2009 Orange County Congestion Management Program

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Chapter 1: Introduction

Purpose & Need

In June 1990, the passage of the Proposition 111 gas tax increase required California's urbanized areas – areas with populations of 50,000 or more – to adopt a Congestion Management Program (CMP). The following year, Orange County's local governments designated the Orange County Transportation Authority (OCTA) as the Congestion Management Agency (CMA) for the County. As a result, OCTA is responsible for the development, monitoring, and biennial updating of Orange County's CMP.

The passage of Assembly Bill 2419, in July 1996, provided local agencies the option to elect out of the CMP process without the risk of losing state transportation funding. However, local jurisdictions in Orange County expressed a desire to continue the existing CMP process, because the requirements are similar to those of the Orange County Measure M Growth Management Program, and because it contributes to fulfilling federal requirements for the Congestion Management System (CMS), prepared by the Southern California Association of Governments (SCAG). The OCTA Board of Directors affirmed the decision to continue with the existing CMP process on January 13, 1997.

CMP Goals

The goals of Orange County's CMP are to support regional mobility and air quality objectives by reducing traffic congestion; provide a mechanism for coordinating land use and development decisions that support the regional economy; and determine gas tax fund eligibility.

To meet these goals, the CMP contains a number of policies designed to monitor and address system performance issues. OCTA developed the policies that makeup Orange County's CMP with local jurisdictions, the California Department of Transportation, and the South Coast Air Quality Management District.

State Legislation

Required Elements

California Government Code Section 65089(b) requires the CMP to include specific elements, which determine the nature of OCTA's CMP policies, and ensure that SCAG's CMS meets federal requirements. The government code statute for each required element is summarized below. The full text of the Government Code can be viewed at www.leginfo.ca.gov/calaw.html, sections 65088-65089.10.

Traffic Level of Service Standards – §65089(b)(1)(A) & (B)

Establish traffic level of service (LOS) standards for a system of highways and roadways. The highways and roadway system is designated by OCTA and shall include, at minimum, all state highways and principal arterials. None of the designated facilities may be removed, and new state highways and principal arterials must be added, except if it is within an infill opportunity zone. The LOS must be measured using a method that is consistent with the Highway Capacity Manual.

The LOS standards must not be below level of service "E", unless the levels of service from the baseline CMP dataset were lower. If the LOS does not meet the minimum standard, and is outside an infill opportunity zone, a deficiency plan must be adopted.

Chapter two specifically addresses this element.

Performance Measures – §65089(b)(2)

Establish measures to evaluate the current and future performance of the transportation system. At minimum, the measures must be established for the highway and roadway system, frequency and routing of public transit, and for the coordination of transit service with separate operators. These measures will be used to support improvements to mobility, air quality, land use, and economic objectives, by being incorporated into the Capital Improvement Program, the Land Use Analysis Program, and any required deficiency plans.

Chapters two and three specifically address this element.

Travel Demand – §65089(b)(3)

Promote alternative transportation methods, improve the balance between jobs and housing, and other strategies. These methods and strategies may include, but are not limited to, carpools, vanpools, transit, bicycles, park-and-ride lots, flexible work hours, telecommuting, parking management programs, and parking cash-out programs.

Chapter six specifically addresses this element.

Land Use Analysis Program – §65089(b)(4)

Analyze the impacts of land use decisions on the transportation system, using the previously described performance measures. The analysis must also include cost estimates associated with mitigating those impacts. To avoid duplication, this program may require implementation through the requirements and analysis of the California Environmental Quality Act.

Chapter four specifically addresses this element.

Capital Improvement Program – §65089(b)(5)

Use the performance measures, described above, to determine effective projects that mitigate impacts identified in the land use analysis program, through an adopted seven-year capital improvement program. This seven-year program will conform to transportation-related air quality mitigation measures, and include any projects that will increase the capacity of the transportation system. Furthermore, consideration will be given to maintaining or improving bicycle access and safety within the project areas. Projects necessary for preserving investments in existing facilities may also be included.

Chapter five specifically addresses this element.

CMA Requirements

As Orange County's CMA, OCTA is responsible for the administration of the CMP, as well as providing data and models that are consistent with the Southern California Association of Governments (SCAG) region, and developing the deficiency plan processes. These requirements are described in the legislation, and are summarized below.

Modeling and Data Consistency – §65089(c)

In consultation with the SCAG and local governments, OCTA shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model. Moreover, OCTA shall approve transportation models of areas within the county that will be used by local jurisdictions to determine the quantitative impacts of development on the circulation system, which are based on the countywide model and standardized modeling assumptions and conventions. All models and databases shall be consistent with SCAG.

Appendix D, Attachment 1, addresses this requirement.

Deficiency Plan Procedures – §65089.4

OCTA is responsible for preparing and adopting procedures for local deficiency plan development and implementation responsibilities. OCTA must also incorporate into its deficiency plan procedures, a methodology for determining if deficiency impacts are caused by more than one local jurisdiction within Orange County; in which case a multi-jurisdictional deficiency plan, adopted by all participating local jurisdictions, may be required. As a precaution, OCTA must establish a conflict resolution process for addressing conflicts or disputes between local jurisdictions in meeting the multi-jurisdictional deficiency plan responsibilities.

Chapter two discusses this requirement in more detail.

Chapter 2: Highway Level of Service

Level of Service Standards

In 1991, the Orange County Transportation Authority (OCTA) implemented an Intersection Capacity Utilization (ICU) monitoring method, developed with technical staff members from local and State agencies, for measuring the Level of Service (LOS) at CMP Highway System (CMPHS) intersections. The CMP LOS grade chart is illustrated in Figure 1.

Figure 1: LOS Grade Chart

LOS Grade	ICU Rating
A	< .61
B	.61 - .70
C	.71 - .80
D	.81 - .90
E	.91 – 1.00
F	> 1.00

The first LOS measurement recorded for the CMP, which was in 1992 for most CMP intersections, sets the baseline for comparing future measurements. During subsequent LOS monitoring, CMP statute requires that CMPHS intersections maintain a LOS grade of 'E' or better, unless the baseline is lower than 'E'; in which case, the ICU rating cannot increase by more than 0.1. The *Highway & Roadway System Performance Measures* section discusses the ICU method in more detail.

OCTA has an established CMPHS, consisting of Orange County's state highways and arterials from OCTA's Smart Street network (Figure 2). For any CMPHS intersection performing below the LOS standards, discussed above, the responsible agency must identify improvements necessary to meet the LOS standards. This is accomplished either through existing plans, or through the development of a deficiency plan. This is described in more detail in the *Deficiency Plans* section below.

The 2009 freeway monitoring results, provided by the California Department of Transportation (Caltrans) District 12, are located in Appendix A. Caltrans is responsible for monitoring freeway performance and addressing any deficiencies on State operated facilities. Caltrans' responsibilities include, but are not limited to:

A. Evaluating current conditions and identify deficiencies.

B. Develop plans and strategies to address deficiencies.

C. Evaluating development projects of local and regional significance for impacts to the State transportation system and work with lead agencies to develop potential mitigation measures.

For the State transportation system, Caltrans does not use CMP thresholds and analysis methodologies to determine if significant impacts occur under CEQA. Local agencies are encouraged to coordinate with the Caltrans Local Development/Intergovernmental Review Branch early in the development process to determine what methodologies and thresholds

of significance should be used to identify impacts to the State transportation system.

Highway & Roadway System Performance Measures

This section discusses the process for determining ICU ratings, as well as how ICU ratings determine the LOS at CMPHS intersections. This method is generally consistent with the Highway Capacity Manual.

Overview of Intersection Capacity Utilization (ICU) Methodology

Traffic counts are manually collected at CMPHS intersections to initiate the ICU calculation process. The counts monitor the traffic flow, including the approach (northbound, eastbound, southbound, or westbound) and movement (left turn, through, or right turn) for each vehicle.

Figure 2:
2009 Congestion Management Program Highway System

October 25, 2007

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Each intersection has counts conducted in 15-minute increments, during peak periods in the AM (6:00-9:00) and PM (3:00-7:00) on three separate mid-week days (Tuesday, Wednesday, or Thursday). Irregular conditions (inclement weather, holidays, construction, etc.) will postpone counts.

The highest count total during any four consecutive 15-minute count intervals within a peak period represents the peak-hour count set. For each intersection, a peak-hour count set is determined for each day's AM and PM peak period, resulting in a group of three AM peak-hour count sets and a group of three PM peak-hour count sets.

The group of AM peak-hour count sets is averaged, as is the group of PM peak-hour count sets. The results are the volumes used to determine AM and PM volume-to-capacity (V/C) ratios for each movement through the intersection. A number of assumptions determine the capacities for each movement.

An example of an assumption used to determine capacity is the saturation flow-rate, which represents the theoretical maximum number of vehicles that can use a lane to move through an intersection. In 1991, OCTA and the technical staff members from local and state agencies agreed upon a saturation flow-rate of 1,700 vehicles per lane per hour. However, other factors can adjust this assumption.

Such factors include right turn lanes, which can increase the saturation flow-rate by 15% in specific circumstances. Right turn overlaps (signalized right turn lanes that are green during the cross traffic's left turn movements) and free right turns (the lane allows vehicles to turn right without stopping, even when the through signal is red) are some of the circumstances that will increase the saturation flow-rate. If right turns on red are permitted, a *de facto* right turn lane (approaches that do not have designated right turn lanes, but on-street parking is prohibited during peak hours, and the width from the curb through the rightmost through lane is at least 19 feet) may also increase the saturation flow rate.

The capacity can also be reduced under certain conditions. For example, if a lane is shared for through and turn movements, the saturation flow-rate of 1700 could be reduced. This occurs only when the turn movement volumes reach a certain threshold that is calculated for each intersection with shared lanes. The reduction represents the slower turning movements interfering with through movements.

Finally, if field observations indicate the presence of more than 100 pedestrians per hour at an intersection, then pedestrian counts are conducted simultaneously with vehicle counts. Saturation flow-rate calculations then

factor impacts of pedestrian activity for effected lanes, using standard reductions, in accordance with Chapter 16 of the Highway Capacity Manual.

Once the V/C ratios are determined for each movement, critical V/C ratios are calculated. Conflicting movements determine which V/C ratios are included in the calculation of the critical V/C ratios. Conflicting movements represent a situation where a movement from one approach prevents a movement from the opposite approach. For example, if through movements are being made from the southbound approach, left turn movements cannot simultaneously be made from the northbound approach. For each set of opposing approaches (north/south and east/west), the two conflicting movements with the greatest summed V/C ratios are identified. These summed V/C ratios then become known as the critical V/C ratios.

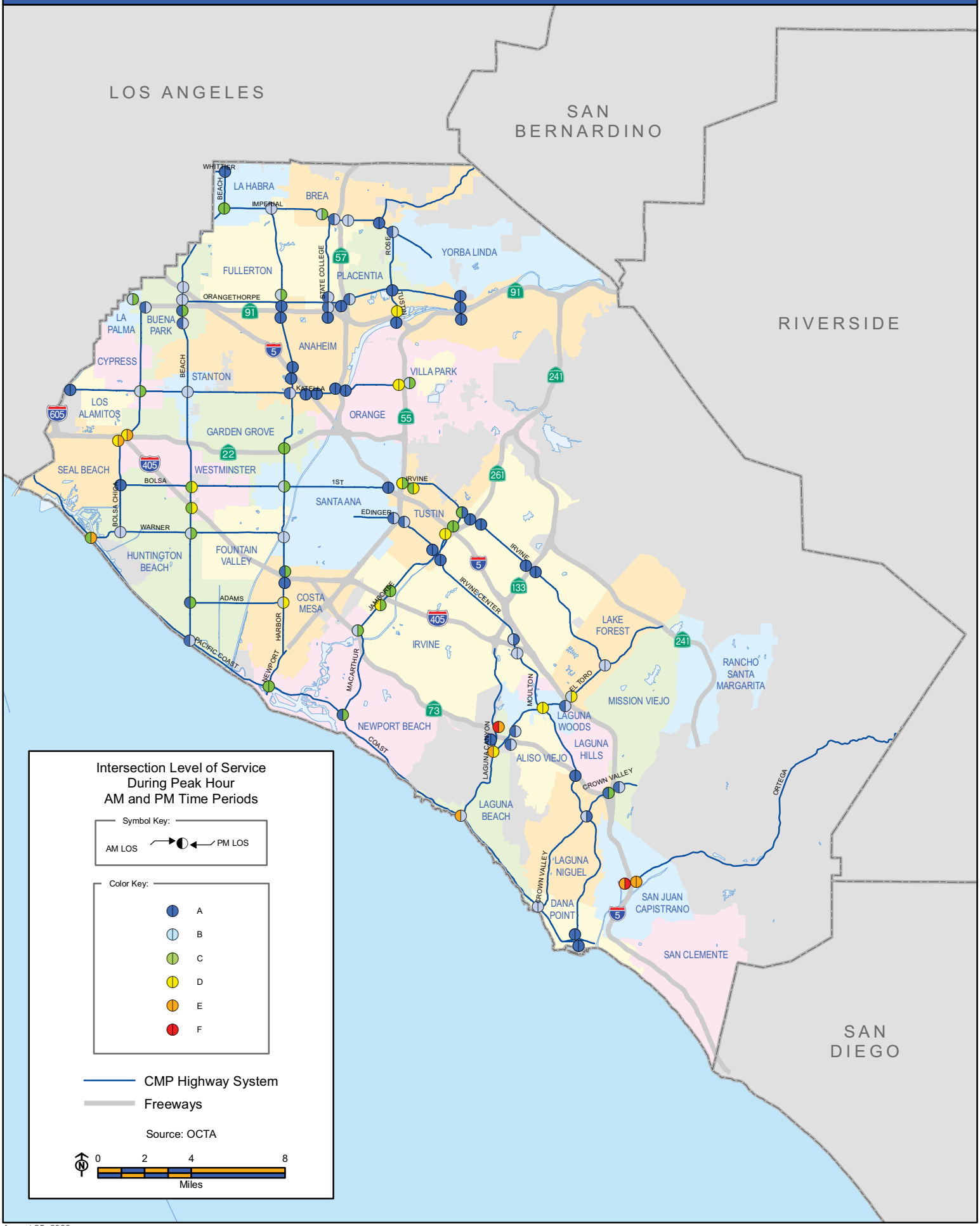
OCTA and technical staff members from local and State agencies also agreed upon a lost time factor of 0.05, in 1991. The lost time factor represents the assumed amount of time it takes a vehicle to travel through an intersection. For each intersection, the critical V/C ratios are summed (north/south + east/west), and the lost time factor is added to the sum, producing the ICU rating for the intersection.

Based on a set of ICU rating ranges, which were agreed upon by OCTA and technical staff members from local and State agencies, grades are assigned to each intersection. The grades indicate the LOS for intersections, and are used to determine if the intersections meet the performance standards described at the beginning of the chapter.

The 2009 LOS ratings for the CMP intersections have been mapped in Figure 3. The map in Figure 4 displays the LOS changes since the 2007 CMP report. Finally, a spreadsheet of the baseline and 2009 LOS ratings for the CMP intersections, and corresponding ICU measurements, is located in Figure 5.

Note that in Figure 5, Orange County's average ICU rating has improved over the baseline. The average AM ICU improved from 0.68 to 0.61 (a 10.29 percent improvement), and the PM ICU improved from 0.73 to 0.66 (a 9.59 percent improvement). The ICU improvements indicate that Orange County agencies are effectively operating, maintaining, and improving the CMP Highway System.

Figure 3:
2009 CMP Intersection Level of Service



August 25, 2009

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Figure 4:
2007 vs. 2009 CMP Intersection Level of Service

November 20, 2009

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Orange County Congestion Management Program
LEVEL OF SERVICE 2009

Intersection/Interchange	Jurisdiction	Baseline AM		2009 AM		Baseline PM		2009 PM		Percent Change*	
		LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	AM ICU	PM ICU
Anaheim Blvd-I-5 NB Ramp/Katella Avenue	Anaheim	A	0.49	A	0.43	D	0.82	A	0.50	-12.24%	-39.02%
Harbor Blvd./Katella Avenue	Anaheim	A	0.53	A	0.50	B	0.67	B	0.61	-5.66%	-8.96%
I-5 NB Ramp/Harbor Boulevard	Anaheim	A	0.52	A	0.47	A	0.54	A	0.56	-9.62%	3.70%
I-5 SB Ramp/Katella Avenue	Anaheim	A	0.48	A	0.54	A	0.41	A	0.48	12.50%	17.07%
I-5 SB Ramp\Harbor Boulevard	Anaheim	A	0.29	A	0.23	A	0.31	A	0.29	-20.69%	-6.45%
Imperial Highway/Orangethorpe Avenue	Anaheim	B	0.67	A	0.00	D	0.89	A	0.00	-100.00%	-100.00%
SR-57 NB Ramps/Katella Avenue	Anaheim	A	0.51	A	0.37	A	0.41	A	0.36	-27.45%	-12.20%
SR-57 SB Ramps/Katella Avenue	Anaheim	A	0.52	A	0.42	A	0.51	A	0.36	-19.23%	-29.41%
SR-91 EB Ramp/Harbor Boulevard	Anaheim	A	0.46	A	0.47	A	0.52	A	0.57	2.17%	9.62%
SR-91 EB Ramp/Imperial Highway	Anaheim	C	0.73	A	0.00	C	0.79	A	0.00	-100.00%	-100.00%
SR-91 EB Ramps/State College Boulevard	Anaheim	B	0.69	A	0.47	D	0.82	A	0.58	-31.88%	-29.27%
SR-91 EB Ramps/Tustin Avenue	Anaheim	B	0.66	A	0.55	D	0.84	A	0.47	-16.67%	-44.05%
SR-91 WB Ramp/Harbor Boulevard	Anaheim	B	0.61	A	0.53	C	0.77	A	0.58	-13.11%	-24.68%
SR-91 WB Ramp/Imperial Highway	Anaheim	C	0.71	A	0.00	B	0.63	A	0.00	-100.00%	-100.00%
SR-91 WB Ramp/State College Boulevard	Anaheim	A	0.55	A	0.44	B	0.63	B	0.63	-20.00%	0.00%
SR-91 WB Ramps/Tustin Avenue	Anaheim	B	0.64	D	0.84	A	0.60	D	0.85	31.25%	41.67%
SR-57 NB Ramps/Imperial Highway	Brea	C	0.78	B	0.61	E	0.91	B	0.62	-21.79%	-31.87%
SR-57 SB Ramps/Imperial Highway	Brea	B	0.68	A	0.56	B	0.70	B	0.63	-17.65%	-10.00%
State College Boulevard/Imperial Highway	Brea	C	0.73	B	0.62	E	0.93	C	0.77	-15.07%	-17.20%
Valencia Avenue/Imperial Highway	Brea	A	0.56	A	0.56	A	0.59	A	0.50	0.00%	-15.25%
Beach Boulevard/Orangethorpe Avenue	Buena Park	C	0.76	B	0.63	D	0.87	B	0.66	-17.11%	-24.14%
I-5 SB Ramps/Beach Boulevard	Buena Park	C	0.72	B	0.62	C	0.78	B	0.64	-13.89%	-17.95%
SR-91 EB Ramp/Beach Boulevard	Buena Park	C	0.74	A	0.52	D	0.84	B	0.70	-29.73%	-16.67%
SR-91 EB Ramp/Valley View Street	Buena Park	A	0.58	A	0.46	D	0.86	B	0.61	-20.69%	-29.07%
SR-91 WB Ramp/Beach Boulevard	Buena Park	A	0.58	A	0.59	A	0.59	C	0.79	1.72%	33.90%
SR-91 WB Ramp/Valley View Street	Buena Park	C	0.80	B	0.65	E	0.94	C	0.73	-18.75%	-22.34%
Harbor Boulevard/Adams Avenue	Costa Mesa	E	0.99	B	0.66	F	1.09	D	0.81	-33.33%	-25.69%
I-405 NB Ramps/Harbor Boulevard	Costa Mesa	E	0.95	A	0.55	F	1.07	C	0.72	-42.11%	-32.71%
I-405 SB Ramps/Harbor Boulevard	Costa Mesa	A	0.53	A	0.46	B	0.63	A	0.56	-13.21%	-11.11%
Valley View Street/Katella Avenue	Cypress	B	0.63	B	0.63	D	0.87	C	0.76	0.00%	-12.64%
Crown Valley Parkway/Bay Drive/PCH	Dana Point	F	1.41	B	0.62	F	1.62	B	0.61	-56.03%	-62.35%
Street of the Golden Lantern/Del Prado Avenue	Dana Point	A	0.32	A	0.36	A	0.53	A	0.47	12.50%	-11.32%
Street of the Golden Lantern/PCH	Dana Point	A	0.42	A	0.45	A	0.55	A	0.55	7.14%	0.00%
Harbor Boulevard/Orangethrope Avenue	Fullerton	A	0.60	B	0.67	E	0.94	C	0.79	11.67%	-15.96%
State College Boulevard/Orangethorpe Avenue	Fullerton	C	0.80	A	0.55	D	0.86	B	0.64	-31.25%	-25.58%

