendices 9.13 and 9.14, respectively.

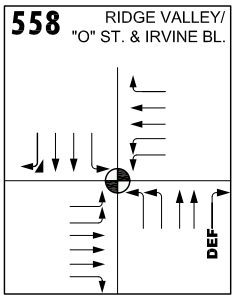
On Irvine Boulevard, intersection spacing at less than ½ mile is currently approved at existing signal locations east of the SR-133 tollway (Modjeska to Pusan and Alton to Alred). The following section of this report presents the signal progression analysis of proposed intersections along Irvine Boulevard in the vicinity of the project.

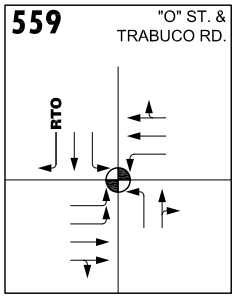
EXHIBIT 9-36

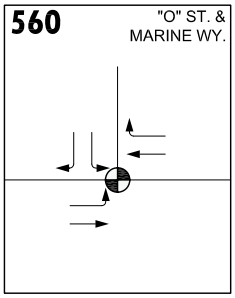
# 2015 INTERSECTION LANE CONFIGURATIONS
# 2012 MODIFIED PROJECT OPTIONS 1 AND 2



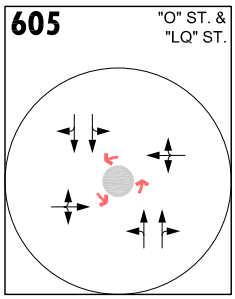



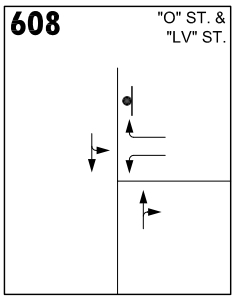



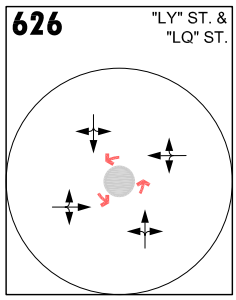


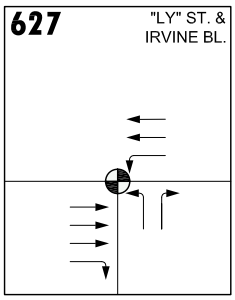


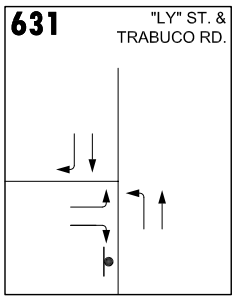


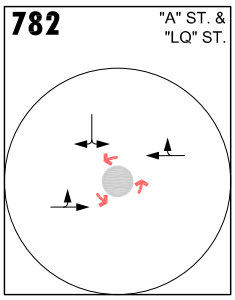



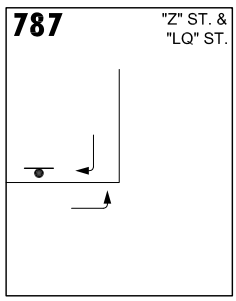



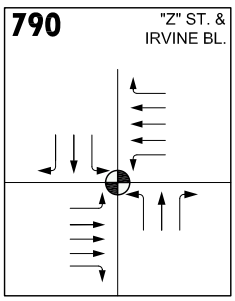



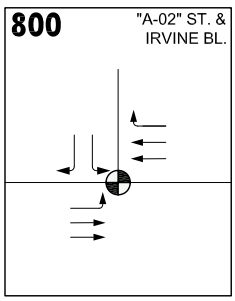



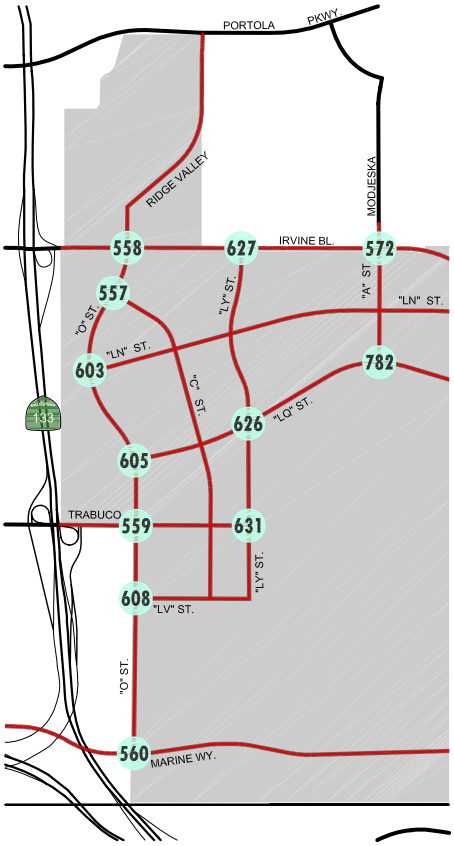

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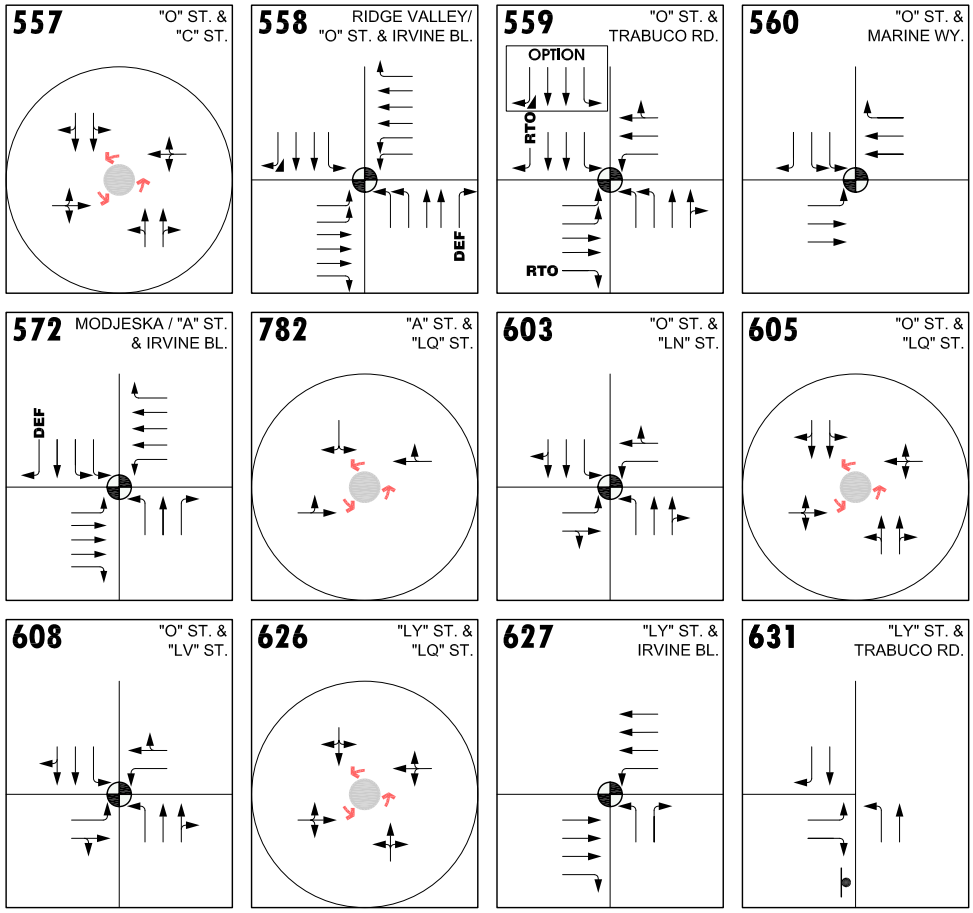
- = TRAFFIC SIGNAL
- = ROUNDABOUT
- = ALL WAY STOP
- = STOP SIGN
- = FREE RIGHT TURN
- DEF = DEFACTO RIGHT TURN
- RTO = RIGHT TURN OVERLAP
- 000 = INTERSECTION ID

