SAN BERNARDINO COUNTY
CONGESTION MANAGEMENT PROGRAM

2016 Update

Prepared by

SAN BERNARDINO ASSOCIATED GOVERNMENTS

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PREFACE

This document is the 2016 update to the Congestion Management Program (CMP) for San Bernardino County, originally adopted in 1992 and updated in 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011 and 2013. This revision to the CMP was recommended for approval by the General Policy Committee of San Bernardino Associated Governments, prior to its approval by the full Board of Directors.

This document identifies goals of the program, defines legal requirements, provides other background information and describes each individual element, component and requirement of the program. It also reflects all legislative changes to the program since its inception in 1992. The CMP defines a network of state highways and arterials, level of service standards and related procedures and provides technical justification for the approach. The decisions reflected in this document are subject to ongoing review. Numerous opportunities for review have and will continue to be provided through meetings of the Transportation Technical Advisory Committee, its subcommittees, the General Policy Committee and the SANBAG Board of Directors. The next regular update of the CMP is scheduled for 2017, although interim modifications or refinements through the technical and policy channels described above can occur as needed.

1. INTRODUCTION

1.A. BACKGROUND

Proposition 111, passed in June 1990, provided additional transportation funding through a $.09 per gallon increase in the state gas tax. This equated to an estimated annual return of more than $6.25 per person for cities within San Bernardino County and $7.1 million for the County.

Included with the provision for additional transportation funding was a requirement to undertake a Congestion Management Program (CMP) within each county with an urbanized area having a population of 50,000 or more, to be developed and adopted by a designated Congestion Management Agency (CMA). In 1990 SANBAG was designated the San Bernardino County CMA by the County Board of Supervisors and a majority of the cities representing a majority of the incorporated population.

The first countywide CMP was developed by SANBAG, in cooperation with a technical advisory committee composed of planning and engineering staff from SANBAG, SANBAG member cities, the County, transit providers, the Southern California Association of Governments (SCAG), the California Department of Transportation (Caltrans), the South Coast Air Quality Management District (AQMD) and the Mojave Desert Air Quality Management District (MDAQMD). It was adopted in November 1992 and was updated in every odd-numbered year thereafter.

This document reflects legislative changes enacted by the California Legislature following creation of the original program in 1990.

Although implementation of the CMP was made voluntary by the passage of AB 2419 (Bowler, 1996), the CMP requirement has been retained in all five urban counties within the SCAG Region. In addition to its value as a transportation management tool, CMPs have been retained in these counties because of the Federal Congestion Management Process requirement that applies to all large urban areas that are not in attainment of federal air quality standards. These counties recognize that the CMP provides a mechanism through which locally implemented programs can fulfill most aspects of a regional requirement that would otherwise have to be addressed by the Regional Agency (SCAG). The Federal Department of Transportation has stated that “the State’s CMP is a principal element of the Congestion Management Process.”

1.B. LEGISLATIVE INTENT AND LEGAL REQUIREMENTS

The California legislature's intent for the CMP is outlined in Government Code Section 65088:

> "The Legislature finds and declares all of the following:
>
> (a) Although California's economy is critically dependent upon transportation, its current transportation system relies primarily upon a street and highway system designed to accommodate far fewer vehicles than are currently using the system.
>
> (b) California's transportation system is characterized by fragmented planning, both among jurisdictions involved and among the means of available transport.
>
> (c) The lack of an integrated system and the increase in the number of vehicles are causing traffic congestion that each day results in 400,000 hours lost in traffic, 200 tons of pollutants released into the air we breathe and $3,100,000 added cost to the motoring public.
>
> (d) To keep California moving, all methods and means of transport between major destinations must be coordinated to connect our vital economic and population centers.
>
> (e) In order to develop the California economy to its full potential, it is intended that federal, state and local agencies join with transit districts, business, private and environmental interests to develop and implement comprehensive strategies needed to

develop appropriate responses to transportation needs."

California Government Code Section 65088.5 states the requirements for use of CMPs to meet Federal Congestion Management Process requirements:

> "Congestion management programs, if prepared by county transportation commissions and transportation authorities created pursuant to Division 12 (commencing with Section 130000) of the Public Utilities Code, shall be used by the regional transportation planning agency to meet federal requirements for a congestion management system and shall be incorporated into the congestion management system."

California Government Code Section 65089 states the requirements for Congestion Management Programs:

> "(a) A congestion management program shall be developed, adopted and updated biennially, consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area and shall include every city and the county. (b) The program shall contain all of the following elements:
>
> (1) (A) Traffic level of service (LOS) standards established for a system of highways and roadways designated by the agency. The system shall include at a minimum all state highways and principal arterials. No highway or roadway designated as a part of the system shall be removed from the system. All new state highways and principal arterials shall be designated as part of the system. LOS shall be measured by Circular 212, (or by the most recent version of the Highway Capacity Manual), or by a uniform methodology adopted by the agency which is consistent with the Highway Capacity Manual. The determination as to whether an alternative method is consistent with the Highway Capacity Manual shall be made by the regional agency, except that the department shall make this determination instead if either (I) the regional agency is also the agency, as those terms are defined in Section 65088.1, or (ii) the department is responsible for preparing the regional transportation improvement plan for the county.
>
> (B) In no case shall the LOS standards established be below the LOS E or the current level, whichever is farthest from LOS A. When the LOS on a segment or at an intersection fails to attain the established LOS standard, a deficiency plan shall be adopted pursuant to Section 65089.4.
>
> (2) A performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, these performance measures shall incorporate highway and roadway system performance, measures established for the frequency and routing of public transit and for the coordination of transit service provided by separate operators. These performance measures shall support mobility, air quality, land use and economic objectives and shall be used in the development of the capital improvement program required pursuant to paragraph (5), deficiency plans required pursuant to Section 65089.4 and the land use analysis program required pursuant to paragraph (4).
>
> (3) A travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting and parking management programs. The agency shall consider parking cash-out programs during the development and update of the travel demand element.
>
> (4) A program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. This program shall measure, to the extent possible, the impact to the transportation system using the performance measures

described in paragraph (2). In no case shall the program include an estimate of the costs of mitigating the impacts of interregional travel. The program shall provide credit for local public and private contributions to improvements to regional transportation systems. However, in the case of toll road facilities, credit shall only be allowed for local public and private contributions that are unreimbursed from toll revenues or other state or federal sources. The agency shall calculate the amount of the credit to be provided. The program defined under this section may require implementation through the requirements and analysis of the California Environmental Quality Act, in order to avoid duplication.

(5) A seven year capital improvement program, developed using the performance measures described in paragraph (2) to determine effective projects that maintain or improve the performance of the multimodal system for the movement of people and goods, to mitigate regional transportation impacts identified pursuant to paragraph (4). The program shall conform to transportation-related vehicle emissions air quality mitigation measures and include any project that will increase the capacity of the multimodal system. It is the intent of the Legislature that, when roadway projects are identified in the program, consideration be given to maintaining bicycle access and safety at a level comparable to that which existed prior to the improvement or alteration. The capital improvement program may also include safety, maintenance and rehabilitation projects that do not enhance the capacity of the system but are necessary to preserve the investment in existing facilities."

1.C. GOALS OF THE CMP

The goals of the San Bernardino County CMP are:

- Goal 1 - Maintain or enhance the performance of the multimodal transportation system and minimize travel delay.
- Goal 2 - Assist in focusing available transportation funding on cost-effective responses to subregional and regional transportation needs.
- Goal 3 - Provide for technical consistency in multimodal transportation system analysis.
- Goal 4 - Help to coordinate development and implementation of subregional transportation strategies across jurisdictional boundaries.
- Goal 5 - Anticipate the impacts of proposed new development on the multimodal transportation system, provide consistent procedures to identify and evaluate the effectiveness of mitigation measures and provide for adequate funding of mitigations.
- Goal 6 - Promote air quality and improve mobility through implementation of land use and transportation alternatives or incentives that reduce both vehicle trips and miles traveled and vehicle emissions.

The CMP also incorporates the goals of the 2016-2040 SCAG RTP/SCS:

- Align the plan investments and policies with improving regional economic development and competitiveness.
- Ensure travel safety and reliability for all people and goods in the region.
- Maximize mobility and accessibility for all people and goods in the region.
- Preserve and ensure a sustainable regional transportation system.
- Maximize the productivity of the transportation system.
- Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).
- Actively encourage and create incentives for energy efficiency, where possible.
- Encourage land use and growth patterns that facilitate transit and non-motorized transportation.

- Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning and coordination with other security agencies.

1.D. ELEMENTS OF THE CMP

To meet these goals and the statutory requirements, the CMP includes the following elements:

- System LOS Element. Defines the CMP system of roadways, designates LOS standards for the system and establishes procedures to be used to calculate LOS.
- Performance Measures Element. Identifies performance measures used to characterize the performance of the multimodal transportation system, including standards for transit routing and frequency and standards for the coordination of transit service provided by separate operators. Performance measures identified in this element are to be used in development of the capital improvement program, deficiency plans and the land use analysis program.
- Land Use/Transportation Analysis Element. Provides a consistent method for analyzing the impacts of land use decisions on the CMP transportation system and estimating the cost of mitigation.
- Travel Demand Element. Provides guidance for travel demand management ordinances enacted by local jurisdictions.
- Five-year Capital Improvement Program. Contains improvements that maintain or improve traffic and transit performance and mitigate impacts on the regional system identified by the land use/transportation analysis program, deficiency plans and other forecasting and analysis elements of the CMP.

Two additional components of the CMP support the five elements. First, the CMA is required to develop a uniform database on traffic impacts, consistent with the regional SCAG database, for use in the countywide transportation computer model. The CMA is also required to approve computer models of specific areas that are used by local jurisdictions to determine the impacts of land use changes on the circulation system.

Monitoring is also an essential component of the CMP process. The CMA's responsibility is focused on assisting and ensuring compliance by local jurisdictions with the CMP requirements.

1.E. THE CMA's APPROACH TO THE CMP

SANBAG's approach to the CMP in San Bernardino County is to maximize opportunities for local governments, the CMA, Caltrans and other planning and engineering agencies to implement efficient, comprehensive, multimodal transportation planning at a subregional scale to better focus transportation funding where needs are greatest, while minimizing procedural complications and redundancy. The intent is to make the planning and programming process more effective through consistent use and consolidation of existing processes wherever possible. Each CMP update provides a “progress report” on how San Bernardino County is doing with respect to its transportation, air quality and sustainability goals.

While the CMP requires consideration of inter-jurisdictional transportation issues and provides for technical consistency among the various transportation planning efforts in progress, it is a transportation tool kit, not a transportation blueprint or plan. Instead, statute intends the RTP/SCS to be that blueprint, with the CMP as a subregional implementation mechanism and monitoring tool for the Plan.

The sheer scale of the region addressed by SCAG’s RTP/SCS necessitates that its scope is restricted to regionally significant transportation facilities, programs and issues. However, beginning with the 1994 RTP and continuing with the 1998, 2001, 2004, 2008, 2012 and 2016 RTPs, SCAG has solicited more detailed input from Transportation Commissions, subregional agencies and local governments. In response, SANBAG has undertaken preparation of a Countywide Transportation Plan (CTP) designed to address local, as well as regional transportation issues affecting San Bernardino County. The CTP provides a forum in which all jurisdictions and interests can participate in

collectively developing long-term, subarea-level transportation strategies.

1.F. CMP RESPONSIBILITIES

The CMP imposes responsibilities on the CMA and the local jurisdictions, as well as explicit or implicit penalties for failure to fulfill the responsibilities. The CMA is required to:

- Develop, update and monitor implementation of the CMP.
- Ensure that the County and cities are in conformance with the CMP through use of consistent methods, maintenance of performance standards or adoption and implementation of deficiency plans, implementation of travel demand management strategies and adoption and implementation of a program to analyze the impacts of land use decisions on the transportation system, including estimates of costs to mitigate the impacts.
- Through the monitoring program, ensure that the performance standards on the CMP system are maintained, or that deficiency plans to improve system performance or return to the designated standard are prepared and implemented by the local jurisdictions.

The local jurisdictions' responsibilities include:

- Use consistent LOS calculation methodologies, performance standards and travel forecasting techniques.
- Implement the Land Use/Transportation Analysis Program.
- Maintain acceptable performance levels on the CMP system of roadways, or if necessary, prepare, adopt and implement an area-wide deficiency plan.

Failure of local jurisdictions to fulfill these responsibilities would be grounds for loss of state gas tax funding if not remedied according to the provisions of this CMP.

1.G. ORGANIZATION OF THE CMP

The CMP consists of the elements defined above. In addition to chapters addressing these elements, additional chapters are provided, plus several appendices. Following the introduction, the CMP document is organized as follows:

- **Chapter 2** – System Level of Service Element. The CMP Transportation System, including the designated CMP System of Roadways)
- **Chapter 3** – Transit Performance Measures Element. The criteria used to determine multimodal transportation system performance and to select the strategies to be implemented as part of the CMP Transportation Program.
- **Chapter 4** – Land Use/Transportation Analysis Program. A two tiered approach to identifying the impact of land use changes on the regional transportation system, possible mitigations and their costs
- **Chapter 5** – Travel Demand Management Element
- **Chapter 6** – Capital Improvement Program Element
- **Chapter 7** – Monitoring and Transportation Modeling
- **Chapter 8** – Deficiency Plans
- **Appendix A** – CMP Network Monitoring Results
- **Appendix B** – Guidelines for Traffic Impact Analysis Reports
- **Appendix C** – Guidelines for Preparing Deficiency Plans
- **Appendix D** – Conflict Resolution Procedure
- **Appendix E** – Post-Processed Traffic Volume Guidelines
- **Appendix F** – Requirements for the Land Use/Transportation Analysis Program for local jurisdictions in the San Bernardino and Victor Valley Areas.
- **Appendix G** – Development Mitigation Nexus Study
- **Appendix H** – Acronyms/Definitions

Most chapters are structured according to the following format:

- Legal Requirements
- Objectives, Policies and Actions
- Benefits
- Implications
- The Process
- Agency Responsibilities

1.H. SUMMARY OF THE SAN BERNARDINO COUNTY CMP

Each chapter contains background information and the approach to the specific element. This summary provides a synopsis of each CMP component.

One of the benefits of implementing the CMP is the identification of cost-effective improvements and strategies for mitigating CMP system performance problems. Plans for the mitigation of performance problems on the system can come from several sources: Traffic Impact Analysis Reports, CMP modeling and most importantly from area-wide deficiency plans. There is extensive interaction among the components of the CMP. The summary presented below lists program components and describes their interrelationships:

- SANBAG was designated as the Congestion Management Agency (CMA) in August 1990.
- The CMP System of Roads. The system includes approximately 1,750 centerline miles of State highways and principal arterials. Approximately 600 miles of the roadway system are in the Valley Region and 350 miles are in the Victor Valley Region with the remainder spread throughout the county. The principal arterials were identified through input from local jurisdictions. Future additions to the CMP road system will be based on local recommendations.
- The term "CMP intersection" refers to the intersections of two CMP roadways. "Key intersections" include all CMP intersections plus other intersections on CMP links considered to be important for LOS monitoring. There are approximately 370 key intersections on the CMP roadway system.
- LOS Standards. The adopted LOS standards for the CMP system are the minimum standards allowed in California Government Code Section 65089(b)(1)(B): LOS E for all segments and intersections except those designated LOS F in Chapter 2 of the CMP. In addition, a provision is made for any LOS F facility not to deteriorate greater than 10 percent below its LOS value at the time of initial CMP adoption. This provision is included to avoid dismissal of a serious congestion problem. In addition, a discussion of differential LOS standards for "transit/Travel Demand Management (TDM) emphasis areas" is included in Chapter 2. Lower traffic LOS could be employed within these areas if combinations of modal alternatives, higher land use intensity, mixed uses and compact land development patterns suggest that the multimodal transportation system could perform adequately in those areas, even with lower traffic levels of service. This concept is consistent with the statutory exemptions provided for in Government Code Section 65089.3(c)(6) and can be implemented through the deficiency plan process.
- LOS Procedures. The procedures in the Highway Capacity Manual (HCM) are adopted as the LOS procedures for the San Bernardino County CMP. In addition to the HCM, if the V/C of the critical movements is equal to or greater than 1.0, the intersection is considered to operate at LOS F. Provisions are also made for more advanced analysis techniques to be applied in the future, such as traffic signal timing programs for arterials and freeway simulation models for limited access facilities. The use of these advanced techniques will be at the discretion of each local jurisdiction.
- Performance Measures Element. Past CMP's were required to establish traffic LOS standards for the CMP system of

roads and also contained a separate transit element which established transit standards for routing, frequency and coordination in relation to specific corridors, activity centers and sites with more than 100 employees. The transit element also emphasized peak period service, in keeping with the objectives of congestion management, while maintaining sufficient levels of off-peak service for local mobility needs and transit-dependent ridership. It also identified commuter rail stations and express bus terminals as important focal points of transit activity, with planning for bus feeder service and encouragement of transit-oriented development. The new performance measures element retains the components of the former transit element, but refocuses attention on measures of multimodal system performance, which allow consideration and comparison of modal alternatives in ways that were not possible when only mode-specific performance measures were used in the CMP. The performance measures specified in this element are also to be used in the land use analysis program, in project identification for the capital improvement program and in determining the effectiveness of deficiency plan strategies in improving system wide transportation performance.

- The State of the System. The CMP provides a biennial report on the state of the CMP transportation system in San Bernardino County.
- Land Use/Transportation Analysis Program. The emphasis of the Land Use/Transportation Analysis Program prior to the 2005 CMP update was individual project review. In the 2005 CMP Update, SANBAG split the Land/Use Transportation Analysis Program into two separate programs. The Nexus Study applies to the urbanized portions of San Bernardino County, while the non-urbanized portions of San Bernardino County will continue to perform traffic impact analysis (TIA) reports.

  Linkages between this element, deficiency plans and a comprehensive transportation plan, which includes an assessment of funding shortfalls and identification of funding sources and strategies needed to complete the future transportation system, are expected to provide the basis of an improved Land Use/Transportation Analysis Program.
- An important component of the CMP since 2005 is the inclusion of the SANBAG Nexus Study and its development mitigation requirements.