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Intersection/Interchange	Jurisdiction	Baseline AM		2009 AM		Baseline PM		2009 PM		Percent Change*	
		LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	AM ICU	PM ICU
SR-22 WB Ramp/Valley View Street	Garden Grove	C	0.76	D	0.82	D	0.87	E	0.92	7.89%	5.75%
SR-22 WB Ramps/Harbor Boulevard	Garden Grove	F	1.10	C	0.74	F	1.16	C	0.75	-32.73%	-35.34%
Beach Boulevard/405 SB Ramp/Edinger Avenue	Huntington Beach	B	0.63	C	0.79	E	1.03	D	0.85	25.40%	-17.48%
Beach Boulevard/Adams Avenue	Huntington Beach	A	0.55	A	0.54	C	0.67	C	0.72	-1.82%	7.46%
Beach Boulevard/Pacific Coast Highway	Huntington Beach	A	0.45	A	0.55	A	0.47	B	0.64	22.22%	36.17%
Beach Boulevard/Warner Avenue	Huntington Beach	C	0.78	B	0.69	E	0.93	C	0.79	-11.54%	-15.05%
Bolsa Chica Street/Bolsa Avenue	Huntington Beach	B	0.66	A	0.59	A	0.53	A	0.56	-10.61%	5.66%
Bolsa Chica Street/Warner Avenue	Huntington Beach	A	0.57	B	0.65	D	0.81	B	0.68	14.04%	-16.05%
Pacific Coast Highway/Warner Avenue	Huntington Beach	D	0.81	C	0.77	B	0.72	E	0.91	-4.94%	26.39%
I-405 NB Ramps/Enterprise/Irvine Center Drive	Irvine	E	0.95	B	0.69	A	0.39	A	0.60	-27.37%	53.85%
I-405 NB Ramps/Jamboree Road	Irvine	F	1.03	C	0.77	C	0.78	C	0.78	-25.24%	0.00%
I-405 SB Ramps/Irvine Center Drive	Irvine	E	1.00	B	0.66	A	0.57	B	0.61	-34.00%	7.02%
I-405 SB Ramps/Jamboree Road	Irvine	E	0.92	D	0.88	B	0.66	C	0.79	-4.35%	19.70%
I-5 NB Ramps/Jamboree Road	Irvine	A	0.54	C	0.79	C	0.75	C	0.77	46.30%	2.67%
I-5 SB Ramps/Jamboree Road	Irvine	A	0.40	D	0.88	A	0.35	D	0.83	120.00%	137.14%
MacArthur Boulevard/Jamboree Road	Irvine	B	0.61	B	0.69	B	0.69	C	0.79	13.11%	14.49%
SR-261 NB Ramps/Irvine Boulevard	Irvine	A	0.38	A	0.45	A	0.53	A	0.55	18.42%	3.77%
SR-261 SB Ramps/Irvine Boulevard	Irvine	A	0.42	A	0.43	A	0.40	A	0.43	2.38%	7.50%
SR-133 NB Ramps/Irvine Boulevard	Irvine	A	0.37	A	0.43	A	0.33	A	0.44	16.22%	33.33%
SR-133 SB Ramps/Irvine Boulevard	Irvine	A	0.37	A	0.38	A	0.29	A	0.38	2.70%	31.03%
El Toro Road/SR-73 NB Ramps	Laguna Beach	E	0.91	A	0.57	A	0.59	B	0.66	-37.36%	11.86%
El Toro Road/SR-73 SB Ramps	Laguna Beach	A	0.41	A	0.46	B	0.67	B	0.66	12.20%	-1.49%
Laguna Canyon Rd/SR-73 NB Ramps	Laguna Beach	C	0.73	F	1.08	C	0.72	E	0.98	47.95%	36.11%
Laguna Canyon Rd/SR-73 SB Ramps	Laguna Beach	A	0.32	A	0.33	A	0.33	A	0.40	3.13%	21.21%
Laguna Canyon Road/El Toro Road	Laguna Beach	F	1.54	E	0.95	F	1.16	D	0.84	-38.31%	-27.59%
Laguna Canyon Road/Pacific Coast Highway	Laguna Beach	D	0.84	E	0.92	C	0.74	B	0.70	9.52%	-5.41%
I-5 SB Ramp/Avenue de la Carlotta/El Toro Road	Laguna Hills	F	1.18	A	0.46	F	1.13	B	0.63	-61.02%	-44.25%
Moulton Parkway/Crown Valley Parkway	Laguna Niguel	A	0.56	B	0.62	B	0.65	A	0.59	10.71%	-9.23%
Moulton Parkway/SR-73 SB Ramps	Laguna Niguel	A	0.45	A	0.38	A	0.38	A	0.44	-15.56%	15.79%
Moulton Parkway/El Toro Road	Laguna Woods	E	0.94	D	0.82	F	1.26	D	0.86	-12.77%	-31.75%
Beach Boulevard/Imperial Highway	La Habra	D	0.85	C	0.71	D	0.87	C	0.71	-16.47%	-18.39%
Beach Boulevard/Whittier Boulevard	La Habra	A	0.33	A	0.41	A	0.29	A	0.45	24.24%	55.17%
Harbor Boulevard/Imperial Highway	La Habra	D	0.81	B	0.65	D	0.86	B	0.69	-19.75%	-19.77%
I-5 NB/Bridger/El Toro Road	Lake Forest	A	0.56	B	0.61	D	0.81	D	0.83	8.93%	2.47%
Trabuco Road/El Toro Road	Lake Forest	F	1.03	B	0.66	C	0.80	B	0.67	-35.92%	-16.25%

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Intersection/Interchange	Jurisdiction	Baseline AM		2009 AM		Baseline PM		2009 PM		Percent Change*	
		LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	AM ICU	PM ICU
I-605 NB Ramps/Katella Avenue	Los Alamitos	B	0.69	A	0.44	B	0.65	A	0.59	-36.23%	-9.23%
I-5 NB Ramps/Crown Valley Parkway	Mission Viejo	B	0.68	A	0.56	B	0.69	B	0.66	-17.65%	-4.35%
I-5 SB Ramps/Crown Valley Parkway	Mission Viejo	D	0.86	A	0.59	F	1.01	C	0.74	-31.40%	-26.73%
MacArthur Boulevard/Pacific Coast Highway	Newport Beach	A	0.51	A	0.60	B	0.70	C	0.73	17.65%	4.29%
Newport Boulevard/Pacific Coast Highway	Newport Beach	A	0.56	C	0.77	A	0.49	C	0.73	37.50%	48.98%
SR-55 NB Ramps/Sacramento/Katella Avenue	Orange	C	0.75	B	0.61	D	0.85	C	0.75	-18.67%	-11.76%
SR-55 SB Ramps/Katella Avenue	Orange	C	0.73	D	0.86	E	0.95	D	0.82	17.81%	-13.68%
Rose Drive/Imperial Highway	Placentia	E	0.95	A	0.58	E	0.99	B	0.70	-38.95%	-29.29%
Rose Drive/Tustin Avenue/Orangethorpe Avenue	Placentia	C	0.76	A	0.54	F	1.03	A	0.51	-28.95%	-50.49%
SR-57 NB Ramps/Orangethorpe Avenue	Placentia	B	0.67	A	0.58	C	0.80	B	0.70	-13.43%	-12.50%
SR-57 SB Ramps/Iowa Place/Orangethrope Avenue	Placentia	C	0.74	A	0.53	B	0.69	A	0.52	-28.38%	-24.64%
I-5 NB Ramps/Ortega Highway	San Juan Capistrano	A	0.52	E	0.98	A	0.58	E	0.91	88.46%	56.90%
I-5 SB Ramps/Ortega Highway	San Juan Capistrano	B	0.61	E	0.93	C	0.77	F	1.06	52.46%	37.66%
Harbor Boulevard/1st Street	Santa Ana	A	0.48	B	0.68	D	0.81	C	0.76	41.67%	-6.17%
Harbor Boulevard/Warner Avenue	Santa Ana	E	0.93	B	0.68	E	0.98	B	0.66	-26.88%	-32.65%
I-5 SB Ramps/1st Street	Santa Ana	A	0.29	A	0.44	A	0.46	A	0.56	51.72%	21.74%
SR-55 SB Ramp/Auto Mall/Edinger Avenue	Santa Ana	D	0.90	A	0.56	F	1.06	B	0.63	-37.78%	-40.57%
SR-55 SB Ramps/Irvine Boulevard (Fourth Street)	Santa Ana	B	0.68	D	0.82	D	0.83	C	0.72	20.59%	-13.25%
Beach Boulevard/Katella Avenue	Stanton	D	0.89	B	0.70	F	1.02	B	0.70	-21.35%	-31.37%
Jamboree Road/Edinger Avenue-NB Ramp	Tustin	A	0.28	A	0.39	A	0.32	A	0.51	39.29%	59.38%
Jamboree Road/Edinger Avenue-SB Ramp	Tustin	D	0.81			A	0.41			-100.00%	-100.00%
Jamboree Road/Irvine Boulevard	Tustin	B	0.65	C	0.72	A	0.59	A	0.60	10.77%	1.69%
SR-55 NB Ramps/Edinger Avenue	Tustin	C	0.72	A	0.49	B	0.65	B	0.69	-31.94%	6.15%
SR-55 NB Ramps/Irvine Boulevard	Tustin	A	0.59	C	0.74	A	0.45	D	0.81	25.42%	80.00%
Beach Boulevard/Bolsa Avenue	Westminster	F	1.09	C	0.80	F	1.11	D	0.86	-26.61%	-22.52%
Bolsa Chica Road/Garden Grove Boulevard	Westminster	E	0.91	D	0.81	E	0.97	E	0.92	-10.99%	-5.15%
COUNTY AVERAGE			0.68		0.61		0.73		0.66	-10.59%	-9.35%

Deficiency Plans

If an intersection does not meet the LOS standards, then a deficiency plan is in order, as described under Government Code Section 65089.4. The deficiency plan identifies the cause of congestion, the improvements needed to solve the problem, and the cost and timing of the proposed improvements.

A deficiency plan process has been developed by the CMP Technical Advisory Committee to provide local jurisdictions with a framework for maintaining compliance with the CMP when a portion of the CMPHS fails to meet its established LOS standard (Appendix C-1). The Deficiency Plan Decision Tree (Appendix C-2) illustrates the individual steps that must be taken in order for a local jurisdiction to meet CMP deficiency plan requirements.

Deficiency plans are not required if a deficient intersection is brought into compliance within 18 months of its initial detection, using improvements that have been previously planned and programmed in the CMP Capital Improvement Program. In addition, CMP legislation specifies that the following shall be excluded from deficiency determinations:

- Interregional travel (trip origins outside the Orange County CMPHS)
- Construction, rehabilitation, or maintenance of facilities that impact the system
- Freeway ramp metering
- Traffic signal coordination by the state, or multi-jurisdictional agencies
- Traffic generated by the provision of low-income and very low-income housing
- Traffic generated by high-density residential development located within one-quarter mile of a fixed rail passenger station; and
- Traffic generated by any mixed-use development located within one-quarter mile of a fixed rail passenger station, but only if more than half of the land area, or floor area, of the mixed-use development is used for high-density residential housing.

Figure 6 identifies the two Orange County CMP intersections that exceeded their CMP level of service standard in 2009; however, they are both State controlled and, therefore, are statutorily exempt from the deficiency plan process.

Figure 6: Status of 2009 CMP Intersections Not Meeting Standards

Jurisdiction	Intersection/ Interchange	ICU						Status
		Baseline AM	2007 AM	2009 AM	Baseline PM	2007 PM	2009 PM	
Laguna Beach	Laguna Canyon Rd/ SR-73 NB Ramps	0.73	1.02	1.08				Statutorily exempt. Signal controlled by State
San Juan Capistrano	I-5 SB Ramps/ Ortega Highway				0.77	1.16	1.06	Statutorily exempt. Signal controlled by State

Improvements at the San Diego Freeway (Interstate 5)/Ortega Highway (State Route 74) interchange are in final design and scheduled to be implemented by 2014. This project will eliminate a chokepoint, reduce congestion, and accommodate forecast traffic demand. As for the intersection at Laguna Canyon Road and State Route 73, Caltrans is aware of the issue, but at this time no project has been prepared to address it.

Chapter 3: Transit Service

As Orange County's transit provider, the Orange County Transportation Authority (OCTA) continually monitors the frequency and routing of its transit services. Bus and rail transit are essential components of Orange County's transportation system, and are important tools for achieving a balanced multi-modal transportation system capable of maintaining level of service standards.

Unfortunately, since the adoption of the 2007 Congestion Management Program (CMP) report, OCTA has reduced revenue vehicle hours (hours of service provided by all fixed route buses in operation) by seven percent, due to a downturn in the economy and the complete loss of State Transit Assistance funds that has resulted in transit budget cuts. Additionally, fixed route bus ridership has decreased by ten percent.

The CMP performance measures provide an index of both the effectiveness and efficiency of Orange County's fixed-route bus and commuter rail services. ACCESS, OCTA's paratransit service, is not included in the CMP analysis because it is not considered a congestion management service.

Indices used in OCTA's long-range planning process are the basis for the performance measures included in the CMP. The performance measures allow for identification of areas in need of improved transit service. Furthermore, once adequate transit operating funds are available, the transit performance measures will work to ensure that bus and rail services meet demand and are coordinated between counties.

Fixed-Route Bus Service

OCTA's fixed route bus service includes local routes, express routes, community routes, rail feeder routes and shuttles.

- Local routes provide a basic level of transit access; they operate primarily in the arterial corridors and are intended to provide intra-county service to meet the minimum service standard.
- Express routes provide limited-stop, freeway-based service to major employment areas in Orange and Los Angeles counties.
- Community routes feed the local fixed route network, and provide greater access and relatively high levels of service during peak periods, and off-peak periods when warranted by demand.
- Rail feeder routes provide access to and from employment centers for commuters using Metrolink commuter rail service.

- Shuttles serve local areas, connecting to specialty destinations.

Currently (May 2009), OCTA's fixed route bus service has a total of 80 routes which is comprised of 42 local routes, 14 community routes, 5 intra-county and 5 inter-county express routes, 13 rail feeder routes (StationLink), and 1 shuttle route.

Service Standards and Measures

Service Standards

OCTA bus service standards direct the development, implementation, monitoring, and modification of OCTA bus services. These standards are intended to govern the planning and design of the service; and, as such, they depict a desirable state against which existing service is assessed. The standards currently in place were adopted by the OCTA Board of Directors in 1994 and are summarized in Figure 7.

The current (May 2009) adherence to these standards is detailed below:

- Eighty-eight percent of OCTA bus routes (excluding Express, Shuttle, and Rail Feeder service) fall within the minimum span of service standards. Not all routes meet the performance standards because the highest demand routes use a large portion of the limited resources, resulting in some shortcomings for other routes.
- Sixty-five percent of OCTA bus routes (excluding Express, Shuttle and Rail Feeder service) meet the minimum headway (frequency) standard. Again, this is primarily due to the need to allocate limited resources to service with the greatest demand.

Service standards are important instruments to ensure transit service meets the needs of the users while allowing for the balance of those needs against the cost effectiveness of the system. The real service levels often reflect conditions and changes that have occurred in the operating, policy, and financial environments. At this time, existing performance standards are under review with a goal to update them within calendar year 2009.

Figure 7: Service Standards for the OCTA Bus System

Bus System Improvement Project — FY95

Service Standards for OCTA Bus System

STANDARDS	BASIC NETWORK		SUPPORT SYSTEM			
	BASE ROUTES	CONNECTOR ROUTES	LOCAL FIXED ROUTES	COMMUNITY SERVICE	EXPRESS SERVICE	RAIL FEEDER SERVICE
SERVICE STANDARDS						
WALKING DISTANCE CRITERIA: % OF POPULATION WITHIN 1/4 MILE OF BUS ROUTE						
• INCREMENT	50%	10%	30%		n/a	n/a
• ACCUMULATIVE	50%	60%	90%		n/a	n/a
MINIMUM SPAN OF SERVICE						
• WEEKDAY AND SATURDAY	5:30am-8:30pm	5:30am-8:30pm	(1)	(1)	(1)	(1)
• SUNDAY	7:00am-7:00pm	7:00am-7:00pm	(1)	(1)	(1)	(1)
MINIMUM HEADWAYS						
• PEAK WEEKDAY PERIOD (6-9a, 3-6p)	30 min.	30 min.	30 min.	30 min.	(2)	(2)
• SATURDAY	30 min.	60 min.	60 min.	60 min.	n/a	n/a
• SUNDAY	30 min.	60 min.	(1)	(1)	n/a	n/a
MAXIMUM TRANSFER WAIT TIME						
• PEAK WEEKDAY PERIOD	15 min.	15 min.	15 min.	15 min.	n/a	n/a
• OTHER PERIODS (3)	15 min.	30 min.	30 min.	30 min.	n/a	n/a
LOADING STANDARDS (MAX)						
• PEAK 60 MINUTES	125%	125%	125%	125%	100%	125%
• PEAK AND OFF PEAK PERIODS	100%	100%	100%	100%	100%	100%
PERFORMANCE STANDARDS (4)						
BOARDINGS / RVH						
• ROUTE	30	20	20	10	20	10
• SYSTEM	40	25	25	25	n/a	n/a

(1) Based on demand.
(2) Minimum of two (2) trips each way per peak weekday period.
(3) May be reduced by interlining and/or timed transfers.
(4) Performance standards apply to changed existing routes and new routes after one year.