NOTE: RECOMMENDATIONS FOR PUBLIC STREETS ARE SUBJECT TO CONCURRENCE AND APPROVAL BY CITY ENGINEER

EXHIBIT 9-37 (1 OF 2)

# 2030 & POST-2030 INTERSECTION LANE CONFIGURATIONS
# 2012 MODIFIED PROJECT OPTION 1 AND 2



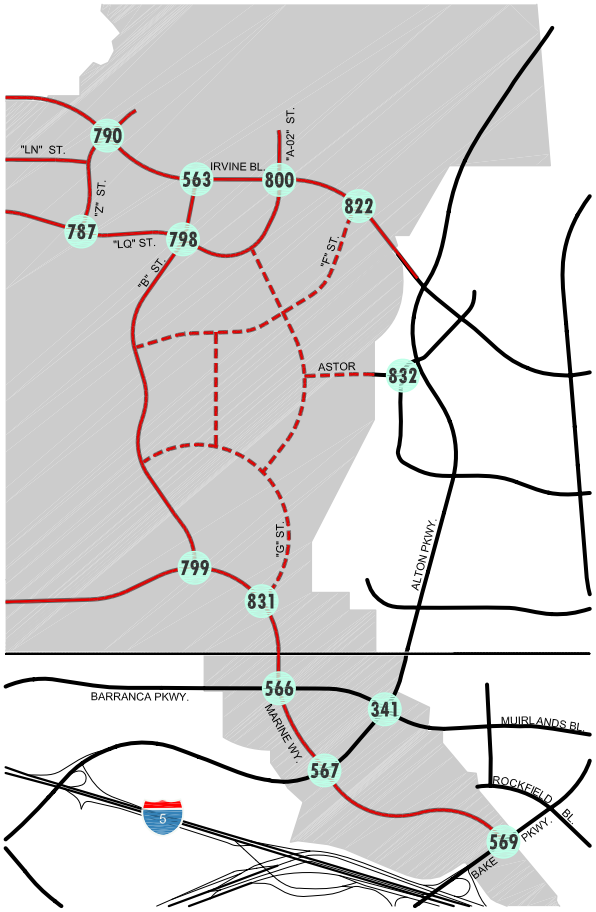

## LEGEND:

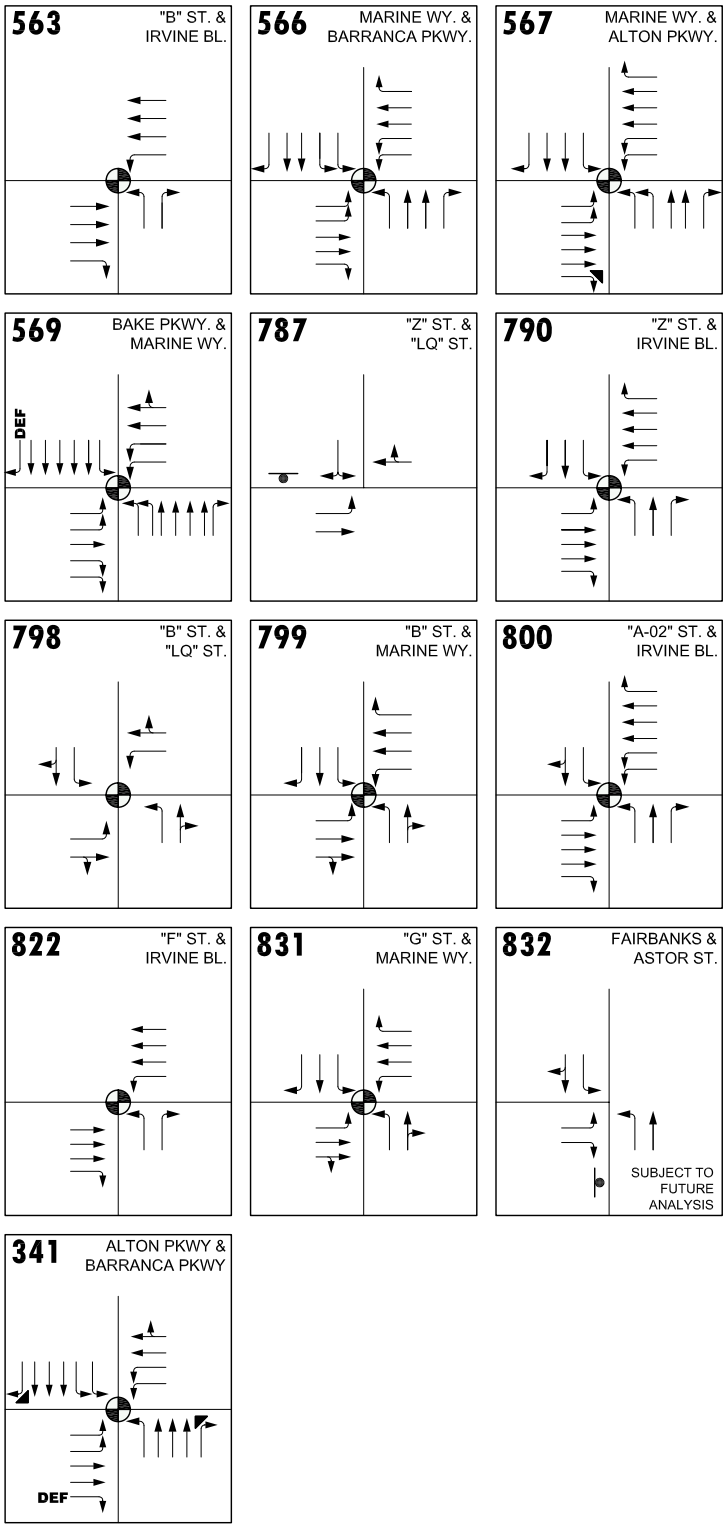
- = TRAFFIC SIGNAL
- = ROUNDABOUT
- = ALL WAY STOP
- = STOP SIGN
- = FREE RIGHT TURN
- DEF = DEFACTO RIGHT TURN
- RTO = RIGHT TURN OVERLAP
- 000 = INTERSECTION ID

