

*Appendix E*  
*Supplemental Traffic Information*

## *Appendices*

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October 4, 2013

Mr. Kerwin Lau  
CITY OF IRVINE, COMMUNITY DEVELOPMENT  
1 Civic Center Plaza  
Irvine, CA 92606-5207

**Subject: Overall Responses to Transportation Planning Comments Regarding the Heritage Fields Project 2012 GPA/ZC DEIR Traffic Impact Analysis**

Dear Mr. Lau:

Urban Crossroads Inc. prepared the Heritage Fields Project 2012 General Plan Amendment/Zone Change Traffic Impact Analysis (June 26, 2012). As lead agency, the City determined the proper performance criteria and impact thresholds for the traffic analysis. The City's thresholds for analysis of freeway/tollway mainline segments, freeway/ramp intersection, arterial roadway segments, and arterial intersections are clearly described in Table 2-4 of the Traffic Impact Analysis. The City's traffic analysis performance criteria/ impact thresholds are also consistent with comprehensive North Irvine Transportation Mitigation (NITM) traffic study requirements.

Transportation-related comments regarding the Project DSSEIR and its supporting Traffic Impact Analysis cover several technical topics, including the following:

- Overview of project trip generation and trip distribution
- Geographic scope of study area for Laguna Beach
- Corrections to post-processing of ITAM data on SR-133 at SR-73
- Weekend vs. weekday traffic issues on SR-133
- Geographic scope of study area for Newport Beach
- Need for additional analysis at the Bake Parkway and Lake Forest Drive interchanges
- New Pending Projects in Lake Forest
- Post 2030 scenarios without NITM fair share improvements
- Application of Level of Service E Criteria

### **OVERVIEW OF PROJECT TRIP GENERATION AND TRIP DISTRIBUTION**

Some commentators indicate that the project trip generation has increased since the 2003 OCGP EIR, and question the presentation of trip generation information using Irvine Transportation Analysis Model (ITAM) rates instead of Institute of Transportation Engineering (ITE) rates as seen in other City of Irvine traffic studies. To enable more efficient comparisons between earlier studies and the current analysis, directional peak hour trip generation data using consistent ITAM rates are presented in the attached Tables 1 to 3 for the 2003 OCGP Project, 2011 Approved Project, and 2012 Modified Project. The

attached Table 4 also presents a summary of the 2012 Modified Project trip generation data using the land use based rates that were previously included in the Great Park Neighborhoods General Plan Amendment / Zone Change and VTTM 17008 Amendment (Urban Crossroads, May 27, 2011).

The 2012 Modified Project consists of "Heritage Fields" (applicant) and "Other Public Uses" categories shown in Tables 3-1 through 3-7 of the Traffic Impact Analysis (see Appendix I of the DSSEIR). The increase in project trip generation between the 2003 OCGP EIR and the 2012 Modified Project is attributed to the Heritage Fields density bonus units granted pursuant to State Law and neighborhood parks and additional public school capacity which generally generate local trips internal to the area. All of these trips analyzed with respect to traffic impacts.

As part of discussions during the 2011 Approved Project process, the high school was anticipated to be located in PA 6. As part of separate mitigation agreements between the Irvine Company, IUSD, and Heritage Fields, the high school was relocated within the Project Site. Consistent with the mitigation agreement, the high school is assumed in this new location and the high school's impact on the surrounding roadway network is analyzed as part of the 2012 Modified Project. The demand for the high school is shared between the 2012 Modified Project and the surrounding Irvine Company developments which created the need for this school. With the exception of State-mandated density bonus units and the park and school facilities that will serve the needs of the nearby residents, no additional daily trips have been added beyond the trip cap previously established for PAs 30 and 51. Moreover, the Traffic Impact Analysis fully analyzed and mitigated the impact of all trips ("Heritage Fields" and "Other Public Uses"), including these additional daily trips and shifts in peak hour directionality.

Although the on-site schools and parks and density bonus units linked to the 2012 Modified Project result in increases to total peak hour trip ends, the modification to the land uses within the Proposed Project, specifically the reduction of non-residential uses and the increase to residential uses actually minimizes potential impacts resulting from increased peak hour trip ends. Specifically, the changes in land use result in changes in peak hour directionality, such that the opportunity for internal trips to occur is more likely. The 2011 Approved Project had a jobs-housing ratio of 16,510/4,894, or 3.37. The 2012 Modified Project has a jobs-housing ratio of 17,572/9,500 (or 1.85). As shown in Table 5.9-6 of the DSSEIR, the City has a jobs-housing ratio of 2.48, well above the industry standard for an ideal jobs-housing ratio in the range of 1.3 to 1.7. The additional housing proposed by the 2012 Modified Project would therefore assist the City of Irvine in achieving a healthier jobs-housing balance, whereas the currently approved non-residential uses at the Proposed Project Site attract commuters and visitors who live in other areas.

Changes in the directionality of peak hour trips reflect the improved balance of land uses associated with the 2012 Modified Project, as shown in the attached Table 5. The 2003 OCGP EIR project had 79.4% more trips inbound than outbound during the AM peak hour, resulting in more commuters and visitors traveling from outside the area and into the Combined PA 51 with less opportunity for local trip matching. A similar but less severe imbalance occurs during the PM peak hour with the 2003 OCGP EIR project, by way of 30.3% more trips inbound than outbound. The 2012 Modified Project improves the balance by adjusting the mix of land uses on-site, resulting in improved directionality between inbound and outbound activity during both the AM and PM peak hours.

Although Tables 3-1 through 3-7 of the Draft SSEIR Traffic Impact Analysis include trip generation data for both the “Heritage Fields” and “Other Public Uses” categories of land uses, Table 3-8 focused only on the “Heritage Fields” category. Table 3-8 of the Final SSEIR Traffic Impact Analysis has been revised to include a summary of both the “Heritage Fields” and “Other Public Uses” categories.

### **GEOGRAPHIC SCOPE OF STUDY AREA FOR LAGUNA BEACH**

The Traffic Impact Analysis utilizes the Irvine Transportation Analysis Model, version 8.4-10 (ITAM 8.4-10). Laguna Beach is included in the model area. Outside of the City of Irvine, ITAM derives area-wide traffic patterns from its parent model, the Orange County Transportation Analysis Model (OCTAM). The OCTAM socioeconomic data (SED) is maintained as a background dataset, which is used to produce trip tables that drive ITAM. OCTAM SED is based upon Orange County Projections of population and housing generated by the Center for Demographic Research, CSUF. The DSSEIR traffic impact analysis therefore takes into account all extra-jurisdictional development in the County growth projections.

Within the City of Irvine, a comprehensive database of existing and planned land uses and population and housing statistics for each ITAM zone is maintained.

The southerly boundary for the Traffic Impact Analysis is north of El Toro Road on SR-133 (Laguna Canyon Road), because the 2012 Modified Project does not create significant net volume increases beyond that point. ITAM traffic projections for “with project” and “without project” conditions do not indicate that more homes in place of non-residential uses would translate into significant volume increases on SR-133 in the vicinity of El Toro Road. The City of Irvine’s efforts to better balance jobs and housing do not compound the traffic problems evident during peak seasons on SR-133 south of SR-73. As a variety of attached and detached residences have been built and occupied in Quail Hill, Oak Creek, Woodbury, Portola Springs, the Spectrum area, and the Irvine Business Complex (IBC) during the past 10 years (2002 to 2011), volumes have decreased on SR-133 south of SR-73 based upon average and peak month Caltrans volumes in the attached Table 6. The finding that the Project will not substantially increase volumes on SR-133 south of SR-73 is also consistent with trip distribution patterns for nearby projects evaluated in the following traffic studies:

1. “Planning Area 33 (Lots 105 and 107/108) General Plan Amendment and Zone Change Traffic Study”, Stantec, March 2012.
2. “City of Irvine Planning Area 6 General Plan Amendment and Zone Change Traffic Study”, Austin Foust Associates, Inc., November 2011.
3. “City of Irvine Planning Area 40 Vesting Tentative Tract Map 17277 Traffic Study,” Austin-Foust Associates, Inc., October 2010.
4. “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.
5. “City of Irvine Planning Areas 18, 33 (Lot 109), 34 and 39 General Plan Amendment and Zone Change Traffic Study”, Austin Foust Associates, Inc., February 2006.

6. "City of Irvine Planning Areas 1 and 9 General Plan Amendment and Zone Change Traffic Study", Austin Foust Associates, Inc., February 2005.

The unique trip distribution pattern for each residential development evaluated in these studies indicates that no significant project traffic impacts occur on SR-133 south of SR-73.

There is very limited access to Laguna Beach. In addition to Laguna Canyon Road, only two other access points are available, and they are both located on the same route (South Coast Highway) which traverses the City along the coastline. Traffic volume trends on South Coast Highway in the City of Laguna Beach have also been reviewed (see Table 7). Table 7 shows traffic volumes along South Coast Highway between 1997 and 2012. Average annual and peak month daily traffic volumes on all segments listed for South Coast Highway in 2012 were less than or equal to traffic volumes in 1997. Peak hour volumes range from slightly less to 19% more than 1997 volumes, but the trend has fluctuated over the years (with a peak in 2001/2002 that is equal to or more than in 2012).

Annual beach attendance in Laguna Beach has been tracked and compared to demographic (household and population) trends in the City of Irvine, as shown on Table 8. Since 2004, annual beach attendance for Laguna Beach locations varied and a net effect of no growth had occurred from 2004 to 2010, while in the same timeframe the population and dwelling units in Irvine increased by approximately 20%.

After 2010, beach attendance data for Laguna Beach indicates an increase of 13% over the 2010 (and 2004) attendance levels. This recent increase in beach attendance remains much lower than the increases in population and housing in the City of Irvine. Table 9 provides a series of graphs that show trend comparisons for beach attendance and traffic volume data as compared to household data for the City of Irvine. As noted above, the steady increase in Irvine dwelling units and population has not resulted in commensurate traffic volume increases on Laguna Canyon Road. The City of Irvine household data (dwelling units and population) has steadily increased and is currently over 25% higher than it was in 2004.

Largely because SR-133 south of SR-73 has restricted capacity, drivers respond to the limited capacity by choosing other destinations and/or other routes if available. Data provided in the attached Table 9 provide substantial evidence to this fact along routes entering Laguna Beach.

**CORRECTIONS TO POST-PROCESSING OF ITAM DATA ON SR-133 AT SR-73**

In regard to traffic patterns that are not directly interfacing with Laguna Beach, the ITAM traffic projections contained in the Draft SSEIR Traffic Impact Analysis do not completely capture a particular SR-73 to SR-133 to I-405 & I-5 travel pattern that is reflected in existing counts. The City of Laguna Beach traffic consultant specifically questions the 2015 peak hour traffic projections at the intersection of SR-133 and the SR-73 Northbound Ramps ("Intersection 322"), because those projections are lower in 2015 than in 2012. A substantial increase in the westbound right turn volume at Intersection 322 has occurred in recent years during the AM peak hour. However, ITAM forecasts contained in the Draft SSEIR do not divert as much traffic to this turning movement.