Performance Measures

While service standards guide the delivery of service, performance measures evaluate the effectiveness of the service.

Performance Measure 1: Productivity

As a widely accepted industry measure, productivity measures the average number of riders using a bus route for each hour of service that is provided. At OCTA, productivity standards range from 10 to 30 riders per RVH, depending on the type of service. Specialized services such as rail feeders, community routes and shuttles are not expected to handle as many riders as high demand services operating on major arterials. For the month of February 2009, 84 percent of the Local routes, 72 percent of the Community routes, and 85 percent of the Rail feeder routes met the productivity standards. None of the Express routes met the productivity standards.

Performance Measure 2: Vehicle Load Factor

Vehicle load factor is the ratio of the average number of passengers on-board buses to the average number of seats scheduled for a given time period. Generally, a route with a high load factor is very productive, has a high fare box recovery, and a high boardings per service hour ranking. Load factor is often used to justify service levels and vehicle size on a route as it gives perspective on seat utilization, crowding, and compulsory bypass. Establishing a reasonable balance between the high cost of operating service and the comfort of passengers using the service is an important factor in transit service planning.

Maximum load standards differ among the classes of service operated by the OCTA and are either 100 percent or 125 percent of seated capacity depending on the type of service, and the time interval measured. The exception to this is express service where passengers generally travel much greater distances and remain on-board longer than the average local bus rider. In the case of OCTA express service, trips are scheduled to average no more than 100 percent of seated capacity.

The most recent load factor analysis (2006) revealed that less than 1 percent of OCTA's fixed route trips exceed the maximum load of 125 percent.

Performance Measure 3: On-time Performance (OTP)

The OTP goal is set at 85 percent of all bus trips system-wide, at the line level, and at the base level. Failure to achieve the goal will trigger activities to move the target service into compliance.

Currently, the OTP measurement is applied to the time-point nearest the maximum load point (MLP) of the bus route under review. As more automated measurement tools become available, measurements will be made at all time-points in the system, not just the MLP for each route.

OTP is reported to executive leadership and bus operations management on a monthly basis in the On-Time Performance Report. Currently (February 2009), system-wide 87.4 percent of OCTA's fixed route bus trips are on-time.

Other Bus Service Measures

General Service Expansion Measures

OCTA considers a service expansion of any of its family of bus services by determining its potential to achieve a specific minimum productivity level for that type of service within one year of operation. New lines or major extensions of established lines usually are associated with the development of major employment locations, large new residential centers or increased residential density, large retail centers or educational centers, or major medical facilities. A major consideration of service expansion to serve new markets is to ensure that the benefit of the new service will outweigh that of the established service that may have to be deleted or modified to provide resources for the new service.

General Service Contraction Measures

Routes or parts of routes that perform consistently below performance measures are candidates for service reduction or deletion to provide resources to (1) maintain measures on more productive routes, and (2) provide new services. A major consideration of service reduction is to insure that the benefits of re-deployed resources outweigh that of retaining the service. Other considerations to be taken into account include service area coverage and service span.

Coordination of Transit Service with Other Carriers

OCTA coordinates the delivery of transit services with several other transit agencies. They include Laguna Beach Transit, the City of Irvine, Riverside Transit Agency, Norwalk Transit System, Los Angeles County Metropolitan Transportation Authority, Long Beach Transit, North County Transit District, Omnitrans, various specialized charter bus services, and commuter rail services. Except for the City of Irvine and charter services, OCTA has interagency agreements with these agencies, which allow riders to transfer from one agency's services to another. However, Irvine does accept OCTA's pre-paid fare media on The *i*-shuttle. In addition, OCTA coordinates schedules and bus stops with neighboring agencies and commuter rail service.

Commuter Rail Service

Metrolink is Southern California's commuter rail system that links residential communities to employment and activity centers. Metrolink is operated by the Southern California Regional Rail Authority (SCRRA), a joint powers authority of five member agencies representing the counties of Los Angeles, Orange, Riverside, San Bernardino and Ventura.

Currently, Metrolink provides service on seven routes, covering 512 miles through six counties in Southern California. On an average weekday, there are 149 trains operating, serving roughly 45,000 riders (one-way trips) at 55 stations. Orange County plays an important, and growing, role within this system.

As one of the five SCRRA member agencies, OCTA administers and funds Orange County's portion of the Metrolink commuter rail system. Orange County's share of Metrolink service covers 68 route miles and sees approximately 15,000 average weekday boardings, comprising more than 30 percent of Metrolink's total system-wide boardings. There are eleven stations in Orange County that serve a total of 44 round trips each weekday on three lines:

- Orange County (OC) Line: with daily service from Los Angeles Union Station to Oceanside;
- Inland Empire-Orange County (IEOC) Line: with daily service from San Bernardino, Riverside, via Orange to Oceanside; and,
- 91 Line: serving Riverside, Fullerton and Los Angeles Union Station.

On June 3, 2006, Metrolink Weekends service was introduced on the OC Line, and Sunday service began July 2, 2006. Metrolink Weekends Saturday and Sunday service on the IEOC Line started July 15, 2006.

OCTA also has 13 dedicated bus routes that connect with Orange County Metrolink stations in Anaheim Canyon, Anaheim, Orange, Santa Ana, Tustin, Irvine and Laguna Niguel/Mission Viejo. These StationLink routes offer Metrolink ticket holders free connections between stations and major employment and activity centers, with schedules designed to meet Metrolink weekday train arrivals and departures.

Performance Measures

SCRRA publishes a Strategic Assessment document that examines a number of performance measures and identifies preferred strategies for future improvements. The performance measures examined within the Strategic Assessment include the following:

- Available capacity (i.e. – the number of trains operating)
- Annual train miles
- Expenses and revenues per train mile
- Increase in service frequency per $1000 invested
- Average weekday ridership
- Passenger miles carried
- Passenger miles traveled per $1000 invested
- Expenses and revenues per passenger mile
- Farebox recovery

Future Transit Improvements

The OCTA Board of Directors adopted the 2006 Long-Range Transportation Plan (LRTP), which presents a balanced, multi-modal approach to improve Orange County's transportation. OCTA is continuing to work towards implementing all of the components presented in the LRTP, although timelines will likely need adjustments due to the current economic conditions.

The components of the Balanced Plan, as presented in the 2006 LRTP, include transit improvements, such as: (1) implementing bus rapid transit service on three high-demand corridors, (2) expanding the level of Metrolink commuter rail service to Los Angeles, (3) improving local connections to and from Metrolink stations, (4) expanding community shuttles, and (5) connecting Metrolink service to new regional transportation systems and centers.

Fixed-Route Bus Service Improvements

- Improve bus frequency, thereby reducing headways on major routes within the core service area, including those zones with the highest transit demand;
- Expand local bus service into areas outside the urbanized core;
- Accommodate Orange County's growing and aging population;

- Implement three new Bus Rapid Transit routes;
- Expand Express Bus service routes;
- Increase rail feeder service to complement anticipated increases in Metrolink rail service; and
- OCTA will work with local jurisdictions to implement additional transit services through the Renewed Measure M Go Local (Project S) and Community Circulators (Project V) programs.

While the improvements listed above remain long-term goals for OCTA, the loss of transit operation funds, and reduced sales tax revenues, have required OCTA to implement a transit service reduction plan. OCTA is experiencing a very significant loss of transit operations funding; therefore, the service reduction program must adjust OCTA transit services accordingly. As of September 2009, 233,000 hours of bus service has been cut, with another cut of 150,000 hours planned for March 2010. In addition, if state transit funds are not restored, or if new funds do not become available by March 2012, another cut of 150,000 hours may be required.

Bus Rapid Transit Service

Bus Rapid Transit (BRT) typically includes bus services that are, at a minimum, faster than traditional 'local bus' service and, at a maximum, include separate facilities for bus operations. BRT represents a way to improve mobility at relatively low cost through incremental investment in a combination of bus infrastructure, equipment, operational improvements, and technology. OCTA's BRT system will eventually include transit signal priority, customized bus shelters that display real-time bus arrival information, and a branded system image that is uniquely identifiable to the public.

Three BRT routes, known as Harbor (Route 543), Westinster/17th (Route 560) and 28-mile (Route 557), will be the first routes to begin service. Additionally, five more BRT corridors have been identified, along Beach Boulevard, Katella Avenue, La Palma Avenue, Imperial Highway and Edinger Avenue. Implementation of these routes will be subject to further study and availability of funding. Also included in the BRT program is Irvine's *i*-Shuttle, which will provide feeder service to the 28-mile BRT in the Irvine Business Complex, and currently provides feeder service to the Tustin Metrolink station.

The first BRT route anticipated to begin service is Route 543 – Harbor. This 19-mile route will link Fullerton, Anaheim, Garden Grove, Santa Ana, Fountain Valley, Costa Mesa, and Newport Beach; and, it will

provide regional connections to Amtrak and Metrolink rail services and other OCTA bus services at the Fullerton Transportation Center. This BRT service is expected to operate weekdays from 5 a.m. to 8 p.m., every 15 minutes between Fullerton and Costa Mesa, and every 30 minutes between Costa Mesa and Newport Beach.

Express Bus Service

In addition to increased Local Fixed Route service and implementing a new BRT service, OCTA is planning to expand its express bus service. Traffic congestion is anticipated to increase as new residential construction in neighboring counties, especially in Riverside County, continues to provide affordable housing for individuals employed in Orange County. To address the problem, OCTA is preparing to add more new express routes to the ten existing OCTA express routes. The planned new express service includes three intracounty routes and five intercounty routes. Corridors to be served by these routes include:

- San Clemente to Laguna Hills (Route 214)
- San Clemente to South Coast Metro (Route 215)
- Rancho Santa Margarita to Irvine (Route 217)
- Riverside/Corona to Irvine (Route 793)
- Long Beach to South Coast Metro (Route 723)
- Long Beach to Orange (Route 722)
- Riverside to California State University at Fullerton (Route 791)
- Riverside to Anaheim Resort (Route 792)

The new services will be implemented as resources are available.

Commuter Rail Service Improvements

Metrolink commuter rail service in Orange County will be enhanced through OCTA's Metrolink Service Expansion Program (MSEP). SCRRA and OCTA staff have developed an implementation plan to provide high-frequency Metrolink service on the OC Line between the Laguna Niguel/Mission Viejo station and Fullerton station. The increased Orange County Metrolink service will provide additional passenger capacity as well as new off-peak trips, making Metrolink a more convenient travel alternative.

The MSEP also includes significant track and switch improvements, railroad signal and communication upgrades, station and platform improvements, including added parking capacity, and safety enhancements, as well as the addition of a new Metrolink station in the city of Placentia. These improvements will be needed to accommodate the expected growth in ridership that will come with the service expansion. Funding for the MSEP is being provided though Measure M, Orange County's ½-cent sales tax for transportation improvements.

Chapter 4: Land Use Impact Analysis

The Congestion Management Program (CMP) Traffic Impact Analysis (TIA) measures impacts of development project submittals on the CMP Highway System (CMPHS). Each jurisdiction in Orange County selected either the process outlined in the CMP TIA guidelines (Appendix B-1), or their existing traffic-environmental analysis process, as long as consistency is maintained with the CMP TIA guidelines.

Since 1994, the selected TIA process has been consistently applied to all development projects meeting the adopted trip generation thresholds (i.e., 2,400 or more daily trips for projects adjacent to the CMPHS, and 1,600 or more daily trips for projects that directly access the CMPHS).

OCTA allowed exemptions from this requirement for selected categories of development projects, consistent with state legislation (Appendix B-2 for a listing of exempt projects). For each of the traffic impact analyses conducted, focus was on:

- Identifying locations where, and the extent to which, trips generated by the proposed project cause CMPHS intersections to exceed their Level of Service (LOS) standards;
- Assessing feasible mitigation strategies capable of reducing the identified impact, thereby maintaining the LOS standard; and,
- Utilizing existing environmental processes and inter-jurisdictional forums to conduct cooperative, inter-jurisdictional discussion when proposed CMP mitigation strategies include modifications to roadway networks beyond the jurisdiction's boundaries; and/or, when a proposed development is identified that will increase traffic at CMPHS locations outside the jurisdiction's boundaries.

The biennial reporting process enables jurisdictions to report any locations where projected measurements would exceed CMPHS LOS standards; as well as the projected impacts from development projects undergoing CMP traffic impact analyses. All jurisdictions in Orange County comply with the CMP land use coordination requirement.

Chapter 5: Capital Improvement Program

The Capital Improvement Program (CIP) is a seven-year program of projects and programs that is adopted by each Orange County jurisdiction and integrated into a countywide CIP by the Orange County Transportation Authority. It includes projects that will help to maintain, or improve, traffic conditions on the Congestion Management Program Highway System (CMPHS) and adjacent facilities. In addition to traditional capital projects, which preserve investments in existing facilities, the CIP can include projects that increase the capacity of the multi-modal system and provide air quality benefits, such as transit projects. Consistency with statewide standards is emphasized in order for projects in the CIP to adequately compete for state funding.

The CIP projects, prepared by local jurisdictions for inclusion in the Orange County Congestion Management Program (CMP), mitigate transportation impacts identified in the Land Use Impact Analysis component of the CMP, and preserve and maintain CMPHS infrastructure. Many types of CIP projects have been submitted by local jurisdictions in the past, including freeway ramp widenings, transportation systems management projects such as bus turnouts, intersection improvements, roadway widenings, signal coordination projects, and roadway resurfacing projects.

Each Orange County jurisdictions' CIP is included in Appendix E, which is published separately. In addition, projects in the CIP that are state or federally funded, as well as locally funded projects of regional significance, are included in the Orange County portion of the Regional Transportation Improvement Program (RTIP), and are consistent with the Regional Transportation Plan (RTP).

Chapter 6: Transportation Demand Management

Transportation Demand Management (TDM) strategies are geared toward increasing vehicle occupancy, promoting the use of alternative modes, reducing the number of automobile trips, and decreasing overall trip lengths. The adoption of a TDM ordinance was required of every local jurisdiction for Orange County's 1991 Congestion Management Program (CMP). These ordinances are no longer a statutory requirement, however Orange County Transportation Authority (OCTA) continues to support that local jurisdictions maintain these ordinances as a means of reducing greenhouse gas emissions.

TDM Ordinances

The model TDM ordinance, prepared by OCTA, aims to promote carpools, vanpools, alternate work hours, park and ride facilities, telecommuting, and other traffic reduction strategies. OCTA updated the model ordinance in 2001 to reflect the adoption of Rule 2202 by the South Coast Air Quality Management District (SCAQMD), which requires employers with 250 or more employees at a worksite to develop an emission reduction program projected to meet an emission reduction target set by the SCAQMD.

Principal provisions of the TDM model ordinance are as follows:

- applies to non-residential public and private development proposals expected to generate more than 250 employees;
- contains a methodology for determining projected employment for specified land use proposals;
- includes mandatory facility-based development standards (conditions of approval) that apply to proposals that exceed the established employment threshold;
- presents optional provisions for implementing operational TDM programs and strategies that target the property owner or employer, and requires annual reporting on the effectiveness of programs and strategies proposed for facilities;
- contains implementation and monitoring provisions;
- includes enforcement and penalty provisions.

Several jurisdictions have adopted ordinances that go beyond those contained in the model TDM ordinance. Such strategies include:

- encouraging employers to establish and help subsidize telecommuting, provide monetary incentives for ridesharing, and implement alternative work hour programs;
- proposing that new development projects establish and/or participate in Transportation Management Associations (TMAs);
- implementing bus loading facilities at worksites;
- implementing pedestrian facilities such as sidewalks, paved pathways, and pedestrian grade separations over arterial streets to connect a worksite to shopping, eating, recreation, parking, or transit facilities; and,
- participating in the development of remote parking facilities and the high-occupancy vehicles (i.e., shuttles, etc.) to serve them.

Additional TDM Programs

TDM efforts in Orange County are not just limited to the implementation of the TDM ordinance provisions. Other TDM efforts, as described below, are also active throughout the County.

Freeway Construction Mitigation

OCTA and Caltrans developed a comprehensive public outreach program for commuters impacted by construction projects and improvements on Orange County freeways. The outreach program alleviates traffic congestion during freeway construction by providing up-to-date ramp, lane, and bridge closure information; as well as suggestions for alternate routes and travel modes.

Outreach efforts include public workshops, open houses, fast fax construction alerts, flyers and newsletters, as well as other materials and presentation events. Also, OCTA's website (www.octa.net), and the Orange County Freeway Construction Helpline (1-800 724-0353), make detour and closure information available.

Transit/Shuttle Services

Local fixed-route bus service comprises the largest portion of OCTA's transit services. In addition, OCTA provides fixed-route bus service to commuter rail (Metrolink) stations. Express bus service provides patrons with longer routes that utilize freeways to connect residential areas to Orange County's main employment centers. Furthermore, ACCESS

provides elderly and disabled residents with a convenient paratransit service for daily commutes.

Jobs/Housing Balance

To satisfy the Measure M Growth Management Program requirements, all local jurisdictions in Orange County developed Growth Management Programs that address a jobs/housing balance as it relates to transportation demand. The adopted policies represent a commitment towards achieving balanced land usage, where residential, non-residential, and public land uses are proportionally balanced.

Transportation Management Associations

Transportation Management Associations (TMAs) are comprised of groups of employers who work together to solve mutual transportation problems by implementing programs to increase average vehicle ridership. Presently, Orange County has TMAs located in the following areas:

- Newport Beach (Newport Center TMA)
- Irvine (Irvine Spectrum TMA)
- Anaheim (Anaheim Transportation Network)

Park-and-Ride Lots

Currently there are 33 park-and-ride lots in Orange County providing over 6,000 parking spaces. Of the 33 lots, 11 are located at Metrolink stations, accounting for about 3,700 of the parking spaces. Also, four of the lots are located at OCTA transit centers, which account for another 1,180 parking spaces.

Park-and-ride lots serve as transfer points for commuters to change from one mode of travel (usually single-occupancy automobile) to another, higher capacity mode (bus, train, carpool, or vanpool). Providing a convenient system of park-and-ride transfer points throughout Orange County encourages the use of higher capacity transit systems, which improves the efficiency of the transportation system. Park-and-ride lots are also a natural companion to Orange County's network of High Occupancy Vehicle (HOV) lanes and transitways on the freeways.