  The renewal of the Measure I Ordinance in 2004 required that development pay its fair share toward improvements to the regional transportation system. The key difference between the SANBAG Nexus Study and the use of TIA reports is that SANBAG is requiring that all development pay its fair share toward the improvements on the regional transportation system, not just projects that are larger in size.

  The revised Land Use/Transportation Analysis Element of the CMP establishes the Development Mitigation Principles adopted by the SANAG Board in July 2004. The specific implementation language for the SANBAG development mitigation program is contained in **Appendix F** of the CMP.

  Areas outside of the urbanized portions of San Bernardino County continue to use TIA reports to provide the basis for assessing the impacts of land use decisions on the regional transportation system. In the non-urbanized portion of San Bernardino County, local jurisdictions still need to copy their TIA reports to the CMA for review when required by local threshold criteria. These thresholds are defined in Chapter 4. Several land use decisions in proximity to one another may be evaluated through a single TIA report.
- CMP Forecasts. Periodic forecasts of future travel demand on the CMP roadway system are conducted using the San Bernardino Transportation Analysis

Model (SBTAM). Although the statutory CMP planning horizon is seven years, the CMP for San Bernardino County has consistently taken a longer view, to the year 2010 in the initial CMP and to 2040 in this update. Given the complex fiscal and environmental hurdles that must be overcome prior to implementation of most transportation projects or programs and the time required to complete many of the regionally significant development projects which will determine the future transportation needs, a 20-year planning horizon is the minimum needed to assure the necessary lead time.

- The Countywide Transportation Model and database. SBTAM is consistent with the SCAG regional model and local models need to be consistent with SBTAM. All or portions of the CMP model can be made available to jurisdictions developing local models. Local models will normally be used as the basis for local traffic impact analysis reports, analysis for general plan updates and localized corridor studies. Local models must cover sufficient area to be able to analyze the impacts of development on all CMP roadways, including those impacts that occur outside the jurisdictional boundaries.
- Travel Demand Management Element. The element is intended to provide guidance to local jurisdictions. Each local jurisdiction must consider travel demand management strategies to meet CMP requirements.
- Deficiency Plans. To remain in compliance with the CMP, a deficiency plan must be prepared, adopted and implemented by local jurisdictions who contribute to situations in which a portion of the CMP road system falls below the LOS standard, as determined from the biennial monitoring. The local jurisdiction in which the deficiency occurs is the lead agency, but the cost of and responsibility for plan preparation and implementation is to be shared among the agencies shown to be contributing to the deficiency. The SANBAG Board of Directors has provided policy guidance indicating that deficiencies should be addressed through area-wide, rather than facility-specific deficiency plans and that the actions to be implemented should be based directly on the CTP. In areas where State highways are involved, the deficiency plans must be prepared in conjunction with Caltrans.
- Monitoring Program. The monitoring program involves several activities: collection of traffic and roadway data, LOS analysis and reporting, monitoring of transit system performance and SANBAG monitoring of various elements of CMP implementation. The CMA is obligated to monitor maintenance of LOS on the CMP road system, adoption and implementation of a trip reduction/travel demand ordinance and implementation of the land use analysis program by local jurisdictions.
- Capital Improvement Program. Capital projects and operational improvements are identified through the Development Mitigation Nexus Study (**Appendix G**), modeling, subsequent corridor/subarea studies, TIA reports, deficiency plans and other evaluations conducted by local jurisdictions, Air Districts and Caltrans. Projects are developed by each local jurisdiction and incorporated into the Nexus Study, subject to the requirements of **Appendix F** of the CMP. Projects for inclusion in the Regional Transportation Improvement Program (RTIP) are separately identified based on short-term funding.

2. SYSTEM LEVEL OF SERVICE ELEMENT

The first element of the CMP defines the CMP roadway system, establishes traffic LOS standards on the system and prescribes procedures for computing traffic levels of service. This chapter is organized to indicate legislative requirements, objectives, policies, actions and related processes.

2.A. LEGAL REQUIREMENTS

California Government Code Section 65089. (b) (1) states that the LOS Element shall contain:

> "(A) Traffic LOS standards established for a system of highways and roadways designated by the agency. The system shall include at a minimum all State highways and principal arterials. No highway or roadway designated as a part of the system shall be removed from the system. All new State highways and principal arterials shall be designated as part of the system. LOS shall be measured by Circular 212, (or by the most recent version of the Highway Capacity Manual), or by a uniform methodology adopted by the agency which is consistent with the Highway Capacity Manual. The determination as to whether an alternative method is consistent with the Highway Capacity Manual shall be made by the regional agency, except that the department shall make this determination instead if either (I) the regional agency is also the agency, as those terms are defined in Section 65088.1, or (ii) the department is responsible for preparing the regional transportation improvement plan for the county.
>
> (B) In no case shall the LOS standards established be below LOS E or the current level, whichever is farthest from LOS A. When the LOS on a segment or at an intersection fails to attain the established LOS standard, a deficiency plan shall be adopted pursuant to Section 65089.4."

2.B. LOS DEFINITIONS

The current technical guide to the evaluation of roadway LOS is the most currently adopted version of the Highway Capacity Manual (HCM). The HCM defines LOS as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience and safety. The criteria used to evaluate LOS conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The definitions of LOS for uninterrupted flow (flow unrestrained by the existence of traffic control devices) can be summarized as follows:

- LOS A represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.
- LOS B is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable.
- LOS C is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
- LOS D represents high-density but stable flow. Speed and freedom to maneuver are severely restricted and the driver experiences a generally poor level of comfort and convenience.
- LOS E represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value.
- LOS F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point.

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the specific element of the roadway being considered, e.g., signalized intersections versus arterial segments. The LOS criteria for signalized intersections are based on how long a driver must wait at a signal before the vehicle can begin moving again. Refer to the

HCM for LOS definitions for signalized intersections and other roadway types.

2.C. LOS STANDARD DEFINITION AND PURPOSE

California Government Code Section 65088.1(j) discusses the meaning of the CMP LOS standard:

> "LOS standard' is a threshold that defines a deficiency on the congestion management program highway and roadway system which requires the preparation of a deficiency plan. It is the intent of the Legislature that the agency shall use all elements of the program to implement strategies and actions that avoid the creation of deficiencies and to improve multimodal mobility."

2.D. OBJECTIVES, POLICIES AND ACTIONS

The objectives express the element's basic intent. Policies are guidelines to achieve the objective. Actions are the steps to be taken by the appropriate agencies to implement policies and advance toward the objectives.

Objective 2.1 Maintain and, as needed, update the CMP system of highways and roadways.

Policy 2.1.1 - Use the functional definitions in this chapter and input from local jurisdictions as guidance for the inclusion of additional or new principal arterials on the CMP roadway system in the future.

Action Implement Policy 2.1.1.

RESPONSIBILITY: Local jurisdictions and the CMA.

Objective 2.2 Maintain and apply the LOS analysis procedures that best reflect actual system performance.

Policy 2.2.1 - Establish the most current version of the Highway Capacity Manual, published by the Transportation Research Board, as the standard for LOS analysis procedures for use in all CMP related LOS computations.

Action Implement Policy 2.2.1.

RESPONSIBILITY: CMA Board and local jurisdictions.

Action Provide supporting materials and data to local jurisdictions to allow for the most effective application of the procedures.

RESPONSIBILITY: CMA coordinates, Caltrans and local jurisdictions supply data.

Action Provide a description of the adopted capacity analysis procedures, update the procedures as required and distribute the information to local jurisdictions and Caltrans.

RESPONSIBILITY: CMA

Objective 2.3 Set LOS standards that provide a reasonable balance between mobility and the cost of building and operating the transportation system.

Policy 2.3.1 - Establish LOS E or the current level, whichever is farthest from LOS A, as the LOS standard for intersections or segments on the CMP system of roadways.

If the 1992 LOS was F (see Table 2-1), then a 10 percent or more degradation in the quantitative measure used to determine the LOS (such as delay, V/C, or travel speed) will comprise a deficiency, which must be addressed by a deficiency plan.

Action Implement Policy 2.3.1.

RESPONSIBILITY: CMA Board and local jurisdictions.

2.E. BENEFITS OF THE SYSTEM LOS PROGRAM

The CMP system LOS element provides the following benefits:

- Defines a system of roadways that is a basis for implementing the provisions of the Congestion Management Program.
- Serves as a basis for other countywide transportation planning and programming activities.
- Creates a set of consistent, quantitative procedures for defining system deficiencies, helping to evaluate the impacts of land use decisions and evaluating potential roadway improvements. The procedures provide a tool for evaluating the balance between land use and transportation system capacity.
- Provides a definition of "principal arterial" to be used in updates of the CMP system and for other transportation planning purposes.

2.F. CMP ROADWAY SYSTEM

The CMP system is required to include, at a minimum, all State highways and principal arterials. The system to be used for CMP modeling (discussed in Chapter 8) is required to include the System of Regional Significance identified within the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). "Principal arterial" is not defined in the CMP legislation. As part of the development of the CMP for San Bernardino County, a working definition of principal arterial was developed by CMA staff:

> Principal arterials are roadways that are of multi-jurisdictional or regional significance. This means that during both peak and off-peak periods, the roadway is likely to carry traffic across city or county boundaries, or within a given jurisdiction is likely to carry a significant proportion of non-local traffic. Additional criteria for principal arterials are:
>
> - Freeways, other State highways and major projections of those roadways.
> - Major roadways leading to or from a freeway interchange.
> - Major roadways that provide direct links between freeways and State highways.
> - A major roadway that is designated a principal arterial by the local jurisdiction.
>
> This definition is provided for guidance only. The CMP principal arterials are non-State roadways shown in Figure 2-1 and Figure 2-2. The addition of other roadways may be requested by local jurisdictions.

The CMP roadway system in San Bernardino County was developed in the following manner:

- The existing classifications of roadways were reviewed. This included a functional classification conducted by FHWA in the early 1980s, the System of Regional Significance defined in the 1989 Regional Mobility Plan and a sample of classifications in local jurisdiction general plans.
- An initial "working network" was defined by the CMA staff. The initial roadway system included the roadways defined "principal arterial" by FHWA and any additional roadways also defined by the System of Regional Significance. This served as the basis for preliminary review and recommendations by local jurisdictions and for the collection and analysis of traffic data.
- Meetings and discussions were held with local jurisdictions to review and refine the system. Both deletions and additions to the "working system" were made as a result of those reviews.
- LOS analyses were conducted on the "working system." This provided additional perspective on the magnitude of congestion problems and brought into focus some of the implications of having a less extensive or more extensive roadway system.
- The roadway system was refined further on the LOS analysis results to reflect local staff input.
- The system was then reviewed and approved by local elected officials.
- Any new State highway will be included in the CMP system. Any new roadway designated as a principal arterial by local

jurisdictions and approved by the CMA Board, will also be included in the CMP system.

Figure 2-1 and Figure 2-2 show the CMP system countywide, within the Valley Region and in the Victor Valley Region, respectively. The centerline mileage characteristics of the roadways are presented in Figure 2-3. Much of the CMP system mileage is in rural areas where the need for monitoring and the potential for system capacity deficiencies are reduced.

The CMP uses the term "CMP intersections" to refer to the intersection of two CMP roadways. "Key intersections" include all CMP intersections plus others identified by local jurisdictions as being important to maintaining mobility on the CMP system. The term "CMP segment" is defined as the roadway segment between two CMP intersections or, for limited access highways, the segment between two interchanges. A CMP segment will comprise a unit of measurement for those procedures not involving intersections.

2.G. CMP LOS STANDARDS

The CMP LOS standards apply to AM and PM weekday peak-hours, except in recreational areas such as Big Bear Lake, where average traffic peaks occurring on weekends will be used. For the CMP roadway system, the LOS standard shall be E for all segments and intersections except those designated LOS F, as listed in Table 2-1. Table 2-1 also shows portions of the CMP system determined to be deficient by the 1993 or 1995 CMP monitoring programs. Each deficient portion of the CMP system identified in Table 2-1 must be addressed through the deficiency process stipulated in Chapter 8 of this document.

Intersections and segments designated LOS F were computed to be F for either the AM or PM weekday peak-hour.

Other provisions of the CMP LOS standards are:

- Any facility with a LOS F standard in 1992 will be defined to have exceeded its LOS standard if the numerical value of LOS deteriorates by more than 10 percent (see Table 2-1). This provision is included to not permit dismissal of a serious LOS problem just because it is at the lowest letter grade in LOS.

Table 2-1 identifies the intersections that have been determined to operate at LOS F in 1992 based on the average stopped delay per vehicle, or at a v/c ratio for the critical movements equal to or greater than 1.00.