Along SR-133 north of the SR-73 Tollway, existing traffic conditions are heavily influenced by interactions with the neighboring jurisdictions which use the SR-73 to SR-133 to I-405 & I-5 route in favor of the limited other network connections that bypass the I-5/I-405 confluence area. ITAM did not completely capture the SR-73 to SR-133 to I-405 & I-5 travel diversions. Because of these concerns regarding ITAM projections on SR-133, the attached Table 10 contains an updated analysis of increased peak hour ITAM projections at intersections on SR-133 at the SR-73 Tollway (intersections 322 and 323 in the Draft SSEIR Traffic Impact Analysis). The methodology for this revised analysis involves the direct inclusion of higher peak hour diversion data based upon the use of 2012 counts in post-processing of the ITAM data. The results of this analysis indicate that conditions worsen for AM peak hour conditions with or without the project at the intersection of SR-133 and the SR-73 Northbound Ramps (intersection 322), similar to the results previously shown in Chapter 5 of the Draft SSEIR Traffic Impact Analysis for Existing Plus Project conditions.

The Final SSEIR Traffic Impact Analysis corrects this ITAM processing issue on SR-133 at SR-73. The Draft SSEIR Traffic Impact Analysis inadvertently included data posting errors on four segments of Laguna Canyon Road, so the Final SSEIR Traffic Impact Analysis also contains corrections to all exhibits which display daily volumes along Laguna Canyon Road between El Toro Road and the I-405 Freeway. Traffic report tables which summarize ICU analysis results for intersections 322 and 323 have also been updated. The 2012 Modified Project does not create a significant impact at these locations, even with increased ITAM forecasts on SR-133 north of SR-73.

The attached Tables 11 to 14 summarize the daily traffic volumes along segments of Laguna Canyon Road between El Toro Road and the I-405 Freeway, including corrections to improve ITAM forecasting of the SR-73 to SR-133 to I-405 & I-5 travel diversions. The conclusions of the Draft SSEIR regarding Project impacts do not change.

The Traffic Impact Analysis is consistent with a good faith effort to disclose traffic impacts throughout a broad study area. It evaluates existing conditions based upon recent traffic counts, and also presents the analysis and findings for Existing Plus Option 1 Project and Existing Plus Option 2 Project conditions (refer to Chapter 5 of the Draft SSEIR Traffic Impact Analysis), as well as multiple future year scenarios for 2015, 2030 and Post-2030 time periods. The comparisons of “with project” and “without project” conditions indicate that more homes in place of non-residential uses at the project site do not translate into traffic impacts on SR-133 in the vicinity of Laguna Beach.

#### **WEEKEND VS. WEEKDAY TRAFFIC ISSUES ON SR-133**

The City of Irvine and its consultants have consistently recognized the pervasive seasonal traffic issues on SR-133, and OCTA Go Local Program initiatives are indeed examples of area wide initiatives to address these concerns. As requested by the City of Laguna Beach traffic consultant, the “City of Laguna Beach Final Report for OCTA Go Local Program Step One” (City of Laguna Beach and Dan Boyle & Associates, 2008) and “OCTA Go Local Project V Step 2 Service Planning, Subregion 4: Irvine Metrolink Station” (City of Laguna Beach & HDR Engineering, Inc., February, 2011) are acknowledged.

Peak month weekend and weekday traffic volumes are constrained by limited capacity on SR-133 south of El Toro Road. This finding is consistent with the comparison of weekend and weekday peak hour traffic data for Laguna Canyon Road at Forest Drive which is presented on Figures IV.J-2 and

IV.J-3 of the City of Laguna Beach Village Entrance Project DEIR. Figure IV.J-2 shows existing weekend peak hour volumes, and Figure IV.J-3 depicts weekend peak hour traffic volumes, based upon a February 2010 Kimley-Horn and Associates technical report. The SR-133 **weekend** peak hour traffic north of Forest Drive adds to 1,358 vehicles per hour (VPH) southbound and 1,116 VPH northbound. These weekend numbers are slightly lower than the PM peak hour **weekday** traffic flows, which amount to 1,433 VPH southbound and 1,276 VPH northbound on SR-133 north of Forest Drive.

In any case, weekend summer traffic operations on SR-133 are further impacted by parallel parking activity along this route (ingress and egress from permitted on-street parking on segments of Laguna Canyon Road). Laguna Beach has long been recognized as a major tourist attraction with a regional draw, and weekend traffic congestion on Laguna Canyon Road is evident. Seasonal traffic congestion occurs on Laguna Canyon Road as residents of Orange County, Los Angeles County and the Inland Empire visit the resorts, restaurants, art exhibits, festivals and beaches in the City of Laguna Beach. However, the southerly analysis boundary for the Traffic Impact Analysis is north of El Toro Road on Laguna Canyon Road, because the 2012 Modified Project does not create significant net volume increases beyond that point.

#### **GEOGRAPHIC SCOPE OF STUDY AREA FOR NEWPORT BEACH**

The City of Newport Beach asked that the Traffic Impact Analysis include analysis of the following intersections: MacArthur Boulevard/Campus Drive, Campus Drive/Jamboree Road, and MacArthur Boulevard/Jamboree Road. Consistent with the City of Irvine policies and requirements of the NITM Program, the study area for the 2012 Modified Project is the NITM boundary, which does not include these three intersections. When the City established the NITM Program, the NITM boundary represented the area in which traffic impacts were likely to occur based on the cumulative trip distribution and identified impacts in all of the environmental documents that make up the NITM Program.

In order to confirm the study area boundary for Newport Beach with regard to the 2012 Modified Project, the AM and PM peak hour intersection capacity utilization (ICU) analysis at the additional intersections has been performed and it was determined that there would be no Project impact at the three additional intersections. The attached Table 15 shows the ICU results at these locations for future scenarios (2015, 2030 and Post-2030) included in the Traffic Impact Analysis.

#### **NEED FOR ADDITIONAL ANALYSIS AT BAKE PKWY AND LAKE FOREST DR INTERCHANGES**

Caltrans requested that a queuing analysis be done for the Bake Parkway and Lake Forest Drive ramps. Peak hour intersection traffic assessments have been performed in the Draft SSEIR Traffic Impact Analysis at the intersections of Bake Parkway at the I-5 Northbound Ramps, Bake Parkway at the I-5 Southbound Ramps, Lake Forest Drive at the I-5 Northbound Ramps, and Lake Forest Drive at the I-5 Southbound Ramps. Ramp capacity analysis has also been performed for the I-5 Ramps at Bake Parkway (SB Direct On, SB Loop On, NB Direct On, NB Loop On, SB Off, and NB Off), and for the I-5 Ramps at Lake Forest Drive (SB Direct On, SB Loop On, NB On, SB Off, and NB Off). A project impact is not indicated at either the Bake Parkway or Lake Forest Drive interchange with the I-5 Freeway, based upon both the intersection capacity analyses and the ramp capacity analyses.



Ramp volumes at the Bake Parkway and Lake Forest Drive interchanges with the I-5 Freeway are shown on the attached Tables 16 and 17, including 2012 Modified Project volume changes. For these interchange ramps, 2012 Modified Project increases are generally within one percent (1%), and in many cases actually decrease with 2012 Modified Project. The directional volume decreases and minimal increases in traffic volumes at these interchanges are the result of features and proposed land use mix of the 2012 Modified Project which localize more trips in the project area through improved jobs/housing balance and superior school/student balance.

### **NEW PENDING PROJECTS IN LAKE FOREST**

The City of Lake Forest asked whether two applications submitted on February 2, 2012 for a General Plan Amendment/ Zone Change/ Tentative Tract map/ Site Development Permit were included in the analysis of pending projects included in the Draft SSEIR Traffic Impact Analysis. The City of Irvine obtained, from City of Lake Forest staff, recent drafts of the Paseos at Foothill Ranch Traffic Impact Analysis (RBF Consulting, July 2012) and the Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec Consulting Services, August 2012) (together, the "Lake Forest Traffic Reports"). The Lake Forest Projects are located between Bake Parkway and Lake Forest Drive, south of Portola Parkway and north of the SR-241.

Six of the intersections analyzed in the Lake Forest Traffic Reports are NITM study area intersections:

- 361 - Bake Parkway & Portola Parkway
- 374 - Lake Forest Drive & Portola Parkway
- 373 - Lake Forest Drive & SR-241 NB Ramps
- 375 - Lake Forest Drive & SR-241 SB Ramps
- 515 - Bake Parkway North & Rancho Parkway North
- 516 - Lake Forest Drive & Ranch Parkway North

For each of the six intersections, the total increase in traffic on each movement for the Lake Forest Projects was calculated by comparing the turning movement volumes in the two Lake Forest Projects to their No Project turning movement volumes and then adding the two project differences together. Where there was an increase in volume from the two new pending projects, that increase was added to the Pending No Project and Pending With Project turning movement volumes. The increases were applied to the intersection volumes analyzed in the Traffic Impact Analysis scenarios for pending projects.

Intersection capacity utilization analysis was then performed for 2015, 2030 and Post 2030 with pending projects, with the Lake Forest Projects. Table 18 summarizes the results of that analysis. No new 2012 Modified Project impacts would occur when the Lake Forest Projects are taken into account.

## **POST 2030 SCENARIOS WITHOUT NITM FAIR SHARE IMPROVEMENTS**

An issue was raised regarding partially funded NITM improvements which are assumed to be in place in the post 2030 Traffic Impact Analysis scenarios. For General Plan buildout conditions, the City's ITAM database includes partially funded NITM improvements at study area intersections. The attached Table 19 presents an assessment of "without project" and "with project" conditions, without the partially funded NITM improvements. This assessment concludes that no additional traffic impacts would occur with the 2012 Modified Project, even without the partially funded NITM improvements at these locations.

## **APPLICATION OF LEVEL OF SERVICE E CRITERIA**

The 2012 Modified Project includes a proposed amendment to the General Plan to allow LOS "E", in conjunction with traffic studies for development proposed in Combined Planning Area 51, to 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. The Traffic Impact Analysis notes that LOS "E" would only be acceptable at selected locations subject to 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 Traffic Impact Analysis does not rely upon this application of LOS "E" acceptability or any other change in LOS standards during the course of evaluating traffic impacts associated with the 2012 Modified Project.

## **URBAN CROSSROADS, INC. QUALIFICATIONS**

Urban Crossroads, Inc. was founded in 2000 by a group of professionals whom had worked together for the better part of a decade. Our professional staff includes 21 traffic planners, engineers, noise and air quality specialists, systems experts, and technicians in our corporate office in Irvine and branch offices located in Riverside and Carlsbad.

Urban Crossroads, Inc. specializes in transportation planning/engineering, context sensitive design and sustainability strategies, travel demand modeling, infrastructure funding, and information systems for governmental agencies and the business community.

Urban Crossroads routinely works with public sector clients to provide accurate and reasonable traffic projections and to achieve the best possible designs for positive change in the urban environment. Our personnel have performed major assignments for over 30 different cities in California, as well as regional organizations such as the Southern California Association of Governments (SCAG), the Coachella Valley Association of Governments (CVAG), and the Orange County Transportation Authority (OCTA). Urban Crossroads, Inc. has also provided on-call services for the counties of Orange, Riverside and Imperial, and currently provides contract traffic engineering services to the City of Ranch Santa Margarita.

