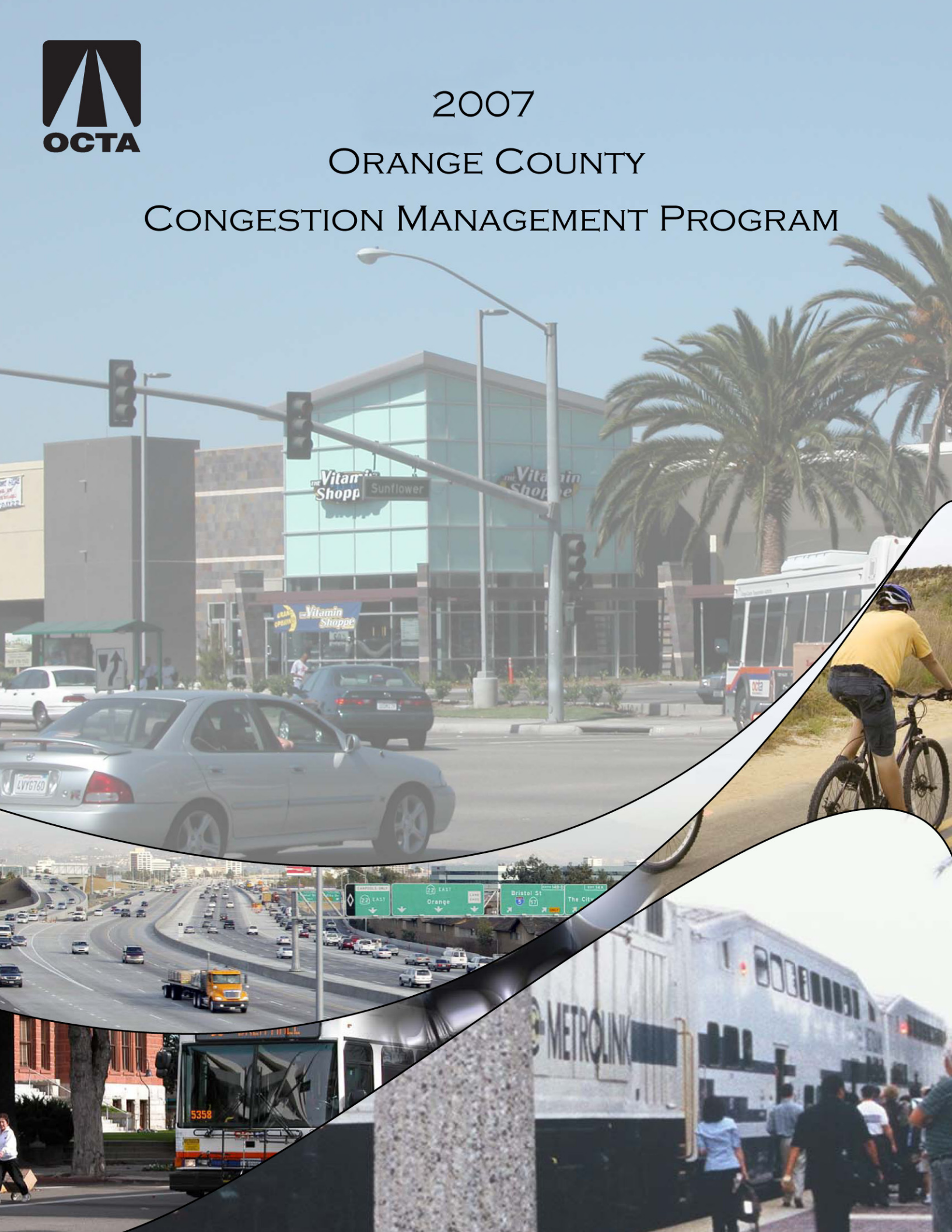
OCTA

2007
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 agencies, 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 data bases 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. CMP statute requires that subsequent monitoring of LOS on the CMPHS does not indicate intersections with LOS below 'E', unless the baseline is lower. If the baseline LOS is lower than 'E', 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 principal 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 2007 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 deficiency issues on State-operated facilities.

Highway & Roadway System Performance Measures

This section provides a discussion of 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

Figure 2:
2007 Congestion Management Program Highway System

October 25, 2007

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westbound) and movement (left turn, through, or right turn) for each vehicle. 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 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 2007 LOS ratings for the CMP intersections have been mapped in Figure 3. The map in Figure 4 displays the LOS changes since the 2005 CMP report. Finally, a spreadsheet of the baseline and 2007 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 0.64 (a 5.88 percent improvement), and the PM ICU improved from 0.73 to 0.69 (a 5.48 percent improvement). The ICU improvements indicate that Orange County agencies are effectively operating, maintaining, and improving the CMP Highway System.

Figure 3:
2007 CMP Intersection Level of Service

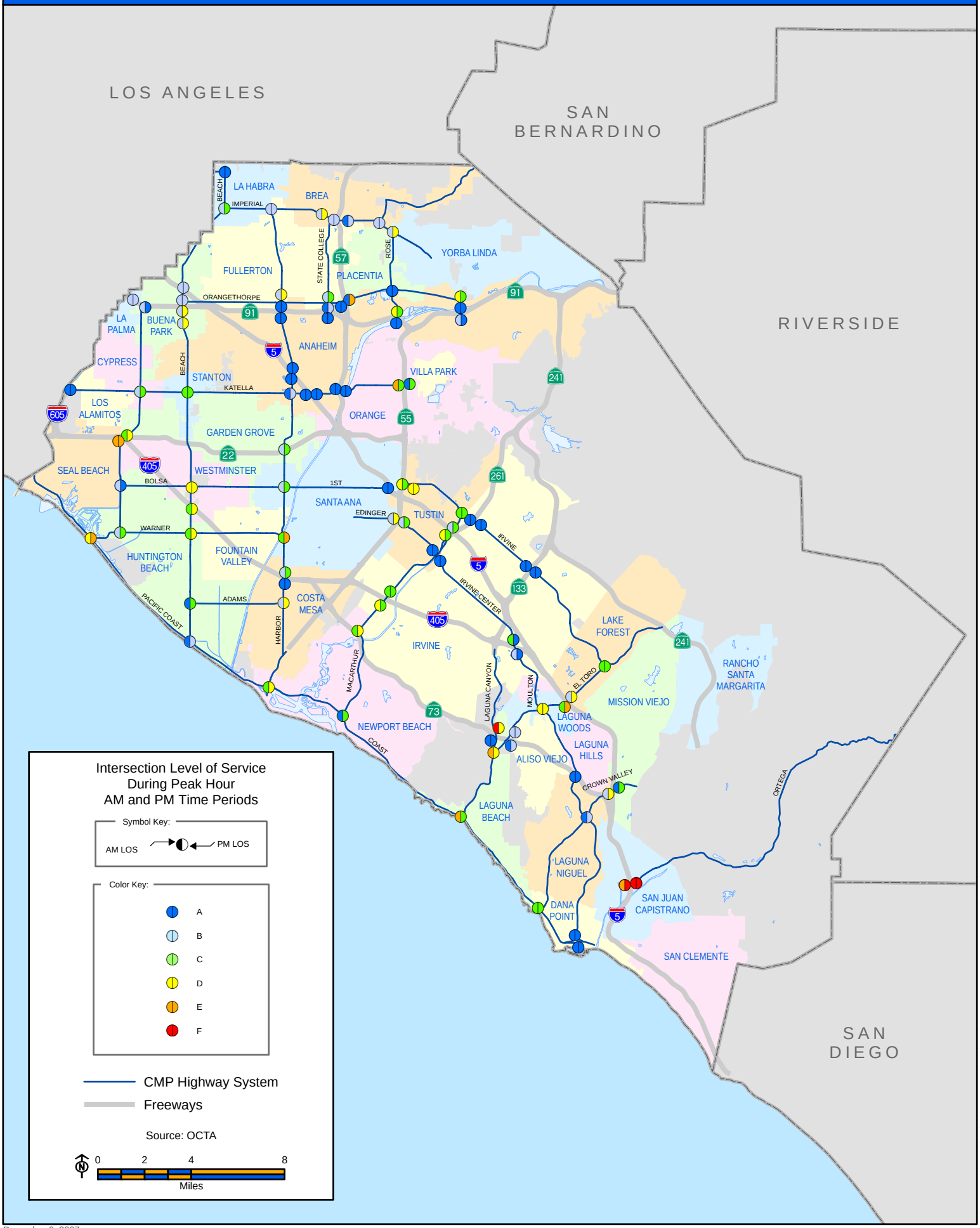

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Figure 4:
2005 vs. 2007 CMP Intersection Level of Service