NOTE: RECOMMENDATIONS FOR PUBLIC STREETS ARE SUBJECT TO CONCURRENCE AND APPROVAL BY CITY ENGINEER

EXHIBIT 9-37 (2 OF 2)

# 2030 & POST-2030 INTERSECTION LANE CONFIGURATIONS
# 2012 MODIFIED PROJECT OPTIONS 1 AND 2




## LEGEND:

- = TRAFFIC SIGNAL
- = ROUNDABOUT
- = ALL WAY STOP
- = STOP SIGN
- = FREE RIGHT TURN
- 000 = INTERSECTION ID
- DEF = DEFACTO RIGHT TURN
- = POTENTIAL DISTRICT 5 AND DISTRICT 6 LOCAL COLLECTORS (ALIGNMENTS AND INTERSECTION CONTROLS SUBJECT TO FUTURE VTTM TRAFFIC STUDIES)

NOTE: RECOMMENDATIONS FOR PUBLIC STREETS ARE SUBJECT TO CONCURRENCE AND APPROVAL BY CITY ENGINEER

## 9.8 Progression Analysis

The simulation and optimization traffic modeling tools Synchro and SimTraffic have been utilized to evaluate traffic flows and identify potential queuing at intersections along the Irvine Boulevard corridor in the project area. Synchro is a macroscopic analysis and optimization program, and SimTraffic performs microsimulations and animation of vehicle traffic. The SimTraffic analysis includes the effects of nearby intersections on arrival time at an intersection, during the AM and PM peak periods.

Progression analysis has been performed to determine the expected traffic flow patterns if the signals are timed in coordination to reduce delay. Time-space diagrams plot the vehicle positions as a function of time, showing the delay relating to signal timing. Time-space diagrams for selected intersections along the Irvine Boulevard corridor are shown in Appendix 9.15.

In SimTraffic, each vehicle in the traffic system is individually tracked and operational measures of effectiveness are collected on every vehicle during each $10^{th}$ of a second of simulation. Driver behavior characteristics (ranging from passive to aggressive) are assigned to each vehicle by the model, affecting the vehicle's free-flow speed, queue discharge headways, and other behavioral attributes. The variation in each vehicle's behavior is simulated in a manner reflecting real-world operations.

A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. Both the 50th percentile and the 95th percentile maximum queue lengths for peak hour traffic conditions have been reported. The 50th percentile maximum queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. In other words, if traffic were observed for 100 cycles, the 95th percentile queue would be the queue experienced with the 95th busiest cycle (or 5% of the time). The 50th percentile or average queue represents the typical queue length for peak hour traffic conditions, while the $95^{th}$ percentile queue is derived from the average queue plus 1.65 standard deviations. The $95^{th}$ percentile queue is not necessarily ever observed, it is based on statistical calculations.

A minimum of five (5) SimTraffic simulations were observed for the analysis. The back of queue results for each of the five (5) simulations were then averaged and reported in the queuing analysis tables. To ensure accurate and conservative results, each simulation was seeded for a minimum of 30 minutes allowing for a sufficient number of vehicles to enter the network prior to

recording. Then each simulation was recorded for a minimum of 60 minutes for both the AM and PM peak periods in an effort to capture all potential queuing impacts.

The results of the queuing analysis for Irvine Boulevard are presented in Table 9-35. In addition, the operational characteristics of queuing at each intersection were observed in order to determine if any spillovers from the turn lane queues actually impact intersection performance. Extended turn pocket lengths have been recommended if impacts to signal operations are likely to occur based upon the traffic simulations. Recommended turn bay lengths with these extensions are shown on Table 9-35. Stacking results from SimTraffic are provided in Appendix 9.16.

## Table 9-35

### Irvine Boulevard Peak Hour Queue Length Summary
### Post-2030 Conditions, Option 2

| Intersection | Movement | Stacking Distance Previously Provided / Recommended Per Lane (Feet) | AM Peak Hour | | | | PM Peak Hour | | | | Recommendation (Total Stacking Distance with Extended Storage Length)[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 50th Percentile Stacking Distance Required (Feet) | 95th Percentile Stacking Distance Required (Feet) | Average Queue Within Storage Length? | 95th Percentile Queue Within Storage Length? | 50th Percentile Stacking Distance Required (Feet) | 95th Percentile Stacking Distance Required (Feet) | Average Queue Within Storage Length? | 95th Percentile Queue Within Storage Length? | |
| Ridge Valley/"O" Street (NS) at Irvine Bl. (EW) | NBL | 230 | 56 | 99 | YES | YES | 93 | 141 | YES | YES | |
| | NBT | 630 | 19 | 49 | YES | YES | 92 | 145 | YES | YES | |
| | NBR | Def[2] | 21 | 46 | YES | YES | 24 | 56 | YES | YES | |
| | SBL | 260 | 154 | 243 | YES | YES | 93 | 190 | YES | YES | |
| | SBT | 560 | 107 | 169 | YES | YES | 41 | 71 | YES | YES | |
| | SBR | CFR[3] | 0 | 0 | YES | YES | 0 | 0 | YES | YES | |
| | EBL | 325 | 29 | 77 | YES | YES | 254 | 447 | YES | **NO** | NC |
| | EBT | 1,280 | 106 | 286 | YES | YES | 196 | 424 | YES | YES | |
| | EBR | 350 | 28 | 75 | YES | YES | 34 | 58 | YES | YES | |
| | WBL | 250 | 44 | 73 | YES | YES | 66 | 252 | YES | **NO** | NC |
| | WBT | 2,090 | 295 | 492 | YES | YES | 2,039 | 2,263 | YES | **NO** | NC |
| | WBR | 280 | 38 | 184 | YES | YES | 245 | 493 | YES | **NO** | NC |
| "LY" Street (NS) at Irvine Bl. (EW) | NBL | 260 | 41 | 85 | YES | YES | 53 | 117 | YES | YES | |
| | NBR | 140 | 14 | 32 | YES | YES | 32 | 75 | YES | YES | |
| | EBT | 2,090 | 57 | 124 | YES | YES | 191 | 315 | YES | YES | |
| | EBR | 170 | 5 | 26 | YES | YES | 23 | 99 | YES | YES | |
| | WBL | 300 | 53 | 96 | YES | YES | 169 | 454 | YES | **NO** | NC |
| | WBT | 2,520 | 8 | 32 | YES | YES | 1,326 | 3,005 | YES | **NO** | NC |
| Modjeska/"A" Street (NS) at Irvine Bl. (EW) | NBL | 230 | 89 | 155 | YES | YES | 68 | 135 | YES | YES | |
| | NBT | 270 | 213 | 362 | YES | **NO** | 56 | 108 | YES | YES | NC |
| | NBR | 150 | 45 | 86 | YES | YES | 28 | 54 | YES | YES | |
| | SBL | 240 | 156 | 209 | YES | YES | 205 | 344 | YES | **NO** | NC |
| | SBT | 800 | 54 | 101 | YES | YES | 98 | 278 | YES | YES | |
| | SBR | Def[2] | 64 | 142 | YES | YES | 79 | 143 | YES | YES | |
| | EBL | 180 | 47 | 116 | YES | YES | 133 | 233 | YES | **NO** | NC |
| | EBT | 2,520 | 148 | 333 | YES | YES | 165 | 309 | YES | YES | |
| | EBR | 150 | 16 | 94 | YES | YES | 25 | 101 | YES | YES | |
| | WBL | 325 | 89 | 155 | YES | YES | 220 | 498 | YES | **NO** | NC |
| | WBT | 2,190 | 213 | 362 | YES | YES | 1,264 | 1,622 | YES | YES | |
| | WBR | 290 | 45 | 86 | YES | YES | 244 | 497 | YES | **NO** | NC |