Mr. Kerwin Lau  
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Key staff members involved in this analysis include Mr. John Kain, AICP (President of Urban Crossroads, Inc.), and Ms. Marlie Whiteman, PE (Director of Transportation Modeling). Their resumes are attached to this letter.

In summary, this letter addresses technical comments regarding the Draft SSEIR Traffic Impact Analysis which have been raised by more than one commentator or merited follow-up. As a result of the overall process of responding to all DSSEIR comments, various corrections were made to the June 26, 2012 traffic study report. The Final SSEIR Traffic Impact Analysis does not identify any additional Project traffic impacts which were not already disclosed in the Draft SSEIR.

Respectfully submitted,

URBAN CROSSROADS, INC.

A handwritten signature in black ink that reads "John Kain". The signature is written in a cursive, flowing style.

John Kain, AICP  
President

A handwritten signature in black ink that reads "Marlie Whiteman". The signature is written in a cursive, flowing style.

Marlie Whiteman, PE  
Senior Associate

JN: 7151:UXR Trans Topics Ltr 10.02.13

Attachments

Table 1

**Combined Planning Area 51**  
**2012 Modified Project Land Use and Trip Generation<sup>1</sup>**

Great Park Land Use Description	Units	2012 Modified Project	AM PEAK HOUR			PM PEAK HOUR			DAILY
			IN	OUT	TOTAL	IN	OUT	TOTAL	
HERITAGE FIELDS									
Senior Housing	DU	182	18	62	80	53	33	86	930
Elementary School (K-8)	Students	650	104	13	117	26	46	72	806
Child Care (Multi-Use Non-Residential)	TSF	11	27	9	35	17	27	44	461
Church, Synagogue (Multi-Use Non-Residential)	TSF	25	14	4	18	7	13	20	204
Multi-Use (Non-Residential)	TSF	1,282	1,141	308	1,449	551	1,000	1,551	16,092
Multi-Use (Res - Multi Family)	DU	3,412	409	1,911	2,320	1,467	785	2,252	24,396
Res. - SFD (New Density Bonus Units)	DU	1,194	167	788	955	633	334	967	10,495
Retail (Community Commercial)	TSF	220	482	264	746	526	625	1,151	12,038
R&D (Medical and Science)	TSF	3,364	2,422	673	3,095	1,211	2,187	3,398	35,053
Multi Family	DU	2,548	306	1,427	1,733	1,096	586	1,682	18,218
Single Family Detached Residential	DU	2,164	303	1,428	1,731	1,147	606	1,753	19,022
HERITAGE FIELDS TOTAL			5,393	6,887	12,279	6,734	6,242	12,976	137,715
ADDITIONAL PUBLIC USES									
Elementary School (K-8), add'l students	Students	1,350	216	27	243	54	95	149	1,674
High School	Students	2,600	416	52	468	104	182	286	3,224
Park (Neighborhood)	Acres	100	21	7	28	13	22	35	359
ADDITIONAL PUBLIC USES TOTAL			653	86	739	171	299	470	5,257
HERITAGE FIELDS + ADDITIONAL PUBLIC USES TOTAL			6,046	6,973	13,018	6,905	6,541	13,446	142,972
CITY / OTHER PROPERTY									
Agriculture	Acres	90	14	4	18	5	12	17	181
Habitat, Wildlife Corridor & Drainage <sup>2</sup>	Acres	1,180	12	12	24	12	12	24	201
Warehousing	TSF	263	132	32	163	53	108	160	1,654
OCTA Facility / Terminal	TSF	176	95	23	118	37	77	114	1,179
Transportation Center / Fly-Away Ctr.	Spaces	1,050	210	53	263	84	168	252	2,625
Cultural/Institutional	TSF	300	372	135	507	267	399	666	6,924
Great Park Parking (TAZs 930, 931, 993-995)	Spaces	415	66	33	100	66	83	149	1,553
Great Park Parking (TAZs 932, 933, 991, 992, 996)	Spaces	2,142	86	21	107	1,092	814	1,906	8,015
Great Park Parking (TAZs 927-929, 977, 978)	Spaces	2,480	446	99	546	347	546	893	9,280
Government Facility	TSF	71	100	33	133	62	101	163	1,693
CITY / OTHER PROPERTY TOTAL			1,533	445	1,979	2,025	2,320	4,344	33,305
OVERALL TOTAL									
			7,579	7,418	14,997	8,930	8,861	17,790	176,277

<sup>1</sup> Based upon ITAM rates derived from ITAM 8.4-10 socio-economic conversion factors, production attraction rates, and time of day trip table factors.

<sup>2</sup> Includes trips associated with residential density bonus units granted pursuant to state law.

Table 2

**Combined Planning Area 51  
2011 Approved Project Land Use and Trip Generation<sup>1</sup>**

Great Park Land Use Description	Units	2011 Approved Project	AM PEAK HOUR			PM PEAK HOUR			DAILY
			IN	OUT	TOTAL	IN	OUT	TOTAL	
HERITAGE FIELDS									
Senior Housing	DU	182	18	62	80	53	33	86	930
Elementary School (K-8)	Students	650	104	13	117	26	46	72	806
Child Care (Multi-Use Non-Residential)	TSF	11	27	9	35	17	27	44	461
Church, Synagogue (Multi-Use Non-Residential)	TSF	25	14	4	18	7	13	20	204
Retail (Community Commercial)	TSF	300	657	360	1,017	717	852	1,569	16,416
Auto Center	TSF	102	176	95	271	189	227	416	4,353
R&D (Medical and Science)	TSF	2,600	1,872	520	2,392	936	1,690	2,626	27,092
Agriculture	Acres	13	2	1	3	1	2	2	25
Golf Course	Acres	150	47	18	65	38	51	89	923
Chapel/Mortuary	TSF	50	27	8	35	14	26	40	407
Education (Institutional)	Students	7,741	1,626	387	2,013	697	1,239	1,935	20,359
Office	TSF	75	67	18	85	32	59	91	941
Exposition (Commercial Recreation)	TSF	708	913	326	1,239	651	970	1,621	16,829
Multi Family	DU	1,971	237	1,104	1,340	848	453	1,301	14,093
Single Family Detached Residential	DU	2,741	384	1,809	2,193	1,453	767	2,220	24,093
HERITAGE FIELDS TOTAL			6,171	4,734	10,903	5,679	6,455	12,132	127,932
ADDITIONAL PUBLIC USES									
Elementary School (K-8), add'l students	Students	1,350	216	27	243	54	95	149	1,674
Park (Neighborhood)	Acres	48	10	3	13	6	10	17	171
ADDITIONAL PUBLIC USES TOTAL			226	30	256	60	105	166	1,845
HERITAGE FIELDS + ADDITIONAL PUBLIC USES TOTAL			6,397	4,764	11,159	5,739	6,560	12,298	129,777
CITY / OTHER PROPERTY									
Agriculture	Acres	90	14	4	18	5	12	17	181
Habitat, Wildlife Corridor & Drainage <sup>2</sup>	Acres	1,283	13	13	26	13	13	26	218
Warehousing	TSF	263	132	32	163	53	108	160	1,654
OCTA Facility / Terminal	TSF	176	95	23	118	37	77	114	1,179
Transportation Center / Fly-Away Ctr.	Spaces	1,050	210	53	263	84	168	252	2,625
Cultural/Institutional	TSF	300	372	135	507	267	399	666	6,924
Great Park Parking (TAZs 930, 931, 993-995)	Spaces	415	66	33	100	66	83	149	1,553
Great Park Parking (TAZs 932, 933, 991, 992, 996)	Spaces	2,142	86	21	107	1,092	814	1,906	8,015
Great Park Parking (TAZs 927-929, 977, 978)	Spaces	2,480	446	99	546	347	546	893	9,280
Government Facility	TSF	71	100	33	133	62	101	163	1,693
CITY / OTHER PROPERTY TOTAL			1,534	446	1,981	2,026	2,321	4,346	33,322
OVERALL TOTAL									
			7,931	5,210	13,140	7,765	8,881	16,644	163,099 <sup>2</sup>

<sup>1</sup> Based upon ITAM rates derived from ITAM 8.4-10 socio-economic conversion factors, production attraction rates, and time of day trip table factors.

<sup>2</sup> Includes trips associated with residential density bonus units granted pursuant to state law.

Table 3

**Combined Planning Area 51  
2003 OCGP EIR Project Land Use and Trip Generation<sup>1</sup>**

Great Park Land Use Description	Units	2003	AM PEAK HOUR			PM PEAK HOUR			DAILY
		OCGP EIR	IN	OUT	TOTAL	IN	OUT	TOTAL	
HERITAGE FIELDS									
Senior Housing	DU	800	80	272	352	232	144	376	4,088
Elementary School (K-8)	Students	650	104	13	117	26	46	72	806
Retail (Community Commercial)	TSF	300	657	360	1,017	717	852	1,569	16,416
Auto Center	TSF	102	176	95	271	189	227	416	4,353
R&D (Medical and Science)	TSF	2,600	1,872	520	2,392	936	1,690	2,626	27,092
Agriculture	Acres	213	34	9	43	13	28	40	428
Golf Course	Acres	526	163	63	226	132	179	310	3,235
Chapel/Mortuary	TSF	50	27	8	35	14	26	40	407
Education (Institutional)	Students	7,800	1,638	390	2,028	702	1,248	1,950	20,514
Office	TSF	75	67	18	85	32	59	91	941
Exposition (Commercial Recreation)	TSF	708	878	319	1,197	630	942	1,572	16,341
Multi Family	DU	-	-	-	-	-	-	-	-
Res / Golf Village	DU	1,100	154	726	880	583	308	891	9,669
University Residential	DU	60	7	33	40	28	12	40	429
Transitional Housing	DU	165	17	83	100	69	31	100	1,082
TOD Residential (Multi)	DU	1,500	180	840	1,020	645	345	990	10,725
Cemetary	Acres	73	1	-	1	1	1	1	12
HERITAGE FIELDS TOTAL			6,055	3,749	9,804	4,949	6,138	11,084	116,538
CITY / OTHER PROPERTY									
Agriculture	Acres	90	14	4	18	5	12	17	181
Habitat, Wildlife Corridor & Drainage <sup>2</sup>	Acres	1,382	14	14	28	14	14	28	235
Warehousing	TSF	263	132	32	163	53	108	160	1,654
OCTA Facility / Terminal	TSF	176	95	23	118	37	77	114	1,179
Transportation Center / Fly-Away Ctr.	Spaces	1,050	210	53	263	84	168	252	2,625
Cultural/Institutional	TSF	768	952	346	1,298	684	1,021	1,705	17,725
Sports Park	Acres	165	337	140	477	277	383	660	6,881
OS Park	Acres	367	77	26	103	48	77	128	1,318
CITY / OTHER PROPERTY TOTAL			1,831	638	2,468	1,202	1,860	3,064	31,798
OVERALL TOTAL									
			7,886	4,387	12,272	6,151	7,998	14,148	148,336

<sup>1</sup> Based upon ITAM rates derived from ITAM 8.4-10 socio-economic conversion factors, production attraction rates, and time of day trip table factors.