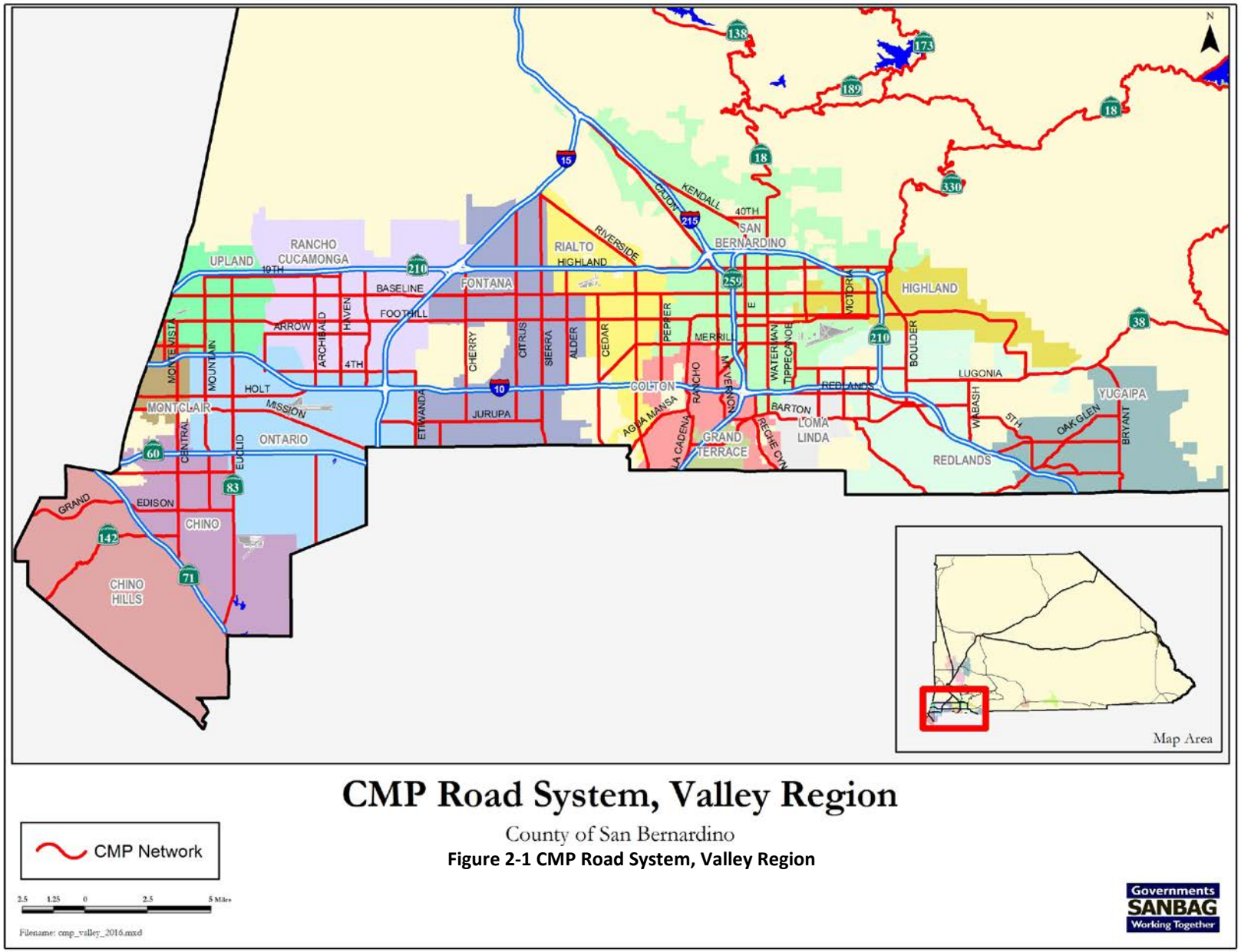


Figure 2-1 CMP Road System, Valley Region

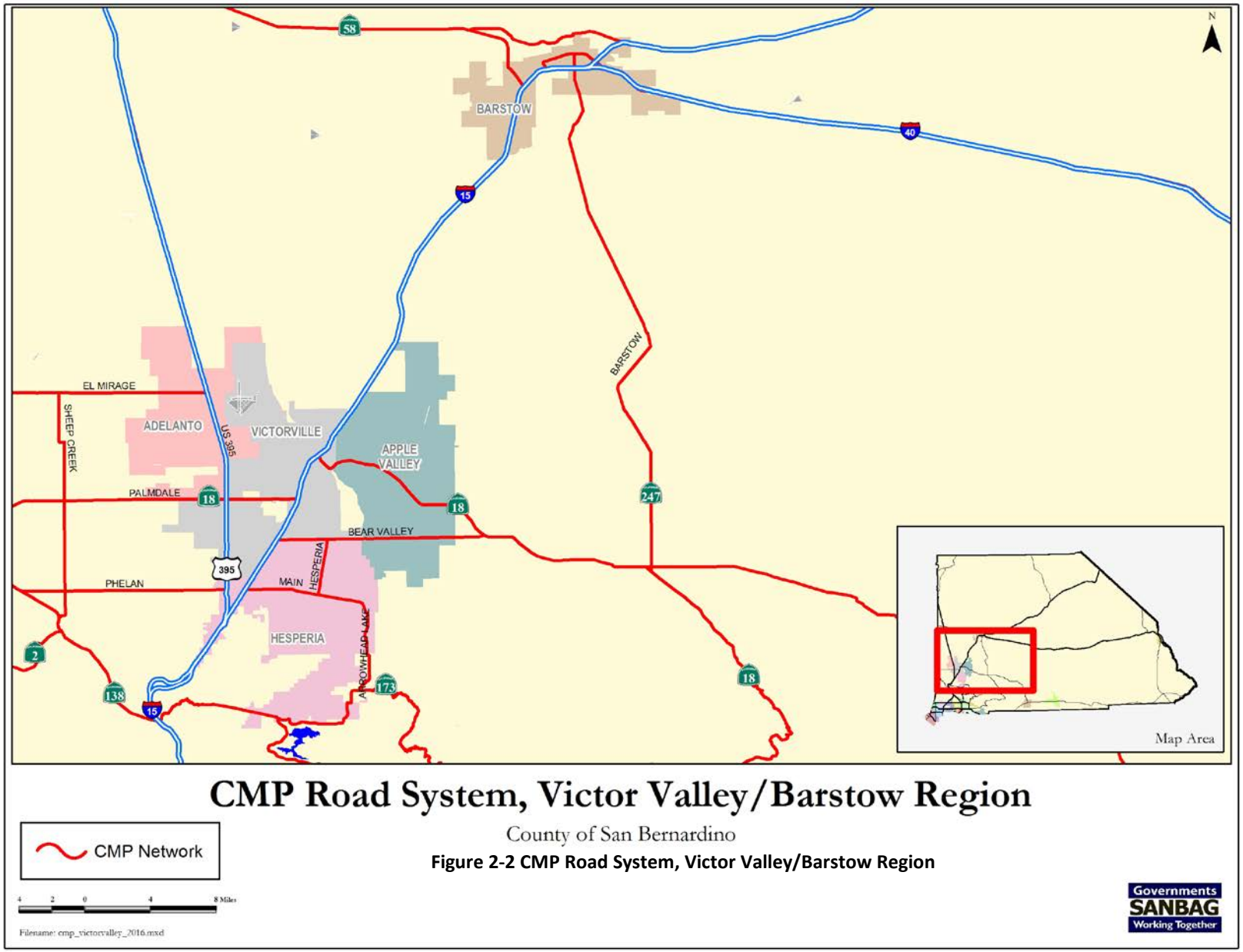
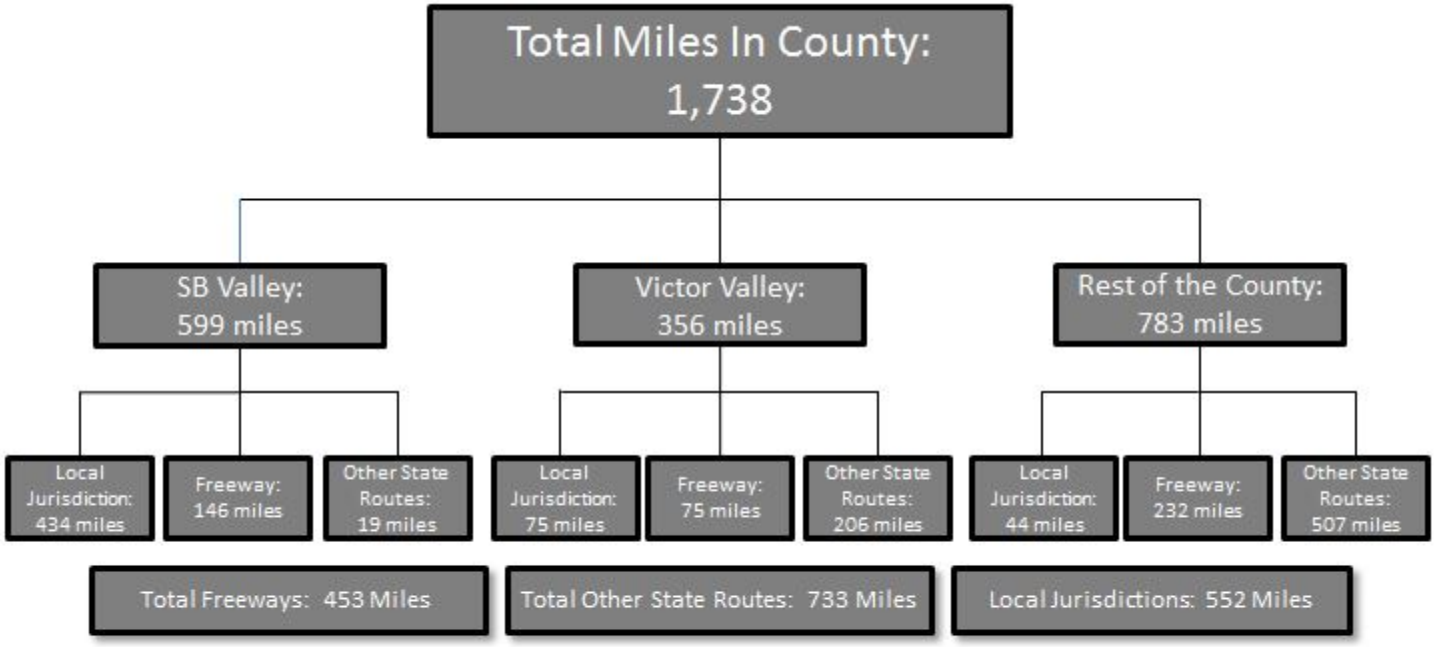


Figure 2-2 CMP Road System, Victor Valley/Barstow Region



Note: Miles reflect centerline miles of CMP facilities

Figure 2-3 Mileage Characteristics of the San Bernardino County CMP Network

Table 2-1 Baseline Year 1992 Deficient CMP Components

Location	Jurisdiction	Average Stopped Delay per vehicle	Critical V/C ratio ≥ to 1.00
Intersections			
Anderson & Barton	Loma Linda		X
California & Redlands	Loma Linda-Redlands-SB County	X	
Mountain View & I-10	Loma Linda		X
Grove & Holt	Ontario	X	X
Mountain & Holt	Ontario	X	X
Mountain & Mission	Ontario		X
Euclid & Holt	Ontario		X
Archibald & Foothill	Rancho Cucamonga	X	X
Carnelian & Baseline	Rancho Cucamonga	X	X
Vineyard & Foothill	Rancho Cucamonga	X	X
Grove & Foothill	Rancho Cucamonga-Upland	X	
Alabama & Redlands	Redlands		X
Waterman & Hospitality	San Bernardino	X	X
Euclid & Arrow Hwy	Upland		X
Central & Foothill	Upland	X	X
Euclid & 19th	Upland	X	X
Euclid & 16th	Upland	X	X
Euclid & Foothill	Upland	X	X
Mountain & Foothill	Upland	X	X
Freeway Segments Designated as LOS F (1992)			
Facility	**Location**		
I-10 Westbound	Milliken Avenue to Central Avenue		
I-10 Westbound	SR-210 to Waterman Avenue		
I-10 Eastbound	Central Avenue to Milliken Avenue		
I-10 Eastbound	SB I-15 to NB I-15		
I-10 Eastbound	Waterman Avenue to California Street		
SR-60 Westbound	Milliken Avenue to Central Avenue		
SR-60 Eastbound	Central Avenue to Milliken Avenue		
I-215 Northbound	Inland Center Drive to SR-210		
Arterial Segments Designated as LOS F (1992)			
Foothill Boulevard	between Mountain Avenue and Archibald Avenue		
Citrus Avenue	between Slover Avenue and Valley Boulevard		
Cedar Avenue	between Slover Avenue and Valley Boulevard		
Mountain View Avenue	between Barton Road and Redlands Boulevard		
Mountain Avenue	between Mission Boulevard and Holt Boulevard		
Bear Valley Road	between Amargosa Road and Mariposa Road		
Bear Valley Road	Hesperia Road and Peach Avenue		
SR-18/Palmdale Road	between I-15 (North) and Stoddard Wells Road		

2.H. CMP LOS ANALYSIS PROCEDURES

In 2015 SANBAG revised the methodology for monitoring the CMP network. Previously intersection LOS was based on the application of procedures outlined in the HCM adopted by the Transportation Research Board. CMP provisions allow for more advanced analysis techniques to be adopted, such as traffic signal timing programs for arterials and freeway simulation models for limited access facilities. The use of advanced simulation techniques is at the discretion of each CMA.

The discussion below provides an overview of the procedures and their application in San Bernardino County. **Appendix A** provides background information on the procedures, their application to the CMP and LOS analysis summaries. Chapter 6 describes the data collection and monitoring procedures to be applied in maintaining a record of existing LOS and reporting them in the biennial CMP. Analyses for the annual LOS determination are to be conducted for the AM and PM weekday peak-hours.

In 2015 SANBAG created a real-time CMP system monitoring web-based tool that allows for real-time and historical evaluation of probe data throughout the countywide CMP system. For CMP segments, average peak hour weekday speed data has been converted to LOS consistent with Highway Capacity Manual methodologies.

Evaluation of system performance based on probe speed data replaces the traditional method of collecting intersection turn movement, arterial and freeway count data and performing standard LOS analysis. The probe data LOS analysis method allows for the evaluation of the comprehensive CMP network on a more regular basis and with a greater degree of accuracy as speed data is collected in real time and stored through the monitoring tool for analysis purposes. Rather than evaluating LOS for a specific traffic count, speeds are averaged over several weekdays to obtain a more accurate representation of system performance.

2.I. SUMMARY OF AGENCY RESPONSIBILITIES

CMA Responsibilities

- Maintain and update the CMP roadway system maps.
- Approve additions to the CMP roadway system based on local recommendations.
- Maintain a functional definition to lend guidance to the addition of new principal arterials on the CMP roadway system.
- Provide supporting data to local jurisdictions to allow for the most effective application of the LOS procedures.
- Provide a description of the adopted capacity analysis procedures, update the procedures as needed through the Transportation Technical Advisory Committee (TTAC) and distribute information to local jurisdictions and Caltrans.

Local Jurisdiction Responsibilities

- Provide recommendations to the CMA on CMP roadway system additions.
- Incorporate adopted LOS procedures into analyses conducted for the CMP.

Caltrans Responsibilities

- Incorporate adopted LOS procedures into analyses conducted for the CMP.
- Make data for LOS analysis on State highways available to local jurisdictions and the CMA.

Air District Responsibilities

- Provide input on the air quality implications of decisions on LOS standards and the extent of the CMP roadway system.

3. TRANSIT PERFORMANCE ELEMENT

3.A. INTRODUCTION

One aspect of the CMP legislation requirement to monitor the performance of the County's transportation system is that other transportation modes be included. Chapter 2 describes the manner in which the CMP roadway system is evaluated and this chapter focuses on the evaluation of the County's transit service. The following performance measures are used to evaluate the performance of transit service:

- Service Level – The level of transit service provided as measured by frequency (headways) or number of trips.
- Travel Speed – How fast transit service is operating as measured by average speed or travel time.
- Service Utilization – Transit service utilization as measured by ridership.

Transit performance is reported annually through the National Transit Database (NTD). Transit operators who are recipients of Federal Transit Administration funding are required by statute to submit data to the NTD. Needles Area Transit, Barstow Area Transit, Mountain Transit and the Morongo Basin Transit Authority report limited data to the NTD but provide full regular data to TransTrack. TransTrack is a data management tool that San Bernardino County operators utilize for data reporting and evaluation purposes. NTD information can be accessed from the NTD website at http://www.ntdprogram.gov/ntdprogram/data.htm.

The objective of the performance element is to provide a basis on which to objectively assess the relative merits and select among available modal alternatives or other strategies to maintain mobility for people and goods in a period of continuing growth, fiscal constraints and environmental concerns. The performance measures chosen for use in selecting and prioritizing among alternative transportation strategies should be those that best measure progress toward achieving the transportation objectives set forth in the CTP and RTP/SCS.

Measures of multimodal mobility for people and goods can be used in several CMP elements: 1) in selecting among alternative mitigation strategies in the land use/transportation analysis program; 2) in defining the effectiveness of action programs to be implemented through deficiency plans; and 3) in developing the capital improvement program. Statute also requires continuing consideration of the transit measures from past CMP's, as well as measures of roadway system performance.

This chapter presents the legislative requirements, establishes objectives, policies and actions, provides an overview of performance measures available to meet CMP requirements and presents the measures and goals for transit service.

California Government Code Section 65089 (b) states the requirements for inclusion of a Performance Element in the CMP:

> "(2) A performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, these performance measures shall incorporate highway and roadway system performance and measures established for the frequency and routing of public transit and for the coordination of transit service provided by separate operators. These performance measures shall support mobility, air quality, land use and economic objectives and shall be used in the development of the capital improvement program required pursuant to paragraph (5), deficiency plans required pursuant to Section 65089.4 and the land use analysis program required pursuant to paragraph (4)."

Table 3-1 presents standard performance measures. Transit objectives for frequency, routing and coordination have been developed in conjunction with the Transit Operating and Capital Plans, the RTP/SCS, Air District Plans where appropriate and the other CMP elements.

Table 3-1 Summary of Performance Measures

GOAL	OBJECTIVE	PERFORMANCE MEASURES
System Operations and Maintenance	1. Reduce accident rates	• (Accident Rates), number of fatalities or injuries per vehicle miles traveled (VMT) • Reliability (percent variation in travel time)
		• Percent or absolute amount of transportation funds allocated to operations and maintenance
	2. Rail/arterial separations	• Delay reduction or travel time savings at rail crossings
	3. Pavement/roadbed quality	• Maintenance and operating cost per mile traveled
		• Measure of pavement quality
		• Measure of roadbed condition
	4. System life-cycle cost	• Total cost to expand and maintain system per miles traveled, person hours saved or person trips • Cost-effectiveness (benefit-to-cost ratio)
Timely Access to Essential Destinations	1. Average person trip travel time	• Average person trip travel time by trip purpose • Mobility (average daily speed and average daily delay) • Accessibility (percent peak period work trips within certain time/distance from home
	2. Improved performance for goods movement between destinations	• Average system travel speed • Average travel speed between origins and destinations critical to goods movement • Volume to capacity ratio for goods movement by corridor
	3. Improved performance for goods movement through the County	• Average system travel speed on freeways
	4. Maintain peak efficiency and ease of use	• User-Satisfaction • Percentage of person miles traveled occurring under congested conditions
Fair and Equitable Access	1. Promote low-cost transportation alternatives	• Percentage of people with access to low user-cost alternatives
	2. Provide diversity of jobs and housing opportunities	• Number of jobs and housing within certain travel time of activity centers
	3. Promote transit oriented development	• VMT per capita

Table 3-1 Summary of Performance Measures, Continued

GOAL	OBJECTIVE	PERFORMANCE MEASURES
Improve Economic Vitality, Public Health and the Environment	1. Increase average travel speeds of local goods movement routes	• Average system travel speeds for primary and secondary routes
	2. Reduce transfer delay at intermodal stations	• Average travel time in and out of intermodal transfer stations
	3. Maintain consistency with SIP mobile source emissions budget	• Tons of emissions generated by on-road mobile sources • Average vehicle occupancy
	4. Reduce rate of consumption of non-renewable energy sources	• Gallons of gasoline consumed
Facilitate use of Viable Transportation Opportunities	1. Coordinate schedules	• Average wait/transfer times • Reliability
	2. Make information available	• Level of investment in information systems • Consumer satisfaction

The transit-specific measures may be used in several contexts. Proposed mitigations developed in the land use/transportation analysis program may rely on transit service. In addition, a deficiency plan may require increased transit services or may encourage increased transit usage. Although the multimodal performance measures identified in this chapter can accomplish these goals, measures of transit frequency, routing and coordination will continue to provide information needed to support these decisions. The feasibility of the increased services will need to be evaluated in light of the multimodal and transit specific measures and financial implications of the needed increases in transit service.

The CMA is required to monitor the implementation of the CMP by the County and the cities, including the frequency, routing and coordination of transit service. Transit systems are also legally obligated to maintain fare recovery ratio thresholds and cost per hour growth rates. Transit plans and objectives must continue to recognize these requirements.

3.B OBJECTIVES, POLICIES AND ACTIONS

The CMP, as an implementation program for the RTP/SCS and the CTP, as well as the program through which California has chosen to meet Federal Congestion Management Process Requirements, emphasizes maintenance of multimodal mobility for people and goods in ways that meet the safety, economic, environmental and social needs of the citizens of San Bernardino County. The following objectives, policies and actions build off the areas of emphasis in the CTP and RTP/SCS.

Objective 3.1 Provide those who live and work in San Bernardino County with timely access to essential destinations.

Policy 3.1.1 - Maintain and apply performance indicators to measure the overall multimodal system performance in travel time to essential destinations.

Action Through the CTP and regional planning process, identify, maintain and apply performance indicators which measure travel time for people, evaluate the ability of these indicators to measure travel time improvements across all modes resulting from alternative transportation strategies and use appropriate measures in the CMP.

RESPONSIBILITY: The CMA, transit agencies, Caltrans and local jurisdictions.

Policy 3.1.2 - Use selected performance indicators to evaluate the effectiveness of plan or program alternatives in achieving the performance goals of the CTP and CMP for San Bernardino County.

Action Incorporate use of selected performance indicators into the CMP Land Use/Transportation Analysis Program, the deficiency plan development process and the prioritization of projects for the Capital Improvement Program, as appropriate.

RESPONSIBILITY: The CMA, in cooperation with Caltrans, transit agencies and local jurisdictions.

Objective 3.2 Provide for efficient and timely goods movement, as well as mobility for people, within and through San Bernardino County.

Policy 3.2.1 - Use indicators which measure the ability of the transportation system to provide for timely and efficient goods movement.

Action In concert with measures developed through the CTP and RTP/SCS processes, use performance indicators which measure the efficiency of goods movement within and through San Bernardino County, evaluate the ability of these indicators to measure travel time improvements across freight transport modes.

RESPONSIBILITY: The CMA, in cooperation with Caltrans, local jurisdictions and SCAG.

Policy 3.2.2 - Use selected performance indicators to evaluate the ability of alternative transportation

improvements, strategies and programs to achieve the performance goals and objectives of the CTP and CMP for San Bernardino County.