Parking Cash-Out Programs

Parking cash-out programs should also be considered by employers in an effort to reduce automobile trips. These are employer-funded programs that provide cash incentives to employees who do not drive to work. The incentive should be in an amount equivalent to the parking subsidy the

employer would otherwise need to pay to provide the employee with parking.

Bicycle and Pedestrian Facilities

Between 1990 and 2009, OCTA allocated more than $53 million for bicycle and bus stop improvement projects. Historically, OCTA solicited and allocated funding to bicycle and pedestrian facility projects from Orange County local jurisdictions. Unfortunately, due to the recent loss of transit operation resources, the funds traditionally used by OCTA to support bicycle and pedestrian projects has been diverted to transit operations. However, OCTA is continually looking for funding sources that can once again support bicycle and pedestrian projects.

Currently, the 2008 Regional Transportation Improvement Program has approximately $24 million programmed for trail investment projects in Orange County. In an effort to encourage this type of investment, OCTA developed a Commuter Bikeways Strategic Plan (CBSP), with Orange County agencies and groups, to provide local jurisdictions with easier access to the state funded Bicycle Transportation Account program. The primary focus of the plan is to provide an attractive alternative to driving, with bicycle facilities that link residential areas with activity centers and intermodal transportation centers.

OCTA recently updated the plan in 2009 to ensure consistency with the requirements of California Streets and Highways Code 891.2. Local jurisdictions may choose to adopt the 2009 CBSP as their own bicycle transportation plan, which will allow them to apply for the State Bicycle Transportation Account funds.

In addition, OCTA has shown support for bicycling by launching a successful demonstration project in 1995 to install bicycle racks on buses along four routes that served work sites, schools, shopping malls, and the beach. The success of the demonstration program led to a decision to equip all large buses in the OCTA fleet with bicycle racks. OCTA completed this program in June 1998. Also, Metrolink trains provide bicycle racks; and bicycle lockers are available at Metrolink stations in Fullerton, Tustin, Santa Ana, and Orange, as well as at OCTA owned park-and-ride lots.

Chapter 7: CMP Conformance

As Orange County's Congestion Management Agency, the Orange County Transportation Authority (OCTA) is legislatively required to monitor the implementation of all elements of the Congestion Management Program (CMP), and biennially determine conformance. In so doing, OCTA consults with local jurisdictions in meeting these requirements.

OCTA determines if the local jurisdictions are in conformance with the CMP by monitoring the following:

- consistency with level of service standards;
- adoption of Capital Improvement Programs;
- adoption and implementation of a program to analyze the impacts of land use decisions, including an estimate of the costs associated with mitigating those impacts; and
- adoption and implementation of deficiency plans when highway and roadway level of service standards are not maintained.

OCTA gathers local traffic data to determine the levels of service (LOS) at intersections throughout the CMP Highway System (CMPHS), as discussed in Chapter 2. In addition, the local jurisdictions complete a set of checklists, developed by OCTA, that guide the local jurisdictions through the CMP conformity process (Appendix D). The checklists address the legislative requirements of the CMP, including land use coordination, the Capital Improvement Program, and transportation demand management strategies.

Based on the LOS data and CMP checklists completed by the local jurisdictions, as summarized in Figure 8, the following was determined:

Level of Service

The LOS data, collected by OCTA, was provided to local jurisdictions for verification. A few discrepancies in LOS reporting occurred as a result of slight variations in the data collection methodology used by the cities and OCTA, or due to erroneously reported intersection geometry. Any discrepancies in the LOS reporting were resolved through an interactive, cooperative process, between the cities and OCTA. The data shows that all local jurisdictions are in compliance with the established LOS standards.

Transportation Demand Management (TDM)

OCTA has developed a travel demand element that promotes alternative transportation methods. In developing this element, the cash-out parking strategy was discussed as an option for employers.

Capital Improvement Program

All local jurisdictions submitted adopted seven-year capital improvement programs that included projects to maintain or improve the traffic LOS on the CMPHS or adjacent facilities, which benefit the CMPHS.

Land Use Coordination

All local jurisdictions have adopted CMP Traffic Impact Analysis (TIA) processes for analyzing the impacts of land use decisions on the CMP Highway System. All local jurisdictions applied their TIA processes to development projects that met the CMP minimum threshold of 2,400 or more daily trips (1,600 or more trips per day for development projects that will directly access the CMPHS).

Deficiency plans

Based on the data exhibited in Figure 5, all non-exempt intersections on the CMP highway system were found in compliance with LOS requirements. Therefore, no deficiency plans were required for the 2009 CMP.

OCTA Transit Performance Measures

OCTA has an established set of performance measures and standards used to monitor transit services. Moreover, in 2007, OCTA agreed to cooperative procedures for carrying out regional transit planning and programming by signing a memorandum of understanding with the Southern California Association of Governments.

Regional Consistency

To ensure consistency between CMPs within the Southern California Association of Governments (SCAG) region, OCTA submits each biennial update of the Orange County CMP to SCAG. As the regional agency, SCAG evaluates consistency with the Regional Transportation Plan and with the CMPs of adjoining counties, and incorporates the program into the Regional Transportation Improvement Program (RTIP), once consistency is determined.

Figure 8: Summary of Compliance

Jurisdiction	Capital Improvement Program	Deficiency Plan	Land Use	Level of Service	2009 Compliance
Aliso Viejo *	Yes	N/A	Yes	N/A	Yes
Anaheim	Yes	N/A	Yes	Yes	Yes
Brea	Yes	N/A	Yes	Yes	Yes
Buena Park	Yes	N/A	Yes	Yes	Yes
Costa Mesa	Yes	N/A	Yes	Yes	Yes
Cypress	Yes	N/A	Yes	Yes	Yes
Dana Point	Yes	N/A	Yes	Yes	Yes
Fountain Valley *	Yes	N/A	Yes	N/A	Yes
Fullerton	Yes	N/A	Yes	Yes	Yes
Garden Grove	Yes	N/A	Yes	Yes	Yes
Huntington Beach	Yes	N/A	Yes	Yes	Yes
Irvine	Yes	N/A	Yes	Yes	Yes
La Habra	Yes	N/A	Yes	Yes	Yes
La Palma*	Yes	N/A	Yes	N/A	Yes
Laguna Beach	Yes	N/A	Yes	Yes	Yes
Laguna Hills	Yes	N/A	Yes	Yes	Yes
Laguna Niguel	Yes	N/A	Yes	Yes	Yes
Laguna Woods	Yes	N/A	Yes	Yes	Yes
Lake Forest	Yes	N/A	Yes	Yes	Yes
Los Alamitos	Yes	N/A	Yes	Yes	Yes
Mission Viejo	Yes	N/A	Yes	Yes	Yes
Newport Beach	Yes	N/A	Yes	Yes	Yes
Orange	Yes	N/A	Yes	Yes	Yes
Placentia	Yes	N/A	Yes	Yes	Yes
Rancho Santa Margarita *	Yes	N/A	Yes	N/A	Yes
San Clemente *	Yes	N/A	Yes	N/A	Yes
San Juan Capistrano	Yes	N/A	Yes	Yes	Yes
Santa Ana	Yes	N/A	Yes	Yes	Yes
Seal Beach *	Yes	N/A	Yes	N/A	Yes
Stanton	Yes	N/A	Yes	Yes	Yes
Tustin	Yes	N/A	Yes	Yes	Yes
Villa Park *	Yes	N/A	Yes	N/A	Yes
Westminster	Yes	N/A	Yes	Yes	Yes
Yorba Linda *	Yes	N/A	Yes	N/A	Yes
County *	Yes	N/A	Yes	Yes	Yes

*No CMP intersections within jurisdiction

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Appendix A: Freeway Levels of Service

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Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0.000	SAN DIEGO COUNTY LINE										
									136,000		
1.000	AVENIDA CALIFIA	4	60.8	64.3	3437	4174	14	16		B	B
									143,000		
1.627	EL CAMINO REAL	4	59.6	54.7	3831	4562	16	21		B	C
									156,000		
2.306	AVENIDA PRESIDIO	4	57.5	27.7	4158	4767	18	43		C	E
									156,000		
2.663	AVENIDA PALIZADA	4	58.4	26	4753	5208	20	50		C	F
									182,000		
3.393	AVENIDA PICO	4	57.3	22.3	5134	4603	22	52		C	F
									209,000		
5.801	CAMINO ESTRELLA	4	56.7	60	7501	7873	33	33		D	D
									226,000		
6.780	JCT RTE 1	4	22.8	58.1	5677	5534	62	24		F	C
									216,000		
7.344	CAMINO CAPISTRANO	4	22	48.3	5942	5679	68	29		F	D
									232,000		
8.795	SAN JUAN CREEK	4	48.1	64.5	6534	5812	34	23		D	C
									235,000		
9.604	JCT. RTE. 74	4	43.4	63.2	6260	5587	36	22		E	C
									254,000		
10.910	JUNIPERO SERRA	5	33.5	55.2	7066	6470	42	23		E	C
									261,000		
12.490	JCT RTE 73	4	17.1	62.2	4682	5594	68	22		F	C
									217,000		
12.943	AVERY PARKWAY	4	14.8	58.4	4018	4629	68	20		F	C
									225,000		
13.776	CROWN VALLEY	4	14.5	23.8	3849	5708	66	60		F	F
									268,000		
15.217	OSO PARKWAY	4	18.2	55.2	4248	6476	58	29		F	D
									280,000		
16.528	LA PAZ ROAD	4	26.2	59	5287	6834	50	29		F	D
									293,000		
17.472	ALICIA PARKWAY	5	29.9	69.1	8174	6963	55	20		F	C
									331,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
18.685	NIGUEL/EL TORO	5	45.8	49.6	8506	7528	37	30		E	D
									334,000		
19.890	LAKE FOREST	5	62.2	63.2	8453	6769	27	21		D	C
									288,000		
21.304	JCT. RTE. 405,	5	65.3	64.7	3772	3421	12	11		B	A
									158,000		
22.213	ALTON PARKWAY	4	55.6	36.3	5214	4968	23	34		C	D
									217,000		
23.120	JCT. RTE. 133	4	47.2	54.3	4772	6463	25	30		C	D
									234,000		
23.942	SAND CANYON	5	14.7	34.4	4056	5877	55	34		F	D
									242,000		
24.991	JEFFREY ROAD	5	10.8	26.8	4028	6762	75	50		F	F
									252,000		
26.583	CULVER DRIVE	5	44.4	47.4	4297	5421	19	23		C	C
									270,000		
27.589	JAMBOREE ROAD	5	26	27.1	5565	5575	43	41		E	E
									287,000		
28.250	TUSTIN RANCH	5									
									292,000		
29.091	RED HILL AVENUE	5	22.8	19.9	7233	6465	63	65		F	F
									291,000		
29.616	NEWPORT AVENUE	5	34.6	24.7	8322	7277	48	59		F	F
									242,000		
30.263	JCT. RTE. 55,	5	45.6	18.3	8631	6199	38	68		E	F
									313,000		
30.8	1ST STREET	5	54.9	13.6	10089	6107	37	90		E	F
									331,000		
31.23	4TH STREET	5	52.3	15.2	9815	6085	38	80		E	F
									336,000		
32.3	17TH STREET	5	54.4	21.6	9726	6831	36	63		E	F
									344,000		
33.2	MAIN STREET	6	4.1	5.2	8138	8450	331	271		F	F
									346,000		
35	CHAPMAN	6	29.9	57	8317	7037	46	21		F	C
									236,000		
35.1	STATE COLLEGE	5	39.2	64	7792	6975	40	22		E	C
									225,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
35.6	GENE AUTRY	4	28.9	62.6	6759	6543	58	26		F	D
									225,000		
36.48	KATELLA	4	27.8	60.3	6201	4941	56	20		F	C
									246,000		
37.38	HARBOR	4	41.2	62.3	7080	6007	43	24		E	C
									244,000		
37.7	BALL	4	62.1	41.2	5323	7960	21	48		C	F
									252,000		
38.9	LINCOLN	5	65.9	60.1	5000	7061	15	23		B	C
									240,000		
39.3	EUCLID	4	61.4	58	4604	7693	19	33		C	D
									235,000		
40.5	BROOKHURST	4	61.6	61.7	4517	6977	18	28		C	D
									218,000		
40.98	LA PALMA	5	62.5	43.7	5023	7064	16	32		B	D
									218,000		
41.8	MAGNOLIA	4	62.9	18.2	3107	3537	12	49		B	F
									168,000		
42.5	ORANGETHROPE	4	52.1	25.2	3043	3090	15	31		B	D

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0.000	SAN DIEGO COUNTY LINE	4	58.1	65.1	2905	3699	13	14		B	B
									136,000		
1.000	AVENIDA CALIFIA	4	58.1	65.4	2812	3628	12	14		B	B
									143,000		
1.627	EL CAMINO REAL	4	58.5	64.6	2873	3327	12	13		B	B
									156,000		
2.306	AVENIDA PRESIDIO	4	59.7	62.3	3019	3737	13	15		B	B
									156,000		
2.663	AVENIDA PALIZADA	5	58.3	57.3	3008	5061	10	18		A	B
									182,000		
3.393	AVENIDA PICO	5	64.4	66.3	3669	6203	11	19		B	C
									209,000		
5.801	CAMINO ESTRELLA	4	59.9	38.1	4550	6412	19	42		C	E
									226,000		
6.780	JCT RTE 1	5	63.1	26.1	3143	7156	10	55		A	F
									216,000		
7.344	CAMINO CAPISTRANO	5	64.5	53.8	5001	8072	16	30		B	D
									232,000		
8.795	SAN JUAN CREEK	4	66.2	57.4	4128	6757	16	29		B	D
									235,000		
9.604	JCT. RTE. 74	4	54.9	45.4	3342	6709	15	37		B	E
									254,000		
10.910	JUNIPERO SERRA	5	62.2	32.4	4829	7541	16	47		B	F
									261,000		
12.490	JCT RTE 73	4	60.1	62	4338	6612	18	27		C	D
									217,000		
12.943	AVERY PARKWAY	4	56.1	59.5	3525	4544	16	19		B	C
									225,000		
13.776	CROWN VALLEY	4	57.7	54.2	4994	5603	22	26		C	C
									268,000		
15.217	OSO PARKWAY	4	38.4	37.8	6081	6766	40	45		E	E
									280,000		
16.528	LA PAZ ROAD	4	59.8	23.6	6496	5692	27	60		D	F
									293,000		
17.472	ALICIA PARKWAY	4	57.5	27	6515	6338	28	59		D	F
									331,000		
18.685	NIGUEL/EL TORO	5	62.7	17.1	6356	6105	20	71		C	F
									334,000		
19.890	LAKE FOREST	6	49.5	43	6984	4670	24	18		C	C

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									288,000		
21.304	JCT. RTE. 405,	3	39.3	7.5	4292	2502	36	111		E	F
									158,000		
22.213	ALTON PARKWAY	4	43.2	25.9	5055	4684	29	45		D	F
									217,000		
23.120	JCT. RTE. 133	5	36.4	13.4	6102	4921	34	73		D	F
									234,000		
23.942	SAND CANYON	5	52	29.7	7227	5676	28	38		D	E
									242,000		
24.991	JEFFREY ROAD	5	52.2	39.8	8323	7069	32	36		D	E
									252,000		
26.583	CULVER DRIVE	5	62.8	60.5	6337	5910	20	20		C	C
									270,000		
27.589	JAMBOREE ROAD	5	59.7	57.8	6680	6646	22	23		C	C
									287,000		
28.250	TUSTIN RANCH	5	53.2	56.7	8973	8385	34	30		D	D
									292,000		
29.091	RED HILL AVENUE	5	53.7	56.5	9171	8667	34	31		D	D
									291,000		
29.616	NEWPORT AVENUE	6	39.4	42.8	10501	10942	44	43		E	E
									242,000		
30.263	JCT. RTE. 55,	4	36.5	40.2	6256	5826	43	36		E	E
									313,000		
30.8	1ST STREET	5	54.9	13.6	10089	6107	37	90		E	F
									331,000		
31.23	4TH STREET	5	52.3	15.2	9815	6085	38	80		E	F
									336,000		
32.3	17TH STREET	5	54.4	21.6	9726	6831	36	63		E	F
									344,000		
33.2	MAIN STREET	6	4.1	5.2	8138	8450	331	271		F	F
									346,000		
35	CHAPMAN	6	29.9	57	8317	7037	46	21		F	C
									236,000		
35.1	STATE COLLEGE	5	39.2	64	7792	6975	40	22		E	C
									225,000		
35.6	GENE AUTRY	4	28.9	62.6	6759	6543	58	26		F	D
									225,000		
36.48	KATELLA	4	27.8	60.3	6201	4941	56	20		F	C
									246,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
37.38	HARBOR	4	41.2	62.3	7080	6007	43	24		E	C
									244,000		
37.7	BALL	4	62.1	41.2	5323	7960	21	48		C	F
									252,000		
38.9	LINCOLN	5	65.9	60.1	5000	7061	15	23		B	C
									240,000		
39.3	EUCLID	4	61.4	58	4604	7693	19	33		C	D
									235,000		
40.5	BROOKHURST	4	61.6	61.7	4517	6977	18	28		C	D
									218,000		
40.98	LA PALMA	5	62.5	43.7	5023	7064	16	32		B	D
									218,000		
41.8	MAGNOLIA	4	62.9	18.2	3107	3537	12	49		B	F
									168,000		
42.5	ORANGETHROPE	4	52.1	25.2	3043	3090	15	31		B	D

SR 22 EB

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									96,000		
0.000	LOS ANGELES/ORANGE COUNTY LINE	3	64.4	59.3	2942	4251	15	24		B	C
									96,000		
0.650	JCT. RTE. 405	3	64.3	63.2	2430	3254	13	17		B	B
									138,000		
2.653	AVENUE/GOLDEN WEST STREET INTERCHANGE	3	35.3	29.8	2819	3244	27	36		D	E
									156,000		
3.587	GARDEN GROVE, JCT. RTE. 39	3	56.1	54.2	5411	5877	32	36		D	E
									185,000		
4.812	GARDEN GROVE, MAGNOLIA STREET INTERCHANGE	4	34.8	58.1	5916	6297	43	27		E	D
									197,000		
5.817	GARDEN GROVE, BROOKHURST STREET INTERCHANGE	4	26.3	48.2	4579	4302	44	22		E	C
									200,000		
6.811	GARDEN GROVE, EUCLID STREET INTERCHANGE	4	23.6	31.3	5251	4915	56	39		F	E
									212,000		
7.829	GARDEN GROVE, HARBOR BOULEVARD	4	16.5	17.4	5542	5666	84	81		F	F
									228,000		
8.822	GROVE BOULEVARD INTERCHANGE	4	5.4	5.7	5055	5073	234	223		F	F
									244,000		
9.729	ORANGE, MANCHESTER AVENUE/ CITY DRIVE	2	35.2	33.7	3158	3442	45	51		E	F
									251,000		
10.478	57; SANTA ANA/ ORANGE FREEWAYS	2	42.7	23.3	3198	3139	37	67		E	F
									143,000		
10.992	SANTA ANA, MAIN STREET	3	56.9	39.4	5195	5241	30	44		D	E
									140,000		