Table 4

**Heritage Fields (With Additional Public Uses)**  
**2012 Modified Project Trip Generation From Land Use Based Rates Utilized in 2011 Analysis<sup>1</sup>**

LAND USE	UNITS <sup>2</sup>	2012 MODIFIED PROJECT QUANTITIES	AM PEAK HOUR			PM PEAK HOUR			DAILY
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Senior Adult Housing - Detached	DU	182	15	25	40	29	20	49	675
Elementary School	STU	650	325	267	592	46	52	98	839
Child Care	TSF	11	72	63	135	64	73	137	872
Church, Synagogue	TSF	25	9	5	14	7	7	14	228
Office/Multi-Use (Non-Residential) <sup>3</sup>	TSF	1,282	964	287	1,251	276	922	1,198	13,756
Multi-Use (Residential, Condos)	DU	3,412	239	1,262	1,501	1,194	580	1,774	19,824
Res. - SFD (New Density Bonus Units)	DU	1,194	227	669	896	764	442	1,206	11,427
Retail (70 TSF) <sup>4</sup>	TSF	70	76	49	125	246	256	502	5,386
Retail (150 TSF) <sup>4</sup>	TSF	150	120	77	197	410	426	836	8,840
R & D (Medical & Science)	TSF	3,364	3,398	706	4,104	538	3,061	3,599	27,282
Multi Family (Condos)	DU	2,186	153	809	962	765	372	1,137	12,701
Multi Family (Apartments)	DU	362	36	148	184	145	80	225	2,407
Single Family Detached Residential	DU	2,164	411	1,212	1,623	1,385	801	2,186	20,709
<b>HERITAGE FIELDS TOTAL</b>			<b>6,045</b>	<b>5,579</b>	<b>11,624</b>	<b>5,869</b>	<b>7,092</b>	<b>12,961</b>	<b>124,946</b>
Elementary School	STU	1,350	675	554	1,229	95	108	203	1,742
High School <sup>5</sup>	STU	2,600	754	338	1,092	156	182	338	4,446
Park (Neighborhood)	AC	100	23	23	46	16	16	32	359
<b>ADDITIONAL PUBLIC USES TOTAL</b>			<b>1,452</b>	<b>915</b>	<b>2,367</b>	<b>267</b>	<b>306</b>	<b>573</b>	<b>6,547</b>
<b>HERITAGE FIELDS + ADDITIONAL PUBLIC USES TOTAL</b>			<b>7,497</b>	<b>6,493</b>	<b>13,990</b>	<b>6,136</b>	<b>7,398</b>	<b>13,534</b>	<b>131,493</b>

<sup>1</sup> For all uses except High School, Office/Multi-Use (Non-Residential), & Retail, rates taken from Table 3-1 of Great Park Neighborhoods General Plan Amendment / Zone Change and VTTM 17008 Amendment TIA (Urban Crossroads, 2011)

<sup>2</sup> DU = Dwelling Units, STU = Students, TSF = Thousand Square Feet, AC = Acres

<sup>3</sup> Office / Multi-use (non-residential) rates are based on the following equation and factors used in the approved City of Irvine Planning Area 6 GPA/ZC Traffic Study (November, 2011):

$$LN(T) = .756 * LN(X) + 3.765, \text{ where } T = \text{daily trips and } X = 300 \text{ TSF of office}$$

AM trips = 9.7% of T (77% inbound) and PM trips = 8.7% of T (23% inbound)

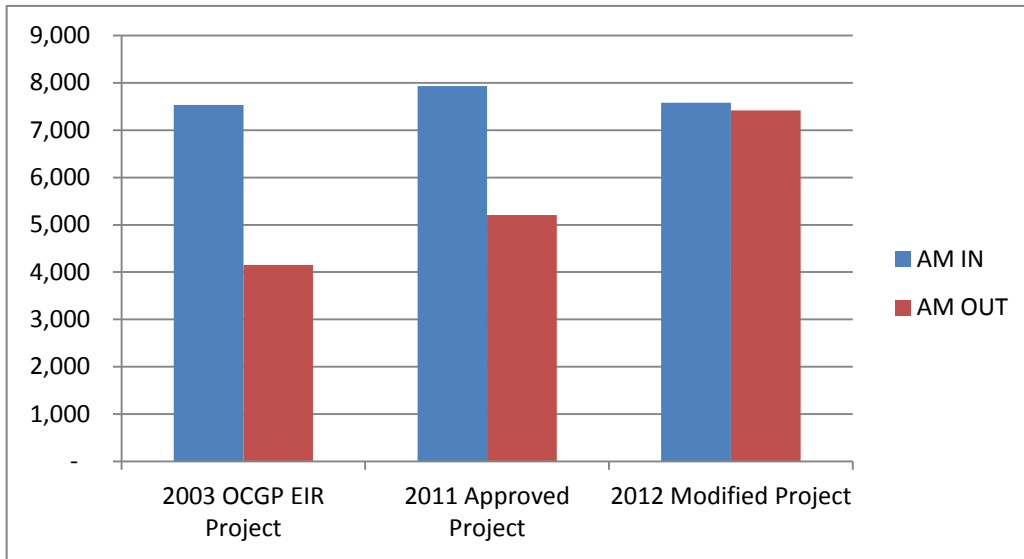
<sup>4</sup> Retail trip rates vary with size of retail center

<sup>5</sup> Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 8th Edition, 2008.

Table 5

Combined PA 51 Trip Generation Summary

AM peak hour inbound / outbound trip generation



PM peak hour inbound / outbound trip generation

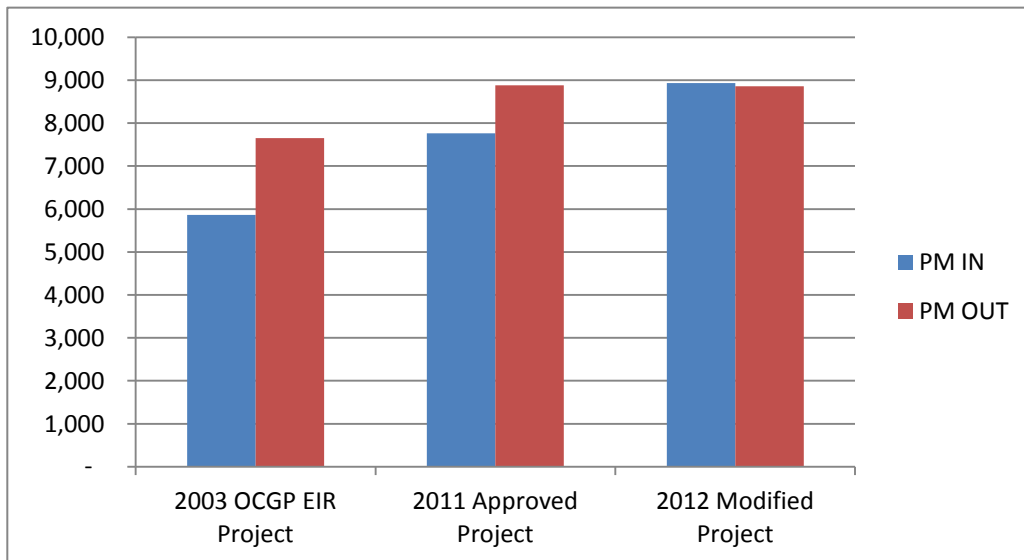




TABLE 6

**CALTRANS AVERAGE DAILY AND PEAK HOUR TRAFFIC VOLUME COMPARISONS<sup>1</sup>**  
**SR-133 - Laguna Canyon Road (Northbound + Southbound)**

Type of Traffic Volume	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Average ADT																
North of El Toro Rd.	<b>25,000</b>	24,000	20,500	20,500	20,500	20,500	20,500	20,500	20,400	19,000	19,000	17,500	17,500	17,500	18,000	18,500
% of 1997	100%	94%	80%	80%	80%	82%	82%	82%	82%	76%	76%	70%	70%	70%	72%	74%
South of El Toro Rd.	<b>40,000</b>	38,000	35,500	36,000	36,000	36,000	36,000	36,000	35,000	35,000	36,000	36,000	36,000	36,000	37,000	37,500
% of 1997	100%	95%	89%	90%	90%	90%	90%	90%	88%	88%	90%	90%	90%	90%	93%	94%
Peak Month ADT																
North of El Toro Rd.	<b>29,000</b>	28,000	23,800	23,800	23,800	23,800	23,800	23,800	23,700	22,000	22,000	20,300	20,300	20,300	20,900	21,500
% of 1997	100%	97%	82%	82%	82%	82%	82%	82%	82%	76%	76%	70%	70%	70%	72%	74%
South of El Toro Rd.	<b>44,500</b>	42,500	39,500	40,000	40,000	40,000	40,000	40,000	39,000	39,000	40,000	40,000	40,000	40,000	41,000	41,500
% of 1997	100%	96%	89%	90%	90%	90%	90%	90%	88%	88%	90%	90%	90%	90%	92%	93%
Peak Hour																
North of El Toro Rd.	<b>2,100</b>	2,000	2,450	2,450	2,450	1,850	1,850	1,850	1,850	1,550	1,550	1,450	1,400	1,400	1,450	1,500
% of 1997	100%	95%	117%	117%	117%	88%	88%	88%	88%	74%	74%	69%	67%	67%	69%	71%
South of El Toro Rd.	<b>3,400</b>	3,250	4,250	4,300	4,300	3,350	3,350	3,350	3,300	2,900	3,000	3,000	2,750	2,750	2,850	2,900
% of 1997	100%	96%	125%	126%	126%	99%	99%	99%	97%	85%	88%	88%	81%	81%	84%	85%

<sup>1</sup> Traffic Volumes have been obtained from the Traffic Data Branch of Caltrans (<http://traffic-counts.dot.ca.gov>), the **Traffic Volumes** (Annual Average Daily Traffic (AADT)) for all vehicles on California State Hwys.