Action Consider goods movement indicators in the CMP Land Use/Transportation Analysis Program, the deficiency plan development process and the prioritization of projects for the Capital Improvement Program, as appropriate.

RESPONSIBILITY: The CMA, in cooperation with Caltrans, local jurisdictions and SCAG.

Action Evaluate transportation improvements, programs and plans using the selected indicators of goods movement performance in conjunction with indicators of people movement performance.

RESPONSIBILITY: The CMA, in cooperation with Caltrans, SCRRA, local jurisdictions and SCAG.

Objective 3.3 Consider relative cost-benefit and air quality benefits in selecting among transportation plan and improvement alternatives.

Action Incorporate use of cost -benefit analysis, including emission reduction benefits as appropriate, into the CMP Land Use/Transportation Analysis Program, the deficiency plan development process and the prioritization of projects for the Capital Improvement Program.

RESPONSIBILITY: The CMA, in cooperation with Caltrans, SCRRA, local jurisdictions and SCAG.

The CMP transit goals are consistent with local and regional transit goals though they are more specifically focused on transit as a component of a mobility and air quality improvement program. Local and regional goals also address mobility and air quality, but the current mobility emphasis in the small urban and rural communities of the County relates primarily to those who are dependent on transit for travel.

Omnitrans Mission Statement

Provide the San Bernardino Valley with comprehensive public mass transportation services which maximize customer use, comfort, safety and satisfaction, while efficiently using financial and other resources in an environmentally sensitive manner.

The goals of the RTP/SCS for Southern California are stated in Chapter 1. Many relate specifically to multimodality, cost-effectiveness, environmental quality and goods movement and are incorporated here by reference.

Strategies to satisfy multimodal mobility goals throughout San Bernardino County include the expansion of bus rapid transit (BRT), commuter rail and light rail services, restructuring of bus service to ensure efficient utilization of available capacity and focusing on first-mile/last-mile connections from residential and employment centers to transit opportunities.

The RTP/SCS continues to promote transit-oriented development (TOD) that encourages pedestrian-friendly environments and supports transit use. The RTP/SCS proposes a network of transit-based centers and corridors, supported by infill development as well as the inclusion of local transit agencies in the review of new developments. The following recommendations and actions are consistent with the RTP/SCS:

A. Reduce Transit Travel Time

- Implement transit priority service in congested corridors.
- Maximize transit use of High Occupancy Vehicle (HOV) and High Occupancy Toll (HOT) facilities.
- Provide real-time electronic wait time signs at bus stops and real-time transit schedule and route information on the Internet.

B. Create An Integrated Regional Transit System

- Create seamless service for passengers traveling across jurisdictional boundaries.

- Design fare structures so that the customer is not penalized when transferring.
- Structure local collector and distributor transit service to effectively support line-haul transit corridors and rail systems.
- Provide outstanding intermodal connections between transit service/facilities and bicycles, pedestrian, auto and intercity transportation.
- Market transit service at the community level through local outreach activities with commercial and residential organizations.

C. Coordinate Transit with Land-Use

- Preserve adequate rights-of-way for future transit service in new or expanding corridors.
- Encourage local jurisdictions to implement TOD.
- Encourage local jurisdictions to locate higher densities and commercial land uses closer to corridors that can be well served by transit.
- Encourage local jurisdictions to orient buildings toward the street and locate off-street parking to the side or rear of buildings.
- Improve pedestrian access to bus stops and transit centers. Pedestrian access must be direct (not requiring out-of-direction travel), safe and attractive.
- Work with local jurisdictions to maintain existing and create additional park-and-ride facilities.
- Provide educational opportunities for planners to better understand the need and benefits of transit for the general public to better visualize and appreciate transit-supportive land-use.
- Explore potential changes to the California Environmental Quality Act, CMP and other legislation; work with other public agencies throughout the State to advocate for changes that will require no increase in vehicle trips or maintain/increase transit mode split for major developments.

D. Support Innovative Financing Strategies

- Support local revenue sources such as new and/or extended sales tax measures.
- Encourage fess to support transit in development agreements and as conditions of approval for new development.
- Encourage in-lieu or other fees for transit in exchange for increasing floor area ratios or reducing parking requirements.
- Consider differential transit fares (e.g., reduced fare on off-peak trips, fares based on zones traveled).
- Encourage employer-based incentives.
- Leverage local, State and federal funds for transit investments to the greatest extent possible.

The following objectives, policies and actions refer to CMP transit performance.

Objective 3.4 Provide those who live, work, or recreate in San Bernardino County with transportation mobility options in addition to the private automobile.

Policy 3.4.1 - Design transit systems to accommodate a broad range of transportation needs, including services for those who are transit-dependent.

Action Monitor transit system performance relative to service frequency, routing and coordination to maximize the ability to meet the needs of local residents and employees. Update four-year operating and capital plans every other year.

RESPONSIBILITY: Transit agencies, with support from the CMA, local agencies and the Air Districts.

SCHEDULE: Ongoing.

Policy 3.4.2 - Increase the level of transit service (routing and frequency)

over time as needed to accommodate anticipated higher demand.

Action The CMA is currently undertaking a study of long-range transit needs for the County with a particular focus on the urbanized portions through the Long Range Transit Plan.

RESPONSIBILITY: The CMA in cooperation with transit agencies with support from local jurisdictions.

SCHEDULE: Ongoing.

Objective 3.5 Peak period mobility - Provide transit services to help maintain peak period mobility.

Policy 3.5.1 - Orient measures of transit system performance toward the peak commuting period.

Action Establish new transit service corridors within the time frames specified in the adopted transit plans and the CTP.

RESPONSIBILITY: Transit agencies, San Bernardino County and the CMA.

SCHEDULE: Ongoing.

Action Coordinate transit schedules to effectively serve employer start and stop times and shift times.

RESPONSIBILITY: Transit agencies.

SCHEDULE: Ongoing.

Policy 3.5.2 - Coordinate bus operations with commuter rail, park-and-ride/express bus and high occupancy vehicle facilities.

Action Include existing bus fleet operators in planning activities for commuter rail, HOV and other facilities, including inter-basin vanpooling.

RESPONSIBILITY: SANBAG, Caltrans, local jurisdictions, the Air Districts and transit agencies.

SCHEDULE: Ongoing.

Objective 3.6 Provide transit services to reduce total vehicle emissions in San Bernardino County.

Policy 3.6.1 - Prioritize expansion of transit services in those corridors or areas that have the highest potential for emission reduction through increases in transit mode share.

Action Consider the air quality benefits of implementing new transit service in each corridor where new service is specified.

RESPONSIBILITY: SCAG, in conjunction with the air districts, transit agencies and the CMA.

SCHEDULE: Coordinated with preparation of the RTP/SCS.

Policy 3.6.2 - Encourage and facilitate conversion of transit fleets in non-attainment areas to cleaner technologies.

Action Incorporate consideration of emission reduction benefits of fleet conversion to cleaner technologies into transit funding decisions.

RESPONSIBILITY: Transit agencies, the CMA, local jurisdictions and Caltrans.

Objective 3.7 Operate the transit services efficiently to optimize the financial investment in the system.

Policy 3.7.1 - Support the provision of transit services through land use decisions and site planning that facilitates access to transit and encourages ridership.

Action Through the CTP and corridor studies, identify activity centers and corridors in which higher intensity transit-oriented development and higher intensity bus service, such as bus rapid transit (BRT), would be beneficial and would be desired by local jurisdictions.

RESPONSIBILITY: The CMA in cooperation with local jurisdictions, the regional agency and transit agencies.

SCHEDULE: Ongoing.

Action Provide guidance for transit-oriented development for use by local jurisdictions working with developers in specified activity centers.

RESPONSIBILITY: The CMA, in cooperation with the regional agency, transit agencies and local jurisdictions.

SCHEDULE: Ongoing.

Action Through the regional and subregional planning processes, identify appropriate transit technologies and service characteristics to best meet the transit needs of future activity centers.

RESPONSIBILITY: The CMA, in cooperation with the regional agency, transit agencies and local jurisdictions.

SCHEDULE: For incorporation into the CTP.

Policy 3.7.2 - Maintain required farebox recovery ratios and cost per hour requirements.

Action Maintain records on farebox recovery ratios and cost per hour requirements and annually report these indicators in the CMP.

RESPONSIBILITY: Transit agencies and CMA.

SCHEDULE: Annually.

Action Modify transit services and pricing policies to maintain farebox recovery ratios and cost per hour requirements.

RESPONSIBILITY: Transit agencies.

SCHEDULE: Ongoing.

3.C CMP PERFORMANCE MEASURES

Traffic LOS and measures of transit performance are to be augmented by indicators capable of measuring progress toward the following objectives:

1) Timely access to essential destinations.
2) Efficient and timely goods movement.
3) Relative cost-effectiveness of plan and improvement alternatives.
4) Relative air quality benefits of plan and improvement alternatives.

Measures under consideration to address each of these objectives include:

Timely Access

- Average Person Trip Travel Time
- Mobility Index (average person trip travel time adjusted for transit, non-motorized, telecommuting)
- Lost time (Actual travel time - normative travel time)

Goods Movement

- Average travel speed between origins and destinations critical to goods movement
- Reliability (variance between actual and anticipated travel times)

Cost Effectiveness

- Total cost to expand, operate and maintain system per:
  - person-miles traveled
  - person-hours saved
  - person-trip

Air Quality

- Tons of criteria pollutant emissions from on-road and other transportation sources.
- Cost per ton of criteria pollutant emissions reduced.

The development and application of multimodal transportation system performance indicators are necessary and desirable components of regional and subregional transportation planning and programming, as well as being mandated by federal and state law. However, use of these measures is in its infancy and although the measures cited above are eligible to be used as necessary to meet CMP requirements, they should not be considered an exhaustive list of the measures through which CMP requirements can be fulfilled. Further review and analysis of these and other indicators is occurring through

State, regional and countywide transportation planning efforts.

3.D EXISTING TRANSIT SERVICE

Communities in San Bernardino County with smaller populations are served by demand-responsive and/or limited fixed route systems, while larger, more densely populated cities and towns are served by both a full fixed-route system and demand-responsive systems serving smaller subareas or special-needs populations such as seniors or persons with disabilities. Every five years all transit operators update their Short-Range Transit Plans (SRTP) that document existing services, performance levels and future service plans. Performance of existing transit service can be obtained from the NTD for the larger transit operators, TransTrack database for the smaller transit operators as well as the individual transit agency SRTPs.

Two transit operators, Greyhound and Orange Belt Stages, provide long-distance, intercity transportation within the County. Major transfer points for Greyhound routes in San Bernardino County are San Bernardino, Victorville and Barstow. Routes generally follow the major freeways. Orange Belt Stages operates one route between Fresno, California and Las Vegas, Nevada, with an intermediate stop in Barstow.

3.D.1 MOUNTAIN/DESERT REGION TRANSIT SERVICE

Since adoption of the first CMP in 1992, several changes in the types of transit service offered have occurred. Many of the demand responsive services have modified their operation by changing from a many-to-many dial-a-ride service to a deviating fixed route service.

Within the Victor Valley, the Victor Valley Transit Authority (VVTA) operates deviated fixed routes and traditional fixed route service within the urbanized portion of the Victor Valley serving the Town of Apple Valley and the Cities of Hesperia, Adelanto and Victorville as well as portions of San Bernardino County including Lucerne Valley, Phelan, Wrightwood, Pinon Hills, Oro Grande and Helendale. In addition, VVTA operates the V-V Link route that connects the Victor Valley to Barstow and the San Bernardino Valley.

In the Barstow area, fixed route and deviated transit service has been provided to the City of Barstow and unincorporated areas including Hinkley, Lenwood, Yermo, Daggett and Newberry Springs.

Within the Morongo Basin, the Morongo Basin Transit Authority (MBTA) provides deviated fixed route service in the Town of Yucca Valley and the City of Twentynine Palms and the unincorporated communities of Landers and Flamingo Heights. Demand responsive service is also provided throughout the Morongo Basin. In addition, limited fixed route service is provided between the Morongo Basin and Palm Springs in the Coachella Valley.

Within the mountain communities, the Mountain Transit provides fixed route services as well as off-the-mountain fixed routes to the City of San Bernardino. Demand responsive service is also provided by Mountain Transit within Big Bear Valley and in the Crestline, Lake Arrowhead and Running Springs areas.

The Americans with Disabilities Act (ADA) requires that fixed route operators provide complimentary paratransit service for persons with substantial disabilities. The City of Barstow provides a dial-a-ride service for persons with disabilities and senior citizens. Within the Big Bear Valley a general public dial-a-ride service is provided. And, within the Victor Valley, an ADA complementary paratransit service and specialized subscription service is provided.

The City of Needles initiated deviated fixed route service in 1995 and continues to provide dial-a-ride service for seniors and persons with disabilities. Other demand responsive (dial-a-ride) systems operating in the Mountain/Desert Region include contracts with non-profit agencies for seniors and persons with disabilities in the communities of Big River and Trona.

While none of these systems are running as frequently as thirty minutes, the common benchmark for commuter-oriented transit service, their schedules and routing have been developed with a focus on serving work trips and well as non-work trips.

3.D.2 SAN BERNARDINO VALLEY REGION TRANSIT SERVICE

Southwestern San Bernardino County's more urbanized population is served by both demand-responsive and fixed-route service as provided by Omnitrans, the primary transit operator in this region of the County. Omnitrans' thirty-four fixed route system requires the use of 146 peak-hour buses and is designed to serve most local and commuter-oriented needs of the general public, although a community-based demand-responsive system (OmniLink) is available for general public use in Chino Hills and Yucaipa. Omnitrans also provides ADA required complementary paratransit service for persons with substantial disabilities. Omnitrans has transfer and cooperative agreements with Foothill Transit, Metro, Metrolink, MARTA and the Riverside Transit Agency – all providing transit service extending beyond the Omnitrans service area.

The Southern California Regional Rail Authority (SCRRA) initiated commuter rail service via the San Bernardino Line between Montclair and Los Angeles in February 1993. Service on this line was extended to San Bernardino in May 1993. SCRRA initiated commuter rail service on the Riverside Line in June 1993. Currently, the San Bernardino line serves 19 trains each weekday in each direction.

Service on the Riverside Line was initiated in June 1993 and currently consists of six daily weekday trips in each direction. Service from San Bernardino to Orange County (Irvine) via the Inland Empire Orange County (IEOC) Line was initiated in January 1996 and currently consists of four daily weekday trips in each direction.

To the extent feasible, Omnitrans has revised bus schedules and routes to serve the new commuter rail stations. Commuter-oriented services are found mainly in the more densely populated urban areas in the Valley areas and are provided by Omnitrans' fixed route, express and bus rapid transit (BRT) service. The Omnitrans service coverage objectives include serving areas with a minimal residential density of 3.5 dwelling units per acre or a minimum of 10 jobs per acre.

Omnitrans has continued to improve fixed route coverage and frequencies. The result of this effort has provided many routes operating on 15-minute and 30-minute headways. Omnitrans initiated BRT service within the "E" Street Corridor in 2014 that traverses north/south through the east Valley generally from California State University – San Bernardino to the Jerry Pettis Memorial Veterans Administration Hospital in Loma Linda. BRT offers enhanced mobility and accessibility over local bus services, encourages economic growth and redevelopment and provides a cost-effective solution to congestion in this corridor.

3.E TRANSIT-SPECIFIC OBJECTIVES FOR SAN BERNARDINO COUNTY

3.E.1 ROUTING/FREQUENCY OBJECTIVES

The routing and frequency objectives in the San Bernardino CMP are designed to do the following:

- Reinforce the existing transit service objectives related to providing for local mobility needs.
- Focus transit service enhancements on commuter markets and corridors.
- Reflect existing transit plans and projected resources.
- Provide direction for San Bernardino County to achieve the RTP/SCS goals.
- Allow for operational flexibility in routing, scheduling and the general provision of transit service to achieve the standards.

Maintenance or improvements in service as indicated by these objectives is also subject to the transit agencies achieving legally mandated minimum farebox recovery ratios and operating cost per hour requirements.

Because the transit-specific CMP objectives are designed to reflect current services and planned service improvements as well as longer-range mobility and air quality goals, they have been designed to reflect improved service over time. Objectives have been established for the following time frames:

- One to two years to reflect current service and improvements programmed for immediate implementation.
- To reflect the transit goals for the CMP planning horizon (and to reflect Omnitrans' current four-year improvement program). Transit operators' four-year plans will identify improvements programmed for immediate future.

The time frame for service frequency improvements reflects the current transit providers' four-year plans and the RTP/SCS goals. To achieve the RTP/SCS goals for San Bernardino County, it is projected that these corridors will need to have at least 15-minute and possibly 10-minute peak-period service and in some cases even more frequent if demand warrants.

3.E.1.1 Local Service

The local service objectives are designed to allow each community the flexibility to meet local mobility needs in the manner most appropriate for each area. In some areas, particularly in the Mountain/Desert area, local mobility needs are best met with a general public dial-a-ride; or deviated fixed route services; for other areas a combination of fixed-route service and special purpose dial-a-ride service more effectively meets community needs. Objectives for local service reflect the need to provide service to a majority of the population as well as the CMP goal of having transit be a viable travel option to most major employment and activity centers.

3.E.1.2 Corridor Service

The CMP transit objectives identify existing transit corridors as well as new ones to be developed over the next several years. The purpose of identifying these corridors is to establish guidance for transit service improvements and to encourage future development within these transit corridors. Transit service is most effective in attracting choice riders where there is a density of trips to support frequent service.

3.E.1.3 Employer/Activity Centers

Transit standards have been established for service to employers and major activity centers to reflect the need for service to major transit destinations. Systems in the Mountain/Desert region of the county provide service to major community service destinations, particularly medical facilities. Service improvements in this region have focused more on serving employment centers. Currently, the Omnitrans Service Coverage Objective includes providing transit service that places 90 percent of residential areas with a density of 3.5 dwelling units per acre or more and employment areas with a density of 10 jobs per acre within ½ mile of a bus stop. The Service Coverage Objective also includes service span that ensures that 90 percent of trips between any point in the East Valley and downtown San Bernardino and between any point in the West Valley and Ontario or Montclair can be made from 6:00 a.m. to 9:00 p.m.