October 25, 2007

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Intersection/Interchange	Jurisdiction	Baseline AM		2007 AM		Baseline PM		2007 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	0.50	D	0.82	A	0.55	2.04%	-32.93%
Harbor Blvd./Katella Avenue	Anaheim	A	0.53	A	0.59	B	0.67	B	0.61	11.32%	-8.96%
I-5 NB Ramp/Harbor Boulevard	Anaheim	A	0.52	A	0.45	A	0.54	A	0.49	-13.46%	-9.26%
I-5 SB Ramp/Katella Avenue	Anaheim	A	0.48	A	0.56	A	0.41	A	0.50	16.67%	21.95%
I-5 SB Ramp\Harbor Boulevard	Anaheim	A	0.29	A	0.27	A	0.31	A	0.30	-6.90%	-3.23%
Imperial Highway/Orangethorpe Avenue	Anaheim	B	0.67	D	0.83	D	0.89	C	0.75	23.88%	-15.73%
SR-57 NB Ramps/Katella Avenue	Anaheim	A	0.51	A	0.39	A	0.41	A	0.38	-23.53%	-7.32%
SR-57 SB Ramps/Katella Avenue	Anaheim	A	0.52	A	0.46	A	0.51	A	0.42	-11.54%	-17.65%
SR-91 EB Ramp/Harbor Boulevard	Anaheim	A	0.46	A	0.41	A	0.52	A	0.56	-10.87%	7.69%
SR-91 EB Ramp/Imperial Highway	Anaheim	C	0.73	B	0.61	C	0.79	A	0.59	-16.44%	-25.32%
SR-91 EB Ramps/State College Boulevard	Anaheim	B	0.69	A	0.47	D	0.82	A	0.55	-31.88%	-32.93%
SR-91 EB Ramps/Tustin Avenue	Anaheim	B	0.66	A	0.57	D	0.84	A	0.51	-13.64%	-39.29%
SR-91 WB Ramp/Harbor Boulevard	Anaheim	B	0.61	A	0.51	C	0.77	A	0.58	-16.39%	-24.68%
SR-91 WB Ramp/Imperial Highway	Anaheim	C	0.71	A	0.52	B	0.63	A	0.51	-26.76%	-19.05%
SR-91 WB Ramp/State College Boulevard	Anaheim	A	0.55	A	0.46	B	0.63	B	0.67	-16.36%	6.35%
SR-91 WB Ramps/Tustin Avenue	Anaheim	B	0.64	D	0.81	A	0.60	C	0.74	26.56%	23.33%
SR-57 NB Ramps/Imperial Highway	Brea	C	0.78	A	0.59	E	0.91	B	0.66	-24.36%	-27.47%
SR-57 SB Ramps/Imperial Highway	Brea	B	0.68	B	0.64	B	0.70	B	0.67	-5.88%	-4.29%
State College Boulevard/Imperial Highway	Brea	C	0.73	B	0.61	E	0.93	D	0.81	-16.44%	-12.90%
Valencia Avenue/Imperial Highway	Brea	A	0.56	B	0.70	A	0.59	B	0.66	25.00%	11.86%
Beach Boulevard/Orangethorpe Avenue	Buena Park	C	0.76	B	0.63	D	0.87	B	0.68	-17.11%	-21.84%
I-5 SB Ramps/Beach Boulevard	Buena Park	C	0.72	B	0.68	C	0.78	B	0.69	-5.56%	-11.54%
SR-91 EB Ramp/Beach Boulevard	Buena Park	C	0.74	B	0.64	D	0.84	D	0.84	-13.51%	0.00%
SR-91 EB Ramp/Valley View Street	Buena Park	A	0.58	B	0.62	D	0.86	A	0.52	6.90%	-39.53%
SR-91 WB Ramp/Beach Boulevard	Buena Park	A	0.58	B	0.66	A	0.59	D	0.83	13.79%	40.68%
SR-91 WB Ramp/Valley View Street	Buena Park	C	0.80	B	0.69	E	0.94	B	0.70	-13.75%	-25.53%
Harbor Boulevard/Adams Avenue	Costa Mesa	E	0.99	B	0.67	F	1.09	D	0.82	-32.32%	-24.77%
I-405 NB Ramps/Harbor Boulevard	Costa Mesa	E	0.95	B	0.63	F	1.07	C	0.77	-33.68%	-28.04%
I-405 SB Ramps/Harbor Boulevard	Costa Mesa	A	0.53	A	0.46	B	0.63	A	0.57	-13.21%	-9.52%
Valley View Street/Katella Avenue	Cypress	B	0.63	B	0.61	D	0.87	C	0.71	-3.17%	-18.39%
Crown Valley Parkway/Bay Drive/PCH	Dana Point	F	1.41	C	0.78	F	1.62	C	0.76	-44.68%	-53.09%
Street of the Golden Lantern/Del Prado Avenue	Dana Point	A	0.32	A	0.37	A	0.53	A	0.53	15.63%	0.00%
Street of the Golden Lantern/PCH	Dana Point	A	0.42	A	0.48	A	0.55	A	0.49	14.29%	-10.91%

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Intersection/Interchange	Jurisdiction	Baseline AM		2007 AM		Baseline PM		2007 PM		Percent Change*	
		LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	AM ICU	PM ICU
Harbor Boulevard/Orangethrope Avenue	Fullerton	A	0.60	B	0.70	E	0.94	D	0.90	16.67%	-4.26%
State College Boulevard/Orangethorpe Avenue	Fullerton	C	0.80	B	0.67	D	0.86	C	0.72	-16.25%	-16.28%
SR-22 WB Ramp/Valley View Street	Garden Grove	C	0.76	C	0.71	D	0.87	D	0.89	-6.58%	2.30%
SR-22 WB Ramps/Harbor Boulevard	Garden Grove	F	1.10	B	0.65	F	1.16	C	0.77	-40.91%	-33.62%
Beach Boulevard/405 SB Ramp/Edinger Avenue	Huntington Beach	B	0.63	C	0.72	E	1.03	D	0.87	14.29%	-15.53%
Beach Boulevard/Adams Avenue	Huntington Beach	A	0.55	A	0.59	C	0.67	C	0.71	7.27%	5.97%
Beach Boulevard/Pacific Coast Highway	Huntington Beach	A	0.45	A	0.60	A	0.47	B	0.66	33.33%	40.43%
Beach Boulevard/Warner Avenue	Huntington Beach	C	0.78	C	0.79	E	0.93	D	0.86	1.28%	-7.53%
Bolsa Chica Street/Bolsa Avenue	Huntington Beach	B	0.66	B	0.65	A	0.53	A	0.59	-1.52%	11.32%
Bolsa Chica Street/Warner Avenue	Huntington Beach	A	0.57	B	0.64	D	0.81	C	0.75	12.28%	-7.41%
Pacific Coast Highway/Warner Avenue	Huntington Beach	D	0.81	D	0.82	B	0.72	E	0.90	1.23%	25.00%
I-405 NB Ramps/Enterprise/Irvine Center Drive	Irvine	E	0.95	C	0.75	A	0.39	A	0.58	-21.05%	48.72%
I-405 NB Ramps/Jamboree Road	Irvine	F	1.03	C	0.76	C	0.78	C	0.76	-26.21%	-2.56%
I-405 SB Ramps/Irvine Center Drive	Irvine	E	1.00	B	0.67	A	0.57	A	0.54	-33.00%	-5.26%
I-405 SB Ramps/Jamboree Road	Irvine	E	0.92	D	0.89	B	0.66	C	0.77	-3.26%	16.67%
I-5 NB Ramps/Jamboree Road	Irvine	A	0.54	B	0.67	C	0.75	C	0.71	24.07%	-5.33%
I-5 SB Ramps/Jamboree Road	Irvine	A	0.40	D	0.86	A	0.35	C	0.79	115.00%	125.71%
MacArthur Boulevard/Jamboree Road	Irvine	B	0.61	C	0.78	B	0.69	D	0.81	27.87%	17.39%
SR-261 NB Ramps/Irvine Boulevard	Irvine	A	0.38	A	0.44	A	0.53	A	0.56	15.79%	5.66%
SR-261 SB Ramps/Irvine Boulevard	Irvine	A	0.42	A	0.49	A	0.40	A	0.44	16.67%	10.00%
SR-133 NB Ramps/Irvine Boulevard	Irvine	A	0.37	A	0.46	A	0.33	A	0.43	24.32%	30.30%
SR-133 SB Ramps/Irvine Boulevard	Irvine	A	0.37	A	0.41	A	0.29	A	0.39	10.81%	34.48%
El Toro Road/SR-73 NB Ramps	Laguna Beach	E	0.91	B	0.62	A	0.59	B	0.62	-31.87%	5.08%
El Toro Road/SR-73 SB Ramps	Laguna Beach	A	0.41	A	0.37	B	0.67	B	0.62	-9.76%	-7.46%
Laguna Canyon Rd/SR-73 NB Ramps	Laguna Beach	C	0.73	F	1.02	C	0.72	D	0.88	39.73%	22.22%
Laguna Canyon Rd/SR-73 SB Ramps	Laguna Beach	A	0.32	A	0.35	A	0.33	A	0.49	9.37%	48.48%
Laguna Canyon Road/El Toro Road	Laguna Beach	F	1.54	E	0.96	F	1.16	D	0.90	-37.66%	-22.41%
Laguna Canyon Road/Pacific Coast Highway	Laguna Beach	D	0.84	E	0.93	C	0.74	C	0.74	10.71%	0.00%
I-5 SB Ramp/Avenue de la Carlotta/El Toro Road	Laguna Hills	F	1.18	C	0.75	F	1.13	E	0.96	-36.44%	-15.04%
Moulton Parkway/Crown Valley Parkway	Laguna Niguel	A	0.56	A	0.59	B	0.65	B	0.70	5.36%	7.69%
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	0.89	F	1.26	D	0.86	-5.32%	-31.75%
Beach Boulevard/Imperial Highway	La Habra	D	0.85	B	0.70	D	0.87	C	0.72	-17.65%	-17.24%
Beach Boulevard/Whittier Boulevard	La Habra	A	0.33	A	0.37	A	0.29	A	0.45	12.12%	55.17%
Harbor Boulevard/Imperial Highway	La Habra	D	0.81	B	0.61	D	0.86	B	0.70	-24.69%	-18.60%

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Intersection/Interchange	Jurisdiction	Baseline AM		2007 AM		Baseline PM		2007 PM		Percent Change*	
		LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	AM ICU	PM ICU
I-5 NB/Bridger/El Toro Road	Lake Forest	A	0.56	B	0.62	D	0.81	D	0.83	10.71%	2.47%
Trabuco Road/El Toro Road	Lake Forest	F	1.03	C	0.72	C	0.80	C	0.73	-30.10%	-8.75%
I-605 NB Ramps/Katella Avenue	Los Alamitos	B	0.69	A	0.58	B	0.65	A	0.52	-15.94%	-20.00%
I-5 NB Ramps/Crown Valley Parkway	Mission Viejo	B	0.68	A	0.53	B	0.69	C	0.71	-22.06%	2.90%
I-5 SB Ramps/Crown Valley Parkway	Mission Viejo	D	0.86	B	0.61	F	1.01	D	0.90	-29.07%	-10.89%
MacArthur Boulevard/Pacific Coast Highway	Newport Beach	A	0.51	A	0.55	B	0.70	C	0.73	7.84%	4.29%
Newport Boulevard/Pacific Coast Highway	Newport Beach	A	0.56	C	0.78	A	0.49	D	0.81	39.29%	65.31%
SR-55 NB Ramps/Sacramento/Katella Avenue	Orange	C	0.75	A	0.53	D	0.85	C	0.71	-29.33%	-16.47%
SR-55 SB Ramps/Katella Avenue	Orange	C	0.73	E	1.00	E	0.95	C	0.74	36.99%	-22.11%
Rose Drive/Imperial Highway	Placentia	E	0.95	B	0.69	E	0.99	D	0.85	-27.37%	-14.14%
Rose Drive/Tustin Avenue/Orangethorpe Avenue	Placentia	C	0.76	A	0.59	F	1.03	A	0.54	-22.37%	-47.57%
SR-57 NB Ramps/Orangethorpe Avenue	Placentia	B	0.67	A	0.54	C	0.80	E	0.97	-19.40%	21.25%
SR-57 SB Ramps/Iowa Place/Orangethrope Avenue	Placentia	C	0.74	A	0.47	B	0.69	A	0.55	-36.49%	-20.29%
I-5 NB Ramps/Ortega Highway	San Juan Capistrano	A	0.52	F	1.05	A	0.58	F	1.06	101.92%	82.76%
I-5 SB Ramps/Ortega Highway	San Juan Capistrano	B	0.61	E	0.94	C	0.77	F	1.16	54.10%	50.65%
Harbor Boulevard/1st Street	Santa Ana	A	0.48	B	0.68	D	0.81	C	0.77	41.67%	-4.94%
Harbor Boulevard/Warner Avenue	Santa Ana	E	0.93	C	0.77	E	0.98	E	0.92	-17.20%	-6.12%
I-5 SB Ramps/1st Street	Santa Ana	A	0.29	A	0.47	A	0.46	A	0.54	62.07%	17.39%
SR-55 SB Ramp/Auto Mall/Edinger Avenue	Santa Ana	D	0.90	B	0.64	F	1.06	D	0.84	-28.89%	-20.75%
SR-55 SB Ramps/Irvine Boulevard (Fourth Street)	Santa Ana	B	0.68	D	0.85	D	0.83	C	0.74	25.00%	-10.84%
Beach Boulevard/Katella Avenue	Stanton	D	0.89	C	0.72	F	1.02	C	0.73	-19.10%	-28.43%
Jamboree Road/Edinger Avenue-NB Ramp	Tustin	A	0.28	A	0.26	A	0.32	A	0.34	-7.14%	6.25%
Jamboree Road/Edinger Avenue-SB Ramp	Tustin	D	0.81	A	0.39	A	0.41	A	0.48	-51.85%	17.07%
Jamboree Road/Irvine Boulevard	Tustin	B	0.65	C	0.79	A	0.59	C	0.73	21.54%	23.73%
SR-55 NB Ramps/Edinger Avenue	Tustin	C	0.72	B	0.70	B	0.65	C	0.74	-2.78%	13.85%
SR-55 NB Ramps/Irvine Boulevard	Tustin	A	0.59	D	0.83	A	0.45	D	0.85	40.68%	88.89%
Beach Boulevard/Bolsa Avenue	Westminster	F	1.09	D	0.86	F	1.11	D	0.83	-21.10%	-25.23%
Bolsa Chica Road/Garden Grove Boulevard	Westminster	E	0.91	E	0.92	E	0.97	E	0.92	1.10%	-5.15%
COUNTY AVERAGE			**0.68**		**0.64**		**0.73**		**0.69**	**-5.88%**	**-5.48%**