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TABLE 7

**CALTRANS AVERAGE DAILY AND PEAK HOUR TRAFFIC VOLUME COMPARISONS<sup>1</sup>**  
**Route 1 -South Coast Highway (Northbound + Southbound)**

Type of Traffic Volume	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Average ADT																
N. City Limit to Cliff Dr.	<b>35,000</b>	35,000	35,000	42,000	42,000	42,000	33,000	34,000	34,500	32,000	31,500	31,000	31,000	31,000	35,000	35,000
% of 1997	100%	100%	100%	120%	120%	120%	94%	97%	99%	91%	90%	89%	89%	89%	100%	100%
Cliff Dr. to Rte 133 N.	<b>39,000</b>	39,000	39,000	50,000	50,000	50,000	42,000	43,000	43,500	41,000	40,500	40,000	40,000	40,000	36,500	37,000
% of 1997	100%	100%	100%	128%	128%	128%	108%	110%	112%	105%	104%	103%	103%	103%	94%	95%
Rte 133 N. to Mountain Rd.	<b>39,000</b>	39,000	39,000	45,000	45,000	45,000	38,000	39,000	40,000	37,000	36,500	36,000	36,000	36,000	37,900	38,000
% of 1997	100%	100%	100%	115%	115%	115%	97%	100%	103%	95%	94%	92%	92%	92%	97%	97%
Mountain Rd. to Crown Valley Pw.	<b>39,000</b>	39,000	39,000	43,000	43,000	43,000	38,000	39,000	40,000	37,000	36,500	36,000	36,000	36,000	35,000	36,000
% of 1997	100%	100%	100%	110%	110%	110%	97%	100%	103%	95%	94%	92%	92%	92%	90%	92%
Peak Month ADT																
N. City Limit to Cliff Dr.	<b>38,500</b>	38,500	38,500	45,000	45,000	45,000	35,500	36,500	37,000	34,000	33,500	33,000	33,000	33,000	37,500	37,500
% of 1997	100%	100%	100%	117%	117%	117%	92%	95%	96%	88%	87%	86%	86%	86%	97%	97%
Cliff Dr. to Rte 133 N.	<b>41,500</b>	41,500	41,500	54,000	54,000	54,000	45,000	46,000	46,500	44,000	43,500	43,000	43,000	43,000	39,000	39,500
% of 1997	100%	100%	100%	130%	130%	130%	108%	111%	112%	106%	105%	104%	104%	104%	94%	95%
Rte 133 N. to Mountain Rd.	<b>41,500</b>	41,500	41,500	48,000	48,000	48,000	40,500	41,500	43,000	39,500	39,000	38,500	38,500	38,500	40,500	40,500
% of 1997	100%	100%	100%	116%	116%	116%	98%	100%	104%	95%	94%	93%	93%	93%	98%	98%
Mountain Rd. to Crown Valley Pw.	<b>41,500</b>	41,500	41,500	46,000	46,000	46,000	40,500	41,500	43,000	39,500	39,000	38,500	38,500	38,500	37,500	38,500
% of 1997	100%	100%	100%	111%	111%	111%	98%	100%	104%	95%	94%	93%	93%	93%	90%	93%
Peak Hour																
N. City Limit to Cliff Dr.	<b>2,650</b>	2,650	2,650	3,150	3,150	3,150	2,950	3,050	3,100	2,900	2,850	2,800	2,800	2,800	3,150	3,150
% of 1997	100%	100%	100%	119%	119%	119%	111%	115%	117%	109%	108%	106%	106%	106%	119%	119%
Cliff Dr. to Rte 133 N.	<b>2,950</b>	2,950	2,950	3,750	3,750	3,750	3,800	3,850	3,900	3,700	3,650	3,600	3,600	3,600	3,300	3,350
% of 1997	100%	100%	100%	127%	127%	127%	129%	131%	132%	125%	124%	122%	122%	122%	112%	114%
Rte 133 N. to Mountain Rd.	<b>2,950</b>	2,950	2,950	3,400	3,400	3,400	3,050	3,100	3,200	2,950	2,900	2,850	2,850	2,850	3,000	3,000
% of 1997	100%	100%	100%	115%	115%	115%	103%	105%	108%	100%	98%	97%	97%	97%	102%	102%
Mountain Rd. to Crown Valley Pw.	<b>2,950</b>	2,950	2,950	3,250	3,250	3,250	3,050	3,100	3,200	2,950	2,900	2,850	2,850	2,850	2,750	2,850
% of 1997	100%	100%	100%	110%	110%	110%	103%	105%	108%	100%	98%	97%	97%	97%	93%	97%

<sup>1</sup> Traffic Volumes have been obtained from the Traffic Data Branch of Caltrans (<http://traffic-counts.dot.ca.gov>), the **Traffic**

**Volumes** (Annual Average Daily Traffic (AADT)) for all vehicles on California State Hwys.

TABLE 8

**LAGUNA BEACH ANNUAL BEACH ATTENDANCE, AND  
CITY OF IRVINE DWELLING UNIT AND POPULATION COMPARISONS<sup>1</sup>**

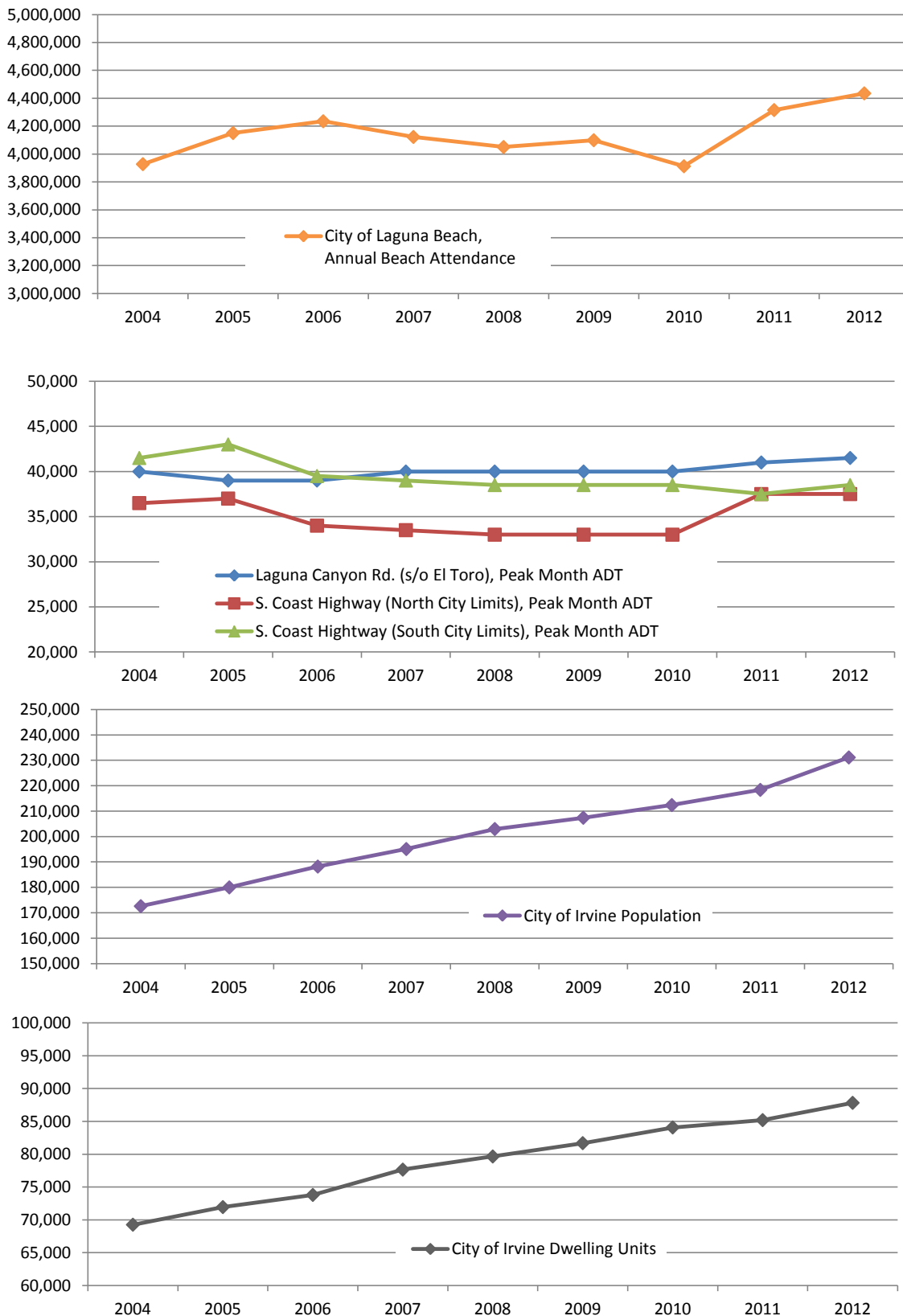
Demographic Variable	2004	2005	2006	2007	2008	2009	2010	2011	2012
City of Laguna Beach, Annual Beach Attendance									
Persons	<b>3,927,500</b>	4,150,500	4,235,000	4,122,500	4,050,435	4,099,143	3,912,483	4,315,450	4,435,050
% of 2004	100%	106%	108%	105%	103%	104%	100%	110%	113%
City of Irvine Population									
Persons	<b>172,594</b>	179,975	188,172	195,080	202,947	207,380	212,375	218,353	231,117
% of 2004	100%	104%	109%	113%	118%	120%	123%	127%	134%
City of Irvine Dwelling Units									
Residences	<b>69,256</b>	71,942	73,794	77,652	79,654	81,688	84,078	85,194	87,827
% of 2004	100%	104%	107%	112%	115%	118%	121%	123%	127%

<sup>1</sup> Beach attendance data has been obtained from United States Lifesaving Association - Statistics by Agency; Population data has been obtained from the City of Irvine website (<http://www.cityofirvine.org/about/demographics.asp>); Dwelling Unit data has been provided by the City of Irvine.

9/18/2013

Table 9

**Trend Comparisons - Laguna Beach Traffic Volumes,  
Annual Beach Attendance, & Irvine Population/Housing**



**Sources:**

Laguna Beach, Annual Beach Attendance - United States Lifesaving Association

Laguna Canyon Road & S. Coast Highway Traffic Volumes - Caltrans

Irvine Population and Household Data - City of Irvine Demographics

Table 10

**ITAM 8.4-10 ICU Comparison for SR-133 / SR-73 Intersections  
With Updated ITAM Post-Processing**

			Without Project				With Project - Option 1				With Project - Option 2			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	LOS E OK	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
<b>2015 Baseline</b>														
322	Laguna Canyon Rd at SR-73 NB Ramps	Yes	<b>1.05</b>	<b>F</b>	0.88	D	<b>1.06</b>	<b>F</b>	0.88	D	<b>1.06</b>	<b>F</b>	0.88	D
323	Laguna Canyon Rd at SR-73 SB Ramps	Yes	0.34	A	0.38	A	0.34	A	0.38	A	0.34	A	0.38	A
<b>2030 Baseline</b>														
322	Laguna Canyon Rd at SR-73 NB Ramps	Yes	0.99	E	0.65	B	0.97	E	0.65	B	0.98	E	0.65	B
323	Laguna Canyon Rd at SR-73 SB Ramps	Yes	0.35	A	0.41	A	0.36	A	0.40	A	0.36	A	0.40	A
<b>Post-2030 Baseline</b>														
322	Laguna Canyon Rd at SR-73 NB Ramps	Yes	0.93	E	0.62	B	0.93	E	0.62	B	0.93	E	0.62	B
323	Laguna Canyon Rd at SR-73 SB Ramps	Yes	0.40	A	0.45	A	0.40	A	0.45	A	0.40	A	0.45	A
<b>2015 Pending</b>														
322	Laguna Canyon Rd at SR-73 NB Ramps	Yes	<b>1.05</b>	<b>F</b>	0.88	D	<b>1.06</b>	<b>F</b>	0.88	D	<b>1.06</b>	<b>F</b>	0.88	D
323	Laguna Canyon Rd at SR-73 SB Ramps	Yes	0.34	A	0.38	A	0.34	A	0.38	A	0.34	A	0.38	A
<b>2030 Pending</b>														
322	Laguna Canyon Rd at SR-73 NB Ramps	Yes	0.99	E	0.65	B	0.98	E	0.65	B	0.98	E	0.64	B
323	Laguna Canyon Rd at SR-73 SB Ramps	Yes	0.37	A	0.41	A	0.36	A	0.41	A	0.37	A	0.41	A
<b>Post-2030 Pending</b>														
322	Laguna Canyon Rd at SR-73 NB Ramps	Yes	0.98	E	0.65	B	0.98	E	0.66	B	0.98	E	0.66	B
323	Laguna Canyon Rd at SR-73 SB Ramps	Yes	0.40	A	0.44	A	0.40	A	0.44	A	0.40	A	0.44	A
<b>Post-2030 Without MPAH Amendment</b>														
322	Laguna Canyon Rd at SR-73 NB Ramps	Yes	0.93	E	0.62	B	0.93	E	0.62	B	0.93	E	0.62	B
323	Laguna Canyon Rd at SR-73 SB Ramps	Yes	0.40	A	0.45	A	0.40	A	0.45	A	0.40	A	0.45	A