## Table 9-35 Cont.

### Irvine Boulevard Peak Hour Queue Length Summary
### Post-2030 Conditions, Option 2

| Intersection | Movement | Stacking Distance Previously Provided / Recommended Per Lane (Feet) | AM Peak Hour | | | | PM Peak Hour | | | | Recommendation (Total Stacking Distance with Extended Storage Length)[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 50th Percentile Stacking Distance Required (Feet) | 95th Percentile Stacking Distance Required (Feet) | Average Queue Within Storage Length? | 95th Percentile Queue Within Storage Length? | 50th Percentile Stacking Distance Required (Feet) | 95th Percentile Stacking Distance Required (Feet) | Average Queue Within Storage Length? | 95th Percentile Queue Within Storage Length? | |
| "Z" Street (NS) at Irvine Bl. (EW) | NBL | 150 | 44 | 82 | YES | YES | 49 | 108 | YES | YES | |
| | NBT | 580 | 7 | 25 | YES | YES | 8 | 28 | YES | YES | |
| | NBR | 150 | 29 | 53 | YES | YES | 19 | 42 | YES | YES | |
| | SBL | 220 | 136 | 251 | YES | **NO** | 63 | 130 | YES | YES | NC |
| | SBT | 690 | 29 | 65 | YES | YES | 12 | 34 | YES | YES | |
| | SBR | 120 | 57 | 96 | YES | YES | 48 | 100 | YES | YES | |
| | EBL | 150 | 18 | 57 | YES | YES | 103 | 173 | YES | **NO** | 170 |
| | EBT | 2,190 | 193 | 580 | YES | YES | 186 | 344 | YES | YES | |
| | EBR | 150 | 11 | 82 | YES | YES | 19 | 90 | YES | YES | |
| | WBL | 190 | 45 | 87 | YES | YES | 80 | 162 | YES | YES | |
| | WBT | 1,830 | 139 | 296 | YES | YES | 233 | 522 | YES | YES | |
| | WBR | 150 | 2 | 11 | YES | YES | 18 | 87 | YES | YES | |
| "B" Street (NS) at Irvine Bl. (EW) | NBL | 170 | 58 | 105 | YES | YES | 111 | 194 | YES | **NO** | 200 |
| | NBR | 150 | 35 | 74 | YES | YES | 32 | 64 | YES | YES | |
| | EBT | 1,830 | 78 | 144 | YES | YES | 122 | 269 | YES | YES | |
| | EBR | 190 | 25 | 68 | YES | YES | 13 | 42 | YES | YES | |
| | WBL | 200 | 203 | 341 | **NO** | **NO** | 67 | 120 | YES | YES | 300 |
| | WBT | 1,500 | 114 | 337 | YES | YES | 161 | 272 | YES | YES | |
| "A-02" Street (NS) at Irvine Bl. (EW) | NBL | 200 | 38 | 78 | YES | YES | 62 | 122 | YES | YES | |
| | NBT | 820 | 6 | 21 | YES | YES | 30 | 71 | YES | YES | |
| | NBR | 380 | 64 | 129 | YES | YES | 43 | 95 | YES | YES | |
| | SBL | 140 | 176 | 285 | NO | **NO** | 48 | 97 | YES | YES | 180 |
| | SBTR | 780 | 62 | 160 | YES | YES | 41 | 88 | YES | YES | |
| | EBL | 150 | 6 | 19 | YES | YES | 42 | 106 | YES | YES | |
| | EBT | 1,500 | 99 | 206 | YES | YES | 80 | 178 | YES | YES | |
| | EBR | 220 | 9 | 31 | YES | YES | 17 | 103 | YES | YES | |
| | WBL | 300 | 111 | 176 | YES | YES | 94 | 192 | YES | YES | |
| | WBT | 2,070 | 133 | 217 | YES | YES | 466 | 713 | YES | YES | |
| | WBR | 160 | 9 | 31 | YES | YES | 112 | 282 | YES | **NO** | NC |

## Table 9-35 Cont.

### Irvine Boulevard Peak Hour Queue Length Summary
### Post-2030 Conditions, Option 2

| Intersection | Movement | Stacking Distance Previously Provided / Recommended Per Lane (Feet) | AM Peak Hour | | | | PM Peak Hour | | | | Recommendation (Total Stacking Distance with Extended Storage Length)[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 50th Percentile Stacking Distance Required (Feet) | 95th Percentile Stacking Distance Required (Feet) | Average Queue Within Storage Length? | 95th Percentile Queue Within Storage Length? | 50th Percentile Stacking Distance Required (Feet) | 95th Percentile Stacking Distance Required (Feet) | Average Queue Within Storage Length? | 95th Percentile Queue Within Storage Length? | |
| "F" Street (NS) at Irvine Bl. (EW) | NBL | -- | 80 | 137 | -- | -- | 66 | 112 | -- | -- | 150 |
| | NBR | -- | 80 | 150 | -- | -- | 32 | 58 | -- | -- | 250 |
| | EBT | -- | 97 | 185 | -- | -- | 84 | 136 | -- | -- | 1,636 |
| | EBR | -- | 4 | 20 | -- | -- | 10 | 33 | -- | -- | 150 |
| | WBL | -- | 38 | 86 | -- | -- | 101 | 172 | -- | -- | 250 |
| | WBT | -- | 95 | 169 | -- | -- | 117 | 212 | -- | -- | 1,971 |

[1] NC = No Change. Vehicles may stack beyond the available storage lengths during some cycles within the peak hour. However, based on the SYNCHRO simulation at those locations where no change to the storage length is recommended, the queues do not block adjacent lanes and/or the benefits of storage length extensions are insignificant.