* A negative Percent Change indicates an improvement in performance

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 that three Orange County CMP intersections exceeded their CMP level of service standard in 2007; however, they are all State controlled and, therefore, are statutorily exempt from the deficiency plan process.

Figure 6: Status of 2007 CMP Intersections Not Meeting Standards

Jurisdiction	Intersection/ Interchange	ICU						Status
		Baseline AM	2005 AM	2007 AM	Baseline PM	2005 PM	2007 PM	
Laguna Beach	Laguna Canyon Rd/ SR-73 NB Ramps	0.73	1.07	1.02	0.72	0.65	0.88	Statutorily exempt. Signal controlled by State
San Juan Capistrano	I-5 NB Ramps/ Ortega Highway	0.52	1.1	1.05	0.58	1.05	1.06	Statutorily exempt. Signal controlled by State
San Juan Capistrano	I-5 SB Ramps/ Ortega Highway	0.61	0.97	0.94	0.77	1.15	1.16	Statutorily exempt. Signal controlled by State

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 achieving a balanced multi-modal transportation system capable of maintaining level of service standards.

Since the adoption of the 2005 Congestion Management Program (CMP) report, OCTA implemented changes to make these services more responsive to customer needs, resulting in a 2.7 percent increase in fixed route bus ridership. To maintain service standards for on-time performance and passenger loading, OCTA increased revenue vehicle hours (hours of service provided by all fixed route buses in operation) by 3.8 percent.

The Congestion Management Program 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. OCTA's transit performance measures ensure that the level of bus and rail service is sufficient to meet demand and is 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 2007), OCTA's fixed route bus service has a total of 81 routes which is comprised of 41 local routes, 14 community routes, 6 intra-county and 5 inter-county express routes, 13 rail feeder routes (StationLink), and 2 shuttle routes.

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 (April 2007) 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 2007.

Figure 8 is a summary of service characteristics by route, including (where applicable) headway, weekday span, and average boardings per revenue vehicle hour.

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

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.

Figure 8: Summary of Service Characteristics - April 2007

OCTA BASE FIXED ROUTES						38.3
	HEADWAY (Minutes)				Weekday	Boardings/
Line	Peak	Base	Sat	Sun	Span	Revenue Hour**
1	30/60	30/60	60	60	430a -- 1030p	22.4
20	45	60	--	--	545a -- 800p	14.6
21	60	60	--	--	430a -- 1000p	15.4
24	30	60	60	60	500a -- 1100p	22.1
25	30	30	60	60	500a -- 1100p	29.5
26	30/60	30/60	50	60	500a -- 1045p	27.8
29	10/20	20/40	15/45	15/45	400a -- 1230a	41.8
30	30/60	30/60	60	60	415a -- 1130p	37.2
33	30	30	45	60	500a -- 900p	36.0
35	20	30	35	60	430a -- 945p	37.7
37	20	30	30	60	430a -- 1130p	43.2
38	8/15/30/60	20/40	30	30	330a -- 1215a	40.8
42	15/30	15/45	20/40	20/40	430a -- 1200a	38.0
43	8/15	15/30	12/60	15/60	24-hour	54.2
46	20	30	50	50	430a -- 1145p	39.5
47	15/30	20/60	20/60	20/60	400a -- 1115p	46.3
50	20	30	30	30	24-hour	41.5
51	30	30	30	30	500a -- 1015p	24.5
53	10/20/30	10/20/30	15/45	15/60	400a -- 1230a	42.2
54	15	30	30	30	445a -- 1130p	38.3
55	15/20	20	20	20	415a -- 1130p	36.9
56	30	30	60	60	430a -- 1115p	34.9
57	8/24	12/24	12/24	12/24	24-hour	45.6
59	20	30/60	60	60	430a -- 1130p	28.4
60	8/16	10/20	15/30	15/30	24-hour	47.5
62	30	30	--	--	530a -- 845p	19.2
64	10/30	12	12	12	430a -- 1130p	47.9
66	15/30/60	15/30/60	10/20	10/20	415a -- 1230a	48.5
70	15/45	20/60	20/40/60	20/60	430a -- 1215a	33.4
71	30	30	30	40	445a -- 1115p	29.0
72	20	30	45	60	500a -- 900p	37.1
74	60	60	--	--	500a -- 745p	13.1
75	60	60	--	--	600a -- 645p	4.6
76	30	30	60	60	500a -- 1045p	16.8
79	30	45	70	70	500a -- 1100p	27.2
82	30	45	60	60	530a -- 845p	15.0
85	30	30	45	45	500a -- 1100p	15.2
86	60	60	50	--	600a -- 900p	17.8
87	45	45	60	--	600a -- 700p	21.5
89	30	30	30	30	430a -- 1115p	34.8
91	30	30	45	45	500a -- 1115p	30.0
OCTA SHUTTLES						**3.0**
	HEADWAY (Minutes)				Weekday	Boardings/
Line	Peak	Base	Sat	Sun	Span	Revenue Hour**
686	--	--	various	various	Weekend only	0.4
693	30	30	30	30	545a -- 915p	3.6

OCTA COMMUNITY ROUTES						13.9
	HEADWAY (Minutes)				Weekday	Boardings/
Line	Peak	Base	Sat	Sun	Span	Revenue Hou
131	--	50	--	--	845a -- 600p	6.8
145	30	60	45	45	500a -- 1030p	19.5
147	various	--	--	--	Peak only	7.8
164	70	70	--	--	515a -- 630p	6.4
167	45	60	60	60	445a -- 845p	20.1
172	60	65	60	60	600a -- 900p	7.8
173	45	45	--	--	530a -- 815p	11.2
175	70	70	--	--	615a -- 1030p	12.7
177	45	45	45	45	515a -- 745p	21.7
178	30	60	45	--	545a -- 1045p	16.8
187	45	--	--	--	Peak only	17.3
188	45	--	--	--	Peak only	12.4
191	30	60	60	60	500a -- 1000p	10.0
193	60	60	60	60	515a -- 915p	9.2
OCTA EXPRESS ROUTES						**26.8 & 9.1**
	HEADWAY (Minutes)				Weekday	Boardings/
Line	Peak	Base	Sat	Sun	Span	Revenue Hou
205	8/15/30	30	30	30/60	445a -- 1215a	30.4
206	30	--	--	--	Peak only	21.4
211	20/30	--	--	--	Peak only	14.6
212	35/14	--	--	--	Peak only	6.0
213	various	--	--	--	Peak only	11.9
216	tripper	--	--	--	Peak only	10.6
701	20/30	--	--	--	Peak only	12.4
721	30	--	--	--	Peak only	9.3
757	30	--	--	--	Peak only	5.8
758	30	--	--	--	Peak only	3.1
794	30/60	--	--	--	Peak only	11.3
OCTA RAIL FEEDER ROUTES						**19.5**
	HEADWAY (Minutes)				Weekday	Boardings/
Line	Peak	Base	Sat	Sun	Span	Revenue Hou
410	various	--	--	--	Peak only	26.3
411	various	--	--	--	Peak only	19.9
430	various	--	--	--	Peak only	14.2
453	various	--	--	--	Peak only	23.6
454	various	--	--	--	Peak only	24.4
462	various	--	--	--	Peak only	23.6
463	various	--	--	--	Peak only	14.3
464	various	--	--	--	Peak only	6.6
470	various	--	--	--	Peak only	23.5
471	various	--	--	--	Peak only	20.2
480	various	--	--	--	Peak only	21.1
482	various	--	--	--	Peak only	35.0
490	various	--	--	--	Peak only	9.8

* = Headway of predominate direction

** = Average Boardings per Revenue Vehicle Hour from April 2007

provided. At OCTA, productivity standards range from 10 to 30 riders per hour a given bus is in service, or revenue vehicle hour (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 April 2007, 78 percent of the Local routes, 64 percent of the Community routes, 22 percent of the Express routes (excluding the two new routes – 758 and 794), and 85 percent of the Rail feeder 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 farebox 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 recent load factor analysis (2006) revealed that less than 1% of OCTA's fixed route trips exceed the maximum load percentage (125%).

Performance Measure 3: On-time Performance (OTP)

The OTP goal is set at 85% of all bus trips systemwide, 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 timepoint 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 timepoints 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 (April

2007), system-wide about 88% of OCTA's fixed route bus trips are on-time; 76% of the lines (excluding rail feeder lines) and all bases meet or exceed the OTP goal.