**Table 11**

**Laguna Canyon Road North of El Toro Road, Volume Comparison and Daily V/C  
With Updated ITAM Post-Processing**

Scenario	Daily Volume	Lanes	Daily V/C
Existing	18,000	2U	1.44
Existing Plus Option 1	18,100	2U	1.45
Existing Plus Option 2	18,000	2U	1.44
<b>Future Conditions</b>			
2015, Without Project	18,600	2U	1.49
2015, 2012 Modified Project Option 1	18,700	2U	1.50
2015, 2012 Modified Project Option 2	18,700	2U	1.50
2030, 2011 Approved Project	20,700	2U	1.66
2030, 2012 Modified Project Option 1	20,800	2U	1.66
2030, 2012 Modified Project Option 2	20,700	2U	1.66
P-2030, 2011 Approved Project	22,600	4D	0.60
P-2030, 2012 Modified Project Option 1	22,700	4D	0.61
P-2030, 2012 Modified Project Option 2	22,700	4D	0.61
<b>With Pending Projects</b>			
2015, Without Project	18,500	2U	1.48
2015, 2012 Modified Project Option 1	18,500	2U	1.48
2015, 2012 Modified Project Option 2	18,500	2U	1.48
2030, 2011 Approved Project	20,800	2U	1.66
2030, 2012 Modified Project Option 1	20,900	2U	1.67
2030, 2012 Modified Project Option 2	20,900	2U	1.67
P-2030, 2011 Approved Project	21,600	4D	0.58
P-2030, 2012 Modified Project Option 1	21,700	4D	0.58
P-2030, 2012 Modified Project Option 2	21,700	4D	0.58
<b>Without MPAH Change</b>			
P-2030, 2012 Modified Project Option 1	22,700	4D	0.61
P-2030, 2012 Modified Project Option 2	22,700	4D	0.61

Heritage Fields Project - DSSEIR Traffic Study Responses

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

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**Table 12**

**Laguna Canyon Road North of SR-73, Volume Comparison and Daily V/C  
With Updated ITAM Post-Processing**

Scenario	Daily Volume	Lanes	Daily V/C
Existing	44,000	4D	1.17
Existing Plus Option 1	44,200	4D	1.18
Existing Plus Option 2	44,200	4D	1.18
<b>Future Conditions</b>			
2015, Without Project	46,600	4D	1.24
2015, 2012 Modified Project Option 1	46,600	4D	1.24
2015, 2012 Modified Project Option 2	46,600	4D	1.24
2030, 2011 Approved Project	48,000	4D	1.28
2030, 2012 Modified Project Option 1	48,000	4D	1.28
2030, 2012 Modified Project Option 2	48,000	4D	1.28
P-2030, 2011 Approved Project	46,600	4D	1.24
P-2030, 2012 Modified Project Option 1	46,700	4D	1.25
P-2030, 2012 Modified Project Option 2	46,700	4D	1.25
<b>With Pending Projects</b>			
2015, Without Project	46,400	4D	1.24
2015, 2012 Modified Project Option 1	46,400	4D	1.24
2015, 2012 Modified Project Option 2	46,500	4D	1.24
2030, 2011 Approved Project	48,000	4D	1.28
2030, 2012 Modified Project Option 1	48,000	4D	1.28
2030, 2012 Modified Project Option 2	48,000	4D	1.28
P-2030, 2011 Approved Project	48,000	4D	1.28
P-2030, 2012 Modified Project Option 1	48,100	4D	1.28
P-2030, 2012 Modified Project Option 2	48,100	4D	1.28
<b>Without MPAH Change</b>			
P-2030, 2012 Modified Project Option 1	46,700	4D	1.25
P-2030, 2012 Modified Project Option 2	46,700	4D	1.25

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**Table 13****Laguna Canyon Road South of Old Laguna, Volume Comparison and Daily V/C**

Scenario	Daily Volume		Daily V/C
Existing	44,000	4D	1.38
Existing Plus Option 1	44,200	4D	1.38
Existing Plus Option 2	44,200	4D	1.38
<b>Future Conditions</b>			
2015, Without Project	46,700	6D	0.86
2015, 2012 Modified Project Option 1	46,700	6D	0.86
2015, 2012 Modified Project Option 2	46,700	6D	0.86
2030, 2011 Approved Project	71,100	6D	1.32
2030, 2012 Modified Project Option 1	71,400	6D	1.32
2030, 2012 Modified Project Option 2	71,400	6D	1.32
P-2030, 2011 Approved Project	77,700	6D	1.44
P-2030, 2012 Modified Project Option 1	78,300	6D	1.45
P-2030, 2012 Modified Project Option 2	78,300	6D	1.45
<b>With Pending Projects</b>			
2015, Without Project	46,500	6D	0.86
2015, 2012 Modified Project Option 1	46,600	6D	0.86
2015, 2012 Modified Project Option 2	46,600	6D	0.86
2030, 2011 Approved Project	71,300	6D	1.32
2030, 2012 Modified Project Option 1	71,500	6D	1.32
2030, 2012 Modified Project Option 2	71,500	6D	1.32
P-2030, 2011 Approved Project	71,300	6D	1.32
P-2030, 2012 Modified Project Option 1	71,600	6D	1.33
P-2030, 2012 Modified Project Option 2	71,600	6D	1.33
<b>Without MPAH Change</b>			
P-2030, 2012 Modified Project Option 1	78,200	6D	1.45
P-2030, 2012 Modified Project Option 2	78,100	6D	1.45

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**Table 14**

**Laguna Canyon Road North of Old Laguna, Volume Comparison and Daily V/C**

Scenario	Daily Volume	Daily V/C	% Change
Existing	38,000	1.19	
Existing Plus Option 1	38,000	1.19	0.0%
Existing Plus Option 2	38,000	1.19	0.0%
<b>Future Conditions</b>			
2015, Without Project	47,000	0.87	
2015, 2012 Modified Project Option 1	46,900	0.87	-0.2%
2015, 2012 Modified Project Option 2	46,900	0.87	-0.2%
2030, 2011 Approved Project	61,500	1.14	
2030, 2012 Modified Project Option 1	61,700	1.14	0.3%
2030, 2012 Modified Project Option 2	61,600	1.14	0.2%
P-2030, 2011 Approved Project	66,900	1.24	
P-2030, 2012 Modified Project Option 1	67,200	1.24	0.4%
P-2030, 2012 Modified Project Option 2	67,300	1.25	0.6%
<b>With Pending Projects</b>			
2015, Without Project	46,700	0.86	
2015, 2012 Modified Project Option 1	46,700	0.86	0.0%
2015, 2012 Modified Project Option 2	46,700	0.86	0.0%
2030, 2011 Approved Project	61,700	1.14	
2030, 2012 Modified Project Option 1	62,000	1.15	0.5%
2030, 2012 Modified Project Option 2	61,900	1.15	0.3%
P-2030, 2011 Approved Project	62,100	1.15	
P-2030, 2012 Modified Project Option 1	62,500	1.16	0.6%
P-2030, 2012 Modified Project Option 2	62,500	1.16	0.6%
<b>Without MPAH Change</b>			
P-2030, 2012 Modified Project Option 1	67,200	1.24	0.0%
P-2030, 2012 Modified Project Option 2	67,100	1.24	-0.3%

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**Table 15**

**Newport Beach Intersection Analysis Comparison**

Scenario	84 (MacArthur / Campus)				147 (Jamboree / Campus)				150 (Jamboree / MacArthur)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
<b>Future Conditions</b>												
2015, Without Project	0.58	A	0.84	D	0.74	C	0.77	C	0.79	C	0.78	C
2015, 2012 Modified Project Option 1	0.58	A	0.84	D	0.74	C	0.77	C	0.79	C	0.78	C
2015, 2012 Modified Project Option 2	0.58	A	0.84	D	0.73	C	0.77	C	0.79	C	0.78	C
2030, 2011 Approved Project	0.67	B	0.91	E	0.83	D	0.76	C	0.88	D	0.81	D
2030, 2012 Modified Project Option 1	0.67	B	0.91	E	0.85	D	0.76	C	0.88	D	0.83	D
2030, 2012 Modified Project Option 2	0.67	B	0.91	E	0.85	D	0.76	C	0.88	D	0.83	D
P-2030, 2011 Approved Project	0.67	B	0.71	C	0.87	D	0.78	C	0.88	D	0.84	D
P-2030, 2012 Modified Project Option 1	0.68	B	0.71	C	0.85	D	0.77	C	0.90	D	0.84	D
P-2030, 2012 Modified Project Option 2	0.67	B	0.71	C	0.85	D	0.78	C	0.90	D	0.84	D
<b>With Pending Projects</b>												
2015, Without Project	0.58	A	0.84	D	0.72	C	0.77	C	0.78	C	0.78	C
2015, 2012 Modified Project Option 1	0.57	A	0.84	D	0.73	C	0.77	C	0.78	C	0.78	C
2015, 2012 Modified Project Option 2	0.58	A	0.84	D	0.74	C	0.77	C	0.78	C	0.78	C
2030, 2011 Approved Project	0.67	B	0.91	E	0.81	D	0.76	C	0.9	D	0.82	D
2030, 2012 Modified Project Option 1	0.68	B	0.91	E	0.83	D	0.75	C	0.9	D	0.83	D
2030, 2012 Modified Project Option 2	0.67	B	0.91	E	0.83	D	0.74	C	0.9	D	0.83	D
P-2030, 2011 Approved Project	0.67	B	0.72	C	0.85	D	0.77	C	0.89	D	0.85	D
P-2030, 2012 Modified Project Option 1	0.69	B	0.72	C	0.85	D	0.78	C	0.9	D	0.84	D
P-2030, 2012 Modified Project Option 2	0.69	B	0.72	C	0.85	D	0.78	C	0.9	D	0.84	D