[2] Def = Defacto right turn lane.

[3] CFR = Channelized Free Right.

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# 10.0 CONCLUSIONS AND MITIGATION MEASURES

Traffic impacts of the 2012 Modified Project with Option 1 and Option 2 have been identified by analyzing the study area circulation system based on existing traffic conditions and 2015, 2030 and Post-2030 future traffic conditions. Traffic conditions under Without Project (2015) or 2011 Approved Project (baseline for 2030 and Post-2030) are compared to the 2012 Modified Project in order to identify the potential traffic impacts of the 2012 Modified Project. Cumulative future traffic conditions were evaluated using the Irvine Transportation Analysis Model, Version 8.4-10 (ITAM 8.4-10).

The results of the impact analysis are summarized in Table 10-1 for the following project scenarios:

2012 Modified Project, Option 1

- 2015
- 2030
- Post-2030

2012 Modified Project, Option 2

- 2015
- 2030
- Post-2030

The 2012 Modified Project proposes to amend the General Plan and zoning to combine Planning Areas 30 and 51. The Heritage Fields Development currently zoned 1.1, 3.2, 4.3, and 5.4B would be rezoned to 8.1. Combined Planning Area 51 consists of all of existing Planning Areas 30 and 51 plus approximately 11 acres between the current western boundary of Planning Area 51 and SR-133 between Trabuco Road and Irvine Blvd. The 2012 Modified Project includes 9,500 dwelling units within the 8.1 zoning, consisting of 3,625 previously approved dwelling units and 1,269 previously approved density bonus units, plus 3,412 dwelling units and 1,194 density bonus units (35% of 3,412) granted pursuant to state law.

The maximum non-residential intensities for the 2012 Modified project in 8.1 zoning would be revised to 1,318,200 square feet of Multi-Use (a category which includes previously approved 11,000 square feet of Child Care and 25,000 square feet of Church), 3,364,000 square feet of Medical and Science (R&D),

**Table 10-1**

**2012 Modified Project Options 1 and 2**
**Mainline, Roadway Segment, Intersection and Ramp Impact Locations**

| Location | Jurisdiction | Existing Funding Source[1] | With 2012 Modified Project Option 1 | | | With 2012 Modified Project Option 2 | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2015 | 2030 | Post-2030 | 2015 | 2030 | Post-2030 |
| **Intersections** | | | | | | | | |
| 16. Newport Ave. & Irvine Blvd. | Tustin | -- | | | | | X | |
| 54. Browning Ave. & Irvine Blvd. | County/Tustin | -- | | X | | | X | |
| 221. Culver Dr. & Bryan Ave. | Irvine | -- | | | | | X | |
| 228. Culver Dr. & Barranca Pkwy. | Irvine | NITM-FS | | X | | | X | |
| 286. Jeffrey Rd. & Roosevelt | Irvine | -- | | | X | | | X |
| 290. Jeffrey Rd. & Barranca Pkwy. | Irvine | NITM-FS/PA9C | | X | | | X | |
| 291. Jeffrey Rd. & Alton Pkwy. | Irvine | NITM[2] | | | X | | | X |
| 303. Sand Canyon Ave. & I-5 NB Ramp/Marine Way | Irvine | -- | | X | | | X | |
| 306. Sand Canyon Ave. & Oak Canyon | Irvine | PA40/PA12[3] | | X | | | X | |
| 321. Laguna Canyon & Old Laguna Canyon | Irvine | NITM[2] | | | X | | | X |
| 366. Bake Pkwy. & Rockfield Blvd. | Irvine | -- | | X | | | X | |
| 424. Los Alisos Blvd. & Rockfield Blvd. | Lake Forest | NITM-FS | | X | | | | |
| **Ramps** | | | | | | | | |
| I-5 NB Off-Ramp to Jamboree Rd. | Caltrans | NITM-FS | | X | | | | |
| **Mainline (Directional Segments)** | | | | | | | | |
| I-5 Northbound, n/o Culver | Caltrans | -- | | X | | | X | |
| I-5 Northbound, n/o Jeffrey | Caltrans | -- | | X | | | X | |
| I-405 Northbound, n/o Jeffrey | Caltrans | -- | | X | X | | X | X |

[1] NITM-FS = NITM Fair Share funded, NITM = NITM Fully Funded

[2] NITM, should the NITM Program be modified to include the potential improvement, otherwise no existing funding source.

[3] Although Post-2030 funding of this improvement has been identified, the 2012 Modified Project impact occurs in 2030. Fair share responsibility for the PA40/12 identified mitigation.

and 220,000 square feet of Community Commercial. The 220,000 square feet of Community Commercial was previously approved and allocated per the master plans for District 1 North and District 4.

The 2012 Modified Project would also amend the General Plan, Objective B-1, Policy (c) regarding LOS "E" consideration as follows: In conjunction with traffic studies for development proposed in Planning Area 51, a LOS "E" standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35, 39 and a portion of 51 south of Marine Way. LOS "E" would be acceptable subject to the following:

1. Preparation, submittal, processing and approval of a traffic study.
2. Level of Service "E" will only be considered acceptable for an intersection that does not contain a residential quadrant, unless the residential development has a net density of 30 dwelling units per acre or greater. No Level of Service "E" will be acceptable along Sand Canyon except at the Sand Canyon/I-5 Interchange Ramps/Intersections.
3. Participation/funding to an upgraded traffic signal system as defined in the Traffic Management Systems Operations Study (TMSOS) and/or an Advance Traffic Management System (ATMS), which may be in place at the time of processing of the individual traffic studies. The City, in conjunction with specific traffic studies, shall determine the level of participation/funding using criteria and a process developed concurrently.

The 2012 Modified Project includes a 2,600 student high school in District 5, which is included in the 2030 and Post-2030 scenarios. For the purposes of this traffic study, the Great Park Neighborhoods/Heritage Fields tentative tract map land uses in Districts 1 North, 1 South, 4, 7, and 8 are assumed to be as approved for all horizon years with the following exceptions:

Option 1 - Includes the conversion of Institutional (Education) and Office land uses to Multi-Use (Non-Residential) or Medical and Science (R&D) in District 1 North.