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, 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 charter services, OCTA has interagency agreements with these agencies, which allow riders to transfer from one agency's services to another. 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 seven routes, covering more than 512 miles in Southern California. On an average weekday, there are 145 trains operating, serving roughly 41,000 riders (one-way trips) at 54 stations. Orange County plays an important, and growing, role within this system.

As one of five SCRRA member agencies, OCTA administers all of Orange County's Metrolink rail corridor service. Orange County's Metrolink commuter rail service covers 68 route miles, and serves 13,300 average weekday boardings, comprising more than 30 percent of Metrolink's system-wide boardings. There are eleven stations in Orange County (with the eleventh station opening in Buena Park in September 2007) that provide a total of 44 round trips every 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 many bus routes that connect with all Orange County Metrolink stations. 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

The SCRRA Strategic Assessment is available to download from the internet, at www.metrolinktrains.com.

Future Transit Improvements

To prepare for the future, the OCTA Board of Directors adopted the 2006 Long-Range Transportation Plan (LRTP). The plan presents a balanced, multi-modal approach to improve Orange County's transportation.

Components of the Balanced Plan, as presented in the 2006 LRTP, include: (1) increasing bus service levels, (2) implementing bus rapid transit service on three high-demand corridors by 2010, (3) expanding the Metrolink commuter rail system with high-frequency service to Los Angeles, (4) improving local connections to and from Metrolink stations, (5) expanding community shuttles, and (6) 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 by 2010;
- Expand Express Bus service routes;
- Increase rail feeder service to complement anticipated increases in Metrolink rail service;
- Increase speed, reliability, and frequency of commuter rail service through improved infrastructure (i.e. adding rail track, building new strategically located stations, adding more daily and reverse service trains, and increasing parking supply at Metrolink stations).

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 grade-separated 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 includes 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.

Harbor Boulevard, Westminster Avenue and State College Boulevard have been chosen as demonstration BRT routes in Orange County. Three BRT routes known as Harbor (Route 543), Westinster/17th (Route 560) and 28-mile (Route 557) are programmed to serve these corridors by 2010. Additionally, five more BRT corridors have been identified, along Beach Boulevard, Katella Avenue, La Palma Avenue, Imperial Highway and Edinger Avenue. Also included in the BRT program is the Irvine Business Complex (IBC) Shuttle, which will provide feeder service to the 28-mile BRT in the IBC section of the city of Irvine.

The first BRT service, Route 543 – Harbor, is anticipated to begin in late 2008. This 19-mile route will link Fullerton, Anaheim, Garden Grove, Santa Ana, Fountain Valley and Costa Mesa and provide regional connections to Amtrak and Metrolink rail services and other OCTA bus services at the Fullerton Transportation Center. This BRT service will operate weekdays from 5 a.m. to 8 p.m., every 10 minutes at peak hours and every 12 minutes all other times.

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)
- Tyler Mall/Corona to Irvine (Route 793)

- Long Beach to South Coast Metro (Route 723)
- Long Beach to Orange (Route 722)
- Tyler Mall to California State University at Fullerton (Route 791)
- Tyler Mall to Anaheim Resort (Route 792)

The new services will be implemented in fiscal year 2009, 2013 and 2014 as resources are available.

Commuter Rail Service Improvements

Metrolink commuter rail services are also being expanded. SCRRA and OCTA staff have developed an implementation plan to increase service on the Orange County Line, between the Laguna Niguel/Mission Viejo station and Fullerton station, to 30 minute service frequencies. This service expansion will begin operations in December 2009.

With the above service expansion plan implemented, by 2010 the Orange County Line will increase from 19 to 45 trains per day, running between the Laguna Niguel/Mission Viejo station and the Fullerton station. The other lines within Orange County will also expand. The 91 Line will increase from nine to 13 trains per day; and the Inland Empire – Orange County (IE-OC) Line will increase from 16 to 18 trains per day.

The additional funds, made available through the voter approved Measure M2, will allow for even further Metrolink service expansion. SCRRA and OCTA are developing an implementation plan to extend the 30 minute service on the Orange County Line to Union Station in Los Angeles. Moreover, service on the 91 and IE-OC Lines will continue to expand as well. By the year 2020, it is expected that the Orange County Line will have 52 trains per day, the IE-OC Line will have 28 trains per day, and the 91 Line will have 18 trains per day.

The increased service on the Metrolink lines will increase passenger capacity significantly, and provide more midday service, making Metrolink a more convenient travel choice. Metrolink will also be made more convenient with station improvements, including added parking capacity, safety improvements, potential quiet zones, more frequent shuttle service, and the addition of the Placentia station, which is currently being planned. These improvements will be needed to serve the expected growth in ridership that will come with the service expansions.

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 (under separate cover), 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). The ordinances were based on a worksite standards approach contained in a model TDM ordinance prepared by the Orange County Transportation Authority (OCTA).

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. In 2002, OCTA reviewed jurisdictions' ordinances to ensure conformance with the Rule 2202.

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 penalties 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.

TDM Requirement Compliance

To determine compliance with the TDM requirement for 2007, OCTA looked to the implementation of TDM ordinances by local jurisdictions. The CMP checklists (Appendix D), developed for the CMP monitoring component, provided this information. All local jurisdictions indicated that they had applied the TDM ordinance to development projects that met the thresholds specified in the ordinance.

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 the California Department of Transportation (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 34 park-and-ride lots in Orange County providing more than 6,000 parking spaces. Ten of the 34 lots are located at Metrolink stations, accounting for about 3,400 of the parking spaces. Opened in September 2007, the Buena Park Metrolink station is the eleventh Orange County station, and adds, approximately, another 300 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.

Bicycle and Pedestrian Facilities

Between 1990 and 2007, OCTA allocated more than $47 million for bicycle and bus stop improvement projects. Additionally, OCTA solicits Transportation Demand Management (TDM) projects from Orange County cities every two years. Approximately $2.8 million in funds are annually available for bicycle and pedestrian facility projects under this program.

The current Regional Transportation Improvement Program has approximately $15 million programmed for bikeways in Orange County. Furthermore, the 2004 Regional Transportation Plan proposes $115 million in investments on non-motorized transportation projects in Orange County, through the year 2030.

In 1995, OCTA developed a Commuter Bikeways Strategic Plan (CBSP), with Orange County agencies and groups. 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 updated the plan in 2001 to ensure consistency with the requirements of California Streets and Highways Code 891.2. Consistency allows local jurisdictions to adopt the plan and apply for funds available in the State Bicycle Transportation Account.

Also in 1995, OCTA launched a successful demonstration project 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. In addition, 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 9, 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)

All local jurisdictions indicated that they had applied the TDM ordinance to development projects that met the thresholds specified in the ordinance.

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 intersections on the CMP highway system were found in compliance with LOS requirements. Therefore, no deficiency plans were required for the 2007 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 9: Summary of Compliance

Jurisdiction	Capital Improvemt Program	Deficiency Plan	LOS Counts	Land Use	TDM Element	2007 Compliance
Aliso Viejo *	Yes	N/A	Yes	Yes	Yes	Yes
Anaheim	Yes	N/A	Yes	Yes	Yes	Yes
Brea	Yes	N/A	Yes	Yes	Yes	Yes
Buena Park	Yes	N/A	Yes	Yes	Yes	Yes
Costa Mesa	Yes	N/A	Yes	Yes	Yes	Yes
Cypress	Yes	N/A	Yes	Yes	Yes	Yes
Dana Point	Yes	N/A	Yes	Yes	Yes	Yes
Fountain Valley *	Yes	N/A	Yes	Yes	Yes	Yes
Fullerton	Yes	N/A	Yes	Yes	Yes	Yes
Garden Grove	Yes	N/A	Yes	Yes	Yes	Yes
Huntington Beach	Yes	N/A	Yes	Yes	Yes	Yes
Irvine	Yes	N/A	Yes	Yes	Yes	Yes
Laguna Beach	Yes	N/A	Yes	Yes	Yes	Yes
Laguna Hills	Yes	N/A	Yes	Yes	Yes	Yes
Laguna Niguel	Yes	N/A	Yes	Yes	Yes	Yes
Laguna Woods	Yes	N/A	Yes	Yes	Yes	Yes
Lake Forest	Yes	N/A	Yes	Yes	Yes	Yes
La Habra	Yes	N/A	Yes	Yes	Yes	Yes
La Palma*	Yes	N/A	Yes	Yes	Yes	Yes
Los Alamitos	Yes	N/A	Yes	Yes	Yes	Yes
Mission Viejo	Yes	N/A	Yes	Yes	Yes	Yes
Newport Beach	Yes	N/A	Yes	Yes	Yes	Yes
Orange	Yes	N/A	Yes	Yes	Yes	Yes
Placentia	Yes	N/A	Yes	Yes	Yes	Yes
Rancho Santa Margarita *	Yes	N/A	Yes	Yes	Yes	Yes
San Clemente *	Yes	N/A	Yes	Yes	Yes	Yes
San Juan Capistrano	Yes	N/A	Yes	Yes	Yes	Yes
Santa Ana	Yes	N/A	Yes	Yes	Yes	Yes
Seal Beach *	Yes	N/A	Yes	Yes	Yes	Yes
Stanton	Yes	N/A	Yes	Yes	Yes	Yes
Tustin	Yes	N/A	Yes	Yes	Yes	Yes
Villa Park *	Yes	N/A	Yes	Yes	Yes	Yes
Westminster	Yes	N/A	Yes	Yes	Yes	Yes
Yorba Linda *	Yes	N/A	Yes	Yes	Yes	Yes
County	Yes	N/A	Yes	Yes	Yes	Yes

*No CMP intersections within the jurisdiction

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Appendix A: Freeway Levels of Service