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Table 16

## I-5 Freeway Ramps at Bake Parkway Volume Comparison

Scenario	Peak Hour Ramp Volume												2012 Modified Project Volume Change (Compared to Same Year, Without / 2011 Approved Project)											
	SB Direct On		SB Loop On		NB Direct On		NB Loop On		SB Off		NB Off		SB Direct On		SB Loop On		NB Direct On		NB Loop On		SB Off		NB Off	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
<b>Future Conditions</b>																								
2015, Without Project	17	105	291	600	2,178	1,979	510	1,240	3,283	2,581	841	381												
2015, 2012 Modified Project Option 1	18	105	290	600	2,180	1,975	500	1,242	3,290	2,580	850	380	1	0	-1	0	2	-4	-10	2	7	-1	9	-1
2015, 2012 Modified Project Option 2	18	105	290	600	2,179	1,979	500	1,250	3,284	2,580	840	380	1	0	-1	0	1	0	-10	10	1	-1	-1	-1
2030, 2011 Approved Project	103	134	351	848	1,876	1,643	320	1,000	2,993	2,438	1,427	589												
2030, 2012 Modified Project Option 1	111	129	391	827	1,915	1,624	320	1,000	2,992	2,440	1,322	579	8	-5	40	-21	39	-19	0	0	-1	2	-105	-10
2030, 2012 Modified Project Option 2	110	128	390	827	1,921	1,623	320	1,000	3,012	2,440	1,331	570	7	-6	39	-21	45	-20	0	0	19	2	-96	-19
P-2030, 2011 Approved Project	90	142	371	907	1,335	1,199	320	1,000	2,992	2,433	1,502	625												
P-2030, 2012 Modified Project Option 1	98	131	403	866	1,369	1,189	320	1,000	2,991	2,436	1,397	616	8	-11	32	-41	34	-10	0	0	-1	3	-105	-9
P-2030, 2012 Modified Project Option 2	98	131	401	874	1,383	1,196	320	1,000	2,993	2,436	1,399	615	8	-11	30	-33	48	-3	0	0	1	3	-103	-10
<b>With Pending Projects</b>																								
2015, Without Project	18	107	300	600	2,169	1,960	491	1,240	3,244	2,584	859	391												
2015, 2012 Modified Project Option 1	18	106	291	600	2,176	1,966	450	1,240	3,263	2,574	860	381	0	-1	-9	0	7	6	-41	0	19	-10	1	-10
2015, 2012 Modified Project Option 2	18	106	291	600	2,178	1,981	500	1,242	3,243	2,580	852	390	0	-1	-9	0	9	21	9	2	-1	-4	-7	-1
2030, 2011 Approved Project	113	135	351	848	1,894	1,644	320	1,000	2,994	2,438	1,424	598												
2030, 2012 Modified Project Option 1	122	128	380	815	1,916	1,628	320	1,000	3,013	2,439	1,302	569	9	-7	29	-33	22	-16	0	0	19	1	-122	-29
2030, 2012 Modified Project Option 2	122	128	391	827	1,915	1,624	320	1,000	2,992	2,440	1,322	579	9	-7	40	-21	21	-20	0	0	-2	2	-102	-19
P-2030, 2011 Approved Project	100	142	360	903	1,368	1,212	320	1,000	3,052	2,433	1,489	626												
P-2030, 2012 Modified Project Option 1	112	136	400	883	1,402	1,208	320	1,000	3,031	2,434	1,372	619	12	-6	40	-20	34	-4	0	0	-21	1	-117	-7
P-2030, 2012 Modified Project Option 2	110	136	400	875	1,392	1,209	320	1,000	3,007	2,434	1,341	618	10	-6	40	-28	24	-3	0	0	-45	1	-148	-8

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Table 17

## I-5 Freeway Ramps at Lake Forest Drive Volume Comparison

Scenario	Peak Hour Ramp Volume										2012 Modified Project Volume Change (Compared to Same Year, Without / 2011 Approved Project)									
	SB Direct On		SB Loop On		NB On		SB Off		NB Off		SB Direct On		SB Loop On		NB On		SB Off		NB Off	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
<b>Future Conditions</b>																				
2015, Without Project	291	730	400	550	1,470	1,020	1,873	2,548	1,140	610										
2015, 2012 Modified Project Option 1	292	731	400	550	1,519	1,033	1,891	2,558	1,146	609	1	1	0	0	49	13	18	10	6	-1
2015, 2012 Modified Project Option 2	294	730	400	550	1,514	1,027	1,891	2,563	1,142	609	3	0	0	0	44	7	18	15	2	-1
2030, 2011 Approved Project	329	862	406	658	1,340	1,040	1,759	2,325	1,510	730										
2030, 2012 Modified Project Option 1	330	851	407	642	1,332	1,059	1,761	2,326	1,505	733	1	-11	1	-16	-8	19	2	1	-5	3
2030, 2012 Modified Project Option 2	330	853	405	640	1,405	1,053	1,759	2,326	1,505	732	1	-9	-1	-18	65	13	0	1	-5	2
P-2030, 2011 Approved Project	303	875	412	687	1,340	1,040	1,759	2,323	1,510	730										
P-2030, 2012 Modified Project Option 1	307	868	416	686	1,379	1,055	1,759	2,324	1,495	725	4	-7	4	-1	39	15	0	1	-15	-5
P-2030, 2012 Modified Project Option 2	307	865	415	682	1,360	1,055	1,760	2,324	1,493	724	4	-10	3	-5	20	15	1	1	-17	-6
<b>With Pending Projects</b>																				
2015, Without Project	294	733	400	550	1,504	1,020	1,877	2,539	1,153	614										
2015, 2012 Modified Project Option 1	297	731	400	550	1,485	1,020	1,881	2,554	1,152	612	3	-2	0	0	-19	0	4	15	-1	-2
2015, 2012 Modified Project Option 2	298	734	400	550	1,499	1,018	1,887	2,543	1,143	612	4	1	0	0	-5	-2	10	4	-10	-2
2030, 2011 Approved Project	329	868	405	654	1,314	1,050	1,759	2,326	1,502	729										
2030, 2012 Modified Project Option 1	329	853	405	643	1,352	1,059	1,761	2,327	1,491	727	0	-15	0	-11	38	9	2	1	-11	-2
2030, 2012 Modified Project Option 2	331	856	407	642	1,322	1,059	1,761	2,326	1,505	733	2	-12	2	-12	8	9	2	0	3	4
P-2030, 2011 Approved Project	310	843	403	660	1,393	1,087	1,759	2,324	1,491	717										
P-2030, 2012 Modified Project Option 1	310	833	406	641	1,371	1,099	1,760	2,325	1,476	717	0	-10	3	-19	-22	12	1	1	-15	0
P-2030, 2012 Modified Project Option 2	310	834	408	651	1,377	1,097	1,761	2,324	1,472	717	0	-9	5	-9	-16	10	2	0	-19	0

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Table 18

**ITAM 8.4-10 ICU Comparison  
with Recent Additional Lake Forest Pending Projects**

		Without Project				With Project - Option 1				With Project - Option 2			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
<b>2015</b>													
361	Bake Pw. & Portola Pw.	0.53	A	0.85	D	0.53	A	0.85	D	0.52	A	0.85	D
373	Lake Forest Dr. & SR-241 NB Ramps	0.31	A	0.36	A	0.31	A	0.36	A	0.31	A	0.36	A
374	Lake Forest Dr. & Portola Pw.	0.54	A	0.79	C	0.54	A	0.79	C	0.54	A	0.79	C
375	Lake Forest Dr. & SR-241 SB Ramps	0.41	A	0.44	A	0.41	A	0.44	A	0.41	A	0.43	A
515	Bake Pw. N. & Rancho Pw. N.	0.62	B	0.74	C	0.62	B	0.74	C	0.61	B	0.74	C
516	Lake Forest Dr. & Ranch Pw. N	0.61	B	0.85	D	0.61	B	0.85	D	0.61	B	0.85	D
<b>2030</b>													
361	Bake Pw. & Portola Pw.	0.64	B	0.90	D	0.63	B	0.90	D	0.63	B	0.90	D
373	Lake Forest Dr. & SR-241 NB Ramps	0.34	A	0.46	A	0.34	A	0.44	A	0.34	A	0.44	A
374	Lake Forest Dr. & Portola Pw.	0.63	B	0.90	D	0.62	B	0.88	D	0.62	B	0.88	D
375	Lake Forest Dr. & SR-241 SB Ramps	0.56	A	0.53	A	0.54	A	0.51	A	0.54	A	0.51	A
515	Bake Pw. N. & Rancho Pw. N.	0.67	B	0.86	D	0.66	B	0.86	D	0.66	B	0.86	D
516	Lake Forest Dr. & Ranch Pw. N	<b>0.94</b>	<b>E</b>	<b>1.17</b>	<b>F</b>	<b>0.93</b>	<b>E</b>	<b>1.18</b>	<b>F</b>	<b>0.94</b>	<b>E</b>	<b>1.18</b>	<b>F</b>
<b>Post-2030</b>													
361	Bake Pw. & Portola Pw.	0.57	A	0.85	D	0.56	A	0.84	D	0.56	A	0.84	D
373	Lake Forest Dr. & SR-241 NB Ramps	0.34	A	0.45	A	0.34	A	0.44	A	0.34	A	0.44	A
374	Lake Forest Dr. & Portola Pw.	0.64	B	0.90	D	0.62	B	0.89	D	0.62	B	0.89	D
375	Lake Forest Dr. & SR-241 SB Ramps	0.57	A	0.53	A	0.54	A	0.51	A	0.54	A	0.51	A
515	Bake Pw. N. & Rancho Pw. N.	0.67	B	0.85	D	0.66	B	0.86	D	0.66	B	0.86	D
516	Lake Forest Dr. & Ranch Pw. N	0.71	C	0.89	D	0.72	C	0.89	D	0.72	C	0.89	D