While service is being planned to serve a greater number of major employers, it is important for future employment development to occur in existing transit corridors, or at least in areas easily served by transit. These transit objectives are not meant to imply that the transit providers have an obligation to provide service to every new employer, regardless of location. Rather, it is hoped that available transit services will be considered in the initial phases of project location and that once a site is selected, the project design will be developed to accommodate transit service (particularly through pedestrian friendly environments, the ability of transit to serve the "front door," and rider amenities such as transit shelters).

The transit objectives to major activity centers reflect the need to serve all major activity centers, such as government centers, major regional shopping centers and major medical facilities. As rail service is developed in the county, the CMP transit objectives call for feeder bus service to the rail stations.

3.E.2 TRANSIT COORDINATION OBJECTIVES

The CMP legislation requires that measures be maintained for the coordination of transit services. Currently, there is a policy among operators to cross service area boundaries when

passenger demand warrants and there are interagency service agreements for the provision of service beyond county boundaries. The CMP coordination objectives provide for the continuation of policies for coordination of service and schedules.

The existing SANBAG policy to honor transfers from other systems is incorporated into the CMP fare coordination objective. The fare coordination objective also includes participation in the regional transit pass program as it develops.

3.F FIVE-YEAR TRANSIT CAPITAL PROGRAM

The four-year transit capital program to support the CMP transit objectives can be found in the Federal Transportation Improvement Program.

4. LAND USE/TRANSPORTATION ANALYSIS PROGRAM

4.A. BACKGROUND

The Land Use/Transportation Analysis Program is one of three components of the CMP that address future problems or deficiencies on the transportation system. The other components, annual modeling of the CMP system and deficiency plans, are discussed in Chapters 7 and 8 of this document, respectively.

In addition, the CMA Board of Directors' policy provides that the CTP will define the actions, projects, or strategies to be implemented through area-wide deficiency plans to maintain mobility for people and goods. California Government Code Section 65089 (b)(4) states the requirements for analysis of the impacts of land use decisions on the regional transportation system as defined by the CMP:

> "The program shall contain . . . a program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts."

The San Bernardino County CMP implements the Land Use/Transportation Analysis Program with two distinct approaches, depending on geographic location within the County. The first approach applies to the cities and associated spheres of influence in the San Bernardino Valley and Victor Valley. The second approach applies to all other areas of the County. These two approaches are summarized below:

1. For San Bernardino Valley and Victor Valley cities and spheres of influence: local jurisdictions implement development mitigation programs that achieve development contribution requirements established by the SANBAG Development Mitigation Nexus Study (Nexus Study). The development contribution requirements are established by the Nexus Study for regional transportation improvements, including freeway interchanges, railroad grade separations and regional arterial highways on the Nexus Study network. Local jurisdiction development mitigation programs must comply with certain requirements established in **Appendix F** of this CMP. Jurisdictions in the Valley and Victor Valley may also need to prepare a Traffic Impact Analysis (TIA) report to assess the impact of certain development projects on state highways for Caltrans purposes (see Section 4C).

2. For areas outside the San Bernardino Valley and Victor Valley cities and spheres: local jurisdictions must prepare Traffic Impact Analysis reports for proposed development projects exceeding specified thresholds of trip generation. This is a continuation of a requirement established when the CMP was originally approved by the SANBAG Board in 1992. TIA reports must comply with certain requirements established in **Appendix B** of this CMP. Existing SANBAG Board policies on the CMP will continue in these areas, unless otherwise modified by the Board.

At their discretion, jurisdictions outside the Valley and Victor Valley may adopt Approach 1, in coordination with and subject to the approval of SANBAG. Section 4.B provides an overview of the program for the Valley and Victor Valley. Section 4.C provides an overview of the program for the other geographic areas.

4.B. LAND USE/TRANSPORTATION ANALYSIS PROGRAM FOR THE SAN BERNARDINO VALLEY AND VICTOR VALLEY AREAS

Section VIII of the Measure I 2010-2040 Ordinance (approved by the voters of San Bernardino County on November 2, 2004) states:

> *"SECTION VIII. CONTRIBUTIONS FROM NEW DEVELOPMENT. No revenue generated from the tax shall be used to replace the fair share contributions required from new development. Each local jurisdiction identified in the Development Mitigation Program must adopt a development*

financing mechanism within 24 months of voter approval of the Measure 'I' that would:

1) Require all future development to pay its fair share for needed transportation facilities as a result of the development, pursuant to California Government Code 66000 et seq. and as determined by the Congestion Management Agency.

2) Comply with the Land Use/Transportation Analysis and Deficiency Plan provisions of the Congestion Management Program pursuant to California Government Code Section 65089.

The Congestion Management Agency shall require fair share mitigation for regional transportation facilities through a Congestion Management Program update to be approved within 12 months of voter approval of Measure 'I'."

In July 2004 the SANBAG Board adopted a set of Development Mitigation Principles to serve as an overall framework for the implementation of the development mitigation program for the Valley and Victor Valley jurisdictions. These principles are stated below:

- Local governments will collect and administer minimum fair-share development contributions to regional facility improvements required because of the development.
- The Congestion Management Agency's Development Mitigation Nexus Study (Nexus Study) is the preferred methodology for defining the fair-share development contribution to regional facility improvements required because of development.
- The Nexus Study will define the appropriate development share of project costs for all regional improvements on the Nexus Study Network (i.e., freeway interchange, major street and grade separation improvements) within the urban portions of the county.
- The CMP will provide the policy and technical framework for local collection and administration of fair-share development contributions for regional facility improvements.
- The CMP will describe the minimum requirements for local jurisdiction compliance through implementation of a qualifying local development mitigation program. The CMP will specify the implementation and administration requirements for local jurisdictions and SANBAG's revised responsibilities as the CMA. SANBAG will rely on procedures in the CMP statute (withholding of Section 2105 gas tax dollars, allowance for a cure period, etc.) as the enforcement mechanism for development mitigation.
- Local jurisdictions shall adopt qualifying development mitigation programs by ordinance, based on general principles and processes in the CMP. Development mitigation contributions will be collected locally and assigned to projects in accordance with local priorities, with multi-jurisdictional projects coordinated by a lead local agency.
- Funds generated by local jurisdictions from non-transportation sources (federal, state or other) will be eligible for credit against local fair-share development contributions. In addition, SANBAG may permit the use of transportation dollars (federal or state appropriations) as a credit against local fair-share development contributions on an exception basis, when the local jurisdiction shows that such transportation dollars are net "new" dollars to the regional transportation system.
- Nexus study project descriptions, costs and growth estimates will be reviewed periodically and revised as needed, to coincide with updates of the CMP and/or RTP/SCS. These Nexus Study revisions will be reflected in updates to local development mitigation programs.
- A qualifying ordinance will include the fair share cost of regional improvements calculated based on the Nexus Study methodology. Local governments will retain flexibility in how fair share amounts are allocated and collected through the qualifying ordinance.

- Mitigation requirements allocated to developers may be met by paying cash, building eligible facilities, or through development-based public financing vehicles such as Community Facilities Districts and Assessment Districts. SANBAG must receive copies of implementation documents within 30 days following adoption.
- Minimum mitigation requirements for local jurisdictions will allow for sufficient phase-in time to honor commitments made to projects already in the pipeline.
- Determination of conformance with the CMP will be made by SANBAG on an annual basis, according to the CMP statute. The basis of evaluation will be initial adoption of a qualifying ordinance and annual submittal of a report to SANBAG on the CMP development mitigation program by each jurisdiction.
- Federal or state appropriations for specific projects will reduce the project costs, not just reduce the required developer mitigation. The percentage share of the remaining project costs allocated to development and other sources will remain the same.
- Local flexibility will be allowed regarding collection of fees at either building permit issuance, close of escrow, or occupancy permit.

The development mitigation program for the Valley and Victor Valley jurisdictions is designed with a substantial amount of flexibility in how the program may be implemented. However, there are minimum requirements for a development mitigation program to be considered as compliant with the CMP. These requirements are contained in **Appendix F**. Each jurisdiction must maintain their program in compliance with these requirements and provide a brief annual report to SANBAG demonstrating its continued compliance. SANBAG will notify a jurisdiction if its program is out of compliance, based on the procedures contained in **Appendix F**.

The requirements in **Appendix F** focus on how each local jurisdiction may demonstrate that contributions from new development will be sufficient to meet the fair share requirements for that jurisdiction defined in the SANBAG Nexus Study, commensurate with the amount of growth that actually occurs. The Nexus Study will be updated periodically, in coordination with local jurisdictions, resulting in periodic revisions to the fair share requirements. The most current version of the Nexus Study is contained in **Appendix G** of this CMP. All information about local jurisdiction responsibilities in this approach is contained in **Appendix F** and **Appendix G**. All remaining information in this chapter applies to the land use/transportation analysis program outside the Valley and Victor Valley areas.

4.C. OVERVIEW OF THE LAND USE/ TRANSPORTATION ANALYSIS PROGRAM FOR JURISDICTIONS OUTSIDE THE VALLEY AND VICTOR VALLEY AREAS.

For jurisdictions outside the Valley and Victor Valley areas, continued use of the Transportation Impact Analysis (TIA) process is required. This section focuses on the general framework for the TIA process. The detailed procedures for implementing the TIA process are specified in **Appendix B**.

The TIA Report has been designed to provide an improved basis for making land use decisions which could affect the regional transportation system. The TIA Report format requires use of consistent, analytically sound procedures to forecast impacts, define and test mitigations and to evaluate mitigation costs. Copying of TIA Reports to the CMA is required to enable the CMA to fulfill its legal obligation to monitor compliance with the program and to provide documentation for the CMP database.

Mitigation of the impacts of land use decisions on CMP roadways across jurisdictional boundaries is a major concern of the program. The TIA Report and subsequent interagency review process provide one mechanism to address that concern. With the completion of the CTP and adoption of area-wide, multi-jurisdictional deficiency plans, issues of this kind are more likely to be anticipated and avoided.

Prior to adoption and implementation of a deficiency plan, CMP TIA Reports shall be prepared by or at the direction of the local jurisdiction with land use authority when a change in land use, a development project, or at local discretion, a group of projects are forecast to generate 250 two-way peak hour trips based on trip generation rates published for the applicable use or uses in the Institute of Transportation Engineers' Trip Generation or other CMA-approved data source. Pass-by trips are excluded in this determination. CMP arterial highways shall be analyzed if they are projected to carry at least 50 two-way peak hour trips and freeway segments shall be analyzed if they carry at least 100 two-way peak hour trips.

Jurisdictions that have implemented qualifying development mitigation programs that achieve development contribution requirements established by the SANBAG Development Mitigation Nexus Study are not required to prepare TIA reports for CMA review. However, if a project may impact State Highway System facilities, Caltrans may require a TIA report. If a project will distribute traffic onto the State Highway System, consult Caltrans for their TIA report guidelines regarding when TIA reports may be required. Refer to Figure B-1 at the end of **Appendix B** for a flow chart that defines when TIA reports need to be prepared.

Other locally determined criteria may be used which are more stringent than those identified above. All TIA Reports shall be submitted to the CMA. If a TIA Report indicates that the project or projects would add 50 or more 2-way peak hour trips to a CMP arterial within an adjacent jurisdiction or 100 or more 2-way peak hour trips to a freeway within an adjacent jurisdiction, the TIA Report shall be submitted to the adjacent jurisdictions as well. The agency responsible for the TIA Report shall consider comments from other jurisdictions, the CMA and Caltrans prior to certification of that analysis as consistent with the CMP guidelines.

The traffic volume thresholds (50 added peak hour trips to an arterial and 100 to a freeway) are intended to determine when a local jurisdiction is required to provide a copy of a TIA Report to a neighboring jurisdiction. They are not used to determine if a TIA Report needs to be prepared. These volume thresholds also define the limit of the geographic area that needs to be analyzed in a TIA Report (i.e., the analysis does not need to be conducted for any intersections or segments when the number of project-related peak hour trips is less than the specified volume thresholds).

TIA Reports shall be provided to the CMA and adjacent jurisdictions so that information exchange and communication can occur in concert with the permitting jurisdiction's project review schedule and prior to any approval or permit activity. Agencies which receive TIA Reports shall provide any comments no later than 15 working days from the date the TIA Report was received by SANBAG, unless otherwise notified by the permitting jurisdiction. Should the comments received from adjacent jurisdictions, the CMA, Caltrans, or transit agencies recommend changes to the TIA Report, the permitting jurisdiction shall consider comments received and make changes deemed necessary by the permitting jurisdiction. Should the changes be such that the permitting jurisdiction chooses to recirculate the document, the commenting agencies shall complete the review of the revised document no later than 10 working days from the date unless otherwise notified. This process is intended to be consistent with any actions required under the local Land Use/Transportation Analysis Program.

Following adoption and implementation of a deficiency plan, CMP TIA Reports shall be prepared by or at the direction of the local jurisdiction to first determine if a change in land use, a development project, or a group of projects are consistent with growth assumptions contained in the CTP and deficiency plan. If consistency is determined, actions identified within the CTP and deficiency plan should be adequate to maintain the desired level of system performance if implemented at the appropriate time. It is then the role of the Land Use/Transportation Analysis Program to: 1) identify the appropriate implementation schedule for actions already identified within the deficiency plan to maintain mobility on the multimodal transportation system in the vicinity of the project and 2) identify project-specific mitigations on local facilities not addressed by the CTP and the deficiency plan.

If the land use change, development project, or group of projects is determined to not be consistent, actions identified within the CTP and deficiency plan may not be adequate to maintain the desired level of system performance. In this case, it is the role of the Land Use/ Transportation Analysis Program to: 1) identify the appropriate implementation schedule for those actions already identified within the deficiency plan to help maintain mobility on the multimodal transportation system in the vicinity of the project, 2) develop other mitigations needed to augment those previously identified in the deficiency plan to meet the mobility objectives of the CTP, 3) identify project-specific mitigations on local facilities not addressed by the CTP and the deficiency plan and 4) provide information to be incorporated into updates of the regional growth forecast, CTP and RTP and the deficiency plan to reestablish consistency.

Appendix B provides the detailed guidelines for preparing TIA Reports to address changes in land use, development project, or group of projects prior to adoption and implementation of an area-wide deficiency plan that encompasses the project area. Variations in the program may be accommodated at the discretion of the CMA Board, but consistent implementation by all jurisdictions is essential to the program's success.

4.D. LEGAL REQUIREMENTS

California Government Code Section 65089 (b)(4) states the requirements for analysis of the impacts of land use decisions on the regional transportation system as defined by the CMP:

> "The program shall contain . . . a program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. This program shall measure, to the extent possible, the impact to the transportation system using the performance measures described in paragraph (2) (the performance measures element of the CMP). In no case shall the program include an estimate of the costs of mitigating the impacts of interregional travel. The program shall provide credit for local public and private contributions to improvements to regional transportation systems. However, in the case of toll road facilities, credit shall only be allowed for local public and private contributions which are unreimbursed from toll revenues or other state or federal sources. The agency shall calculate the amount of the credit to be provided. The program defined under this section may require implementation through the requirements and analysis of the California Environmental Quality Act, in order to avoid duplication."

Government Code Section 65089.7 places limitations on projects required to be analyzed through the Land Use/Transportation Analysis Program:

> "A proposed development specified in a development agreement entered into prior to July 10, 1989, shall not be subject to any action taken to comply with this chapter, except actions required to be taken with respect to travel demand element of a congestion management program pursuant to paragraph (3) of subdivision (b) of Section 65089." In addition, Section 65089.3 (a) of the Government Code requires the Congestion Management Agency (CMA) to:
>
> "monitor the implementation of all elements of the congestion management program. At least biennially, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:
>
> ...c) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.
>
> (d) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway LOS standards are not maintained on portions of the designated system."

These sections of the Government Code obligate each jurisdiction to either maintain the LOS standard on the CMP road system by mitigating

the impacts of that jurisdiction's land use decisions, or to prepare and implement a deficiency plan to either return the LOS to the CMP standard, or provide for system wide transportation performance and air quality improvements (which may, at local discretion, not include returning the facility to the CMP LOS standard).

Each local jurisdiction has adopted and is implementing a Land Use/Transportation Analysis Program designed to be consistent with the guidelines provided in **Appendix B** of this document. Failure of a local jurisdiction to address an exceedance of the LOS standard on the CMP system, or failure to implement a consistent Land Use/Transportation Analysis Program, would result in the CMA finding the local jurisdiction not in compliance with the CMP. This finding would be transmitted to the state Controller's office, which would result in withholding, or ultimately, loss of the jurisdiction's share of the Proposition 111 increase in gas tax funds.

Upon approval of an area-wide deficiency plan pursuant to Government Code Section 65089.4 and the Deficiency Plan element of the CMP (Chapter 8), the Land Use/Transportation Analysis Program within the area encompassed by the deficiency plan will change. The focus of the land use/transportation analysis program as it applies to projects within such an area will depend on whether the land use change or project is consistent with the growth forecast used to develop the deficiency plan.

If the land use change or project is consistent with the growth projection, the role of the TIA is principally to provide for timely phasing of transportation projects or strategies already identified for that area by the CTP and incorporated into the deficiency plan. In this way, it provides a basis for the implementation schedule that must be included within the deficiency plan's action plan.

If the land use change or project is not consistent with the growth projections used to develop the CTP and the deficiency plan's action plan, modifications may ultimately be needed to both plans as well as the growth projection. This would occur through the biennial CTP, CMP and deficiency plan update process, but the transportation mitigations originally identified by the CTP may also have to be augmented through the TIA Report process.