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
5	0.00	SAN DIEGO-ORANGE COUNTY LINE AT CHRISTIANITOS ROAD					
			145,000	**D**	**D**	**D**	**D**
5	1.00	AVENIDA CALIFIA					
			146,000	**D**	**D**	**D**	**D**
5	1.63	EL CAMINO REAL					
			160,000	**D**	**D**	**D**	**D**
5	2.31	AVENIDA PRESIDIO					
			161,000	**D**	**D**	**D**	**D**
5	2.66	AVENIDA PALIZADA					
			187,000	**E**	**E**	**E**	**E**
5	3.39	AVENIDA PICO					
			204,000	**E**	**E**	**E**	**F**
5	5.80	CAMINO ESTRELLA					
			229,000	**F**	**F**	**F**	**F**
5	6.78	JCT. RTE. 1, PACIFIC COAST HIGHWAY					
			217,000	**F**	**F**	**F**	**F**
5	7.34	CAMINO CAPISTRANO On-Ramp					
			231,000	**F**	**F**	**F**	**F**
5	8.80	SAN JUAN CREEK ROAD					
			238,000	**F**	**E**	**F**	**F**
5	9.60	JCT. RTE. 74, ORTEGA HIGHWAY EAST					
			254,000	**F**	**F**	**F**	**F**
5	10.91	JUNIPERO SERRA ROAD					
			262,000	**E**	**E**	**E**	**E**
5	12.94	AVERY PARKWAY					
			214,000	**E**	**E**	**E**	**E**
5	13.78	CROWN VALLEY PARKWAY					
			253,000	**F**	**F**	**F**	**F**
5	15.22	OSO PARKWAY					
			275,000	**F**	**F**	**F**	**F**
5	16.53	LA PAZ ROAD					
			286,000	**F**	**F**	**F**	**F**
5	17.47	ALICIA PARKWAY					
			318,000	**F**	**F**	**F**	**F**
5	18.69	EL TORO ROAD					
			328,000	**F**	**E**	**E**	**F**
5	19.89	LAKE FOREST DRIVE					
			290,000	**F**	**D**	**E**	**F**
5	21.30	JCT. RTE. 405, SANTA ANA FREEWAY					
			170,000	**E**	**D**	**E**	**F**
5	22.21	ALTON PARKWAY					
			193,000	**E**	**D**	**D**	**E**
5	23.12	JCT. RTE. 133					
			209,000	**E**	**D**	**C**	**D**
5	23.94	SAND CANYON AVENUE					
			218,000	**D**	**C**	**D**	**D**
5	24.99	JEFFREY ROAD					
			236,000	**D**	**D**	**D**	**E**
5	26.58	CULVER DRIVE					
			260,000	**E**	**D**	**D**	**E**
5	27.58	JAMBOREE ROAD					
			270,000	**E**	**D**	**D**	**F**
5	28.25	TUSTIN RANCH ROAD					
			285,000	**F**	**D**	**E**	**F**
5	29.09	RED HILL AVENUE					
			282,000	**F**	**D**	**E**	**F**
5	29.62	NEWPORT AVENUE					
			260,000	**E**	**D**	**D**	**D**

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
5	30.26	JCT. RTE. 55, COSTA MESA FREEWAY					
			335,000	**F**	**F**	**F**	**F**
5	30.90	FIRST/FOURTH STREETS					
			360,000	**F**	**F**	**F**	**F**
5	31.76	GRAND AVENUE					
			360,000	**F**	**F**	**F**	**E**
5	32.46	17TH STREET					
			358,000	**F**	**F**	**F**	**F**
5	33.09	MAIN STREET					
			361,000	**F**	**F**	**F**	**E**
5	34.00	JCT. RTES 22 & 57 GARDEN GROVE/ORANGE FREEWAYS					
			243,000	**D**	**F**	**D**	**D**
5	34.83	CHAPMAN AVENUE					
			214,000	**C**	**D**	**C**	**B**
5	35.20	STATE COLLEGE BOULEVARD					
			202,000	**C**	**C**	**D**	**D**
5	36.37	KATELLA AVENUE					
			225,000	**C**	**D**	**D**	**C**
5	36.61	HASTER STREET					
			225,000	**C**	**D**	**E**	**C**
5	37.40	HARBOR BOULEVARD					
			222,000	**C**	**D**	**E**	**C**
5	37.67	BALL ROAD					
			225,000	**C**	**D**	**D**	**C**
5	38.06	SOUTH STREET CONNECTIONS					
			225,000	**C**	**D**	**E**	**D**
5	38.92	LINCOLN AVENUE					
			220,000	**C**	**D**	**E**	**C**
5	39.49	EUCLID AVENUE					
			216,000	**C**	**D**	**E**	**C**
5	40.71	BROOKHURST STREET					
			206,000	**C**	**D**	**E**	**E**
5	42.10	JCT. RTE. 91, RIVERSIDE/ARTESIA FREEWAYS					
			183,000	**C**	**D**	**D**	**C**
5	43.13	STANTON AVENUE					
			170,000	**B**	**C**	**D**	**C**
5	43.43	JCT. RTE. 39 (BEACH BOULEVARD OVERCROSS					
			170,000	**B**	**C**	**C**	**C**
5	44.26	ARTESIA AVENUE					
			178,000	**B**	**C**	**D**	**C**
5	44.38	ORA-LA COUNTY LINE (BUENA PARK CITY LIMITS)					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
22	0.00	LOS ANGELES/ORANGE COUNTY LINE					
			96,000	**D**	**F**	**C**	**B**
22	0.66	JCT. RTE. 405					
			147,000	**F**	**F**	**F**	**D**
22	2.65	KNOTT AVENUE/ GOLDEN WEST STREET					
			161,000	**F**	**F**	**D**	**C**
22	3.59	BEACH BOULEVARD					
			176,000	**F**	**F**	**E**	**D**
22	4.81	MAGNOLIA STREET					
			183,000	**E**	**F**	**E**	**C**
22	5.82	BROOKHURST STREET					
			180,000	**E**	**F**	**D**	**D**
22	6.81	EUCLID STREET					
			194,000	**E**	**E**	**D**	**C**
22	7.83	HARBOR BOULEVARD					
			204,000	**E**	**F**	**D**	**C**
22	8.82	GARDEN GROVE BOULEVARD					
			216,000	**D**	**D**	**D**	**E**
22	9.73	ORANGE, MANCHESTER AVENUE/CITY DRIVE					
			226,000	**E**	**E**	**E**	**F**
22	10.48	JCT. RTES. 5 AND 57; SANTA ANA/ORANGE FREEWAYS					
			132,000	**C**	**C**	**C**	**C**
22	10.99	SANTA ANA, MAIN STREET					
			141,000	**F**	**F**	**C**	**C**
22	11.83	ORANGE, GLASSELL STREET					
			140,000	**F**	**F**	**C**	**C**
22	12.87	ORANGE, TUSTIN AVENUE					
			118,000	**F**	**E**	**C**	**C**
22	13.16	JCT. RTE. 55, COSTA MESA FREEWAY					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
55	0.00	FINLEY AVENUE		CONVENTIONAL HIGHWAY			
			48,000				
55	0.27	JCT. RTE. 1, PACIFIC COAST HIGHWAY					
			55,000				
55	1.51	EAST 17TH STREET					
			87,000				
55	1.82	HARBOR BOULEVARD					
			71,000				
55	2.02	19TH STREET					
			93,000				
55	2.77	VICTORIA/22ND STREETS					
			124,000	C	C	D	C
55	4.02	MESA DRIVE					
			148,000	D	E	E	E
55	5.99	JCT. RTE. 405, SAN DIEGO FREEWAY					
			222,000	F	F	F	F
55	6.99	SANTA ANA, MACARTHUR BOULEVARD INTERCHANGE					
			233,000	E	F	F	E
55	7.85	SANTA ANA, DYER ROAD					
			251,000	E	F	F	E
55	9.44	SANTA ANA, EDINGER AVENUE					
			265,000	E	F	F	E
55	9.96	TUSTIN, MCFADDEN STREET					
			252,000	E	F	F	E
55	10.45	TUSTIN, JCT. RTE. 5, SANTA ANA FREEWAY					
			230,000	E	F	F	E
55	10.98	SANTA ANA, FOURTH STREET					
			230,000	E	F	F	F
55	11.79	TUSTIN, SEVENTEENTH STREET					
			223,000	E	F	F	E
55	12.97	JCT. RTE. 22 WEST, GARDEN GROVE FREEWAY					
			240,000	E	F	F	E
55	13.70	ORANGE, CHAPMAN AVENUE					
			230,000	D	E	E	D
55	15.24	ORANGE, KATELLA AVENUE					
			213,000	D	D	D	D
55	16.98	ORANGE, LINCOLN AVENUE					
			211,000	D	D	D	D
55	17.83	JCT. RTE. 91, RIVERSIDE FREEWAY					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
57	10.83	JCT. RTES. 5 AND 22, SANTA ANA/GARDEN GROVE FREEWAYS					
			230,000	**D**	**F**	**F**	**E**
57	11.24	CHAPMAN AVENUE					
			235,000	**C**	**E**	**F**	**D**
57	11.80	ORANGEWOOD AVENUE					
			232,000	**C**	**C**	**F**	**D**
57	12.53	KATELLA AVENUE					
			230,000	**D**	**F**	**F**	**F**
57	13.42	BALL ROAD					
			237,000	**D**	**F**	**F**	**E**
57	14.78	LINCOLN AVENUE					
			243,000	**D**	**F**	**F**	**E**
57	15.60	JCT. RTE. 91, RIVERSIDE FREEWAY					
			293,000	**E**	**F**	**F**	**F**
57	16.39	ORANGETHORPE AVENUE					
			291,000	**D**	**F**	**F**	**F**
57	17.30	CHAPMAN AVENUE					
			265,000	**D**	**F**	**F**	**E**
57	17.57	NUTWOOD AVENUE					
			270,000	**D**	**F**	**F**	**E**
57	18.34	YORBA LINDA BOULEVARD					
			251,000	**D**	**F**	**F**	**E**
57	19.86	JCT. RTE. 90, IMPERIAL HIGHWAY					
			231,000	**D**	**F**	**F**	**E**
57	20.88	LAMBERT ROAD					
			228,000	**D**	**F**	**F**	**E**
57	21.78	TONNER CANYON ROAD					
			213,000	**C**	**E**	**F**	**D**
57	22.55	ORANGE-LOS ANGELES COUNTY LINE					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
73	0.00	ORANGE COUNTY					
73	10.00	JCT. INTERSTATE 5					
			42,000	**C**	**B**	**A**	**C**
73	11.76	GREENFIELD ROAD					
			44,000	**C**	**B**	**A**	**C**
73	13.40	LA PAZ ROAD					
			52,000	**D**	**B**	**A**	**C**
73	14.39	ALISO CREEK ROAD					
			59,000	**D**	**B**	**A**	**D**
73	16.25	EL TORO ROAD					
			67,000	**E**	**C**	**B**	**D**
73	18.69	TOLL PLAZA					
			67,000	**E**	**C**	**B**	**D**
73	21.43	NEWPORT COAST DRIVE					
			67,000	**E**	**C**	**B**	**D**
73	22.45	BONITA CANYON DRIVE/FORD ROAD					
			63,000	**F**	**C**	**B**	**D**
73	24.78	JAMBOREE ROAD					
			159,000	**F**	**D**	**C**	**F**
73	26.58	JCT. RTE. 55					
			122,000	**F**	**C**	**B**	**E**
73	27.28	BEAR STREET					
			109,000	**F**	**C**	**B**	**D**
73	27.81	JCT. RTE. 405, SAN DIEGO FREEWAY					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
91	0.00	LOS ANGELES-ORANGE COUNTY LINE					
			235,000	**D**	**E**	**E**	**D**
91	0.49	LA PALMA, ORANGETHORPE AVENUE					
			248,000	**E**	**F**	**F**	**E**
91	0.85	BUENA PARK, VALLEY VIEW STREET					
			253,000	**E**	**F**	**F**	**E**
91	1.84	BUENA PARK, KNOTT AVENUE					
			260,000	**E**	**F**	**F**	**E**
91	2.62	BUENA PARK, JCT. RTE. 39, BEACH BOULEVARD					
			259,000	**F**	**F**	**F**	**F**
91	3.64	FULLERTON, JCT. RTE. 5, SANTA ANA FREEWAY					
			249,000	**F**	**F**	**F**	**F**
91	1.23	ANAHEIM, BROOKHURST AVENUE					
			264,000	**E**	**E**	**F**	**E**
91	2.23	ANAHEIM, EUCLID AVENUE					
			274,000	**F**	**F**	**F**	**F**
91	3.26	FULLERTON, HARBOR BOULEVARD					
			279,000	**F**	**F**	**F**	**F**
91	3.51	ANAHEIM, LEMON STREET/HARVARD AVENUE					
			279,000	**F**	**F**	**F**	**F**
91	4.26	ANAHEIM, EAST STREET					
			273,000	**F**	**F**	**F**	**F**
91	5.26	ANAHEIM, STATE COLLEGE BOULEVARD					
			274,000	**E**	**F**	**F**	**F**
91	6.12	ANAHEIM, JCT. RTE. 57, ORANGE FREEWAY					
			233,000	**D**	**E**	**E**	**E**
91	7.35	ANAHEIM, KRAEMER BOULEVARD/GLASSELL STREET					
			232,000	**E**	**E**	**E**	**E**
91	8.40	ANAHEIM, TUSTIN AVENUE					
			242,000	**E**	**E**	**E**	**E**
91	9.19	ANAHEIM, JCT. RTE. 55 SOUTH, COSTA MESA FRWY					
			318,000	**F**	**F**	**F**	**F**
91	10.09	ANAHEIM, LAKEVIEW AVENUE					
			298,000	**F**	**F**	**F**	**F**
91	11.54	ANAHEIM, JCT. RTE. 90 WEST, IMPERIAL HIGHWAY					
			279,000	**D**	**E**	**E**	**D**
91	14.43	WEIR CANYON ROAD					
			266,000	**D**	**D**	**E**	**D**
91	15.93	JCT. RTE. 241					
			293,000	**D**	**E**	**E**	**D**
91	16.40	GYPSUM CANYON ROAD					
			296,000	**D**	**E**	**E**	**D**
91	17.95	COAL CANYON ROAD					
			275,000	**D**	**E**	**E**	**D**
91	18.91	Orange Riverside County line, Green River Rd					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
133	7.71	LAGUNA CANYON ROAD					
		(Begin Freeway)	**34,000**	**A**	**C**	**C**	**A**
133	8.38	JCT. RTE. 405, SAN DIEGO FREEWAY					
			37,000	**A**	**C**	**C**	**A**
133	8.93	BARRANCA PARKWAY					
			33,000	**A**	**C**	**C**	**A**
133	9.57	IRVINE, JCT RTE 5, SANTA ANA FREEWAY					
		(Begin toll facility)	**52,000**	**B**	**F**	**F**	**B**
133	11.90	IRVINE BOULEVARD					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
241	14.55	OSO PARKWAY					
			9,200	**A**	**A**	**A**	**A**
241	17.54	ANTONIO PARKWAY					
			18,700	**B**	**A**	**A**	**B**
241	18.49	SANTA MARGARITA PARKWAY					
			43,000	**D**	**B**	**A**	**C**
241	20.08	LOS ALISOS BOULEVARD					
			45,000	**D**	**B**	**A**	**C**
241	21.80	PORTOLA PARKWAY SOUTH					
			42,000	**D**	**B**	**A**	**C**
241	23.42	ALTON PARKWAY					
			50,000	**D**	**B**	**B**	**D**
241	27.38	JCT. ROUTE 133					
			40,000	**E**	**C**	**B**	**E**
241	32.54	CHAPMAN-SANTIAGO ROAD					
			50,000	**C**	**F**	**F**	**C**
241	36.10	WINDY RIDGE TOLL PLAZA					
			50,000	**A**	**C**	**C**	**A**
241	39.08	JCT. ROUTE 91					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
261	0.00	IRVINE, WALNUT AVENUE					
			64,000	**B**	**F**	**F**	**C**
261	2.85	PORTOLA PARKWAY OC					
			32,000	**A**	**D**	**D**	**A**
261	6.21	JCT RTE 241					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
405	0.23	IRVINE, JCT. RTE. 5					
			195,000	**F**	**E**	**D**	**D**
405	0.95	IRVINE, IRVINE CENTER DRIVE					
			210,000	**E**	**D**	**D**	**E**
405	1.80	IRVINE, JCT. RTE. 133, LAGUNA FREEWAY					
			230,000	**F**	**E**	**E**	**F**
405	2.88	IRVINE, SAND CANYON AVENUE					
			230,000	**E**	**E**	**E**	**E**
405	3.95	IRVINE, JEFFREY ROAD/UNIVERSITY DRIVE					
			220,000	**F**	**E**	**E**	**F**
405	5.62	IRVINE, CULVER DRIVE					
			230,000	**F**	**F**	**F**	**F**
405	6.92	IRVINE, JAMBOREE BOULEVARD					
			280,000	**E**	**E**	**E**	**E**
405	7.80	IRVINE, MACARTHUR BOULEVARD					
			270,000	**E**	**E**	**E**	**E**
405	8.74	JCT. RTE. 55, COSTA MESA FREEWAY					
			262,000	**F**	**F**	**F**	**F**
405	9.51	COSTA MESA, BRISTOL STREET					
			262,000	**F**	**F**	**F**	**F**
405	10.28	FAIRVIEW ROAD					
			349,000	**F**	**F**	**F**	**F**
405	11.45	COSTA MESA, HARBOR BOULEVARD					
			360,000	**F**	**F**	**F**	**F**
405	12.64	FOUNTAIN VALLEY, EUCLID STREET					
			328,000	**F**	**F**	**F**	**F**
405	13.78	FOUNTAIN VALLEY, BROOKHURST STREET					
			310,000	**F**	**F**	**F**	**F**
405	14.82	FOUNTAIN VALLEY, WARNER AVENUE					
			302,000	**F**	**F**	**F**	**F**
405	15.21	HUNTINGTON BEACH, MAGNOLIA STREET					
			278,000	**F**	**F**	**F**	**F**
405	16.54	HUNTINGTON BEACH, JCT. RTE. 39					
			279,000	**F**	**F**	**F**	**F**
405	17.75	WESTMINSTER, BOLSA AVE NUE/GOLDEN WEST STREET INT					
			277,000	**F**	**F**	**F**	**F**
405	19.16	WESTMINSTER, WESTMINSTER AVENUE					
			262,000	**F**	**F**	**E**	**F**
405	20.75	JCT. RTE. 22 EAST, GARDEN GROVE FREEWAY					
			390,000	**F**	**F**	**F**	**F**
405	22.64	SEAL BEACH, SEAL BEACH BOULEVARD					
			390,000	**F**	**F**	**F**	**F**
405	24.04	SEAL BEACH, JCT. RTE. 605					
			259,000	**F**	**E**	**E**	**F**
405	24.18	ORANGE-LOS ANGELES COUNTY LINE					