SR 22 EB

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
11.825	ORANGE, GLASSELL STREET INTERCHANGE	3	34.6	23.2	4436	4355	43	63		E	F
									138,000		
12.866	TUSTIN AVENUE INTERCHANGE	5	57.8	54	5813	5512	20	20		C	C
									118,000		
13.164	JCT. RTE. 55, COSTA MESA FREEWAY	4	63.7	64.3	3423	4087	13	16		B	B

SR 22 WB

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									96,000		
0.000	LOS ANGELES/ORANGE COUNTY LINE	3	53.6	54.1	3018	2816	19	17		C	B
									96,000		
0.650	JCT. RTE. 405	3	40.5	42.2	3147	2895	26	23		C	C
									138,000		
2.653	WESTMINSTER, KNOTT AVENUE/GOLDEN WEST STREET INTERCHANGE	3	10.3	61.5	3327	3612	108	20		F	C
									156,000		
3.587	GARDEN GROVE, JCT. RTE. 39	3	38.1	56.2	4506	4794	39	28		E	D
									185,000		
4.812	GARDEN GROVE, MAGNOLIA STREET INTERCHANGE	4	20.6	21	4685	6290	57	75		F	F
									197,000		
5.817	GARDEN GROVE, BROOKHURST STREET INTERCHANGE	4	59.3	60.3	3790	4765	16	20		B	C
									200,000		
6.811	GARDEN GROVE, EUCLID STREET INTERCHANGE	4	61.7	52.7	5029	6818	20	32		C	D
									212,000		
7.829	GARDEN GROVE, HARBOR BOULEVARD	5	61.8	41.5	5481	7379	18	36		B	E
									228,000		
8.822	GROVE BOULEVARD INTERCHANGE	4	17.2	6.5	6458	6029	94	232		F	F
									244,000		
9.729	ORANGE, MANCHESTER AVENUE/ CITY DRIVE INTERCHANGE	3	59.2	17.3	3544	3775	20	73		C	F
									251,000		

SR 22 WB

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
10.478	SANTA ANA, JCT. RTES. 5 AND 57; SANTA ANA/ ORANGE FREEWAYS	3	64.6	15	2550	3867	13	86		B	F
									143,000		
10.992	SANTA ANA, MAIN STREET	3	58	29.2	3541	4985	20	57		C	F
									140,000		
11.825	ORANGE, GLASSELL STREET INTERCHANGE	3	52.8	40.6	5586	5041	35	41		E	E
									138,000		
12.866	TUSTIN AVENUE INTERCHANGE	4	55.5	54.4	5816	6173	26	28		D	D
									118,000		
13.164	JCT. RTE. 55, COSTA MESA FREEWAY	4	54.5	60.1	5175	5938	24	25		C	C

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									47,000		
0	TUSTIN, FINLEY AVENUE										
									47,000		
0.267	JCT. RTE. 1										
									54,000		
1.513	COSTA MESA, EAST 17TH STREET										
									86,000		
1.82	COSTA MESA, HARBOR BOULEVARD										
									70,000		
2.021	COSTA MESA, 19TH STREET										
									93,000		
R2.772	COSTA MESA, VICTORIA/22ND STRETS	4	62	62.7	1748	2927	7	12		A	B
									124,000		
R4.022	COSTA MESA, MESA DRIVE	4	56.4	63.2	5794	3684	26	15		C	B
									142,000		
R4.77	JCT. RTE. 73, CORONA DEL MAR FREEWAY	3	37.9	60.3	4391	2133	39	12		E	B
									142,000		
R5.99	JCT. RTE. 405, SAN DIEGO FREEWAY	3	41.3	27.1	4541	2749	37	34		E	D
									222,000		
R6.99	SANTA ANA, MAC ARTHUR BOULEVARD	4	42.6	8.2	7538	3135	44	96		E	F
									233,000		
R7.85	SANTA ANA, DYER ROAD	4	39.9	12.7	3423	4392	21	86		C	F
									251,000		
R9.437	AVENUE	4	54.5	17.8	7473	5543	34	78		D	F
									265,000		
R9.96	TUSTIN, MC FADDEN STREET INTERCHANGE	5	37.1	23.6	8114	6761	44	57		E	F
									252,000		
10.45	TUSTIN, JCT. RTE. 5, SANTA ANA FREEWAY	3	53.7	25.4	3437	4602	21	60		C	F
									229,000		
10.979	SANTA ANA, FOURTH STREET INTERCHANGE	4	63.6	22.9	4451	6397	17	70		B	F

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									229,000		
11.785	TUSTIN, SEVENTEENTH STREET INTERCHANGE	4	61.4	33.1	7129	8548	29	65		D	F
									221,000		
12.967	JCT. RTE. 22 WEST, GARDEN GROVE FREEWAY	3	63.2	35.8	3263	4952	17	46		B	F
									238,000		
13.7	CHAPMAN AVENUE	4	63	34.7	4959	7278	20	52		C	F
									227,000		
15.242	ORANGE, KATELLA AVENUE INTERCHANGE	4	65.7	32.6	5143	5597	20	43		C	E
									211,000		
16.981	ORANGE, LINCOLN AVENUE INTERCHANGE	4	61.3	35.9	4865	6850	20	48		C	F
									208,000		
17.876	JCT RTE 91	4	56.4	36.9	6014	7738	27	52		D	F

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									47000		
0	TUSTIN, FINLEY AVENUE										
									47000		
0.267	JCT. RTE. 1										
									54000		
1.513	COSTA MESA, EAST 17TH STREET										
									86000		
1.82	COSTA MESA, HARBOR BOULEVARD										
									70000		
2.021	COSTA MESA, 19TH STREET										
									93000		
R2.772	COSTA MESA, VICTORIA/22ND STRETS	3	61	26	2951	2928	16	38		B	E
									124000		
R4.022	COSTA MESA, MESA DRIVE	4	66	62	3691	5025	14	20		B	C
									142000		
R4.77	JCT. RTE. 73, CORONA DEL MAR FREEWAY	3	61	59	2109	4606	12	26		B	C
									142000		
R5.99	JCT. RTE. 405, SAN DIEGO FREEWAY	3	64	40	3387	1925	18	16		B	B
									222000		
R6.99	SANTA ANA, MAC ARTHUR BOULEVARD	4	58	12	6414	3571	27	72		D	F
									233000		
R7.85	SANTA ANA, DYER ROAD	4	46	19	7387	3945	40	53		E	F
									251000		
R9.437	SANTA ANA, EDINGER AVENUE	4	37	18	7455	4080	51	56		F	F
									265000		
R9.96	TUSTIN, MC FADDEN STREET INTERCHANGE	4	31	17	6967	4220	55	63		F	F
									252000		
10.45	TUSTIN, JCT. RTE. 5, SANTA ANA FREEWAY	3	15	28	3666	2737	82	33		F	D

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									229000		
10.979	SANTA ANA, FOURTH STREET INTERCHANGE	3	11	30	3205	2498	99	28		F	D
									229000		
11.785	TUSTIN, SEVENTEENTH STREET INTERCHANGE	4	15	36	4922	6440	84	45		F	E
									221000		
12.967	JCT. RTE. 22 WEST, GARDEN GROVE FREEWAY	4	11	40	3537	4019	82	25		F	C
									238000		
13.7	CHAPMAN AVENUE	4	13	43	4747	4834	89	28		F	D
									227000		
15.242	ORANGE, KATELLA AVENUE INTERCHANGE	4	13	51	5601	4873	107	24		F	C
									211000		
16.981	ORANGE, LINCOLN AVENUE INTERCHANGE	4	29	58	5952	5291	51	23		F	C
									208000		
17.876	JCT RTE 91	4	44	65	6156	6826	35	26		D	D

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									224,000		
11.1	AT CHAPMAN OFF	5	48.7	51.2	4440	5254	18	21		C	C
									230,000		
11.22	CHAPMAN	5	63.9	57.1	6311	5549	20	19		C	C
									236,000		
11.68	ORANGEWOOD	5	49.8	39.3	6941	5360	28	27		D	D
									232,000		
12.2	STADIUM	5	37.5	15.6	8035	5115	43	66		E	F
									230,000		
12.5	KATELLA	4	43.9	9.4	6682	3582	38	95		E	F
									230,000		
12.9	DOUGLAS	4	47.2	22.1	7311	4160	39	47		E	F
									230,000		
13.38	BALL	4	44.2	16	5637	3429	32	54		D	F
									237,000		
13.9	WAGNER	4	39.4	11.6	6525	4102	41	88		E	F
									237,000		
14.73	LINCOLN	4	42.5	15.5	6128	3727	36	60		E	F
									243,000		
15.4	LA PALMA	3	36.7	11.2	5153	3009	47	90		F	F
									243,000		
15.7	N OF 91	3	42.6	12.5	5261	3293	41	88		E	F
									293,000		
16.5	ORANGETHROPE	5	42.5	17.3	8478	5875	40	68		E	F
									291,000		
17.18	CHAPMAN	4	47.2	25.9	7635	5919	40	57		E	F
									265,000		
18.3	YORBA LINDA	4	56	29.7	4993	5643	22	48		C	F
									251,000		
19.1	ROLLING HILLS	4	54.9	36.4	5765	6208	26	43		D	E
									170,000		
19.8	IMPERIAL	4	57.8	22.1	4097	5364	18	61		B	F
									243,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									230,000		
11.08	CHAPMAN	4	37.3	26.6	5810	4691	39	44		E	E
									236,000		
11.55	ORANGEWOOD	4	27.9	19.5	6553	5623	59	72		F	F
									232,000		
12.2	STADIUM	5	50.5	41.3	8381	6369	33	31		D	D
									230,000		
12.4	KATELLA	4	28.2	16.7	6704	5673	59	85		F	F
									230,000		
12.9	DOUGLAS	4	34.5	19.8	7259	5748	53	73		F	F
									230,000		
13.27	BALL	4	26.9	18.4	6746	5813	63	79		F	F
									237,000		
13.9	WAGNER	5	29.7	17.7	7737	5927	52	67		F	F
									237,000		
14.65	LINCOLN	5	22.6	19.1	7361	5819	65	61		F	F
									243,000		
15.4	LA PALMA	4	27.2	42.4	5468	5022	50	30		F	D
									243,000		
15.7	N OF 91	4	40.6	48.9	5506	5057	34	26		D	C
									293,000		
16.46	ORANGETHROPE	5	48.4	38.6	7209	4549	30	24		D	C
									291,000		
17.18	CHAPMAN	4	24.5	29.7	6619	7053	68	59		F	F
									265,000		
18.18	YORBA LINDA	5	24.1	30.3	6265	6237	52	41		F	E
									251,000		
19.1	ROLLING HILLS	4	23.8	47.3	5908	6716	62	35		F	E
									170,000		
19.73	IMPERIAL	4	15	38.3	4928	5607	82	37		F	E
									243,000		
20.7	LAMBERT	4	66.4	67.1	5221	4436	20	17		C	B
									229,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									40,500		
10.000	JCT RTE 5	3	63.7	64.8	2531	929	13	5		B	A
									40,500		
11.760	GREENFIELD DR	3	65.6	65.2	851	971	4	5		A	A
									44,000		
13.404	LA PAZ ROAD	3	65.6	65.2	861	971	4	5		A	A
									53,000		
14.393	ALISO CREEK ROAD	4	65.4	66.2	1052	2065	4	8		A	A
									63,000		
16.250	EL TORO ROAD	3	62.3	58.3	1614	462	9	3		A	A
									71,000		
18.696	TOLL PLAZA	5	65.1	60.3	2475	1121	8	4		A	A
									71,000		
21.428	NEWPORT COAST DRIVE	3	66	62.8	2546	1612	13	9		B	A
									72,000		
22.448	BONITA CANYON DRIVE/FORD ROAD	3	46.4	47.8	1560	747	11	5		B	A
									68,000		
24.78	JAMBOREE ROAD	3	62.7	62.1	4179	3752	22	20		C	C
									176,000		
26.58	COSTA MESA, JCT RTE 55	2	65	35.3	900	3118	7	44		A	E
									118,000		
27.28	COSTA MESA, BEAR STREET	3	63.3	27.5	3042	4291	16	52		B	F
									107,000		
27.81	JCT RTE 405, SAN DIEGO FREEWAY	3	64.7	33.8	2384	3488	12	34		B	D

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									40,500		
10.000	JCT RTE 5	3	64.5	63.1	452	1485	2	8		A	A
									40,500		
11.760	GREENFIELD DR	3	65.4	65.7	527	449	3	2		A	A
									44,000		
13.404	LA PAZ ROAD	3	64.9	63	772	1549	4	8		A	A
									53,000		
14.393	ALISO CREEK ROAD	3	54.2	47.5	2302	1273	14	9		B	A
									63,000		
16.250	EL TORO ROAD	3	61.9	61.1	426	4981	2	27		A	D
									71,000		
18.696	TOLL PLAZA	5	68.8	66.4	998	5464	3	16		A	B
									71,000		
21.428	NEWPORT COAST DRIVE	4	64.9	60.4	884	1263	3	5		A	A
									72,000		
22.448	BONITA CANYON DRIVE/FORD ROAD	4	54.2	60.4	327	1339	2	6		A	A
									68,000		
24.78	JAMBOREE ROAD	3	62.1	64.3	3457	4820	19	25		C	C
									176,000		
26.58	COSTA MESA, JCT RTE 55	3	62.9	62.5	2252	4362	12	23		B	C
									118,000		
27.28	COSTA MESA, BEAR STREET	3	62.8	61.3	2345	4043	12	22		B	C
									107,000		
27.81	JCT RTE 405	2	61.4	64	1645	2457	13	19		B	C

SR 91- EB

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0	LOS ANGELES-ORANGE COUNTY LINE										
									238,000		
R0.489	LA PALMA, ORANGETHORPE AVENUE	4	24.3	19.9	5058	5258	52	66		F	F
									257,000		
R0.848	BUENA PARK, VALLEY VIEW STREET	4	22.7	21.2	5743	5746	63	68		F	F
									257,000		
R1.842	BUENA PARK, KNOTT AVENUE	4	32.3	41.5	6133	6320	47	38		F	E
									267,000		
R2.615	BUENA PARK, JCT. RTE. 39/BEACH	4	28.4	35.3	6017	6681	53	47		F	F
									274,000		
R3.638	FULLERTON, JCT. RTE. 5, SANTA ANA FREEWAY	3	33.7	47.7	4406	4121	44	29		E	D
									265,000		
1.232	ANAHEIM, BROOKHURST AVENUE	4	26.2	34.7	5976	5763	57	42		F	E
									278,000		
2.234	EUCLID AVENUE INTERCHANGE	4	24.7	37.8	4101	5947	42	39		E	E
									290,000		
3.258	FULLERTON, HARBOR BOULEVARD	4	33.65	41.9	5321	6285.5	40	38		E	E
									282,000		
3.512	ANAHEIM, LEMON STREET/ HARVARD AVENUE	4	42.6	46	6541	6624	38	36		E	E
									282,000		
4.256	ANAHEIM, EAST STREET	4	34	39.6	6789	6982	50	44		F	E
									274,000		
5.258	ANAHEIM, STATE COLLEGE BOULEVARD	4	44.6	43.9	6856	7087	38	40		E	E
									269,000		

SR 91- EB

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
6.119	ANAHEIM, JCT. RTE. 57, ORANGE FREEWAY	3	54.3	42.3	3305	4244	20	33		C	D
									225,000		
7.353	KRAEMER BOULEVARD/ GLASSELL STREET	3	17.5	29.3	3410	4698	65	53		F	F
									217,000		
8.399	TUSTIN AVENUE INTERCHANGE	4	20.6	38.5	4409	6948	54	45		F	F
									231,000		
9.187	JCT. RTE. 55 SOUTH	4	41.5	25.5	4764	5905	35	61		D	F
									318000		
10.091	LAKEVIEW AVENUE	5	62.4	12.5	5119	4862	16	78		B	F
									298000		
11.540	PERALTA, JCT. RTE. 90 WEST	4	62	8.3	4373	3011	18	91		B	F
									256000		
14.431	WEIR CANYON ROAD	4	61.1	6.5	4452	2561	18	99		C	F
									236000		
15.925	JCT RTE 241	4	62.5	9.3	4817	3390	19	91		C	F
									278000		
16.404	GYPSUM CANYON ROAD INTERCHANGE	4	64.7	28.1	4192	3998	16	36		B	E
									278000		
17.950	COAL CANYON ROAD	5	57.5	28.3	6060	6289	21	44		C	E
									267000		
18.905	ORANGE/RIVERSIDE COUNTY LINE	4	60.8	26	6852	7153	28	69		D	F

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0	LOS ANGELES-ORANGE COUNTY LINE										
									238,000		
R0.49	LA PALMA, ORANGETHORPE AVENUE	4	22.6	18.9	4726	5153	52	68		F	F
									257,000		
R1	BUENA PARK, VALLEY VIEW STREET	4	32.3	26.7	4749	5099	37	48		E	F
									257,000		
R1.99	BUENA PARK, KNOTT AVENUE	4	29.2	22.8	6357	5633	54	62		F	F
									267,000		
R2.6	BUENA PARK, JCT. RTE. 39/BEACH	4	54.6	51.7	5305	5243	24	25		C	C
									274,000		
R3.4	FULLERTON, JCT. RTE. 5, SANTA ANA FREEWAY	3	28.2	24.9	4651	4097	55	55		F	F
									265,000		
1.12	ANAHEIM, BROOKHURST AVENUE	3	49.3	56.8	5647	5797	38	34		E	D
									278,000		
2.11	EUCLID AVENUE INTERCHANGE	3	40	46	5741	5847	48	42		F	E
									290,000		
3.13	FULLERTON, HARBOR BOULEVARD	4	21.6	29.2	5201	5505	60	47		F	F
									282,000		
3.91	ANAHEIM, LEMON STREET/ HARVARD AVENUE	4	34.7	53.1	5188	5537	37	26		E	D
									282,000		
4.18	ANAHEIM, EAST STREET	3	36.6	39.4	5069	5578	46	47		F	F
									274,000		
5.14	ANAHEIM, STATE COLLEGE BOULEVARD	3	31.4	26.3	4981	4750	53	60		F	F
									269,000		
6.15	ANAHEIM, JCT. RTE. 57, ORANGE FREEWAY	3	27.4	25.2	3522	3755	43	50		E	F
									225,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
7.4	KRAEMER BOULEVARD/ GLASSELL STREET	5	26.2	50.7	6010	5828	46	23		F	C
									217,000		
8.36	TUSTIN AVENUE INTERCHANGE	4	45.2	62.5	7602	6428	42	26		E	C
									231,000		
9.187	JCT. RTE. 55 SOUTH	4	32.35	44.85	7131	6050	55	34		F	D
									318000		
10.091	LAKEVIEW AVENUE	5	19.5	27.2	6660	5672	68	42		F	E
									298000		
11.540	PERALTA, JCT. RTE. 90 WEST	4	20.2	29.8	5097	4444	63	37		F	E
									256000		
14.431	WEIR CANYON ROAD	4	19.2	37.5	4746	5244	62	35		F	D
									236000		
15.925	JCT RTE 241	4	30.8	47.5	6038	6335	49	33		F	D
									278000		
16.404	GYPSUM CANYON ROAD INTERCHANGE	4	35	49.2	6178	6187	44	31		E	D
									278000		
17.950	COAL CANYON ROAD	4	41.5	57	7022	5722	42	25		E	C
									267000		
18.905	ORANGE/RIVERSIDE COUNTY LINE	5	51.3	68	8920	7252	35	21		D	C