In either case, the prior identification of the long-range capital improvements called for in the CTP within the vicinity of the proposed change in land use, including mitigating projects and other strategies, as well as the selection of the appropriate implementation and financing mechanisms, will reduce delays associated with compliance with this program. This approach will also allow dismissal of mitigations and related costs that are infeasible or undesirable. In either case, too, localized analysis localized in the immediate vicinity of the project will continue to be included in the TIA process to address local access and congestion issues of a scale too small to be covered in the CTP or area-wide deficiency plan.

4.E. BENEFITS OF THE PROGRAM

The Land Use/Transportation Analysis Program benefits local jurisdictions in several ways:

- Provides the basis for generating fair share development contributions for regional transportation improvements.
- Provides flexibility in how local jurisdictions may implement their development mitigation programs.
- Provides a set of consistent guidelines for TIA Reports, to provide local decision makers with comprehensive data on project impacts, needed mitigations and mitigation costs, all designed to assist in making local land use decisions.
- Provides an opportunity to be informed of land use changes and to provide substantive response to potential impacts of these changes in nearby jurisdictions.
- Creates a process to address inter-jurisdictional impacts.
- Provides information on which to base a more equitable allocation of costs among projects, jurisdictions and other funding sources to mitigate transportation impacts on the CMP system.
- Will provide the process to mitigate impacts on the CMP system by appropriately phasing implementation of

the actions identified within area-wide deficiency plans.

4.F. IMPLICATIONS OF CMP REVIEW

The authority to make land use decisions rests solely with local jurisdictions. The Land Use/Transportation Analysis Program can influence land use decisions by requiring full evaluation and disclosure of impacts to the regional transportation system, regardless of jurisdictional boundaries. Local jurisdictions are required to maintain the adopted LOS standards on the CMP system or prepare a deficiency plan, so it is essential that local jurisdictions consider the necessary actions and costs required to mitigate impacts resulting from local land use decisions. A local jurisdiction which fails to address deficiencies on the CMP System which are caused by exercise of its land use authority faces loss of the increment of local gas tax monies added by Proposition 111.

Once deficiency plans have been adopted in accordance with state law and CMA policy, the process can be streamlined so long as land use decisions are consistent with the growth assumptions, developed by the CMA and SCAG in accordance with local input, on which the CTP and the deficiency plan are based. Impacts of projects that are inconsistent with the growth forecasts may not be appropriately addressed by the area-wide deficiency plan and would therefore require an analysis similar to that conducted under the guidelines that are applicable prior to deficiency plan adoption.

4.G. OBJECTIVES, POLICIES AND ACTIONS

Objective 4.1 Provide adequate mobility for people and goods by integrating consideration of land uses and the transportation system and promoting transportation-friendly development patterns.

Policy 4.1.1 - Identify and quantify the direct and cumulative impacts of proposed land use decisions on the regional transportation system.

Action Implement the Land Use/Transportation Analysis Program through local jurisdiction development mitigation programs and preparation of TIA Reports on projects which exceed the applicable thresholds and certify that the analysis is consistent with the CMP guidelines.

RESPONSIBILITY: Local jurisdictions.

Action In areas where deficiency plans have been adopted, determine if proposed land use changes are consistent with growth forecasts used in development of the deficiency plan. If the project is deemed consistent, use the TIA process to develop appropriate deficiency plan phasing. If the project is deemed inconsistent, use the TIA process to submit a revision to the growth forecast and develop appropriate mitigations beyond those identified in the deficiency plan.

RESPONSIBILITY: Local jurisdictions.

Action Where area-wide deficiency plans have not yet been adopted, consider a range of alternatives to meet travel demand, including capacity increases, alternative modes, demand management, land use patterns and intensities, project design and use criteria based on the CMP TIA Report guidelines and performance measures element of the CMP as a basis for evaluating and selecting the most appropriate strategies.

RESPONSIBILITY: Local jurisdictions.

Policy 4.1.2 - Assess long-term regional transportation needs based on planned land uses and develop the CTP and area-wide deficiency plans to meet those needs.

Action In cooperation with local jurisdictions, complete the development of the CTP and area-wide deficiency plans.

RESPONSIBILITY: CMA to coordinate, local jurisdictions, transit providers, SCAG and Caltrans to participate.

Policy 4.1.3 - Develop and implement a program which apportions fairly

the responsibility for mitigation of deficiencies on the CMP system among local jurisdictions and State agencies.

Action Prepare area-wide deficiency plans in accordance with the CTP and use the TIA Report process as the phasing mechanism.

RESPONSIBILITY: Jurisdictions participating in area-wide deficiency plan preparation.

Action Include inter-jurisdictional notification and opportunities for potentially impacted jurisdictions to provide responses to TIA Reports into the local land use decision and impact mitigation process.

RESPONSIBILITY: Jurisdictions responsible for TIA Report preparation.

Action In association with the CTP, develop a program to provide fair, consistent, area-wide mitigation of impacts and funding of improvements on the regional transportation system needed to support economic development and local land use decisions.

RESPONSIBILITY: The CMA, local jurisdictions, the regional agency, transit providers and air districts.

Objective 4.2 Anticipation of needs - Forecast deficiencies and avoid breakdowns of the regional transportation system through a comprehensive, systematic program.

Policy 4.2.1 - Forecast the regional transportation impacts of land use plans and projects and identify needed improvements or mitigation strategies and their costs through the CTP process.

Action Implement and maintain a countywide database of existing and future land use, or socioeconomic data on which to base CTP and deficiency plan updates, as well as land use consistency determinations for the Land Use/Transportation Analysis Program.

RESPONSIBILITY: SCAG and the CMA, with participation by local jurisdictions and air districts.

Action Conduct travel demand forecasting for CTP in coordination with the RTP/SCS.

RESPONSIBILITY: CMA and SCAG.

Policy 4.2.2 - Implement the program locally, using consistent analytical procedures and methodologies and consider inter-jurisdictional as well as local impacts and solutions based on strategies developed through the CTP.

Action Implement the CTP through area-wide deficiency plans and the TIA Report process.

RESPONSIBILITY: Local jurisdictions.

Action Make data available from the CMP model runs for use with local traffic models and maintain socio-economic data sets.

RESPONSIBILITY: SCAG and the CMA.

Action Assist in making traffic, transit and TDM data available to local agencies for purposes of preparing CMP TIA reports.

RESPONSIBILITY: The CMA, Caltrans, air districts and transit agencies.

Action Require traffic monitoring programs for certain development projects to confirm follow-through of commitments made to the agencies impacted by that development and establish guidelines for such monitoring programs as needed.

RESPONSIBILITY: Local jurisdictions, with assistance from the CMA upon local request.

Action Identify mitigation programs which can be implemented locally through the CTP, to address cumulative development impacts which may cause deficiencies on the CMP system. Such programs should reflect the resources and administrative mechanisms

currently and potentially available to local jurisdictions.

RESPONSIBILITY: The CMA and local jurisdictions.

Objective 4.3 Equity - Apportion the cost of mitigating impacts on the transportation system equitably among all who contribute to the impacts.

Policy 4.3.1 - Identify the effect of specific land use changes on the transportation system, regardless of jurisdictional boundaries and communicate the information to all affected jurisdictions.

Action Implement the Land Use/Transportation Analysis Program through preparation of CMP TIA Reports when a project, or group of projects, meet the threshold criteria specified in this chapter.

RESPONSIBILITY: Local jurisdictions.

Action Participate as needed in discussions on the potential inter-jurisdictional impacts of land use decisions, mitigation of potential deficiencies and fair apportionment of responsibility for mitigation. The CMA and Caltrans may participate at the request of a lead agency or a potentially impacted jurisdiction.

RESPONSIBILITY: Local jurisdictions, the CMA, Caltrans and air districts.

Action Maintain, refine and, as needed, use the conflict resolution process provided in **Appendix D** to develop administrative solutions to inter-jurisdictional disagreements.

RESPONSIBILITY: Local jurisdictions initiate, the CMA facilitates.

Policy 4.3.2 - Provide a process to monitor and forecast the cumulative, incremental impacts of all projects and identify measures and costs to mitigate the incremental impacts.

Action Identify the cumulative transportation impacts of projects through the CTP planning process and use the Land Use/Transportation Analysis Program as a mechanism to monitor growth and its impacts on the transportation system.

RESPONSIBILITY: The CMA to initiate, local jurisdictions to participate.

Policy 4.3.3 - Develop or create a mechanism to finance, and fairly apportion, the cost of funding the transportation improvements and strategies needed to maintain mobility for people and goods in growing areas.

Action Use the CTP process as a way to identify the set of preferred transportation improvements and programs needed to offset the cumulative impacts of growth on the regional transportation system, and to determine how they should be funded.

RESPONSIBILITY: The CMA to initiate, local agencies, Caltrans, SCAG and air districts to participate.

Policy 4.3.4 - Provide credit to local jurisdictions and project applicants within the jurisdiction who provide improvements to the regional transportation system which exceed the level of improvement required to mitigate deficiencies caused by the jurisdiction's land use decisions.

Action Through the TTAC, develop a process to define conditions under which credit shall be provided, the form the credit shall take and the amount of credit to be provided for provision of improvements to the regional transportation system which exceed those required to mitigate deficiencies caused by a jurisdiction's land use decisions.

RESPONSIBILITY: The CMA, with local jurisdiction input.

Objective 4.4 Improve coordination among jurisdictions to ensure consistent consideration, analysis and mitigation of inter-jurisdictional impacts of development on the regional transportation system.

Policy 4.4.1 - Identify the transportation impacts of significant land use changes, regardless of jurisdictional location or political boundaries.

Action Prepare CMP TIA Reports when a project or group of projects within jurisdictions subject to TIA requirements meets the threshold criteria specified within this chapter.

Policy 4.4.2 - Provide a mechanism for consistent communication of impact analysis results, possible mitigations and mitigation costs to potentially impacted jurisdictions, Caltrans and the CMA.

Action As indicated in Policy 4.4.2, CMP TIA Reports shall be provided to the CMA and adjacent jurisdictions so that information exchange and communication can occur in concert with the permitting jurisdiction's project review schedule and prior to any approval or permit activity. Local jurisdictions which receive TIA Reports shall provide information on any comments within 15 working days from the date of receipt from the permitting jurisdiction. Should the comments received from adjacent jurisdictions, the CMA, Caltrans, or transit agencies recommend changes to the TIA Report, the permitting jurisdiction shall consider comments received and make changes deemed necessary by the permitting jurisdiction. Should the changes be such that the permitting jurisdiction chooses to recirculate the document, the commenting agencies will complete the review of the revised document no later than 10 working days from receipt.

RESPONSIBILITY: Local jurisdictions, the CMA, Caltrans, transit agencies.

Action Participate as needed in discussions on the potential inter-jurisdictional impacts of land use decisions, mitigation of potential deficiencies and fair apportionment of responsibility for mitigation. The CMA and Caltrans may participate at the request of a lead agency or potentially impacted jurisdiction.

RESPONSIBILITY: Local jurisdictions, the CMA and Caltrans.

Action Maintain the TIA Report guidelines and coordinate modification of the guidelines as needed. If modification is needed, the modified versions of the guidelines are to be distributed to all local jurisdictions, transit agencies and Caltrans. Modifications must ultimately be approved by the CMA Board.

RESPONSIBILITY: The CMA in coordination with local jurisdictions.

Action Maintain a log and file of TIA Reports received, formal comments related to TIA Reports received from other jurisdictions and dates of submission of comments to the lead agency.

RESPONSIBILITY: CMA.

Policy 4.4.3 - Ensure appropriate consideration of transportation control measures and mitigation of air quality impacts in the Land Use/Transportation Analysis Program.

Action Adopt, implement and enforce transportation control measures for the attainment of state or federal ambient air quality standards to the extent they are required by the State Implementation Plan or air districts. Provide guidance to local jurisdictions in the inclusion of transportation control measures in development plans.

RESPONSIBILITY: Air districts.

Action Maintain the TIA Report guidelines and coordinate modification of the guidelines if needed to support mobile

source air quality measures contained in air quality plans and the State Implementation Plan. If modification is needed, the modified versions of the guidelines are to be distributed to all local jurisdictions, transit agencies and Caltrans. Any modifications to the guidelines are to be developed and recommended by the TTAC and approved by the CMA Board.

RESPONSIBILITY: The CMA in coordination with local jurisdictions and air districts.

Objective 4.5 Consistency - Provide a consistent, analytically sound approach to identification of impacts, evaluation of mitigations and fair apportionment of responsibility to mitigate impacts on the CMP system.

Policy 4.5.1 - Require consistent application of the specified methodology for analyzing the impacts of land use decisions, evaluating mitigations and estimating mitigation costs by all jurisdictions.

Action Develop the Land Use/Transportation Analysis Program guidelines to be adopted by local jurisdictions, determine conformance of adopted programs and analyze TIA Reports for CMP procedural compliance.

RESPONSIBILITY: The CMA and local jurisdictions.

Action Implement the Land Use/Transportation Analysis Program and certify that analyses are consistent with the CMP guidelines.

RESPONSIBILITY: Local jurisdictions.

Policy 4.5.2 - Provide for consistency of procedures with the requirements of other regional programs and plans.

Action Assist the air districts to identify transportation control measures or other transportation strategies which will receive credit toward significant air quality improvements.

RESPONSIBILITY: CMA.

Action If needed, assist in defining the role of air quality analysis in TIA Reports.

RESPONSIBILITY: The CMA, air districts and local jurisdictions.

Action Monitor the development of other regional plans and programs and identify any necessary modifications to the Land Use/Transportation Analysis Program to maintain consistency.

RESPONSIBILITY: The CMA, with local jurisdiction input.

Objective 4.6 Opportunity - Identify opportunities to improve the performance of the multimodal transportation system concurrent with development, to minimize improvement costs and reliance on public financing.

Policy 4.6.1 - Develop and implement a notification process for identifying right-of-way acquisition, lane addition and access control opportunities on the CMP roadway system, concurrent with development.

Action In federally designated urbanized areas, notify Caltrans and the CMA of any proposed traffic-generating projects (other than a single family residence) where any portion shares a property line in common with a State highway, or is on a roadway which intersects a State highway and is within 500 feet of that intersection, including interchange ramps.

RESPONSIBILITY: Local jurisdictions.

Appendix B provides the detailed guidelines for preparing TIA Reports to address changes in land use, development project, or group of projects prior to adoption and implementation of an area-wide deficiency plan that encompasses the project area. Variations in the program may be accommodated at the discretion of the CMA Board, but consistent implementation by all

jurisdictions is essential to the program's success.

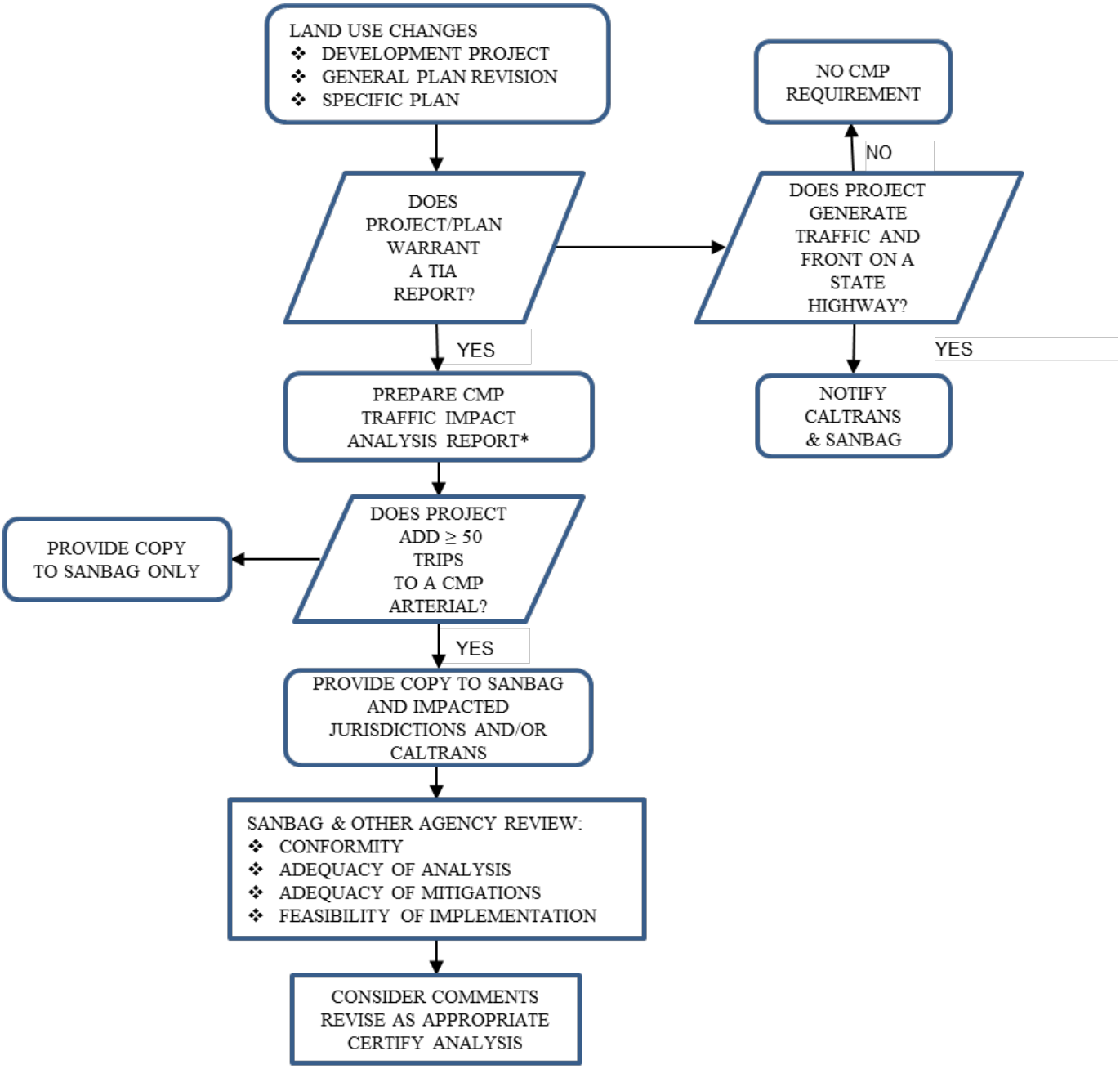
4.H. THE TRANSPORTATION IMPACT ANALYSIS PROCESS

4.H.1 Steps in the Process

Prior to adoption of an area-wide deficiency plan that encompasses the project areas, the steps involved in the process are as follows (refer to Figure 4-1):

- A development application is submitted to a local jurisdiction, subject to TIA requirements or a general plan amendment, revision or specific plan is proposed.
- If the local jurisdiction determines that project review is required, based on local criteria and thresholds or the thresholds for required preparation (**Appendix B**), the local jurisdiction provides the applicant with the standardized TIA procedures and report format or otherwise arranges for the TIA Report to be prepared.
- If the specified thresholds are not met, no TIA Report is required. However, within federally designated urbanized areas, Caltrans and the CMA shall be notified by the local jurisdiction for proposed traffic-generating projects (other than a single family residence) which share a property line in common with a State highway, or where any portion is on a roadway which intersects a State highway and is within 500 feet of that intersection, including interchange ramps. The purpose of this requirement is to provide Caltrans with advance warning of an opportunity to acquire right-of-way for additional through lanes or turning lanes at intersections on the CMP roadway system. Making the improvements after the development is already in place is much more difficult, costly and reliant on public financing.
- Land use/transportation analysis of general plans, general plan revisions and amendments and specific plans is required if the change in land use at buildout meets or exceeds the specified threshold. Nearly all major general plan revisions and many specific plans are expected to exceed the thresholds for TIA Report preparation.
- The local jurisdiction is the lead agency for preparation of the TIA Report. The funding source for the preparation of the TIA will be determined at the discretion of the lead agency. The procedural guidelines and assumptions for the preparation of the TIA Report are contained in **Appendix B**. Issues associated with use of alternate assumptions should be settled before the analysis is actually begun. Some local jurisdictions may choose to conduct a "methodology meeting" in advance of the preparation of the TIA Report and document the expectations in writing. The CMA shall be provided a copy of documentation of procedures and assumptions that vary from those contained in **Appendix B**. This should be provided immediately after agreement is reached between the applicant and the local jurisdiction. The TIA Report shall include an analysis of the costs of mitigating the impacts of full project implementation, or development through the current SCAG horizon year under a planning document. The TIA Report should separately identify the costs for improvements on Caltrans roadways and the impacted CMP roadways in other jurisdictions. The TIA Report shall include a determination of any credits due the project applicant, pursuant to Section 65089.(b)(4) of the California Government Code.