Appendix A: Caltrans District 12 CMP DATA

Orange Route	Post Mile	Description	2006 AADT	NB or EB LOS		SB or WB LOS	
				AM	PM	AM	PM
605	3.09	SEAL BEACH, JCT. RTE. 22; BEGIN FREEWAY					
			44,000	**A**	**A**	**A**	**A**
605	3.50	SEAL BEACH, JCT. RTE. 405, SAN DIEGO FREEWAY					
			186,000	**F**	**F**	**E**	**E**
605	1.41	LOS ALAMITOS, KATELLA AVENUE					
			188,000	**D**	**D**	**E**	**E**
605	1.64	ORANGE-LOS ANGELES COUNTY LINE					

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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

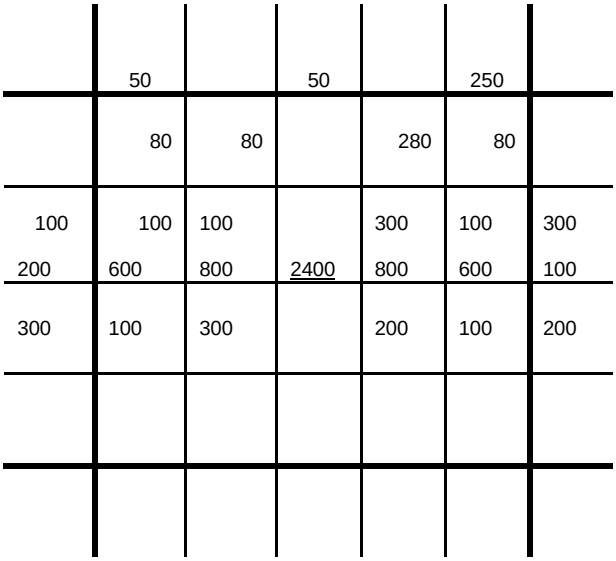
As can be seen, a project which will generate 2,400 trips/day will have an expected maximum link impact on the CMP system of 1,200 trips/day based on a reasonably balanced distribution of project traffic. On a peak-hour basis, the 3% level of impact would be 120 peak-hour trips. For intersections, a 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.