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Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
14.550	OSO	2	63.6	63.9	725	107	6	1		A	A
									8,200		
17.768	ANTONIO	2	63.8	63.2	557	556	4	4		A	A
									18,300		
18.488	SANTA MARGARITA	2	67.5	67.2	1431	740	11	6		A	A
									41,300		
20.077	LOS ALISOS	2	64.7	64.4	1060	540	8	4		A	A
									42,000		
21.802	PORTOLA UC	2	66	63.7	218	590	2	5		A	A
									39,000		
23.418	ALTON	3	62.2	61.7	855	1312	5	7		A	A
									48,000		
24.968	PORTOLA	3	67.4	63.9	3730	1352	18	7		C	A
									48,000		
27.378	JCT RTE 133	2	64.6	61.6	498	657	4	5		A	A
									35,000		
32.541	CHAPMAN-SANTIAGO RD UC	3	62.2	61.7	855	1312	5	7		A	A
									46,000		
36.099	WINDY RIDGE TOLL	3	62.3	61.8	854	1313	5	7		A	A
									46,000		
39.079	JCT RTE 91	4	62.2	61.6	853	1311	3	5		A	A

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
14.550	OSO	2	58.6	57.3	319	1544	3	13		A	B
									8,200		
17.768	ANTONIO	2	58.6	57.3	319	1544	3	13		A	B
									18,300		
18.488	SANTA MARGARITA	2	58.6	57.3	319	1544	3	13		A	B
									41,300		
20.077	LOS ALISOS	2	61.4	59.4	506	1499	4	13		A	B
									42,000		
21.802	PORTOLA UC	2	64.3	63.6	366	2678	3	21		A	C
									39,000		
23.418	ALTON	2	62.3	61.8	854	1313	7	11		A	A
									48,000		
24.968	PORTOLA	3	61.6	63.9	803	3433	4	18		A	B
									48,000		
27.378	JCT RTE 133	2	64.5	63.9	352	455	3	4		A	A
									35,000		
32.541	UC	2	64.6	63	1359	561	11	4		A	A
									46,000		
36.099	WINDY RIDGE TOLL	2	62.3	61.8	854	1313	7	11		A	A
									46,000		
39.079	JCT RTE 91	5	62.7	62.3	851	1310	3	4		A	A

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Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0.000	WALNUT AVENUE	2	53.3	45.9	86	887	1	10		A	A
									66,000		
0.239	JAMBOREE	3	59.9	62.8	772	1932	4	10		A	A
									32,500		
1.638	IRVINE	2	41.7	51.8	173	701	2	7		A	A
									32,500		
2.848	PORTOLA	3	67.4	60.9	397	1840	2	10		A	A
									33,500		
6.035	CHAPMAN	3	65.6	65.9	1250	2074	6	10		A	A
									29,000		
6.205	JCT RTE 241	3	65.9	63.5	1019	2064	5	11		A	A

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Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0.000	WALNUT AVENUE	2	61.2	60.7	1337	419	11	3		A	A
									66,000		
0.239	JAMBOREE	2	65.2	64.4	1402	802	11	6		A	A
									32,500		
1.638	IRVINE	3	67	66.2	555	794	3	4		A	A
									32,500		
2.848	PORTOLA	2	58.5	63.5	983	204	8	2		A	A
									33,500		
6.035	CHAPMAN	2	62.3	61.8	854	1313	7	11		A	A
									29,000		
6.205	JCT RTE 241	2	65.4	64.5	1138	154	9	1		A	A

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0.230	JCT. RTE. 5	3	56.1	64.6	3640	3504	22	18		C	C
									190,000		
0.949	IRVINE CENTER	5	32.3	59.9	4889	4923	30	16		D	B
									210,000		
1.804	JCT. RTE. 133,	4	44.5	55.9	4556	5345	26	24		C	C
									237,000		
2.876	SAND CANYON	4	29.2	53.8	6172	7302	53	34		F	D
									244,000		
3.947	UNIVERSITY	4	24.5	37.5	6819	6951	70	46		F	F
									229,000		
5.618	CULVER DRIVE	4	60.4	56.3	6707	4799	28	21		D	C
									247,000		
6.917	JAMBOREE	5	58.8	54.9	7824	6009	27	22		D	C
									266,000		
7.803	MAC ARTHUR	5	33.8	38.5	8606	9110	51	47		F	F
									274,000		
8.740	JCT. RTE. 55	4	58.6	52	6213	5914	27	28		D	D
									262,000		
9.46	BRISTOL	4	58.1	13.9	5717	4931	25	89		C	F
									262,000		
9.9	BEAR	5	63.7	15.9	6694	5639	21	71		C	F
									262,000		
10.9	FAIRVIEW	6	68.8	9.9	6892	5295	17	89		B	F
									349,000		
11.4	HARBOR	4	67.1	12.2	4986	4350	19	89		C	F
									361,000		
12.85	EUCLID	5	32	22.2	5393	6640	34	60		D	F
									329,000		
13.74	BROOKHURST	4	24	23.8	4984	5896	52	62		F	F
									310,000		
14.82	WARNER	4	32	40.6	5897	6298	46	39		F	E
									303,000		
15.17	MAGNOLIA	4	27.5	52.7	5720	6942	52	33		F	D
									278,000		
16.52	BEACH	4	21	27.6	5622	5381	67	49		F	F
									282,000		
17.45	MCFADDEN	4	30.4	40.5	5745	7079	47	44		F	E

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									282,000		
17.92	GOLDENWEST	4	26.6	29.2	5144	5504	48	47		F	F
									282,000		
19.24	WESTMINISTER	4	23.8	24	3049	5260	32	55		D	F
									267,000		
20.33	BRYANT	4	33.4	33.1	5508	5067	41	38		E	E
									397,000		
22.55	SEAL BEACH	6	26.6	34.6	9045	9296	57	45		F	E
									170,000		
23.62	SALMON	5	27.8	40.8	7864	7257	57	36		F	E
									243,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
0.230	JCT. RTE. 5	5	62	50	4617	5037	15	20		B	C
									190000		
0.949	IRVINE CENTER	4	51	30	4239	5040	21	41		C	E
									210000		
1.804	JCT. RTE. 133,	4	63	53	4315	5915	17	28		B	D
									237000		
2.876	SAND CANYON	4	59	33	6826	6855	29	51		D	F
									244000		
3.947	UNIVERSITY	4	41	23	6516	6191	40	66		E	F
									229000		
5.618	CULVER DRIVE	4	52	45	5773	5107	28	28		D	D
									247000		
6.917	JAMBOREE	6	64	17	4358	5979	11	60		B	F
									266000		
7.803	MAC ARTHUR	5	35	12	8916	5952	50	104		F	F
									274000		
8.740	JCT. RTE. 55,	4	55	43	7389	4269	34	25		D	C
									262,000		
9.54	BRISTOL	5	46.3	33.3	8425	4992	36	30		E	D
									262,000		
9.9	BEAR	4	44.8	33	7587	4479	42	34		E	D
									262,000		
10.28	FAIRVIEW	5	36.6	37.1	8774	4854	48	26		F	D
									349,000		
11.2	HARBOR	6	52.7	63.7	10997	8518	35	22		D	C
									361,000		
12.5	EUCLID	5	51.8	64.6	9780	7991	38	25		E	C
									329,000		
13.81	BROOKHURST	4	48	67.3	7311	6808	38	25		E	C
									310,000		
14.72	WARNER	4	25.4	54.3	6641	6979	65	32		F	D
									303,000		
15.16	MAGNOLIA	4	25.4	53.4	5659	6445	56	30		F	D
									278,000		
16.26	EDINGER	5	10.6	50.8	4277	6657	81	26		F	D
									278,000		
16.6	BEACH	4	22.1	54.5	4384	5808	50	27		F	D
									282,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
17.45	MCFADDEN	5	20.1	46.3	5882	8624	59	37		F	E
									282,000		
17.98	GOLDENWEST	4	12.5	48.8	4267	6555	85	34		F	D
									282,000		
19.05	WESTMINISTER	4	46.8	60.1	4845	6324	26	26		C	D
									267,000		
20.33	BRYANT	4	21.5	46.4	5383	5373	63	29		F	D
									397,000		
22.54	SEAL BEACH	6	44.2	29.7	9670	8492	36	48		E	F
									170,000		
23.62	SALMON	4	60.2	22.5	3085	5419	13	60		B	F
									243,000		

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Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									187,000		
R 1.26	KATELLA 1	4	25	12.6	5059	4025	51	80		F	F
									190,000		
R 1.55	KATELLA 2	4	62.4	45.4	5040	3660	20	20		C	C
									190,000		

Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									187,000		
R 1.26	KATELLA 1	4	36.7	13.6	4353	4507	30	83		D	F
									190,000		
R 1.55	KATELLA 2	4	43.5	24.9	4444	4525	26	45		C	F
									190,000		

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Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			AVE. SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									33,500		
7.710	LAGUNA CANYON RD (BEGIN FREEWAY)	2	60.5	60.5	858	3018	8.1	28.5		A	D
									34,000		
8.380	IRVINE, JCT. RET 405, SAN DIEGO FWY	2	60.5	60.5	870	3063	8.2	28.9		A	D
									35,000		
8.930	BARRANCA PARKWAY	2	60.5	60.1	896	3153	8.4	29.9		A	D
									50,000		
9.565	IRVNE, JCT RTE 5, SANTA ANA	2	60.5	-	1280	4504	12.1	-		B	F
									50,000		
11.897	IRVNE, BOULEVARD	2	60.5	-	1280	4504	12.1	-		B	F

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Postmile	SEGMENT	# OF LANES	PEAK PERIOD						2008 AADT	LOS	
			AVE. SPEED (MPH)		VOLUME - (VPH)		DENSITY				
			AM	PM	AM	PM	AM	PM		AM	PM
									33,500		
7.710	LAGUNA CANYON RD (BEGIN FREEWAY)	2	59.9	60.5	3226	1006	30.7	9.5		D	A
									34,000		
8.380	IRVINE, JCT. RET 405, SAN DIEGO FWY	2	59.7	60.5	3274	1021	31.3	9.6		D	A
									35,000		
8.930	BARRANCA PARKWAY	2	59.2	60.5	3371	1051	32.2	9.9		D	A
									50,000		
9.565	IRVNE, JCT RTE 5, SANTA ANA	2	-	60.5	4815	1501	-	14.1		F	B
									50,000		
11.897	IRVNE, BOULEVARD	2	-	60.5	4815	1501	-	14.1		F	B

Appendix B-1: Meeting CMP Traffic Impact Analysis Requirements

AN OPTIONAL GUIDANCE FOR LOCAL JURISDICTIONS

Prepared for:

Orange County Environmental Management Agency
Orange County Transportation Commission
Orange County Transit District
League of Cities, Orange County Division
Transportation Corridor Agencies

Prepared by:

Kimley-Horn and Associates, Inc.
and
The Planning Center

June 11, 1991

CMP-TIA REQUIREMENTS

Requirements of CMP legislation

- Analyze impacts of land use decisions on CMP Highway System.
- Estimate costs associated with mitigation of impacts on CMP Highway System.
- Exclude costs associated with mitigating the impacts of interregional travel.
- Allow credits against mitigation costs for local public and private contributions to improvements to the CMP Highway System.
    - For toll road facilities, allow credits only for local public and private contributions which will not be reimbursed from toll revenues or other state or federal sources.
- Report annually on actions taken to adopt and implement a program to analyze the impacts of land use decisions on the CMP Highway System and to estimate the costs of mitigating those impacts.

Year One Goal

- Identify the impacts of development anticipated to occur over the next 7 years on the CMP Highway System and the projected costs of mitigating those impacts.

Actions Required of Local Jurisdictions

- A TIA will be required for CMP purposes for all proposed developments generating 2,400 or more daily trips. For developments which will directly access a CMP Highway System link, the threshold for requiring a TIA should be reduced to 1,600 or more trips per day.
- Document procedures used to identify and analyze traffic impacts of new development on CMP Highway System. This documentation should include the following:
    - Identification of type of development proposals which are subject to a traffic impact analyses (TIA);
    - Description of required or acceptable TIA methodology; and
    - Description of inter-jurisdictional coordination process used when impacts cross local agency boundaries.
- Document procedures/standards used to determine the costs of mitigation requirements for impacts of new development on CMP Highway System.
- Document methodology and procedures for determining applicable credits against mitigation costs including allowable credits associated with contributions to toll road facilities.

SECTION 1 – INTRODUCTION

Purpose

State legislation creating the Congestion Management Program (CMP) requires that the program contain a process to analyze the impacts of land use decisions by local governments on the regional transportation system. Once impacts of a land use decision are identified, the CMP also requires that the costs to mitigate the impacts be determined.

For CMP purposes, the regional transportation system is defined by the legislation as all state highways and principal arterials at a minimum. This system is referred to as the CMP Highway System. The identification and analysis of impacts along with estimated mitigation costs are determined with respect to this CMP Highway System.

The objectives of this report are to:

- Provide guidance to local agencies in conducting traffic impact analyses.
- Assist local agencies in maintaining eligibility for funds through documentation of CMP compliance.
- Make available minimum standards for jurisdictions wishing to use them for identifying and analyzing impacts on CMP Highway System.
- Establish CMP documentation requirements for those jurisdictions which elect to use their own TIA methodology.
- Establish a baseline from which TIA standardization may evolve as experience is gained in the CMP process.
- Cause the analysis of impacts on the CMP Highway System to be integrated into the local agency development review process.
- Provide a method for determining the costs associated with mitigating development impacts.
- Provide a framework for facilitating coordination between agencies when appropriate.

Background

Through a coordinated effort among local jurisdictions, public agencies, business and community groups, Orange County has developed a Congestion Management Program framework in response to the requirements of Assembly Bill 1791. This framework is contained in the Congestion Management Program Preparation Manual which was issued in January 1991 as a joint publication of the following agencies:

- County of Orange
- Orange County Division, League of California Cities
- Orange County Transportation Commission
- Orange County Transit District
- Transportation Corridor Agencies

The CMP Manual describes the CMP Program requirements for each component prescribed by the CMP provision of AB 1791. The components include one entitled Land Use Coordination, which sets forth the basic requirements for the assessment, mitigation, and monitoring of traffic impacts to the CMP Highway System which are attributable to development projects.

Consolidation of Remaining Issues

This report is intended to present a useful reference in addressing the remaining issues associated with the identification and treatment of development impacts on the CMP Highway System. It is desirable that a standardized approach be utilized for determining which projects require analysis and in carrying out the resulting traffic impact analysis (TIA). It is also desirable that a reasonably uniform approach be utilized in determining appropriate mitigation strategies and estimating the associated costs.

TIA Survey History

In 1989, Kimley-Horn and Associates, Inc. conducted a survey of TIA procedures being used at the time by local jurisdictions within Orange County. The survey revealed that although there were some commonalities, there was considerable variation in approach, scope, evaluation methodology, and project disposition.

As part of the CMP process, it was determined that the identification of TIA elements which can or should be standardized should be accomplished. Additional documentation of cost estimating practices and the development of standardized costs and estimating procedures will be valuable in achieving desired consistency among jurisdictions.

In order to accomplish these objectives, Kimley-Horn's previous TIA survey was updated and additional information was solicited from each local agency within Orange County. The information was obtained through telephone interviews with City Engineers and Planners after they had an opportunity to examine the survey questionnaire which was mailed to them in advance of the interview. The information obtained was used in preparing the methodology recommendations contained in this report. A summary of the update survey results is provided in the Appendix.

Relationships with Other Components

In addition to being an integral part of the Land Use Coordination component of the CMP, the traffic impact analysis requirements also relate to all other CMP components to a greater or lesser degree. These components include the following:

- Modeling
- Level of Service
- Transit Standards
- Traffic Demand Management
- Deficiency Plans
- Capital Improvement Program

The Land Use Coordination section in Chapter 3 of the CMP Preparation Manual dated January, 1991 contains a detailed description of each of the component linkages listed above.

SECTION 2- REQUIREMENTS OF CMP LEGISLATION

The complete text of CMP legislation is contained in Appendix A to the Preparation Manual for the Congestion Management Program for Orange County dated January, 1991. For ease of reference, the requirements of this legislation related to analysis of the impacts of land use decisions made by local jurisdictions are summarized as follows:

- Analyze impacts of land use decisions on CMP Highway System.
- Estimate costs associated with mitigation of impacts on CMP Highway System.
- Exclude costs associated with mitigating the impacts of interregional travel.
- Allow credits against mitigation costs for local public and private contributions to improvements to the CMP Highway System.
    - For toll road facilities, allow credits only for local public and private contributions which will not be reimbursed from toll revenues or other state or federal sources.
- Report annually on actions taken to adopt and implement a program to analyze the impacts of land use decisions on the CMP Highway System and to estimate the costs of mitigating those impacts.

SECTION 3 - ACTIONS REQUIRED OF LOCAL AGENCIES

The provisions of CMP legislation, as summarized in the preceding section, impose a requirement on local jurisdictions to carry out certain actions in order to demonstrate their compliance with the CMP program. This compliance will maintain eligibility to receive state gas tax funds made available by the voter approved Proposition 111. The actions and documentation requirements related to the identification and analysis of traffic impacts include the following:

- A TIA will be required for CMP purposes for all proposed developments generating 2,400 or more daily trips. For developments which will directly access a CMP Highway System link, the threshold for requiring a TIA should be reduced to 1,600 or more trips per day.
- Document procedures used to identify and analyze traffic impacts of new development on CMP Highway System. This documentation should include the following:
    - Identification of type of development proposals which are subject to a traffic impact analyses (TIA);
    - Description of required or acceptable TIA methodology; and
    - Description of inter-jurisdictional coordination process used when impacts cross local agency boundaries.
- Document procedures/standards used to determine the costs of mitigation requirements for impacts of new development on CMP Highway System.
- Document methodology and procedures for determining applicable credits against mitigation costs including allowable credits associated with contributions to toll road facilities.
- Establish annual monitoring and reporting process to summarize activities performed in analyzing the impacts of land use decisions on the CMP Highway System and in estimating the associated mitigation costs. Procedures for incorporating mitigation measures into the Capital Improvement Program should also-be established.
- For the first year, local jurisdictions may assume that all interregional travel occurs on the freeway system or they may develop an analysis methodology to determine the amount of interregional travel occurring on arterials which are part of the CMP Highway System. During the first year, TIAs need to analyze only the impacts to arterial portions of the CMP Highway System.