Option 2 – In addition to the Option 1 conversions in District 1 North, this option includes a relocation of Multi-Use and Retail from District 1 North to District 1 South as well as changes in Districts 1 North to accommodate approved residential units displaced from a portion of District 1 South.

## 10.1 2012 Modified Project Improvement Requirements

In some cases, new project impacts have been identified for the various project development scenarios. Recommended mitigation measures for each impacted location are presented below.

### 10.1.1 Interim Year 2015

**Interim Year 2015 with the 2012 Modified Project, Option 1**

Year 2015 AM and PM peak hour analysis results indicate that none of the study area intersections, ramps, arterial segments or freeway segments exceed adopted impact thresholds with the Project with Option 1.

**Interim Year 2015 with the 2012 Modified Project, Option 2**

Year 2015 AM and PM peak hour analysis results indicate that none of the study area intersections, ramps, arterial segments or freeway segments exceed adopted impact thresholds with the Project with Option 2.

### 10.1.2 Long Term 2030

**Long Range 2030 with the 2012 Modified Project, Option 1**

Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that the following seven intersections exceed adopted impact thresholds with the 2012 Modified Project with Option 1:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Sand Canyon Ave. & I-5 NB Ramp/Marine Way[1]
- Sand Canyon Ave. & Oak Canyon

- Bake Pkwy. & Rockfield Blvd.
- Los Alisos Blvd. & Rockfield Blvd.

[1] Assuming LOS "E" not acceptable

Because existing occupied land uses along Irvine Boulevard at the Browning Avenue intersection constrain the construction of additional east-west through travel lanes which are consistent with the City of Tustin General Plan and County MPAH, the Project mitigation identifies ATMS at this location to optimize signal performance, at the discretion of the City of Tustin.

At the intersection of Culver / Barranca, the Project is responsible for NITM fair share participation towards the improvement (conversion of the westbound defacto right-turn lane to through lane) as mitigation to the Project impact. Planning Area 1/9 GPA/ZC has previously been identified as funding the balance of the fair share NITM Program improvement.

At the intersection of Jeffrey Road / Barranca Parkway, the Project is responsible for advancing the previously identified ATMS mitigation applied in Post-2030.

The project mitigation at Sand Canyon/I-5 NB ramps/Marine is the conversion of the northbound defacto right turn lane to a standard right turn lane with right turn overlap signal operation. An alternative is to designate LOS "E" acceptable at this location and satisfy the requirements through TMSOS/ATMS participation. The level of TMSOS/ATMS participation shall be consistent with that applied in the NITM Program.

The project mitigation at Sand Canyon Avenue / Oak Canyon is fair share responsibility for a previously identified PA40/12 mitigation that converts the westbound shared through/right lane to a single through lane and converts the westbound right-turn lane into a free-right turn lane. If pending projects are approved, this mitigation improvement is no longer needed.

At the Bake Parkway / Rockfield Boulevard intersection, the Project is responsible for the conversion of a westbound through lane to a 3rd left turn lane.

At the Los Alisos Boulevard / Rockfield Boulevard intersection, Project participation in the NITM improvement (addition of a southbound right turn lane) mitigates the impact.

The 2012 Modified Project with Option 1 exceeds the adopted impact threshold for 2030 conditions at the I-5 Northbound off-ramp to Jamboree Road. The proposed mitigation at this location is participation in the fair share funded NITM improvements to add a second drop lane from the I-5 to the Jamboree Road off-ramp.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose lane at the following three (3) segments mitigates the Project Option 1 contribution to cumulative freeway mainline impacts:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

If pending projects are approved, mitigation is no longer needed for I-5 Northbound north of Jeffrey and I-405 Northbound north of Jeffrey.

**Long Range 2030 with the 2012 Modified Project, Option 2**

The 2012 Modified Project with Option 2 does not cause traffic to exceed thresholds on arterial roadway segments or freeway ramps for 2030 conditions.

Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that six of the seven intersections impacted by the 2012 Modified Project with Option 1 are also impacted with Option 2. At these six locations, the Option 1 mitigation measures (described above) also mitigate Option 2 impacts:

- Browning Ave. & Irvine Blvd.
- Culver Dr. & Barranca Pkwy.
- Jeffrey Rd. & Barranca Pkwy.
- Sand Canyon Ave. & I-5 NB Ramp/Marine Way

- Sand Canyon Ave. & Oak Canyon
- Bake Pkwy. & Rockfield Blvd.

For 2030 conditions with the 2012 Modified Project with Option 2, the following two additional intersections are also impacted:

- Newport Ave. & Irvine Blvd.
- Culver Dr. & Bryan Ave

The mitigation to the Project Option 2 impact at Newport Drive/Irvine Boulevard is a signal modification – northbound right turn overlap phase. If pending projects are approved, this mitigation improvement is no longer needed.

The mitigation to the Project Option 2 impact at Culver Drive/Bryan Avenue is the addition of a westbound defacto right-turn lane. If pending projects are approved, this mitigation improvement is no longer needed.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose lane at the following three (3) segments mitigates the Project Option 2 contribution to cumulative freeway mainline impacts:

- I-5 Northbound, n/o Culver
- I-5 Northbound, n/o Jeffrey
- I-405 Northbound, n/o Jeffrey

If pending projects are approved, mitigation is no longer needed for I-5 Northbound north of Jeffrey and I-405 Northbound north of Jeffrey.

### 10.1.3 General Plan Buildout (Post-2030)

**General Plan Buildout (Post-2030) with the 2012 Modified Project, Option 1**

Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that three intersections exceed adopted impact thresholds with the 2012 Modified Project with Option 1:

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.
- Laguna Cyn. & Old Laguna Cyn.

At the Jeffrey Road / Roosevelt intersection, the project mitigation is conversion of the eastbound shared through/right lane into a through lane, and addition of a second right turn lane.

At the Jeffrey Road / Alton Parkway Intersection, the project mitigation is provision of an eastbound standard right-turn lane with right-turn overlap phase resulting in an ultimate eastbound lane configuration of 2 left-turn lanes, 2 through lanes, and 1 right-turn lane.

The project mitigation at Laguna Canyon/Old Laguna Canyon identifies ATMS at this location, subject to approval by the Director of Public Works. An alternate physical improvement is the addition of a fourth northbound through lane. If it is desired to utilize one of these improvement options as a substitution to an identified NITM improvement at this location, this request would be subject to approval by the Director of Public Works in consultation with the NITM Committee. If pending projects are approved, the mitigation improvement is no longer needed.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose travel lane at one freeway mainline segment (I-405 northbound, north of Jeffrey) mitigates the Project Option 1 contribution to a cumulative impact. If pending projects are approved, mitigation is no longer needed for I-405 Northbound north of Jeffrey.