  The local jurisdiction shall provide a copy of the completed TIA Report to the CMA and to each potentially impacted local jurisdiction (and Caltrans for State roadways), as defined by the traffic volume thresholds defined in **Appendix B**.



*Can be integrated with environmental document or conducted separately at agency's discretion.

Figure 4-1: Flow of Recommended Land Use/Transportation Analysis Process for jurisdictions outside the Valley and Victor Valley

- Potentially impacted jurisdictions and agencies will review the TIA Reports provided by the permitting jurisdiction (lead agency) and provide technical comments to the lead agency. At the impacted agency's discretion, technical comments may also be directed to the CMA. The CMA may also provide technical comments to the lead agency. The review period for the CMA, Caltrans and local jurisdictions shall be no more than 15 working days from the date of receipt by the CMA unless otherwise stipulated by the lead agency. Documents received by the CMA are to be logged and filed as part of the required database on traffic impacts and as information to be used to apportion mitigation costs among jurisdictions which can be shown to have contributed significantly to the impact.
- The local jurisdiction shall consider the responses of potentially impacted jurisdictions and Caltrans and comments of the technical analysis by the CMA, during deliberations on project or plan approval. An impacted jurisdiction may request to meet with the impacting jurisdiction (lead agency) to resolve technical issues associated with the TIA, which may include the magnitude of an impact, location of an impact, timing of an impact, nature of the proposed mitigation, estimated cost of mitigation and apportionment of responsibility to mitigate the impact.
- Forecast inter-jurisdictional impacts of a project are to be mitigated through a facility improvement or strategy developed jointly by the lead agency and impacted jurisdiction. Potential inter-jurisdictional impacts can be mitigated through implementation of strategies by the lead agency. However, if improvements within another jurisdiction are proposed as mitigations, financial mechanisms through which the costs to mitigate inter-jurisdictional impacts are addressed may include, but are not limited to, inter-jurisdictional agreements through which the lead (impacting) agency will reimburse the impacted jurisdiction for a proportionate share of the costs to mitigate the impact or deficiency.
- A jurisdiction in which the CMP system is impacted by another jurisdiction's land use decision should be compensated for any mitigation required within the impacted jurisdiction at the time of project approval. If this is not the case and a deficiency plan is later required to address the impacted portion of the CMP system, the TIA Report will be used as a basis to apportion the responsibility to mitigate the deficiency within the impacted jurisdiction.
- If resolution between the lead agency and a potentially impacted jurisdiction cannot be achieved, the impacted jurisdiction may request (but cannot require) the lead agency to condition approval of a project on monitoring of traffic and/or travel characteristics to and from the project site and provision of mitigation as warranted based on the results of monitoring. At the lead agency's discretion, this may be required of a project as a mechanism to verify the magnitude of the impacts of a specific project on CMP roadways and provide for mitigations as needed following project approval.
- Following consideration of any comments by potentially impacted jurisdictions and the CMA and revisions to the TIA Report as appropriate, the lead jurisdiction certifies that the analysis is consistent with the CMP guidelines.

4.H.2. Criteria for TIA Report Preparation and Review

Prior to adoption and implementation of a deficiency plan encompassing the subject area, CMP TIA Reports shall be prepared by or at the direction of the local jurisdiction that does not have a compliant development mitigation program when a change in land use, a development project, or at local discretion a group of projects, are forecast to add or generate 250 two-way peak hour trips based on trip generation rates published for the applicable use or uses in the Institute of Transportation Engineers' Trip Generation or other CMA-approved data source. Caltrans may have

additional requirements, as described in **Appendix B**.

However, other locally determined criteria may be developed which are more stringent than those identified above. Individual development projects or proposed land use changes in the same geographic vicinity that can reasonably be combined into a single project for analysis purposes can be analyzed as a single project. The threshold determination is a self-certification process. A project (or projects which are examined together) which exceeds the specified thresholds or criteria and for which development applications were submitted after the date of CMP approval by the CMA Board, requires submittal of a TIA Report.

For mixed use developments, the size of each proposed use shall be applied to the trip generation rate for that land use type and the results of all such calculations shall be totaled to determine if the total trip generation meets or exceeds the CMP threshold or if applicable, a more stringent local threshold.

Projects shall not be split to avoid the CMP requirements. If an additional phase of a project, when added to the preceding phases, causes the sum of the phases to exceed the threshold, the entire project must be analyzed as a unit. The analysis must be conducted when the phases are anticipated and should not wait for later phases, even if earlier phases alone would not exceed the threshold.

If it is determined that a CMP TIA Report is required, the entity with local land use authority shall prepare or cause to be prepared a Traffic Impact Analysis Report consistent with the procedure and methodology specified in **Appendix B** and the local jurisdiction's Land Use/Transportation Analysis Program.

If it is determined that a project qualified for the preparation of a TIA Report but no report was prepared, adjacent potentially impacted jurisdictions, SANBAG, or Caltrans may request that such a report be prepared, even though it may be after-the-fact. The permitting jurisdiction shall prepare, or cause to be prepared, a TIA Report in order to determine appropriate mitigation measures and financial responsibilities for resolution of the ongoing CMP system impacts and for developing appropriate mitigations for future development projects.

Any questions that arise on the interpretation of the program should be referred to CMA staff. It is in a jurisdiction's own interest to undertake CMP TIA Report preparation to avoid future impacts on the regional transportation system and financial responsibility to mitigate them.

4.I. SUMMARY OF AGENCY RESPONSIBILITIES

CMA Responsibilities

- In cooperation with local jurisdictions, develop and maintain the Land Use/Transportation Analysis guidelines to be adopted by local jurisdictions. (**Appendix F** for Valley and Victor Valley jurisdictions and **Appendix B** for other jurisdictions).
- Provide biennial update of the Development Mitigation Nexus Study (**Appendix G**) with input from local jurisdictions and Caltrans.
- Determine conformance of locally adopted Land Use/Transportation Analysis programs (Government Code Section 65089.3).
- Review and approve local jurisdiction development mitigation programs and TIA Reports for consistency, with requirements.
- Participate as needed in discussions on the potential inter-jurisdictional impacts of land use decisions, mitigation of potential deficiencies and fair apportionment of responsibility for mitigation, at the request of a lead agency or a potentially impacted jurisdiction.
- Maintain the TIA Report guidelines and coordinate modification of the guidelines as needed to define streamlined procedures available to local jurisdictions in which area-wide deficiency plans have been adopted. Modifications are to be approved by the CMA Board. The modified guidelines are to be distributed to all local jurisdictions, transit agencies and Caltrans.

- Monitor the development of other regional programs and plans and identify any necessary modifications to the Land Use/Transportation Analysis Program to maintain consistency.
- Assist the air districts to identify transportation control measures or other transportation strategies which will receive credit toward significant air quality improvements.
- Assist in making traffic, transit and TDM data available to local agencies for purposes of preparing CMP TIA Reports.
- In cooperation with SCAG and the local jurisdictions, plan for and implement a regional database of existing land use, approved changes in land use and proposed changes in land use.
- In cooperation with SCAG, make data available from the CMP model for use in local models.
- Maintain a log and file of TIA Reports received, formal responses to TIA Reports received and dates of submission of responses to the lead agency as part of the required database on traffic impacts.
- Develop guidelines, in cooperation with local jurisdictions and Caltrans, for traffic monitoring programs potentially needed to monitor traffic generated by certain development projects.
- In cooperation with local jurisdictions, develop the CTP for regional facilities and strategies, which identifies impacts and needs created by development projects, including the cumulative impacts of projects.
- Use the CTP process as a way to identify the set of preferred transportation improvements and programs needed to offset the cumulative impacts of growth on the regional transportation system and to determine how they should be funded.
- Maintain, refine, and as needed, facilitate use of the conflict resolution procedure within the CMP to provide administrative remedies to inter-jurisdictional disagreements.

Local Jurisdiction Responsibilities

- Adopt and implement the Land Use/Transportation Analysis Program. The adopted program shall be generally consistent with the CMA-adopted program.
- Develop and adopt a Development Mitigation program consistent with the requirements of **Appendix F** (for jurisdictions in the Valley or Victor Valley. Submit adopted program to the CMA for approval.
- Act as lead agency for preparation of TIA Reports (for jurisdictions outside the Valley or Victor Valley).
- Implement local transportation models or analytical procedures capable of analyzing the impacts of land use decisions on the regional transportation system, both within the jurisdiction and in adjacent jurisdictions.
- Provide copies of TIA Reports directly to all other jurisdictions in which project-imposed impacts are identified.
- Provide a copy of each TIA Report to the CMA and list jurisdictions to which the TIA Report is being sent.
- Incorporate consideration of TIA Report results and responses of other jurisdictions on TIA Reports into the land use decision and traffic impact mitigation process and certify that the analysis is consistent with the CMP guidelines.
- Participate as needed in discussions on potential inter-jurisdictional impacts of land use decisions, mitigation of potential deficiencies and fair apportionment of responsibility for mitigation.
- Respond to TIA Reports prepared by other jurisdictions and bring traffic impact issues to their attention.
- Within federally designated urbanized areas, notify Caltrans and the CMA of traffic-generating projects (other than single family residences) with a property line in common with a State highway or within 500 feet of a State highway along an intersecting street.

- Require traffic monitoring programs for certain development projects to confirm follow-through of commitments made to the agencies impacted by that development.
- Work with the CMA and other jurisdictions to develop the CTP and participate in use of the CTP planning process to develop a program to comprehensively address the cumulative impacts of local land use decisions on the regional transportation system.

SCAG Responsibilities

- Make models and model data available to local agencies for purposes of preparing TIA Reports.
- Maintain and update socio-economic data sets for models.
- In cooperation with the appropriate air district, assist in the quantification of air quality benefits to be derived from implementation of area-wide deficiency plans.

Caltrans Responsibilities

- Make traffic count information available to local jurisdictions preparing TIA Reports.
- Review CMP TIA Reports, provide a response to the impacting jurisdiction through the CMA and enter into discussions on the resolution of impacts on State roadways as appropriate to each situation.

Transit Agency Responsibilities

- Make transit information available to local agencies preparing TIA Reports.
- Review CMP TIA Reports as submitted by local jurisdictions, provide comments to the requesting jurisdiction, adjacent impacted jurisdictions and the CMA and participate in the process to resolve identified impacts.

SCAQMD and MDAQMD Responsibilities

- Identify transportation control measures or other transportation strategies which will receive credit toward significant air quality improvements if implemented through deficiency plans.
- Participate with the CMA and local jurisdictions in defining the role of air quality analysis in TIA Reports.

5. TRAVEL DEMAND MANAGEMENT ELEMENT

The CMP emphasizes maintenance of mobility for people and goods through many strategies, while helping to improve air quality. Strategies which can help to maintain mobility in ways that are consistent with achieving our air quality goals include those which focus on reductions in trip making, trip length and travel demand, as well as those which increase the availability of modal alternatives to the single occupant vehicle. This chapter provides a framework for trip reduction and Travel Demand Management (TDM) for the CMP.

5.A. LEGAL REQUIREMENTS

California Government Code Section 65089 (b) (3) states the requirements for the TDM element:

> "(A) The program shall contain ... a travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting and parking management programs. The agency shall consider parking cash-out programs during the development and update of the travel demand element."

5.B. BENEFITS OF THE PROGRAM

TDM can provide the following benefits:

- Increase mobility of people and goods at a minimal capital cost by improving system efficiency and maximizing system utility.
- Increase and integrate modal options by ensuring that actions are supportive of alternative modes.
- Encourage use of alternatives to the single occupant vehicle to reduce vehicle trips and vehicle miles traveled.
- Improve overall system performance by maintaining mobility for people and goods while reducing vehicle demand.
- Integrate air quality planning requirements with transportation planning and programming functions.

5.C. IMPLICATIONS OF THE PROGRAM

The TDM Element has linkages to other regional and local transportation and air quality plans and programs, transit plans, general plans and related land use plans. This section describes some of those interrelationships and implications of the program.

Table 5-1 presents a list of trip reduction and TDM measures. The list indicates whether the strategies satisfy the objectives of mobility, air quality, or both.

5.C.1 LINKAGES WITH THE AIR QUALITY MANAGEMENT DISTRICTS

The South Coast Air Quality Management District (SCAQMD) and Mojave Desert Air Quality Management District (MDAQMD) have a prescribed role in the development and implementation of the CMP. Legislation requires that the CMP be developed "in consultation with, and with the cooperation of," the local air quality management district**s**. The districts are also required to "establish and periodically revise a list of approved improvements, programs and actions" that local jurisdictions can incorporate into deficiency plans to "measurably improve multimodal performance..., and contribute to significant improvements in air quality."

The integration of transportation control measures (TCMs) from the plans of the air quality management districts, which are in turn consistent with the regional mobility strategy defined in the RTP/SCS, is important for a variety of reasons. It results in the selection of strategies to maintain mobility that are also consistent with the district strategies to attain air quality standards in accordance with deadlines established by the Federal Clean Air Act. It also recognizes that most TCMs are needed to meet mobility goals as well as to improve regional air quality. Finally, it allow**s** local governments to implement both mobility and air quality programs (Regional Transportation and

Comprehensive Transportation Plans, CMP and air plans) through one set of actions.

All elements of the CMP must be consistent with the applicable air district plan. In addition, Government Code Section 65089 (b)(3) provides that a city or county in which a development will implement a parking cash-out program which is included in a CMP or deficiency plan shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for the new commercial development. In the case of existing commercial development that has implemented a cash-out program included in a CMP or deficiency plan, the city or county shall grant an appropriate reduction in the otherwise applicable parking requirements based on the demonstrated reduced need for parking and the space no longer needed for parking purposes may be used for other appropriate purposes.

TCMs to reduce congestion and improve air quality are identified and described within the respective air district plans and are incorporated into this document by reference. For several of these measures, the air districts may adopt rules with future effective compliance dates.

The nature of deficiency plan actions for which credit can be gained for system-wide LOS and air quality improvements has been an issue for some time. Credit may, subject to air district approval, accrue to localities or subregions through the ability to implement local or subregional programs in lieu of district implementation of Indirect Source Rules (ISRs). Eligibility for such substitution is contingent on the local or subregional program being enforceable and forecasting levels of emission reduction equal to or greater than that which would be achieved through implementation of the ISRs within that area, based on calculation methods subject to air district approval. The area-wide deficiency plans contemplated in accordance with SANBAG policy and the most recent CMP update could provide the enforceable mechanisms for such substitution programs. The MDAQMD has developed a draft list of deficiency plan elements for the Desert jurisdictions.

5.C.2 RELATIONSHIP TO LOCAL JURISDICTION GENERAL PLANS AND ORDINANCES

Local jurisdiction general plan circulation elements often include policies and actions to encourage alternative transportation mode choices. The land use element of the general plans may contain policies promoting a balance between jobs and housing. Zoning ordinances may enforce these policies. Local jurisdictions are required to grant appropriate levels of reduced parking requirements if cash-out programs are implemented by new or existing commercial development pursuant to Government Code Section 65089(d)(1) and (2).

5.C.3 RELATIONSHIP TO THE RTP/SCS

SCAG's RTP/SCS identifies transportation demand management as a principal component of the regional mobility strategy. In addition to developing and updating the plan, SCAG is responsible for finding it to be in conformance with Federal Clean Air Act requirements. Given that the CMP is to be consistent with the RTP, CMP TDM measures must be consistent with the measures in the RTP/SCS.

5.C.4 RELATIONSHIP TO THE IE511 PROGRAM

The IE511 Program delivers rideshare matching services and information on commute alternatives. It can assist in providing marketing information and alternative commute mode statistics and in implementing adopted travel demand management measures.