SECTION 4 - CMP TRAFFIC IMPACT ANALYSIS METHODOLOGY

In order to assure that the CMP Program meets its objectives of linking land use decisions with the adequate evaluation of impacts related to those decisions, traffic impact analyses must often be undertaken. There are a number of essential elements which should be included in traffic impact analyses (TIA) used to support the program. Many local jurisdictions already employ development review processes which will be adequate for addressing CMP requirements. For those jurisdictions wishing technical guidance in carrying out the analysis of traffic impacts on the CMP Highway System, this section offers an appropriate TIA methodology.

PROJECTS REQUIRING TIA ANALYSIS

All development in Orange County will use the CMP Network to a greater or lesser extent from time-to-time. The seven-year capital improvement program, together with deficiency plans to respond to deficiencies which cannot be resolved in the 7-year timeframe, are developed in response to anticipated growth in travel within a jurisdiction. Thus, a certain level of travel growth is addressed in the normal planning process and it is not necessary to evaluate relatively small projects with a TIA or to rely on TIA's as the primary means of identifying needed CMP Highway System improvements. Furthermore, County voters have approved a sales tax increase which will fund major improvements to the transit and highway systems serving the County.

Many jurisdictions will require an EIR for a proposed development project. When required, the EIR should include steps necessary to incorporate the required CMP analysis. Most or all of the TIA elements described in this section would normally be incorporated into the typical EIR traffic analysis.

Certain development projects not requiring an EIR should still be evaluated through a TIA process due to their land use type, intensity, proximity to the CMP network, and/or duration of development timeframe. In other words, developments which will significantly alter the anticipated demand on a CMP roadway should be evaluated through a TIA approach.

At the present time, there is a wide-ranging approach to determining which projects will require a TIA. In some jurisdictions, there are formal guidelines, while in others it depends primarily on the judgment of a member of staff relative to the probable significance of the project's impact on the surrounding road system.

The OCTC TIA guidelines recommended defining three percent of the level of service standard as significant impact. This seems reasonable for application for CMP purposes. Thus, project impacts of three percent or less can be mitigated by impact fees or other revenues. Projects with a potential to create an impact of more than three percent of Level of Service E capacity will require TIA's. On this basis, it is recommended that all development projects which generate more than 2,400 daily trips be subject to a TIA for CMP evaluation. For projects which will directly access or be in close proximity to a CMP Highway System link a reduced threshold of 1,600 trips/day would be appropriate. Appendix B provides background information of the derivation of these threshold values.

TIA PROCESS

There are a number of essential elements in the TIA process itself. It is desirable that all of these elements be evaluated within an acceptable range of criteria in order to assure the objectives of the CMP process and to maintain a reasonable degree of equity from jurisdiction to jurisdiction. It is recognized, however, that for certain of the elements, some variations relating to professional judgment and local criteria and characteristics are necessary and appropriate to the process. These factors have been fully considered in developing the descriptions of the following elements:

- Evaluation of existing conditions
- Trip generation
- Internal capture and passer-by traffic
- Trip distribution and assignment
- Radius of development influence
- Background traffic
- Capacity analysis methodology
- Impact costs/mitigation

Evaluation of Existing Conditions

In order to evaluate the relative impacts of a proposed development, determine CMP Highway System status and define appropriate mitigation for new impacts, it is necessary to understand the existing conditions on the affected roadway network. Evaluation of existing conditions is common to nearly all jurisdictions in Orange County. Given that most jurisdictions use link and intersection capacity analysis techniques compatible with the techniques identified in the level-of-service component, no changes in existing local jurisdiction procedures should be necessary in connection with the CMP Program.

Trip Generation

At the foundation of traffic impact analyses is the quantification of trip generation. Use of the ITE Trip Generation Manual is common throughout Orange County. In addition, other widely accepted practices are being used when appropriate to supplement the lit data. These practices include use of acceptable rates published by local agencies and surveys conducted at similar sites, subject to approval of the reviewing agency. Given the uniformity of practice in Orange County to date, no major adjustments in this procedure should be required. It would be desirable however to establish a central library for reporting the results of special trip generation studies and making these results available to all other jurisdictions who wish them.

Internal Capture and Passer-by Traffic

Techniques for identifying the internal relationship of travel within mixed-use developments and the degree to which development captures passer-by trips as opposed to creating new trips are being applied by approximately 2/3 of the local jurisdictions within Orange County. The use of

guidelines in the ITE Trip Generation Manual and appropriate professional judgment are the predominant techniques employed. To supplement the guidance available through ITE documentation, local jurisdictions are encouraged to undertake additional studies to document rates applicable within their jurisdiction. The determination of applicable rates should be undertaken by experienced transportation engineering professionals with thorough documentation of the methodology, data, and assumptions used. It is recommended that those jurisdictions which do not currently allow these adjustments establish revised TIA procedures incorporating this element. As with trip generation data, a central library would be desirable for reporting of data and analyses performed locally related to determination of appropriate factors.

Trip Distribution and Assignment

Several appropriate distribution and assignment techniques are used in Orange County, depending on the size of the development and the duration of buildout. Manual and computer modeling approaches are used as appropriate. Manual methods based on the best socio-economic information available to the agency and applicant should be acceptable except when a development's size makes a modeling approach more appropriate. Sources of this information include demographic surveys, market analyses, and previous studies.

Radius of Development Influence

There are numerous ways to identify the study area to be evaluated in a TIA. These include both qualitative and quantitative approaches. One of the most effective ways is through the determination of the quantity of project traffic on CMP roadway links compared to a selected level of impact. The goal of a quantitative approach is to be sure that all elements of the CMP network are addressed in a comparable manner from jurisdiction to jurisdiction. This is important due to the potential for overlapping impacts among jurisdictions. It is also important to maintain flexibility within a quantitative process to allow transportation professionals at local jurisdictions to add areas to the study which are of specific concern. It is not intended that CMP practices should restrict this aspect of each agency's existing TIA process.

It is recommended that the study area for CMP Highway System links be defined by a measure of significant impact on the roadway links. As a starting point, it is proposed that the measure be three percent of existing roadway capacity. Thus, when a traffic impact analysis is being done it would require the inclusion of CMP roadway links that are impacted by 3 percent or more of their LOS E capacity. If a TIA is required only for CMP purposes, the study area would end when traffic falls below three percent of capacity on individual roadway links. If the TIA is also required for other purposes, additional analysis can be required by the local jurisdiction based on engineering judgment or local regulation as applicable.

Background Traffic

In order for a reasonable assessment of the level of service on the CMP network, it is necessary to not only identify the proposed development impact, but also the other traffic which can be expected to occur during the development of the project. There are numerous methods of evaluating background traffic. The implications of these alternative methods are that certain methodologies may result in deficiencies, while other methodologies may find an acceptable operating conditions.

The cost to mitigate impacts of a land use decision is unrelated to background traffic. Rather, it is related to the cost of replacing the capacity which is consumed by the proposed development. However, it is necessary to understand background traffic in order to evaluate level-of-service. Background traffic is composed of existing traffic demands and growth from new development which will occur over a specific period of time. Both the existing and the growth elements of background traffic contain sub-elements. These include traffic which is generated within Orange County, that which begins and/or ends within the County, and interregional traffic which has neither end in Orange County. CMP legislation stipulates that interregional traffic will not be considered in CMP evaluations with respect to LOS compliance or determining costs of mitigation.

Given that the CMP process is new, there is no existing practice of separating interregional traffic from locally generated traffic. Until a procedure for identifying interregional traffic is developed, local jurisdictions may assume that all interregional traffic occurs on the freeway system. Initially TIA's required for CMP purposes need only analyze the impacts to arterial portions of the CMP Highway System.

Local governments in Orange County are generally consistent in their approach to background traffic. There are three major approaches used. The first is to use historical growth factors which are applied to existing traffic volumes to project future demands. The second is to aggregate the impacts of specific individual projects which have been approved or planned but not built to identify the total approved background traffic on the study area roadway system. A third method is to use computer modeling to identify total traffic demands which represent both background traffic and project impact traffic. For the present CMP program, it is recommended that the discretion for the appropriate process lie within the local jurisdiction, however, the method to be used in the jurisdiction should be clearly defined in the agency's TIA rules and procedures. In addition, it is recommended that all jurisdictions create a listing of approved development projects and a map showing their locations which would be updated frequently and be available to other jurisdictions on request. The listing should include information related to type and size of land use and phasing for each project.

It is appropriate to periodically update long range forecasts based on development approvals and anticipated development growth in the region and plan a transportation system which will provide the necessary level-of-service for this amount of development. When a development proposal will significantly alter this long-term plan, it will be necessary to address the aggregate of all approved development to assure that there is a long-term solution. However, from a TIA perspective, it is reasonable and practical to consider only that development traffic which can be expected to exist at the time of buildout of a new development proposal. That is to say, for CMP purposes background traffic should be limited to that traffic which is generated by development which will exist at the time of buildout of a proposed development. CEQA requirements may dictate that other background traffic scenarios be analyzed as well.

Capacity Analysis Methodology

Once the projected traffic demands are known, it is necessary to evaluate these demands relative to available and planned roadway capacity. The methodology used in capacity determination in Orange County is relatively uniform. Additionally, the level of service (LOS) component of the CMP Program has identified specific criteria which are to be used in determining level-of-service on the CMP Highway System.

Impact Costs/Mitigation

This element is at the heart of the CMP process; that is to identify the costs of mitigating a land development decision on the CMP System.

The current practice throughout Orange County is to require mitigation only when the level-of-service standard is exceeded. However, some jurisdictions require regular impact mitigation fees and phasing road improvements with development. The growth management requirement of the sales tax Measure M mandates a traffic phasing program. Often, mitigation is equated to construction of roadway improvements to maintain an acceptable level-of-service and/or to maintain the existing level-of-service. In some instances, a pay and go mitigation approach is allowed. This means that new development may pay its fair share and go forward and the provision of improvements remain the responsibility for the local jurisdiction.

In order to assess responsibility for impacts, there are a variety of approaches. One approach is to consider impact traffic as a percent of total traffic. Impact traffic may also be taken as a percentage of existing capacity. Another common approach is to use the net impact of development as a percent of total future traffic demand.

Since CMP legislation requires the identification of costs of land use decisions and impacts across jurisdictional lines, it is desirable that the CMP program have a consistent method for identifying the costs of development impacts. On the other hand, a wide variety of mitigations can occur from jurisdiction to jurisdiction.

It is recommended that the impact costs be calculated as the total of new development traffic on a roadway link requiring improvement divided by the capacity of the improvement times the cost of the improvement. This can be expressed in a formula as follows:

$$\text{Impact Cost} = \frac{\text{development traffic}}{\text{capacity of improvement}} \times \text{improvement cost}$$

Improvements to be included in the cost analysis should be those identified in the jurisdiction's adopted Circulation Element and any additional improvements identified in the development TIA. The total impact cost for a development would be the sum of costs for all significantly impacted links. Funds collected from these assessments could be aggregated and applied to specific projects on an annual basis in accordance with locally established priorities. If project impacts extend across jurisdictional boundaries the impact costs calculated for significantly impacted links in an adjacent jurisdiction should be allocated to that jurisdiction for use in its program of prioritized improvements.

Through this process, progress can be achieved in implementing system improvements without having to wait for 100% of the funds being collected for each individual improvement. In theory, all required improvements will be accomplished over time as new developments are approved which will generate traffic to utilize available and planned system capacity. The costs should be based on recent Unit cost experience in Orange County and may include planning, permitting, preliminary engineering, design, right-of-way, construction, landscaping, construction inspection, and, if applicable, financing costs.

There are two approaches to mitigation. One is traffic reduction and the other is to build improvements to accommodate the new traffic. Traffic reduction through transportation demand ordinances or other regulations which will reduce impacts can be calculated in the same way a development impact would be calculated. But in this case, it would be taken as a credit or a reduction in impact. Mitigation techniques such as TDM or phasing or reduction in project intensity merely reduce for a new development the amount of impact which must be mitigated and are changes which should occur prior to the calculation of project impact costs. A monitoring program should be established to confirm that anticipated reductions are realized.

To comply with the CMP process, a local jurisdiction should accomplish two things. First, it should demonstrate that it is analyzing and mitigating the impact of new development on the CMP Highway System. Second, it should maintain the level-of-service standards or adopt a deficiency plan Consistent with CMP legislation. In order to demonstrate the mitigation which has been undertaken, the local jurisdiction should maintain a record of the cumulative impact cost of all development approvals and the cumulative mitigation value of improvements provided by the local jurisdiction. These could be construction programs or credits from a TDM ordinance or other traffic reduction measures. It is then only necessary to show on an annual basis that the total improvement costs plus traffic reduction credits are equal to or greater than the total impact cost of new development approvals to prove mitigation compliance.

The maintenance of level-of-service would come through implementation of improvements contained in the 7-year capital improvements element, Measure M and state-funded improvements, additional improvements which may be made in conjunction with development approvals, and from deficiency plans which may be required from time to time. From a TIA perspective, it would be necessary to document the following:

a. the level-of-service on the CMP network at buildout of the proposed development will be: 1) level—of-service "E or better, or 2) will not result in a cumulative increase of more than 0.10 in v/c ratio if the established LOS standard is worse than LOS E.

b. a deficiency plan exists to address the links for which level-of-service is not provided, and

c. a deficiency plan will be developed for a new link when a deficiency will occur.

DOCUMENTATION OF RULES AND PROCEDURES

To assure a clear understanding of the TIA procedures which are necessary to support a viable CMP program, it is recommended that a set of rules and procedures be established by each local jurisdiction. Ideally, these rules and procedures would cover the requirements for the full TIA analysis and would include minimum requirements for the CMP process. Local jurisdictions which prefer not to adopt separate CMP TIA standards could implement standards for CMP requirements within a TIA and maintain their existing approach for all other aspects of their existing TIA process. The following is a summary of the elements which should be included in CMP procedures documentation and the methodologies applicable to each element:

1. **Thresholds for Requiring a TIA for CMP** - Projects with the potential to create an impact of more than 3% of LOS "E' capacity on CMP Highway system links should require a TIA. All projects generating 2,400 or more daily trips should require a TM for CMP evaluation. If a project will have direct access to a CMP link this threshold should be reduced to 1,600 or more daily trips. A TIA should not be required again if one has already been performed for the project as part of an earlier development approval which takes the impact on the CMP Highway System into account.
2. **Existing Conditions Evaluation** - Identify current level-of-service on CMP roadways and intersections where the proposed development traffic will contribute to 3 percent of the existing capacity. Use procedures defined in the level-of-service component for evaluation of level—of-service.
3. **Trip Generation** - ITE trip generation rates or studies from other agencies and locally approved studies for specific land uses.
4. **Internal Capture and Passerby Traffic** - Justification for internal capture should be included in the discussion. Passerby traffic should be calculated based upon ITE data or approved special studies.
5. **Distribution and Assignment** - Basis for trip distribution should be discussed and should be linked to demographic or market data in the area. Quantitative and/or qualitative information can be used depending on the size of the proposed development. As the size of the project increases, there should be a tendency to use a detailed quantitative approach for trip distribution. Trip assignment should be based on existing and projected travel patterns and the future roadway network and its travel time characteristics.
6. **Radius of Impact/Project Influence** - The analysis should identify the traffic assignment on all CMP roadway links until the impact becomes less than 3 percent of level of service E capacity.
7. **Background Traffic** - Total traffic which is expected to occur at buildout of the proposed development should be identified.
8. **Impact Assessment Period** - This should be the buildout timeframe of the proposed development.
9. **Capacity Analysis Methodology**- The methodology should be consistent with that specified in the level-of—service component of the CMP Program.
10. **Improvement Costs** - The cost of roadway improvements should include all costs of implementation including studies, design, right-of-way, construction, construction inspection, and financing costs, if applicable.
11. **Impact Costs and Mitigation** - The project impact divided by the capacity of a roadway improvement times the cost of the improvement should be identified for each significantly impacted CMP link and summed for the study area.
12. **Projected Level-of-Service** - The TIA should document that the projected level-of-service on all CMP links in the study area will be at Level-of-Service "E" or the existing level-of-service whichever is less, or that a deficiency plan exists or will be developed to address specific links or intersections.

SECTION 5 – APPENDICES

Appendix A – Summary of TIA Update Survey Results (Available Upon Request)

Appendix B – Deviation of Thresholds for Projects Requiring TIA Analysis

APPENDIX B

DERIVATION OF THRESHOLDS FOR PROJECTS REQUIRING TRAFFIC IMPACT ANALYSIS

The TIA process recommendation is to require a TIA for any project generating 2,400 or more daily trips. This number is based on the desire to analyze any impacts which will be 3% or more of the existing capacity. Since most CMP Highway System will be four lanes or more, the capacity used to derive the threshold is a generalized capacity of 40,000 vehicles/day. The calculations are as follows:

40,000 veh./day x 3% = 1,200 veh./day
Assuming 50/50 distribution of project traffic on a CMP link
1,200 x 2 = 2,400 veh./day total generation

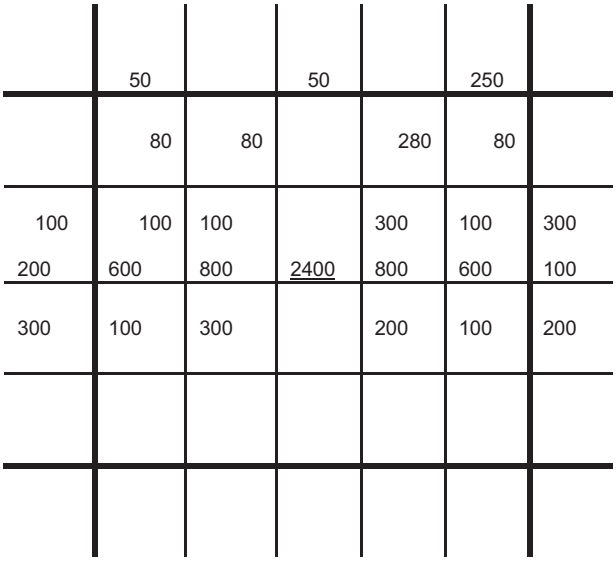
As can be seen, a project which will generate 2,400 trips/day will have an expected maximum link impact on the CMP system of 1,200 trips/day based on a reasonably balanced distribution of project traffic. On a peak-hour basis, the 3% level of impact would be 120 peak-hour trips. For intersections, a 3% level of impact applied to the sum of critical volume (1,700 veh./hr.) would be 51 vehicles per hour.

A level of impact below 3% is not recommended because it sets thresholds which are generally too sensitive for the planning and analytical tools available. Minor changes in project assumptions can significantly alter the results of the analysis and the end result can be additional unnecessary cost to the developer and additional review time by staff with little benefit. Additionally, a lower threshold of significance will expand the study area, which also increases effort and costs, and increases the probability that the analysis would extend beyond jurisdictional boundaries.