**General Plan Buildout (Post-2030) with the 2012 Modified Project, Option 2**

Post-2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate the same three intersections impacted by the 2012 Modified Project with Option 1 are also impacted with Option 2. At these three locations, the Option 1 mitigation measures (described above) also mitigate Option 2 impacts:

- Jeffrey Rd. & Roosevelt
- Jeffrey Rd. & Alton Pkwy.
- Laguna Cyn. & Old Laguna Cyn.

Project fair share participation in a directional capacity enhancement equivalent to a single general purpose travel lane at one freeway mainline segment (I-405 northbound, north of Jeffrey) mitigates the Project Option 2 contribution to a cumulative impact. If pending projects are approved, mitigation is no longer needed for I-405 Northbound north of Jeffrey.

## 10.2 Special Issues

A number of special issues were evaluated as part of the traffic analysis for the 2012 Modified Project.

### 10.2.1 Pending Projects Sensitivity Analysis

Six future "pending" scenarios (2015, 2030, and Post 2030, each with the 2012 Modified Project Options 1 and 2) are analyzed to determine if any additional level of service deficiencies are created within the study area with pending development projects and changes to the Master Plan of Arterial Highways. Pending with Project scenarios are compared against 2011 Approved Project conditions (with the pending projects) so that any deficiencies on the study area circulation system associated with the pending projects in combination with the 2012 Modified Project can be identified. Table 10-2 summarizes the off-site impacts associated with these scenarios.

**Table 10-2**

**2012 Modified Project Options 1 and 2 plus Pending Projects**
**Mainline, Intersection and Ramp Impact Locations**

| Location | Jursidiction | Existing Funding Source[1] | 2012 Modified Project Option 1, with Pending Projects | | | 2012 Modified Project Option 2, with Pending Projects | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2015 | 2030 | Post-2030 | 2015 | 2030 | Post-2030 |
| **Intersections** | | | | | | | | |
| 54. Browning Ave. & Irvine Blvd. | County/Tustin | -- | | X | | | X | |
| 228. Culver & Barranca | Irvine | NITM-FS | | X | | | X | |
| 286. Jeffrey Rd. & Roosevelt | Irvine | -- | | | X | | | X |
| 290. Jeffrey Rd. & Barranca | Irvine | NITM-FS/PA9C | | X | | | X | |
| 291. Jeffrey Rd. & Alton Pkwy. | Irvine | -- | | X | X | | | X |
| 303. Sand Canyon Ave. & I-5 NB Ramps | Irvine | -- | | X | | | X | |
| 366. Bake Pkwy. & Rockfield Blvd. | Irvine | -- | | X | | | X | |
| 417. El Toro Rd. & Portola Pkwy. | Lake Forest | LFTM | | X | | | X | |
| **Ramps** | | | | | | | | |
| I-5 NB Off-Ramp to Jamboree Rd. | Caltrans | NITM-FS | | X | X | | X | X |
| SR-133 NB Loop on-ramp from Barranca Pkwy. | Caltrans | -- | | | | X | | |
| **Mainline (Directional Segments)** | | | | | | | | |
| I-5 Northbound, n/o Culver | Caltrans | -- | | X | | | X | |

[1] NITM-FS = NITM Fair Share funded, NITM = NITM Fully Funded

*Heritage Fields Project 2012 GPA/ZC Traffic Study*

*City of Irvine, CA (JN:07151-12.1 Report Tables)*

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**2015 With Pending Projects, Option 2**

For 2015 pending conditions, there is one ramp impact for Option 2. If pending projects are approved, the project mitigation for the SR-133 Northbound Loop on-ramp from Barranca Parkway is fair share participation (on a NITM methodology fair share basis) in converting the HOV preferential lane at the on-ramp to a second metered mixed-flow lane.

**2030 With Pending Projects, Options 1 and 2**

For 2030 pending-plus project conditions, there are seven intersection impacts for both Options (six are previously identified locations with no additional mitigation for the pending condition), one ramp impact for both Options (previously identified location with no additional mitigation for the pending condition), and one directional mainline fair share impact for both Options (previously identified location with no additional mitigation for the pending condition).

If pending projects are approved, Project mitigation at the El Toro Road / Portola Parkway intersection consists of fair share participation in the addition of a southbound right turn overlap phase.

**Post-2030 With Pending Projects, Options 1 and 2**

For pending conditions, there are two intersection impacts for both Options (previously identified locations with no additional mitigation for the pending condition), one ramp impact for both Options (previously identified location with no additional mitigation for the pending condition), and no directional mainline segment impacts.

10.2.2 Rockfield Boulevard MPAH Network, Sensitivity Analysis

Buildout conditions for Options 1 and 2 are analyzed to determine if any level of service deficiencies are created within the study area with the buildout of Rockfield Boulevard as currently included on the Orange County Master Plan of Arterial Highways (MPAH). In the event that the Rockfield MPAH change does not occur and the Rockfield connection to Marine Way is ultimately constructed, no additional traffic impacts occur with the 2012

Modified Project with Option 2 on arterial roadway segments, arterial intersections, mainline freeway segments or freeway ramps for Post-2030 conditions. With Option 1, the SR-133 NB Loop On-Ramp at Barranca Parkway is impacted if the Rockfield MPAH change does not occur and the Rockfield connection to Marine Way is ultimately constructed. No other impacts on roadways, intersections or freeway mainlines result with the buildout of Option 1.

The SR-133 northbound loop on-ramp at Barranca Parkway is impacted under the 2015 pending plus project condition with the 2012 Modified Project Option 2. The proposed mitigation improvement for this ramp is not a NITM Program improvement. In the event that the MPAH change is not approved and the 2012 Modified Project Option 1 is implemented with construction of the Rockfield extension to Marine Way, the Option 1 Project will also participate on a NITM methodology fair share basis in the conversion of the HOV preferential lane at the on-ramp to a second metered mixed-flow lane.

### 10.2.3 Access Study and Other Special Issues

The proposed access points along Irvine Boulevard are analyzed to assure that there is adequate distance between signals and that traffic operations will not be adversely impacted in a significant manner. Option 2 is used as the basis for this analysis because it includes changes in District 1 which were not analyzed in prior traffic studies. On-site intersections which are potentially affected by project changes for either Option 1 or Option 2 are also reviewed in comparison to prior traffic study findings. Table 9-34 includes recommended storage length requirements for the 2012 Modified Project Option 1 or 2. On-site roadways shown in Districts 5 and 6 (east of "B" Street, south of "LQ" Street and north of Marine Way) are conceptual. The alignments of local streets in Districts 5 and 6 will be determined in future Vesting Tentative Tract Map (VTTM) traffic studies.