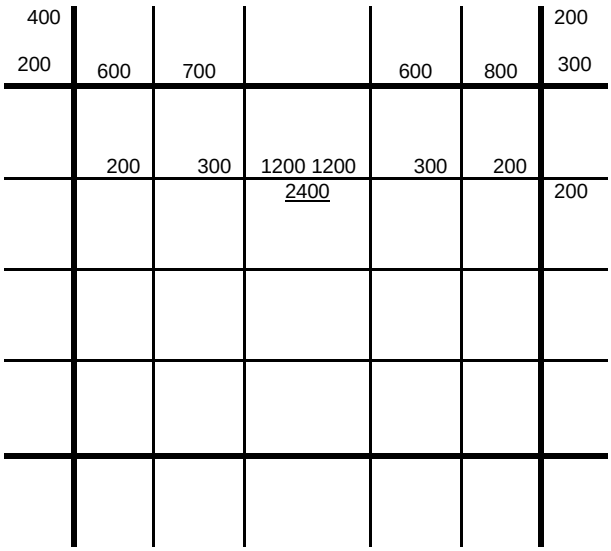
The following illustration shows that the 2,400 trip/day threshold would be expected to produce a 3% impact on the CMP System only when the project has relatively direct access to a CMP link. As a project location moves further off the CMP System the expected impacts is reduced. With a more directional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

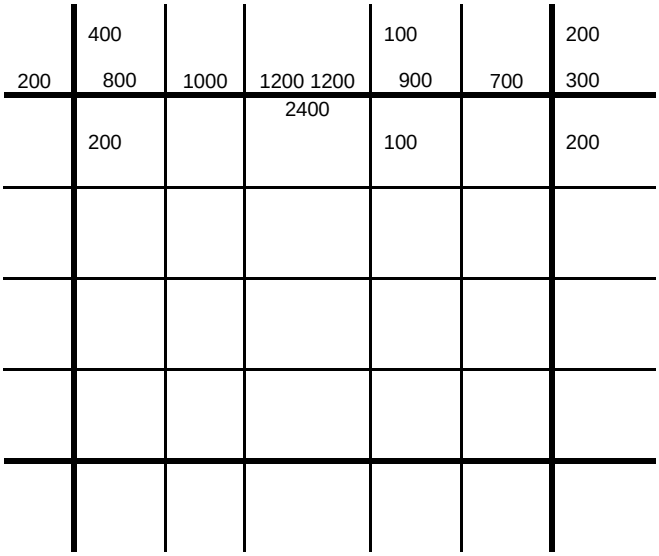
CMP Highway System Impacts for Development Generating 2,400 trips/day
Based on proximity to CMP System



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

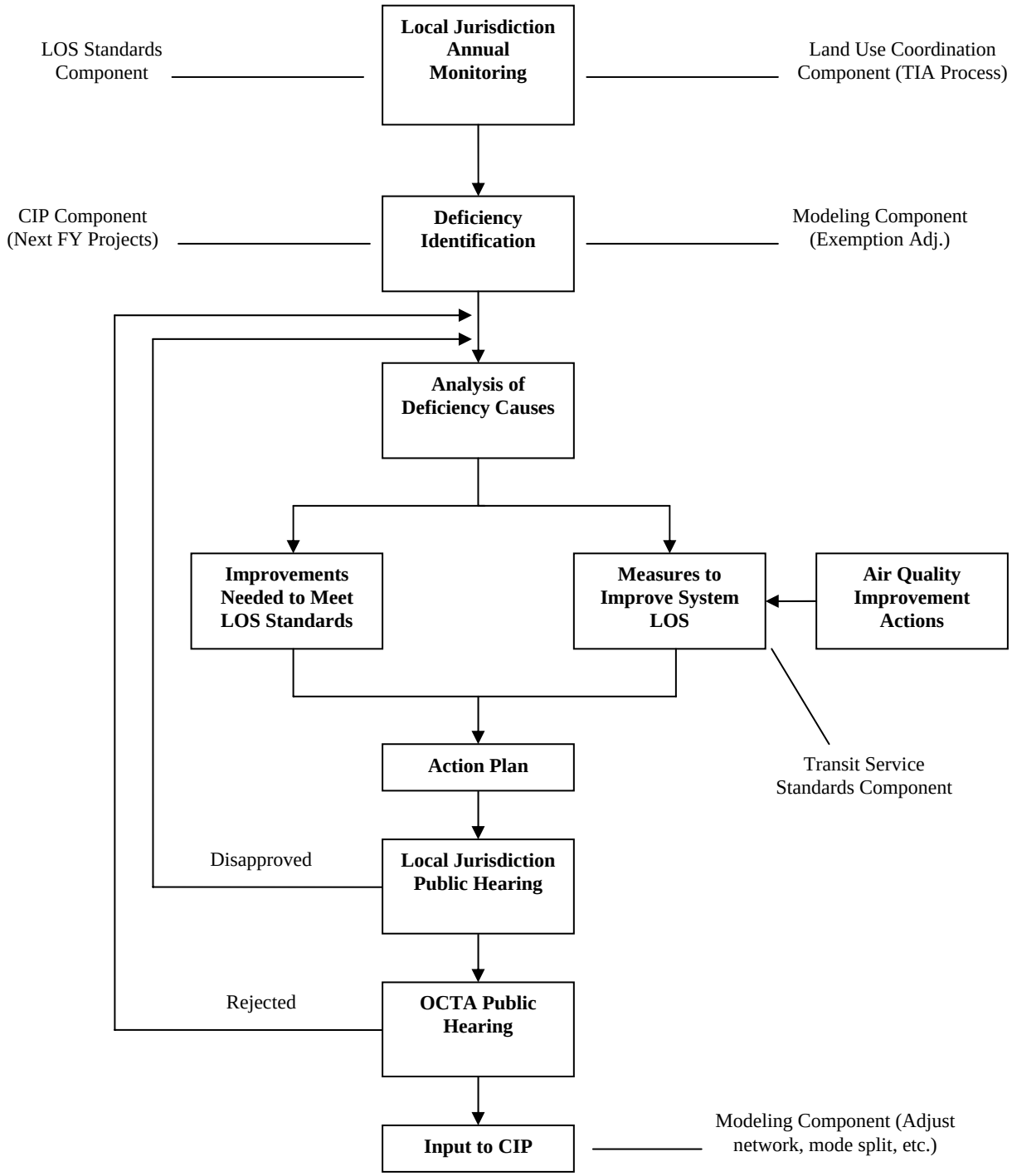
Projects exempt from the requirements of a mandatory, CMP Traffic Impact Analysis are listed below. This list is not meant to be all-inclusive. Any inquiries regarding additional exemptions shall be transmitted in writing to the Orange County Transportation Authority, attention CMP Program Manager.

Project Not Requiring a CMP TIA Analysis:

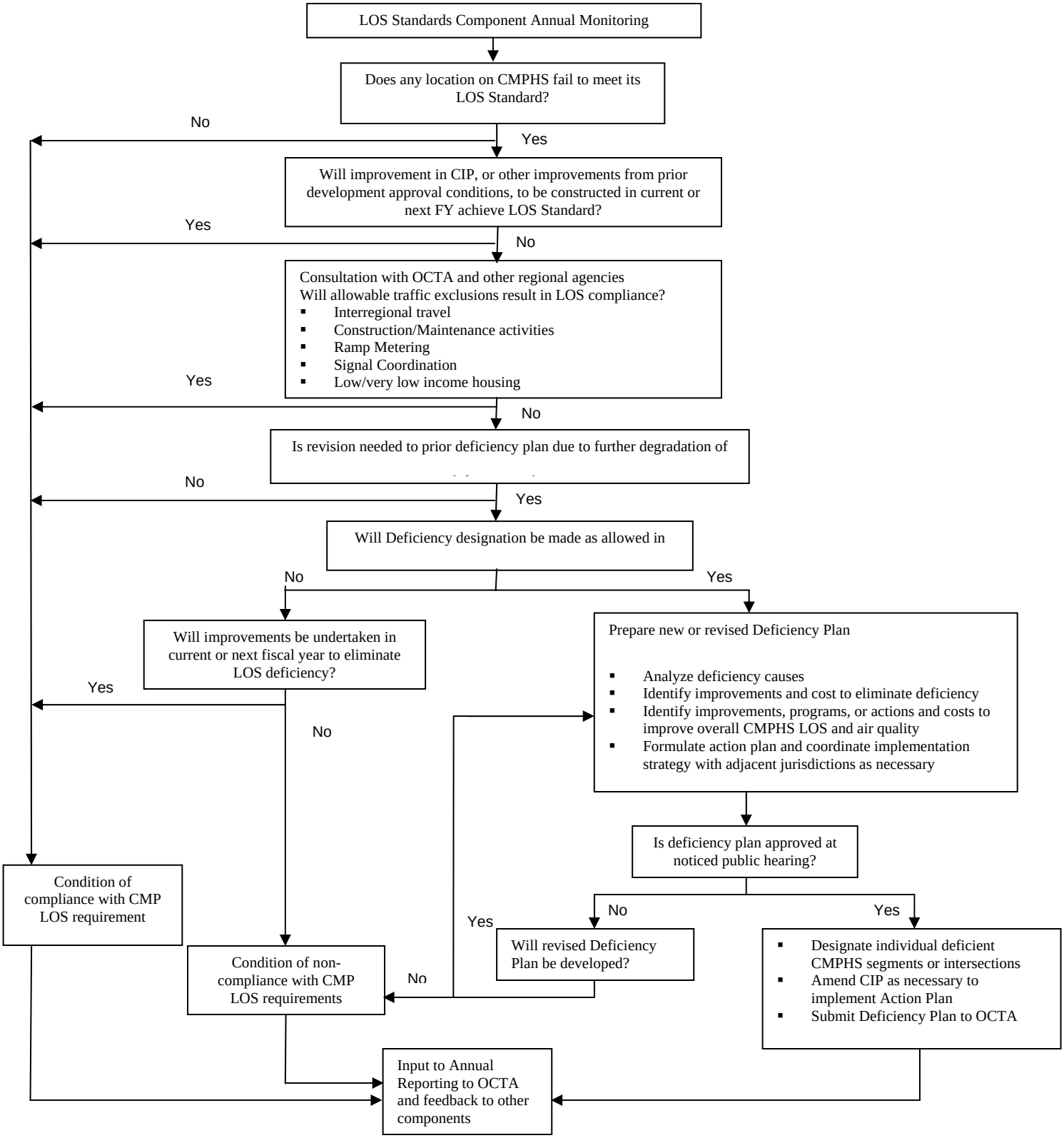
1. Applicants for subsequent development permits (i.e., conditional use permits, subdivision maps, site plans, etc.) for entitlement specified in and granted in a development agreement entered into prior to July 10, 1989.[1]
2. Any development application generating vehicular trips below the Average 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

2005 CMP CHECKLIST

		YES	NO
1.	Did you submit a seven-year Capital Improvement Program (CIP) to OCTA by June 30, 2005?	☐	☐
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

2005 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

2005 CMP CHECKLIST

		YES	NO*
CMP Traffic Impact Analysis:			
1.	Have you changed the CMP traffic impact analysis (TIA) process you selected for the 2003 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, 2003 and June 30, 2005?	☐	☐
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, 2003 and June 30, 2005?	☐	☐
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

ORANGE COUNTY CONGESTION MANAGEMENT PROGRAM

IMPLEMENTATION OF
LAND USE/SOCIOECONOMIC DATA CONSISTENCY REQUIREMENT
FOR MODELING
IN CMP-REQUIRED TRAFFIC IMPACT ANALYSES

Data Consistency

Data consistency is required under the terms of an agreement reached between OCTA and SCAG, that was incorporated in the County's 1993/1994 CMP Preparation Manual as part of the Modeling Consistency component of the County's CMP. In cases where a traffic model is used to perform a CMP-required traffic impact analysis, the requirement mandates that a reconciliation be performed to show consistency between the land use or socioeconomic data input to the local model and the County's recently adopted OCP-2004 countywide database.