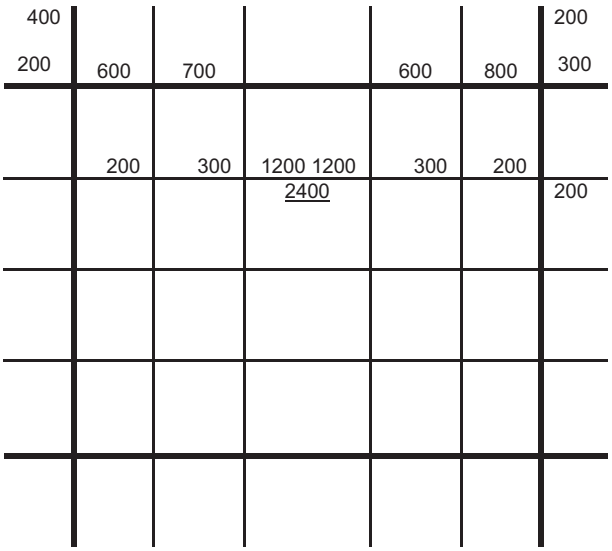
The following illustration shows that the 2,400 trip/day threshold would be expected to produce a 3% impact on the CMP System only when the project has relatively direct access to a CMP link. As a project location moves further off the CMP System the expected impacts is reduced. With a more directional distribution of project traffic a development with direct CMP System access cold produce a 3% impact with somewhat lower daily trip generation.

The table included on the following page illustrates the daily trip generation thresholds which would produce various levels of impact on the CMP System for project locations with and without direct access to the system. Based on a 3% impact the trip generation thresholds for requiring a TIA are 1,600 veh./day with direct CMP System access and 2,400 veh./day if a project does not have direct CMP System access.

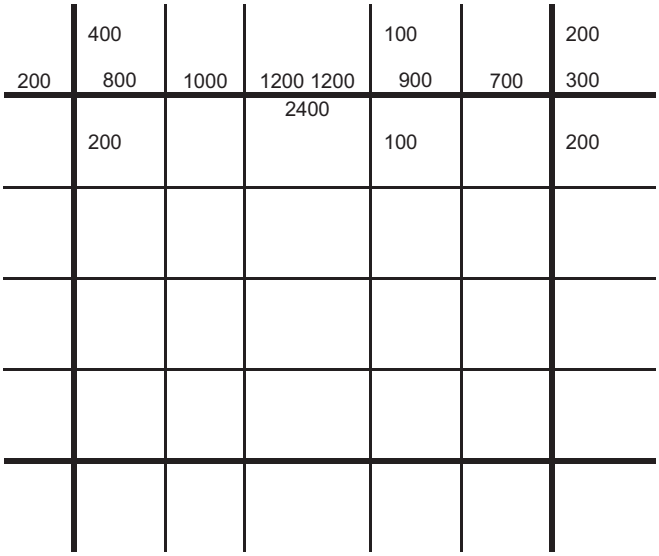
CMP Highway System Impacts for Development Generating 2,400 trips/day
Based on proximity to CMP System



MAXIMUM IMPACT < 1%



MAXIMUM = 1.8%



MAXIMUM = 3%
COULD BE 4.5% WITH 75/25 SPLIT

Alternative Criteria

Assume 75/25 distribution

For direct access to CMP System:
1,200/.75 = 1,600 veh./day

For no direct CMP System Access:
Approximately 1/3 less impact on CMP System
1,600 x 3/2 = 2,400 veh./day

Daily Trip Generation

Significant Impact	Direct Access	No Direct Access
1%	500	800
2%	1,100	1,600
3%	1,600	2,400

Appendix B-2: Traffic Impact Analysis Exempt Projects

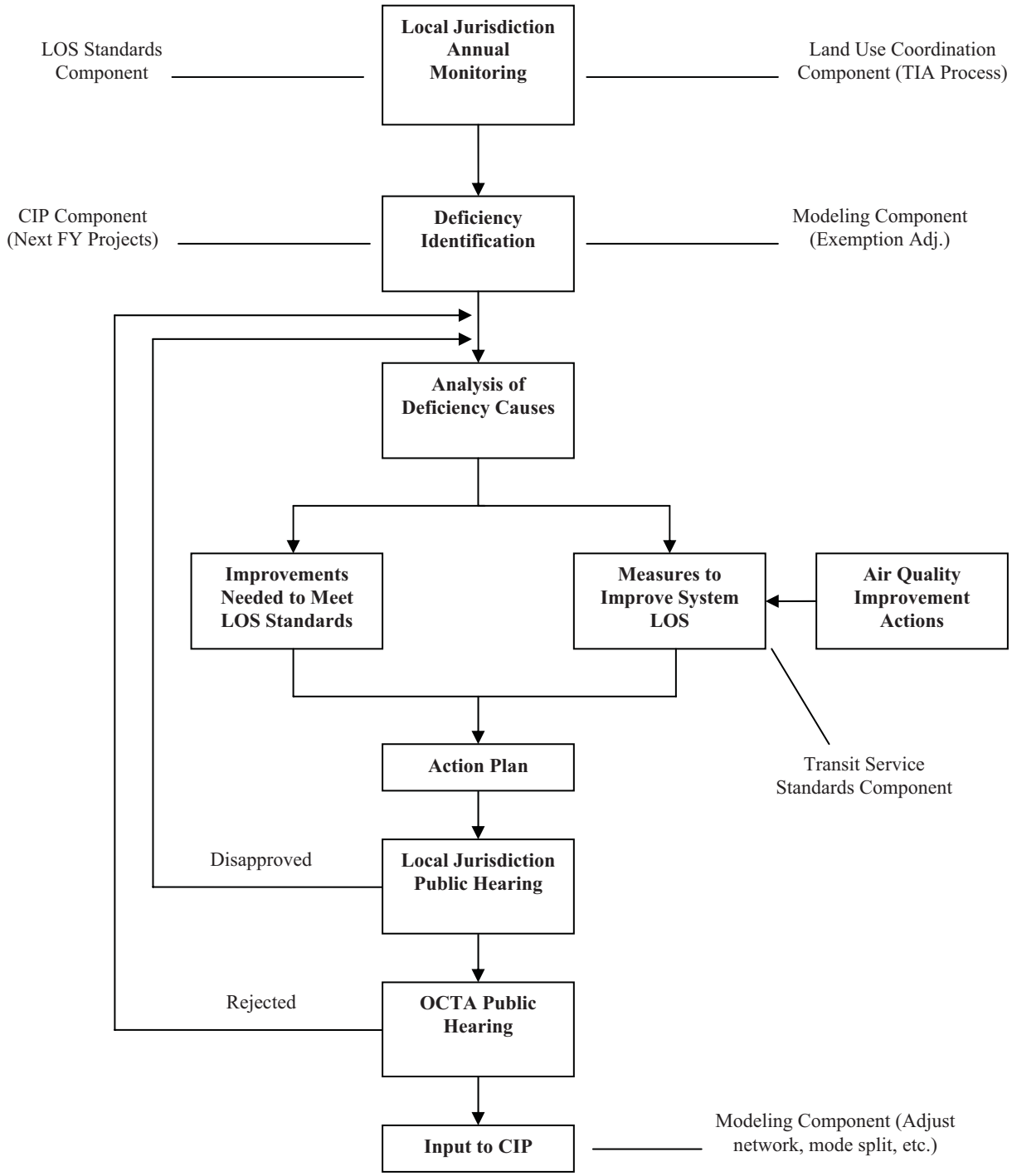
Projects exempt from the requirements of a mandatory, CMP Traffic Impact Analysis are listed below. This list is not meant to be all-inclusive. Any inquiries regarding additional exemptions shall be transmitted in writing to the Orange County Transportation Authority, attention CMP Program Manager.

Project Not Requiring a CMP TIA Analysis:

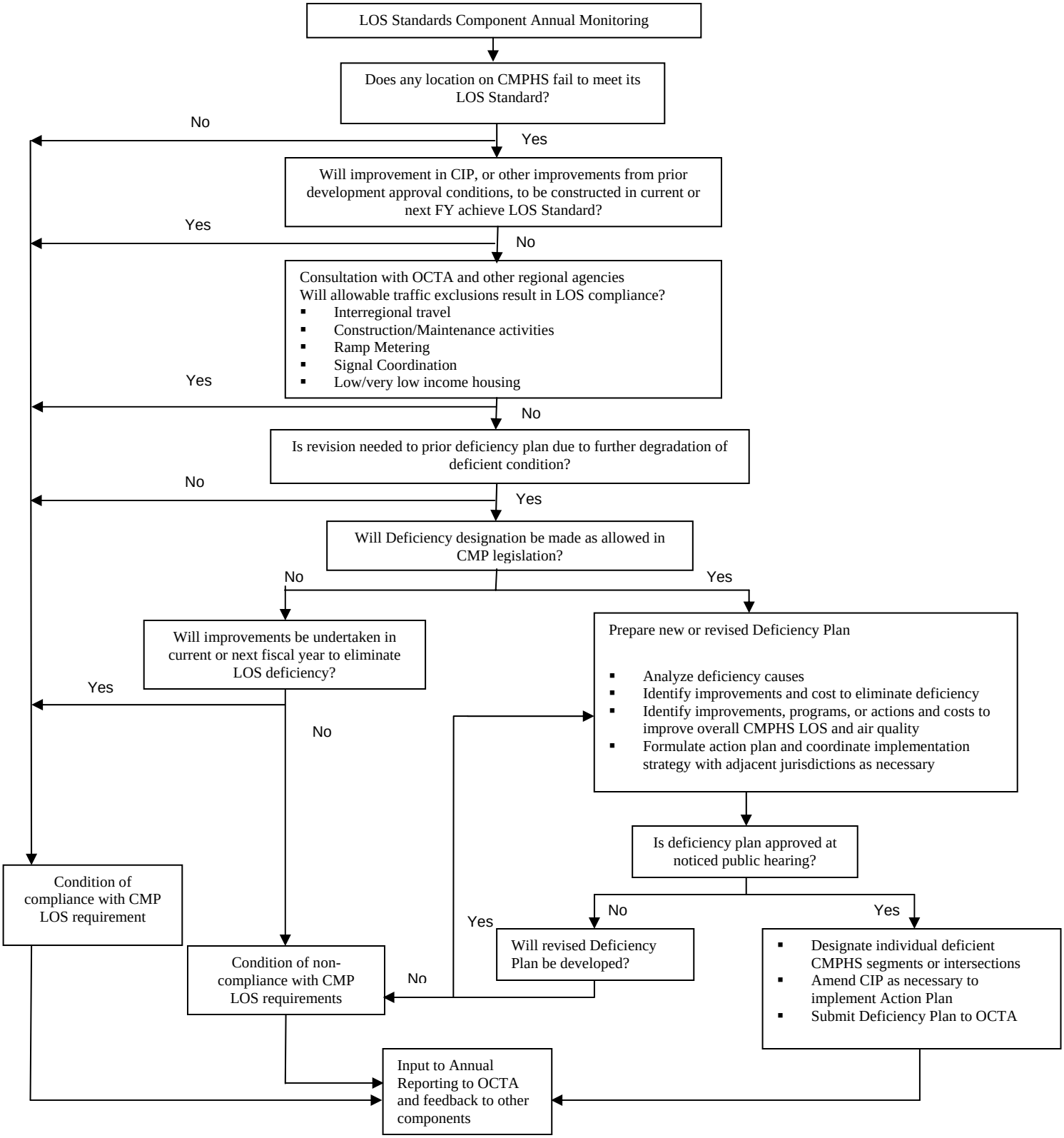
1. Applicants for subsequent development permits (i.e., conditional use permits, subdivision maps, site plans, etc.) for entitlement specified in and granted in a development agreement entered into prior to July 10, 1989.[1]
2. Any development application generating vehicular trips below the Average Daily Trip (ADT) threshold for CMP Traffic Impact Analysis, specifically, any project generating less than 2,400 ADT total, or any project generating less than 1,600 ADT directly onto the CMPHS. [1, 2]
3. Final tract and parcel maps. [1, 2, 3]
4. Issuance of building permits. [1, 2, 3]
5. Issuance of certificates of use and occupancy. [1, 2, 3]
6. Minor modifications to approved developments where the location and intensity of project uses have been approved through previous and separate local government actions prior to January 1, 1992. [1, 2, 3]

[1] Vehicular trips generated by CMP TIA-exempt development applications shall not be factored out in any traffic analyses or levels of service calculations for the CMPHS.
[2] Exemption from conduction a CMP TIA shall not be considered an exemption from such projects' participation in approved, transportation fee programs established by the local jurisdiction.
[3] A CMP TIA is not required for these projects only in those instances where development approvals granting entitlement for the project sites were granted prior to the effective date of CMP TIA requirements (i.e., January 1992).

APPENDIX C-1: CMP Deficiency Plan Flow Chart



APPENDIX C-2: Deficiency Plan Decision Flow Chart



APPENDIX D: CMP Monitoring Checklists

CMP MONITORING CHECKLIST
CAPITAL IMPROVEMENT PROGRAM

Responsibility: Cities, County, Caltrans, transit operators

2009 CMP CHECKLIST

		YES	NO
1.	Did you submit a seven-year Capital Improvement Program (CIP) to OCTA by June 30, 2009?	☐	☐
a.	Does it include projects that will maintain or improve the traffic LOS on the CMPHS or adjacent facilities which benefit the CMPHS?	☐	☐
b.	Are maintenance, rehabilitation, and reconstruction projects excluded for CMP purposes?	☐	☐
c.	Was the CIP Development Program, distributed with the Measure M eligibility package, used to prepare the CMP CIP?	☐	☐
e.	Have projects included as part of a deficiency plan been identified as such in the CIP?	☐	☐

CMP MONITORING CHECKLIST
DEFICIENCY PLANS

Responsibility: Cities, County

2009 CMP CHECKLIST

		YES	NO*
1.	After adjustments, were any locations on the CMPHS identified as failing to meet the LOS standard through the data collection and calculation process?	☐	☐
	a. If so, which? _____ _____ _____		

NOTE: Only those agencies which answered question #1 affirmatively need to answer the remaining questions.

2.	Will the deficiencies at these locations be corrected by improvements scheduled for completion during the next 18 months?	☐	☐
3.	Has a deficiency plan or a schedule for preparing a deficiency plan been submitted to OCTA?	☐	☐
4.	Does the deficiency plan fulfill the statutory requirements:		
	a. include an analysis of the causes of the deficiency?	☐	☐
	b. include a list of improvements necessary to maintain minimum LOS standards on the CMPHS and the estimated costs of the improvements?	☐	☐

	YES	NO*
c. include a list of improvements, programs, or actions, and estimates of their costs, that will improve LOS on the CMPHS and improve air quality?	☐	☐
1) do the improvements, programs, or actions meet the criteria established by SCAQMD (see the CMP Preparation Manual)?	☐	☐
d. include an action plan and implementation schedule?	☐	☐
5. Are the capital improvements identified in the deficiency plan programmed in your seven-year CMP CIP?	☐	☐
6. Does the deficiency plan include a monitoring program that will ensure its implementation?	☐	☐
7. Does the deficiency plan include a process to allow some level of development to proceed pending correction of the deficiency?	☐	☐
8. Has necessary inter-jurisdictional coordination occurred?	☐	☐
9. Please describe any innovative programs included in the deficiency plan:		

_____

_____

_____

* Submitting jurisdiction is encouraged to provide a brief explanation of those questions answered "No."

CMP MONITORING CHECKLIST
LAND USE COORDINATION

Responsibility: Cities, County

2009 CMP CHECKLIST

		YES	NO*
CMP Traffic Impact Analysis:			
1.	Have you changed the CMP traffic impact analysis (TIA) process you selected for the 2007 CMP?	☐	☐
2.	If you answered "Yes" to the above question, have you submitted documentation of the revised TIA approach and methodology used to OCTA?	☐	☐
3.	Was your CMP TIA process applied to applicable development projects filed and approved by the local jurisdiction between July 1, 2007 and June 30, 2009?	☐	☐
a.	How many approved development projects were required to conduct a CMP TIA?		
b.	Did the TIA process identify whether any CMPHS links/intersections would exceed their established LOS standard as a result of project related traffic?	☐	☐
c.	If so, which CMPHS links/intersections? _____ _____ _____		
d.	Which, if any, of these impacted CMPHS links/intersections are located outside the boundaries of your jurisdiction? _____ _____ _____		

		YES	NO*
e.	Did your agency participate in inter-jurisdictional discussions with other affected jurisdictions to develop a mitigation strategy for each impacted link/intersection?	☐	☐
4.	Did you use, or do you anticipate using, a local model for your traffic impact analysis on any projects initiated between July 1, 2007 and June 30, 2009?	☐	☐
5.	If you answered "Yes" to the above question, did you follow the modeling consistency process outlined in Attachment 1?	☐	☐

* Submitting jurisdiction is encouraged to provide a brief explanation of those questions answered "No" (with the exception of questions 1 and 4).

Attachment 1
(under separate cover)

CMP MONITORING CHECKLIST
LEVEL OF SERVICE

Responsibility: Cities, County

2009 CMP CHECKLIST

		YES	NO*
1.	In your jurisdiction, are all of the intersections on the CMPHS operating at LOS E (or the baseline level, if worse than E) or better?	☐	☐
a.	If not, have the impacts of traffic which are categorically exempt under the CMP legislation (interregional travel, traffic generated by the provision of low and very low income housing, construction rehabilitation or maintenance of facilities that impact the system, freeway ramp metering, or traffic signal coordination) been factored out of the LOS traffic counts?	☐	☐
2.	After adjustments have been included, which intersections, if any, are operating below LOS E (or the baseline level, if worse than E)?	☐	☐
	_____		
	_____		
	_____		
3.	Will the LOS at those intersections be improved by mitigation measures which will be implemented in the next 18 months or improvements programmed in the first year of any FY 2009/2010 funding program (i.e., local agency CIP, CMP CIP, Measure M CIP)?	☐	☐
a.	If not, has a deficiency plan been developed for each intersection which will be operating below LOS E (or the baseline level, if worse than E)?	☐	☐

* Submitting jurisdiction is encouraged to provide a brief explanation of those questions answered "No."

CMP MONITORING CHECKLIST
TDM ORDINANCE

Responsibility: Cities, County

2009 CMP CHECKLIST

		YES	NO
1.	Have you made revisions to the TDM ordinance used to satisfy the TDM requirements of the last CMP reporting cycle (i.e. 2007)?	☐	☐
	a. If so, please attach a copy of the revised ordinance and adopting resolution.		
2.	Have you applied your TDM ordinance to development projects?	☐	☐
	a. If not, please provide a brief explanation.		

APPENDIX E: Capital Improvement Programs

(Under Separate Cover)

APPENDIX F: Orange County Subarea Modeling Guidelines

(Under Separate Cover)