**Pedestrian and Bicycle Circulation** – Within the Heritage Fields / Great Park Neighborhoods project area, goals of the City's General Plan for effective non-motorized transportation (Objectives B-3 and B-4) are accomplished through enhanced local street connectivity, an extensive network of walkways and bikeways, and the arrangement of land uses for access by various modes.

**Circulation Phasing Report Intersections –** The Proposed Project 2015 development phase without and with Density Bonus does not create a potential impact at any of the intersections in the study area that are identified as locations subject to improvements based on the ICU analysis results presented in the 2008 City of Irvine Circulation Phasing Report.

**Transit –** Transit services for the project area are identified at a concept plan level in order to determine potential transit stop locations and ensure that physical site planning for the project districts will accommodate appropriate pedestrian connectivity to the stop locations. The conceptual routes are comparable to the network presented in the recommended Preferred Alternative and Complementary OCTA Services scenarios evaluated in the citywide Irvine Transit Vision report.

**CMP Checklist –** There are 19 intersection locations within the study area that are monitored a part of the CMP. These intersections are projected to operate better than LOS "E" standard based upon the analysis of 2015 traffic that is required by the CMP.

## 10.3 Mitigation Summary

Table 10-3 summarizes the off-site 2012 Modified Project mitigation measures. For each mitigation measure, the summary table also notes whether the project proposes to participate in the implementation of the identified improvement on a fair share basis or to be fully responsible for implementation of the improvement. The mitigation improvements proposed at the impacted freeway ramps are all partially funded NITM Program improvements, and the NITM Program allocates a fair share portion of the cost of the proposed ramp improvements to PAs 30 and 51. Therefore participation in the NITM Program fulfills the mitigation requirement of the 2012 Modified Project at the impacted freeway ramps. Upon review of the List of NITM Improvements resulting from this analysis and by utilizing the current ITAM version and methodology consistent with the April 30, 2003 NITM Program Nexus Study, the NITM Fees will be recalculated, reflecting any fair share allocation modifications based on current analyses. The list of NITM improvements will be reviewed and updated, if necessary, as part of the NITM Fee Reallocation analysis being prepared under separate cover for Director of Public Works approval.

## Table 10-3

### 2012 Modified Project
### Summary of Off-Site Mitigation Measures

| Location | Improvement | Project Responsibility |
|---|---|---|
| **Intersections** | | |
| 16. Newport Ave. & Irvine Blvd. | Signal modification - northbound right turn overlap phase | Fully responsible for identified improvement – 2030 (Option 2 only). Improvement no longer needed if Pending projects are approved. |
| 54. Browning Ave. & Irvine Blvd. | Apply ATMS, subject to City of Tustin approval. | Fully responsible for identified improvement – 2030 (Option 1 and 2). |
| 221. Culver Dr. & Bryan Ave. | Add westbound defacto right turn lane | Fully responsible for identified improvement – 2030 (Option 2 only). Improvement no longer needed if Pending projects are approved. |
| 228. Culver Dr. & Barranca Pkwy. | Convert westbound defacto right turn lane to through lane | NITM fair share participation – 2030 (Option 1 and 2) |
| 286. Jeffrey Rd. & Roosevelt | Convert the eastbound shared through/right lane into a through lane, and add a second right turn lane | Fully responsible for identified improvement – Post 2030 (Option 1 or 2) |
| 290. Jeffrey Rd. & Barranca Pkwy. | Apply ATMS | Responsible for advancing ATMS improvement – 2030 (Option 1 and 2) |
| 291. Jeffrey Rd. & Alton Pkwy. | Provision of an eastbound standard right-turn lane with right-turn overlap phase resulting in an ultimate eastbound lane configuration of 2 left-turn lanes, 2 through lanes, and 1 right-turn lane. | Fully responsible for identified improvement – Post 2030 (Options 1 and 2, and Pending Options 1 and 2). Fair share responsibility for identified improvement – 2030 (Pending Option 1 only). |
| 303. Sand Canyon Ave. & I-5 NB Ramp/Marine Way | Convert northbound defacto right turn lane to a standard right turn lane with right turn overlap signal operation | Fully responsible for identified improvement - 2030 (Option 1 or 2) |
| 306. Sand Canyon Ave. & Oak Canyon | Convert westbound shared through/right lane to a single through lane, and convert westbound right turn lane into free right turn lane | Fair share responsibility of the PA40/12 GPA/ZC identified mitigation - 2030 (Options 1 and 2). Improvement no longer needed if Pending projects are approved. |
| 321. Laguna Canyon & Old Laguna Canyon | Apply ATMS subject to approval by the Director of Public Works. Alternate improvement - Add fourth northbound through lane. | Fully responsible for the identified improvement – Post-2030 (Options 1 and 2). Improvement no longer needed if Pending projects are approved. |

## Table 10-3 Cont.

### 2012 Modified Project
### Summary of Off-Site Mitigation Measures

| Location | Improvement | Project Responsibility |
|---|---|---|
| 366. Bake Pkwy. & Rockfield Blvd. | Convert westbound through lane to 3rd left turn lane | Fully responsible for the identified improvement – improvement – 2030 (Option 1 and 2) |
| 417. El Toro Rd. & Portola Pkwy. | Add southbound right turn overlap phase | Implementation of LFTM fully-funded improvement – Pending 2030 (Option 1 and 2). |
| 424. Los Alisos Blvd. & Rockfield Blvd. | Add a southbound right turn lane | NITM fair share participation – 2030 (Option 1 only). Improvement no longer needed if Pending projects are approved. |
| **Ramps** | | |
| I-5 NB Off-Ramp to Jamboree Rd. | Add a second drop lane from the I-5 to the off-ramp | NITM fair share participation – 2030 (Option 1 only) and Pending 2030 (Options 1 and 2) and Pending Post-2030 (Options 1 and 2) |
| SR-133 NB Loop On-Ramp from Barranca Plwy. | Participate in convertint the HOV preferential lane at the on-ramp to a second metered mixed-flow lane. | Fair share responsibility for identified improvement - 2015 (Pending Option 2) |
| **Mainline (Directional Segments)** | | |
| I-5 Northbound, n/o Culver | Participate in a directional capacity enhancement equivalent to a single general purpose lane | Fair Share responsibility for identified improvement – 2030 (Option 1 and 2) |
| I-5 Northbound, n/o Jeffrey | Participate in a directional capacity enhancement equivalent to a single general purpose lane | Fair Share responsibility for identified improvement – 2030 (Option 1 and 2). Mitigation no longer needed if Pending projects are approved. |
| I-405 Northbound, n/o Jeffrey | Participate in a directional capacity enhancement equivalent to a single general purpose lane | Fair Share responsibility for identified improvement – 2030 and Post-2030 (Option 1 and 2). Mitigation no longer needed if Pending projects are approved. |

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