With the approval of OCP-2004 by the County and the incorporation of OCP-2004 data by the Southern California Association of Governments (SCAG) into the regional socioeconomic database, Orange County is obligated to implement this requirement in the interest of data/modeling consistency. The Orange County Subarea Modeling Guidelines Manual is available to aid data reconciliation and to provide assistance to local agencies on how to convert land-use based data to socioeconomic data equivalents. This data consistency requirement has become part of a larger set of ongoing modeling consistency requirements under CMP.

Model Consistency

OCTAM 3.2 is a "state-of-the-practice" multi-modal transportation model specifically designed to evaluate regional multi-modal transportation systems, such as autos, bus, rail, toll roads, as well as walking and bicycle trips. The model is an "analytical tool" used to estimate transportation impacts based on transportation infrastructure, land use, and demographic input assumptions. OCTAM 3.2 is often supplemented with additional detailed analysis and/or requires judicious interpretation of its results when applied specifically for detailed sub-regional analysis. In order to conduct detailed analysis with OCTAM 3.2 data, OCTA has developed procedures by which "subarea" traffic models could be used to supplement OCTAM 3.2 regional data for project specific and local area analyses. The procedures on how this could be accomplished are documented in the Orange County Subarea Modeling Guidelines Manual, July 2005 (Appendix F).

On January 25, 1999, the OCTA Board of Directors adopted the Orange County Subarea Modeling Guidelines Manual and authorized staff to implement the guidelines' certification process, effective one year after completion of the Orange County Transportation Analysis Model, Version 3. Since then, the Subarea Modeling Guidelines Manual has been revised to reflect the updated OCTAM 3.2 and the OCP-2004 growth projections. The updated manual

requires that the cities' subarea models must be certified by OCTA for consistency with OCTAM 3.2 to satisfy Congestion Management Program (CMP) and OCTA funding program requirements.

Applicability

Consistency requirements will apply in all situations where a CMP-required traffic impact analysis is performed using traffic modeling. This includes situations in which a local agency model or a consultant model is employed. The local agency having jurisdiction over the proposed project will be responsible for assuring that the reconciliation requirement is met through the traffic impact analysis process and through documentation in the traffic impact analysis report itself.

Effective Date

Data Consistency

The requirement is effective on March 1, 1994. Any proposed project for which a CMP-required traffic impact modeling analysis was initiated on or after March 1, 1994, must comply with this requirement. Any proposed project for which such analysis was already underway or completed before March 1, 1994, would not be affected by this requirement.

Model Consistency

Subarea traffic models used for CMP purposes must be consistent with OCTAM 3.2 as specified in the Orange County Subarea Modeling Guidelines Manual, July 2005.

Required Data Reconciliation

The following data reconciliation check would need to be performed. The geographic level on which the reconciliation would be required to be performed would be at the citywide level (or equivalent) in the jurisdiction in which the proposed project is located.

1. From the local model database, housing unit totals would be aggregated across all local data base housing categories, and that total would be compared directly to the equivalent dwelling unit total from OCP-2004.
2. All other nonresidential land uses from the local model data base would be converted into an equivalent employment total across all land uses, and that total would be compared directly to the total employment out of OCP-2004.
3. Local agencies who have their own sets of conversion rates for converting land use data into equivalent employment totals would be free to use those conversion rates for the purposes of this reconciliation. Such agencies would simply be asked to provide a tabulation of the rates used and a brief documentation of how those rates historically have been used or how they were derived by the local agency.

4. For local agencies that would like employment conversion rates provided to them for their use in meeting this requirement, please refer to the Orange County Subarea Modeling Guidelines Manual, July 2005 for applicable land use to socio-economic data conversion rates.

5. Local agencies would be free to include other rates for individual local land use categories where, in their judgment, different rates are justified; provided that the source of those rates is documented and the rationale for using them is explained in the reconciliation.

Timeframes for Which the Data Reconciliation Is to Be Performed

For each CMP-required traffic impact analysis using modeling, the reconciliation will be required to be performed for two different timeframes:

1. "Base year" timeframe

For the purposes of this requirement, "base year" will be taken to mean a current or recent year for which the model was calibrated. The local agency will be allowed considerable discretion in selecting the "base year" appropriate to the circumstance of the particular model that was employed in the traffic impact analysis.

The purpose of the "base year" reconciliation is to "benchmark" the local model data against OCP-2004 for "current" conditions. It is important that it be demonstrated that there are not any unexpected or unexplained significant discrepancies between the two databases before moving on to the "future year" reconciliation.

2. "Future year" timeframe

For the purposes of this requirement, "future year" will be taken to mean the specific future year (or future scenario) for which the full impacts of the proposed project are analyzed. Any future year within the future time horizon covered by OCP-2004, from the present time out to the Year 2030, could be used as the "future year" (see also the discussion which follows later in this section for "buildout" scenarios). The "future year" should match the "future year" for which the model was employed to forecast the full traffic impacts of the proposed project.

If the "future year" happens to match one of the five-year increment milestones employed by OCP-2004, then the local data can be compared to the OCP-2004 data directly. If the "future year" happens to fall between the five-year increments, the local agency will be free to interpolate between the OCP-2004 data sets for the 5-year timeframe immediately preceding and immediately following the "future year" in question. All source OCP-2004 data required to perform this reconciliation is included in the guidance document that has been produced to assist local agencies in performing this reconciliation.

In some cases, the "future year" used by local agencies are termed as "buildout", a future scenario at which full general plan land use intensities are assumed to be in place. Such a "buildout" scenario is not necessarily associated with a specific future calendar year. Moreover, it would not be uncommon for "buildout" to occur later than the Year 2030, which is the latest "future" year in the OCP-2004 forecast array. If the local agency uses "buildout" that is understood to be beyond the Year 2030, then the local agency is requested to do the reconciliation exercise comparing local buildout data to the Year 2030 OCP-2004 data, with the understanding that buildout numbers can be substantially higher than the OCP-2004 Year 2030 equivalents.

The purpose of the "future year" reconciliation is to assure that the land use or socioeconomic data on which future project traffic forecasts are based, will adequately account for future project impacts on the CMP highway system. This is key to the purposes of model consistency and data consistency requirements in CMP.

Tolerances for Satisfactory Data Reconciliation

It is the ultimate goal to have models and data bases as consistent with each other as possible. As a practical matter, and for the purposes of meeting this data reconciliation requirement, it will generally be considered that the local data and OCP-2004 data have been satisfactorily reconciled if the two data bases can be shown to come within 5 percent for the "base year" timeframe, and within 10 percent for the "future year" timeframe. (However, it should be noted that a number of example applications have been performed thus far in which matches far closer than 5 percent have been achieved in the reconciliation.) The rationale for having the closer tolerance (5 percent) for the "base year" timeframe is that the "base year" timeframe essentially represents development already existing; and closer convergence between the two data bases should be expected. The rationale for using the 10 percent tolerance for the "future year" timeframe is to recognize that there will be inherent uncertainties in forecasting future development, including differences in assumptions about the timing and phasing of future development, that will enter into numerical differences between the two data bases for future forecast years.

Recognizing that a major purpose of the reconciliation requirement is to assure that project impacts to the CMP highway system are adequately accounted for and adequately mitigated, close attention should be given to any reconciliation that shows the local data totals being less than the comparable totals from OCP-2004.

Particularly for "future year" reconciliation, there may be instances where differences in the assumed timing of future development lead to differences between the local data totals and the comparable OCP-2004 figures. In such cases, the reconciliation should account for those differences in assumptions as explicitly as possible, and should document as well as possible how much of the variance comes from such different assumptions.

In cases where the local agency employs "buildout" as the "future year", and where "buildout" is understood to be beyond the Year 2030, the reconciliation will be considered satisfactorily

performed if the buildout data is shown to meet or exceed the equivalent data from the Year 2030 OCP-2004 forecast series. It will be expected that a good faith effort will have been made to assure that the level to which "buildout" exceeds OCP-2004 Year 2030 data has been examined and that its order of magnitude bears some logical relationship to the proportion of future development that the local agency anticipates to extend beyond the Year 2030.

Documentation Requirement for the Reconciliation

For any CMP-required traffic impact analysis in which modeling is used, it will be required that the above-defined data reconciliation be documented in writing and included as a section in the traffic impact analysis report that is ultimately prepared.

The required documentation need not be lengthy, but it should, as a minimum, include the following:

- A tabular accounting showing the conversion of the local model data to OCP-2004 equivalents, for both "base year" and "future year";
- A clear presentation showing the raw numerical comparison and the percentage difference between the local model data totals and the comparable data from OCP-2004, for both "base year" and "future year";
- Brief text accounting for the nature and numerical extent of any significant differences between the two databases, for both "base year" and "future year";
- A statement affirming that the two data bases have been reconciled to within 5 percent tolerance for the "base year", and to within 10 percent tolerance for the "future year"; or otherwise arguing why it is believed that the purposes of the reconciliation requirement have been met.

The local agency having jurisdiction over the proposed project will be responsible for assuring that the required reconciliation documentation is included in each CMP-required traffic impact analysis report where modeling is used.

Once each CMP cycle, each local agency will be required to affirm to OCTA that it has complied with this requirement. The affirmation will be in the form of a CMP compliance checklist response to OCTA, in which the local agency certifies that all CMP-required traffic impact analysis reports using modeling, that have been submitted to the local agency or prepared by the local agency, do indeed include the required reconciliation documentation.

Clarification

The traffic models governed by this particular requirement are only those local traffic models which employ area wide existing and future land use data or socioeconomic data to estimate total future traffic.

This is to be distinguished from those local "traffic models" which build on current measured traffic volumes, and which use land use data only pertaining to specific proposed projects to estimate increments of traffic that would be added to those measured volumes. Such models do not employ the types of area wide existing or future land use databases that are the subject of this model consistency requirement.

CMP MONITORING CHECKLIST
LEVEL OF SERVICE

Responsibility: Cities, County

2005 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 2005/2006 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

2005 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. 20031)?	☐	☐
	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)