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Table 19

## Post-2030 without NITM Fairshare Improvements

ID	Intersection	ATMS	LOS E OK	2011 Aprv		2012 Opt1		Diff Opt1		2012 Opt2		Diff Opt2	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Baseline Scenarios (Without Pending Projects)													
123	Jamboree Rd. at Tustin Ranch Rd.			0.85	0.76	0.87	0.77	0.02	0.01	0.87	0.77	0.02	0.01
290	Jeffrey Rd. at Barranca Pkwy.	Yes		0.87	0.74	0.88	0.75	0.01	0.01	0.87	0.74	0.00	0.00
293	Jeffrey Rd. at I-405 NB Ramps			0.79	0.88	0.80	0.88	0.01	0.00	0.81	0.88	0.02	0.00
327	Barranca Pkwy. at Technology			0.57	0.81	0.60	0.81	0.03	0.00	0.60	0.81	0.03	0.00
344	Alton Pkwy. at Technology			0.62	0.97	0.64	0.96	0.02	-0.01	0.64	0.96	0.02	-0.01
348	Alton Pkwy. at ICD		Yes	0.73	0.78	0.72	0.78	-0.01	0.00	0.72	0.78	-0.01	0.00
378	Lake Forest Dr. at Jeronimo			0.77	0.92	0.77	0.93	0.00	0.01	0.76	0.93	-0.01	0.01
380	Lake Forest Dr. at Rockfield		Yes	0.83	0.93	0.83	0.94	0.00	0.01	0.82	0.93	-0.01	0.00
387	Ridge Route Dr. at Rockfield			0.50	0.64	0.50	0.64	0.00	0.00	0.50	0.64	0.00	0.00
390	Paseo de Valencia at Avenida Carlota			0.80	0.96	0.79	0.97	-0.01	0.01	0.79	0.97	-0.01	0.01
396	El Toro Rd. at Avenida Carlota		Yes	0.75	0.99	0.74	1.00	-0.01	0.01	0.74	1.00	-0.01	0.01
420	El Toro Rd. at Jeronimo Rd			0.90	0.84	0.90	0.83	0.00	-0.01	0.90	0.83	0.00	-0.01
423	Muirlands Bl. at Los Alisos			1.01	1.06	1.00	1.06	-0.01	0.00	1.01	1.06	0.00	0.00
424	Los Alisos Bl. at Rockfield			0.92	0.92	0.92	0.91	0.00	-0.01	0.92	0.92	0.00	0.00
432	Alicia Pkwy. at Muirland			0.71	0.87	0.71	0.86	0.00	-0.01	0.71	0.86	0.00	-0.01
With Pending Projects													
123	Jamboree Rd. at Tustin Ranch Rd.			0.86	0.76	0.86	0.76	0.00	0.00	0.86	0.75	0.00	-0.01
290	Jeffrey Rd. at Barranca Pkwy.	Yes		0.87	0.74	0.87	0.75	0.00	0.01	0.87	0.75	0.00	0.01
293	Jeffrey Rd. at I-405 NB Ramps			0.80	0.88	0.82	0.89	0.02	0.01	0.81	0.90	0.01	0.02
327	Barranca Pkwy. at Technology			0.58	0.82	0.59	0.82	0.01	0.00	0.59	0.82	0.01	0.00
344	Alton Pkwy. at Technology			0.61	0.97	0.63	0.96	0.02	-0.01	0.63	0.96	0.02	-0.01
348	Alton Pkwy. at ICD		Yes	0.76	0.80	0.75	0.81	-0.01	0.01	0.75	0.80	-0.01	0.00
378	Lake Forest Dr. at Jeronimo			0.75	0.92	0.74	0.93	-0.01	0.01	0.74	0.93	-0.01	0.01
380	Lake Forest Dr. at Rockfield		Yes	0.81	0.93	0.82	0.96	0.01	0.03	0.83	0.94	0.02	0.01
387	Ridge Route Dr. at Rockfield			0.55	0.68	0.54	0.67	-0.01	-0.01	0.54	0.67	-0.01	-0.01
390	Paseo de Valencia at Avenida Carlota			0.80	0.98	0.80	0.98	0.00	0.00	0.80	0.98	0.00	0.00
396	El Toro Rd. at Avenida Carlota		Yes	0.77	1.00	0.77	1.00	0.00	0.00	0.76	1.00	-0.01	0.00
420	El Toro Rd. at Jeronimo Rd			0.91	0.85	0.90	0.84	-0.01	-0.01	0.90	0.84	-0.01	-0.01

Table 19 (Cont.)

## Post-2030 without NITM Fairshare Improvements

ID	Intersection	ATMS	LOS E OK	2011 Aprv		2012 Opt1		Diff Opt1		2012 Opt2		Diff Opt2	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
423	Muirlands Bl. at Los Alisos			1.00	1.06	0.99	1.06	-0.01	0.00	0.99	1.06	-0.01	0.00
424	Los Alisos Bl. at Rockfield			0.92	0.92	0.92	0.92	0.00	0.00	0.92	0.92	0.00	0.00
432	Alicia Pkwy. at Muirland			0.71	0.88	0.71	0.86	0.00	-0.02	0.71	0.86	0.00	-0.02

**XX** Deficient ICU

**XX** ICU difference greater than or equal to 0.02

Heritage Fields Project - DSSEIR Traffic Study Responses

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

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#### Areas of Expertise

*Trans. Planning & Problem Solving  
Cooperative Study Management  
Traffic Impact Analyses  
Ped & Bicycle Circulation Systems  
Travel Demand Modeling  
Improvement Program Coordination  
General Plan Circ. Elements  
Neighborhood Traffic Control  
Transit Service Plans  
NEV Plans  
Roundabout Design*

#### Education

*Cert./1981/Management of Trans.  
Programs/UC Irvine  
Instructor Cred./1981/Public Svcs.  
& Admin./Cal. Comm. Colleges  
MS/1977/Administration (Trans.Sys.  
Mgmt.)/UC Irvine  
BA/1975/Social Ecology/UC Irvine*

#### Prof. Registration

*AICP*

#### Affiliations

*American Planning Assoc. (APA)  
Institute of Trans. Engineers (ITE)  
Transportation Research Board  
(TRB)  
Urban Land Institute (ULI)*

#### Prof. Accomplishments

*Orange County APA,  
Comprehensive Planning Award,  
Millennium Plan (1999)  
CCAPA Merit Award, Large  
Jurisdiction Plan (1999)  
Traffic Forecasting – ITE technical  
committee  
Highway Access Control – ITE  
technical committee*

#### Prof. History

Urban Crossroads, Inc.  
President  
2000 – Present  
RKJK & Associates, Inc.  
Principal  
1990 – 2000  
Kunzman Associates  
Principal  
1985 – 1990  
Sr. Associate  
1983-1985  
Jack G. Raub Company  
Mgr., Transportation/Traffic Eng.  
1980 – 1983  
Transportation Planner  
1978-1980  
Institute of Transportation Studies  
Research Associate  
1976 – 1977

## John Kain, AICP President

John Kain, AICP has worked professionally in transportation planning and traffic engineering since 1975. His broad range of experience stretches through the spectrum of transportation domains. These include plans for new communities, General Plan circulation elements, management of the development and application of traffic models and GIS databases, traffic impact analyses for numerous types of land uses, transit-oriented community designs, non-motorized transportation plans, parking studies, and alternative intersection treatments such as roundabout designs.

Mr. Kain leads the corporate activities related to sustainability and “complete streets” transportation systems and standards. He has developed plans for pedestrians, bicycles, neighborhood electric vehicles (NEVs) and transit services that target the reduction of per capita Greenhouse Gas (GHG) emissions for established cities as well as new communities. His Southern California projects that have been implemented include Aliso Viejo, Rancho Santa Margarita, Foothill Ranch, Westpark Irvine, redevelopment of the San Juan Capistrano Metrolink station area, Sun City Palm Desert, Victoria Grove, Temecula Old Town, South Poway, and the Oxnard Town Center. His Colorado projects include Highlands Ranch and Edgemont Ranch.

Recent examples that are still in the planning stage include West Sacramento’s Liberty project, Corona’s Eagle Valley and Arantine Hills projects, Riverside County’s Travertine Point and Paradise Valley, and the Yorba Linda Town Center. Mr. Kain is also the lead transportation consultant for the Great Park Neighborhoods / Heritage Fields project in Orange County.

His General Plan experience includes a variety of cities which range from urban to resort and suburban settings. Apple Valley, Beaumont, Hemet, Hesperia, Lake Elsinore, La Quinta, Montclair, Norwalk, Palm Desert, Rancho Mirage, San Jacinto, and Solana Beach are a sampling of the circulation elements he has prepared.

Mr. Kain’s expertise in cooperative study management has proved invaluable in coordinating or providing technical support for area-wide funding programs and sub-regional transportation plans. These include the Western Riverside Non-Motorized Transportation Plan, WRCOG 4-City Neighborhood Electric Vehicle Plan, Coachella Valley I-10 Freeway interchange local funding programs, Scott Road and Clinton Keith Road Benefit Districts, and Van Buren Boulevard corridor improvements.

Mr. Kain’s work involving commercial, office/industrial, and educational facilities includes the Murrieta Springs Mall (I-15/I-215 Confluence), Rancho Mirage SR-111 Corridor, Desert Cities Auto Mall, several Irvine Business Complex (IBC) projects, Rialto Airport Specific Plan, Victorville Southdown Industrial Park, Borel Airpark Center, Cheyenne Airpark (Nevada), UCI Long Range Development Plan, the CSUSB Palm Desert campus, and expansion of California Baptist College.

Mr. Kain is a Fellow in the Institute of Transportation Engineers (ITE), and he serves on the Advisory Board for the UC Irvine Department of Planning, Policy and Design.





# Marlie Whiteman, P. E.

## Senior Associate

### **Areas of Expertise**

*Transportation Planning*

*Travel Demand Modeling*

*Traffic Impact Analyses*

### **Education**

*BS/1996/Civil*

*Engineering/UC Irvine*

### **Prof. Registration**

*Professional Engineer,*

*Traffic Engineering, CA*

*#TR 2186*

### **Affiliations**

*Institute of Transportation  
Engineers (ITE)*

*American Planning  
Association (APA)*

*Orange County Traffic  
Engineering Council  
(OCTEC)*

### **Prof. Accomplishments**

*ASCE student chapter  
treasurer, vice president,  
& president, in  
succession*

### **Prof. History**

Urban Crossroads, Inc.  
Senior Engineer  
2000 – Present

RKJK & Associates, Inc.  
Assistant Engineer  
1997 – 2000

RKJK & Associates, Inc.  
Engineering Technician  
1995 – 1997

Marlie Whiteman, P.E. is the director of modeling at Urban Crossroads, having worked professionally in transportation planning and traffic engineering with an emphasis on travel forecasting since 1995. Ms. Whiteman received a Bachelor of Science degree in civil engineering from the University of California, Irvine.

Ms. Whiteman's experience in transportation planning includes model development, model validation, post-processing of future forecasts, and evaluation of vehicle occupancy, transit system usage, and vehicle miles travelled. Her experience also includes evaluation of transportation system user characteristics, roadway phasing requirements, and the effect of compact mixed-use development strategies (such as jobs-housing balance, trip balancing, multi-modal transportation planning, etc.). She has managed projects throughout southern California.

Ms. Whiteman has worked with a number of travel demand forecasting software packages, including TransCAD, TRANSIMS, CUBE, and various predecessors to the most current generation of travel demand modeling software packages.

Ms. Whiteman's work experience with the development of traffic models includes the Coachella Valley – Imperial County Traffic Model, Coachella Valley Sub Area Traffic Model, Western Riverside Sub Area Traffic model, Imperial County Traffic Model, the Palm Desert Model, the South Orange County Traffic Model, the Pass Area Model, the Tejon Mountain Village Traffic Model, the Irvine Traffic Analysis Model, and the Newport Beach Traffic Model.

Her experience working with existing traffic models includes the Orange County Transportation Analysis Model, Riverside County Transportation Analysis Model (RIVTAM), Chino Traffic Model, Moreno Valley Traffic Model, Beaumont Area Traffic Model/Analyzer, San Juan Capistrano model, and Ramona Expressway Corridor Study Model. She is also familiar with the Comprehensive Transportation Plan Model and the SCAG RTP Model.

She has performed modeling and analysis activities for the I-405 Major Investment Study. Additional modeling support activities include Scholle Development TDR forecast preparation, on-call services for the Cities of Moreno Valley and Irvine, and for the County of Orange (including staff training activities), and forecast preparation in support of numerous traffic studies.

General Plan traffic study preparation activities include the Cities of Rancho Santa Margarita, San Jacinto, Hemet, Moreno Valley, Beaumont, Indian Wells, Palm Desert, and Newport Beach.

She has performed general transportation planning and engineering projects on wide range of scales, from a small restaurant to a City General Plan Circulation Element. Her work includes various efforts in Irvine for the Great Park and Great Park Neighborhoods plans, the Banning Ranch project in Newport Beach and citywide evaluations of intersections and street segments prepared for the City of Irvine.