5.C.5 RELATIONSHIP TO TRANSIT PROVIDERS

Transit providers have short range transit plans, marketing incentive programs and passenger survey information which can assist in developing and implementing transportation demand management strategies. Through the transportation planning process, the CMA consults with transit providers to maintain consistency between proposed TDM measures and transit services provided in the various areas of the county.

5.D. OBJECTIVES, POLICIES AND ACTIONS

Objective 5.1 Trip Reduction - Reduce the number of vehicle trips while maintaining personal mobility.

Policy 5.1.1 - Provide incentives and help to remove obstacles for transit, ridesharing and reduced person-trips.

Action Identify and implement strategies that promote ridesharing and trip reduction opportunities.

RESPONSIBILITY: The CMA in cooperation with local jurisdictions, Caltrans and transit agencies.

Action Provide no-toll or reduced-toll incentives for carpools and vanpools if toll facilities are developed in San Bernardino County.

RESPONSIBILITY: The CMA and Caltrans.

Action Maintain performance measures that are sensitive to the effectiveness of trip reduction and TDM strategies.

RESPONSIBILITY: The CMA in cooperation with local jurisdictions, transit providers and Caltrans.

Action Ensure operation of HOV facilities at a higher LOS than mixed flow lanes within San Bernardino County as an incentive for multi-occupant vehicle travel.

RESPONSIBILITY: The CMA and Caltrans.

Action Grant new commercial development which will implement a parking cash-out program appropriate reductions in parking requirements otherwise in effect and grant existing commercial development which has implemented a parking cash-out program an appropriate reduction in parking requirements otherwise applicable based on the demonstrated reduced need for parking.

RESPONSIBILITY: Local governments.

Action Maintain an effective regional system of carpool and vanpool matching.

RESPONSIBILITY: Rideshare agencies, including SANBAG.

Policy 5.1.2 - Facilitate and provide incentives for non-auto travel.

Action Study and recommend methods for encouraging transit, pedestrian and bicycle-oriented development. Conduct this activity in conjunction with implementation of the Countywide Non-Motorized Transportation Plan (NMTP) and local sustainable community's initiatives.

RESPONSIBILITY: The CMA and SCAG to coordinate, local jurisdictions to participate as desired.

Objective 5.2 Reduce the length of trips while maintaining personal mobility.

Policy 5.2.1 - Provide incentives for reducing vehicle trip lengths.

Action Encourage job creation in San Bernardino County through development and implementation of transportation investment strategies which increase the county's ability to attract industry.

RESPONSIBILITY: The CMA, local jurisdictions, SCAG and Caltrans.

Action Study and recommend methods for encouraging TDM, transit, pedestrian and bicycle-oriented development.

RESPONSIBILITY: The CMA and SCAG to coordinate, local jurisdictions to participate as desired.

Objective 5.3 Improve air quality.

Policy 5.3.1 - Implement, document and monitor local TCMs in a manner consistent with the appropriate air quality plan(s).

Action Continue to implement TCMs in accordance with the CMP requirements.

RESPONSIBILITY: Local jurisdictions.

Policy 5.3.2 - Ensure that other congestion management measures adopted by local jurisdictions and Caltrans do not have negative effects on air quality.

Action Conduct an air quality conformity review for CIP projects in the CMP where required under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

RESPONSIBILITY: SCAG.

Action Maintain a list of air quality-compatible measures for the CMP.

RESPONSIBILITY: SCAQMD and MDAQMD.

5.E. SUMMARY OF RESPONSIBILITIES

CMA Responsibilities

- Assist the SCAQMD and MDAQMD in development and maintenance of a menu of mitigation measures compatible with air quality requirements for consideration in deficiency plans, TIA Reports and related studies.
- Encourage job creation in San Bernardino County through development and implementation of transportation investment strategies which increase the county's ability to attract industry.
- If desired by local jurisdictions, participate and assist in development of CMP deficiency plans which yield emission reductions that can be substituted for ISRs.
- Assist SCAG in conducting air quality conformity determinations, with consultation of the Air Districts, for CIP projects in the CMP where required under CEQA and NEPA.
- Prioritize capital projects that facilitate non-motorized travel and provide other time or price-related incentives for transit and ridesharing, or other vehicle trip reduction.
- Study and recommend methods for encouraging TDM, transit, pedestrian and bicycle-oriented development.

Local Jurisdiction Responsibilities

- Include in deficiency plans, TIA Reports and related studies only those mitigation measures deemed by SCAQMD and MDAQMD to be compatible with air quality requirements.
- Continue implementation of transportation control measures in accordance with the CMP.
- Encourage job creation in San Bernardino County through strategies which increase the county's ability to attract industry.
- Study and consider methods for encouraging TDM, transit, pedestrian and bicycle-oriented development.
- Grant new commercial development which will implement a parking cash-out program appropriate reductions in parking requirements otherwise in effect and grant existing commercial development which has implemented a parking cash-out program an appropriate reduction in parking requirements otherwise applicable based on the demonstrated reduced need for parking.

Air District Responsibilities

- Develop and maintain a list of air quality-compatible mitigation measures for consideration in deficiency plans, TIA Reports, the CMP CIP and related documents.
- Review ordinances, plans and programs of local jurisdictions to ensure consistency with State law.

Caltrans/SANBAG Responsibilities

- For any toll facilities in San Bernardino County, provide no-toll or reduced-toll incentives for carpools and vanpools.

Transit Agency Responsibilities

- Participate in formulation and application of multimodal performance measures in accordance with CMP requirements.

IE511 Program (RCTC and SANBAG) Responsibilities

- Maintain TDM-related information and provide assistance to employers and local jurisdictions in implementing the provisions of TDM ordinances.
- In partnership with the SCAG Rideshare Department, maintain an effective system of carpool and vanpool matching and formation.

Table 5-1 TDM Model Ordinance Options

TDM ORDINANCE PROVISION OPTIONS	STRATEGIES EMPHASIZING AIR QUALITY	STRATEGIES WHICH HELP CONGESTION MANAGEMENT
Encourage Medium and Large Employer Trip Reduction	♦	♦
Encourage Multi-Tenant Building Owner Trip Reduction	♦	♦
Encourage That Developers:		
Allow for Mixed-Use	♦	♦
Require Amenities that Reduce Need for Trips	♦	♦
Design Guidelines for Transit, Vanpools, Walking and Bicycling	♦	♦
Increase Residential Densities at Transit Stations		♦
Fee Credits for Building Designs which Promote TDM Measures	♦	♦
Fee Credits for Building Park & Ride Facilities		♦
Parking		
Preferential Parking for Ridesharers	♦	♦
Subsidized Parking for Ridesharers	♦	♦
Remote Park & Ride Lots with Amenities		♦
Support Zoning Code Variances for Commercial Uses Within Park & Ride Facilities		♦
Provide Bicycle Parking	♦	♦
Lower Parking Ratios and Maximum Limits		♦
Transportation Allowance Instead of Subsidized Parking	♦	♦
Ridesharing		
Rideshare Transportation Allowances	♦	♦
Ridesharing Subsidy or Tax Credits	♦	♦
Ridesharer Parking Cost Subsidy	♦	♦
Ridematching	♦	♦
Guaranteed Ride Home	♦	♦
Flex-Time		♦
Compressed Work-week	♦	♦
Telecommuting from Home	♦	♦
Telecommuting from Satellite Work Center		♦
Transit subsidies	♦	♦
Commuter Stores or Marketing Programs	♦	♦
Expanded On-Site Amenities	♦	♦
Walking		
Showers and Lockers	♦	♦
Safe Walking Routes	♦	♦
Bicycling		
Showers and Lockers	♦	♦
Bicycling Information (Maps)	♦	♦

Table 5-1 illustrates TDM techniques and identifies whether they impact air quality, congestion management, or both. Strategies emphasizing air quality mean those which eliminate cold starts.

6. MONITORING PROGRAM AND TRANSPORTATION MODELING

The monitoring program addresses several CMP requirements. It provides information on the current traffic LOS, identifies system deficiencies and the need for deficiency plans and establishes the framework for determining local jurisdiction conformance with the CMP. The annual modeling conducted as part of the CMP is also discussed in this chapter.

6.A LEGAL REQUIREMENTS

California Government Code Section 65089.3 states the following requirements for the CMP monitoring program:

> "The agency shall monitor the implementation of all elements of the congestion management program…. At least biennially, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:
>
> (a) Consistency with levels of service standards, except as provided in Section 65089.4.
>
> (b) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.
>
> (c) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway LOS standards are not maintained on portions of the designated system."

6.A.1 DETERMINATION OF NON-CONFORMANCE

The procedure for and penalties associated with a determination of nonconformance are stated in Government Code Section 65089.5:

> "(a) If the agency determines that a city or county is not conforming with the requirements of the congestion management program, the agency shall notify the city or county in writing of the specific areas of nonconformance. If, within 90 days of the receipt of the written notice of nonconformance, the city or county has not come into conformance with the congestion management program, the governing body of the agency shall make a finding of nonconformance and shall submit the finding to the commission and to the Controller.
>
> (b) (1) Upon receiving notice from the agency of nonconformance, the Controller shall withhold apportionments of funds required to be apportioned to that nonconforming city or county by Section 2105 of the Streets and Highways Code.
>
> (2) If, within the 12-month period following the receipt of a notice of nonconformance, the Controller is notified by the agency that the city or county is in conformance, the Controller shall allocate the apportionments withheld pursuant to this section to the city or county.
>
> (3) If the Controller is not notified by the agency that the city or county is in conformance pursuant to paragraph (2), the Controller shall allocate the apportionments withheld pursuant to this section to the agency.
>
> (c) The agency shall use funds apportioned under this section for projects of regional significance which are included in the capital improvement program required by paragraph (5) of subdivision (b) of Section 65089, or in a deficiency plan which has been adopted by the agency. The agency shall not use these funds for administration or planning purposes."

6.A.2 TRANSPORTATION MODELING AND DATABASE

Modeling and data requirements of the CMP are addressed in Government Code Section 65089(c):

> "The agency, in consultation with the regional agency, cities and the county shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model and shall approve transportation computer models of specific areas within the county that will be used by local jurisdictions to determine the quantitative impacts of development on the circulation system that are based on the countywide model and standardized modeling assumptions and conventions. The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency."

SANBAG maintains the San Bernardino County Transportation Analysis Model (SBTAM) for application throughout the county to evaluate impacts of development on the circulation system. SBTAM was developed from the SCAG regional transportation model and utilizes consistent databases as the regional model. SANBAG anticipates updating the model concurrent with each RTP/SCS cycle to ensure the model is up-to-date and consistent with the regional model.

6.B BENEFITS OF THE MONITORING PROGRAM

The monitoring program has the following benefits:

- Establishes responsibility for monitoring of transportation system performance.
- Provides information to support cost-effective programming decisions.
- Provides data to support the analyses conducted as part of the CMP.
- Provides a systematic process for identifying system deficiencies.
- Provides some of the data needed for development of deficiency plans, including information on causes of deteriorating system performance.
- Provides an opportunity for local jurisdictions to submit findings in support of the determination of conformance with the CMP.

6.C IMPLICATIONS OF THE MONITORING PROGRAM

The monitoring program is both the principal source of data for use in characterizing the performance of the transportation system and the primary enforcement mechanism for the CMP. As indicated in State law, the CMA is required to determine whether local jurisdictions are conforming to the program by maintaining the designated levels of service or adoption and implementation of deficiency plans and by adoption and implementation of the program to analyze the impacts of land use decisions on the regional transportation system. Previously, under the CMP for San Bernardino County, local jurisdictions and Caltrans were responsible for collecting and submitting data to the CMA on levels of service on the CMP network. Local jurisdictions were responsible for data collection and LOS calculations on local streets and roads. Caltrans was responsible for collecting and reporting data in accordance with this chapter on State Highways within San Bernardino County.

However, a refined methodology has been adopted for monitoring the CMP network for the 2015 update. The refined methodology incorporates speed-based probe data to generate average peak period LOS for monitoring purposes. The CMA documents this information in the biennial CMP update.

Under Government Code Section 65089.3(a), local jurisdictions are obligated to maintain the LOS at or above the designated standards on the regional transportation system (i.e., CMP network). If the LOS on the CMP system of roads drops below the CMP LOS standard, local jurisdictions must prepare, adopt and implement a deficiency plan.

A deficiency plan is the mechanism for addressing the deficiency, either by a facility improvement that elevates the LOS to a condition equal to or better than the CMP LOS standard for that segment, or by implementing strategies that will measurably improve the performance of the system and contribute to significant improvements in air quality. The deficiency plan is prepared jointly and adopted

individually by each local jurisdiction found to have contributed to the cause of the deficiency, as a condition of conformance with the CMP (Government Code Section 65089.4, refer to Chapter 8 of the CMP). The local jurisdiction where the deficiency was identified is lead agency in preparation of a multijurisdictional deficiency plan.

6.D OBJECTIVES, POLICIES AND ACTIONS

The objectives of the monitoring program in San Bernardino County are:

Objective 6.1 Existing operational evaluation - Provide an assessment of existing congestion levels on the CMP network.

Policy 6.1.1 - Provide data and LOS analyses sufficient to evaluate the current operation of the CMP highway network and to determine changes in network operation.

Action Maintain speed-based probe data monitoring tool.

RESPONSIBILITY: CMA.

SCHEDULE: Biennial.

Objective 6.2 Estimate the extent and location of future deficiencies on the CMP network.

Policy 6.2.1 - Provide the capability to systematically forecast traffic volumes, LOS deficiencies and multimodal system performance on the CMP network.

Action Maintain the SBTAM model to produce forecasts to analyze the impact of land use decisions, prepare deficiency plans and perform other activities related to the CMP.

RESPONSIBILITY: CMA.

SCHEDULE: Ongoing model maintenance and updating.

Action Predict future deficiencies through the modeling process and ensure that they are addressed through existing or new deficiency plans.

RESPONSIBILITY: CMA. Local agencies, the CMA and Caltrans prepare studies to identify and fund future deficiency mitigation.

SCHEDULE: As needed in the process of evaluating alternative strategies.

Action Review local transportation models for consistency with the SBTAM model and use local model data to update and improve SBTAM.

RESPONSIBILITY: CMA.

SCHEDULE: Ongoing.

Objective 6.3 Provide traffic and land use data to support comprehensive, systematic evaluations of land use changes, alternative highway improvements and alternative transportation policy options.

Policy 6.3.1 - Maintain comprehensive, accessible transportation and land use data, both existing and forecast.

Action Maintain existing traffic count and speed-based probe data information (link and turning movement) in a set of data bases that can be easily accessed and shared with multiple agencies.

RESPONSIBILITY: CMA, Caltrans. Counts conducted by others are to be submitted to the CMA.

SCHEDULE: Ongoing.

Objective 6.4 Establish conformance by local jurisdictions with the CMP.

Policy 6.4.1 - Fulfill legal requirements of the CMP.

Action Confirm implementation of the land use/transportation analysis program and the trip reduction and TDM ordinance by local agencies.

RESPONSIBILITY: CMA.

SCHEDULE: Biennial by December 31 of even numbered years.

Action Confirm the maintenance of LOS standards and the preparation of adequate deficiency plans by local jurisdictions.

RESPONSIBILITY: CMA.

SCHEDULE: Biennially.

Action If local jurisdictions submit findings of conformance with the provisions of the CMP, consider the findings in conjunction with other conformity information.

RESPONSIBILITY: CMA.

SCHEDULE: Biennially.

Action Assess transit system performance using measures contained in the CMP Performance Measures Element.

RESPONSIBILITY: CMA.

SCHEDULE: Ongoing as part of Short Range Transit Plan updates.

6.E COMPONENTS OF THE MONITORING PROGRAM

There are several components of the monitoring program for the San Bernardino County CMP:

- Data collection
- LOS analysis
- Evaluation of transit performance
- CMP conformance determination

6.E.1 DATA COLLECTION

The CMP monitoring relies upon speed-based probe data to assess peak period LOS. Caltrans acquires the data for use in the 511 system which is also incorporated into the CMP Monitoring Tool that archives the data for future analysis of the circulation system. Systematic procedures are included in the revised monitoring program methodology to provide for a cost-effective approach to collecting and maintaining traffic data.

6.E.2 LOS ANALYSIS

RESPONSIBILITY: CMA.

Procedure: Apply Highway Capacity Manual procedures to compute LOS for freeways and arterials based on probe speed data.

Reporting: The CMA incorporates results into CMP.

6.E.3 TRANSIT MONITORING

RESPONSIBILITY: Transit agencies

SCHEDULE: Annually

Procedure/Reporting: Transit agencies annually transmit operational performance data and statistics to the CMA and NTD.

Operational statistics include:

- Route map
- Frequency of service by route and corridor
- Ridership (total and by route)
- Fare structure

6.E.4 CMP CONFORMANCE DETERMINATION

Deficiency Plans.

The CMA will identify LOS deficiencies in the biennial monitoring report. Upon completion of the biennial update to the CMP, deficiency plans are to be prepared and submitted to the CMA within one year of initial identification of a deficiency, based on monitoring, if it is located within an area not already addressed by an area-wide deficiency plan.

The CMA will review deficiency plans and hold a public hearing within 60 days of the receipt of the plan. If the CMA fails to approve the deficiency plan, the participating local jurisdictions are allowed 90 days to modify the deficiency plan or mitigate the deficiency. If the local jurisdictions do not come into conformance with the CMP within 90 days, the CMA Board is obligated to make a finding of nonconformance for all participants and submit the finding to the California Transportation Commission and the State Controller. Guidelines for the preparation of deficiency plans are included in **Appendix C** If an approvable multi-jurisdictional, area-wide deficiency plan is prepared and adopted by some but not all agencies identified as contributing to

the impact, any jurisdictions failing to adopt the area-wide deficiency plan can be found in nonconformance.

RESPONSIBILITY: Local jurisdictions prepare and adopt area-wide deficiency plans and submit them to the CMA for approval. The CMA Board renders written approval or disapproval of the deficiency plan, with an explanation of the reasons for disapproval. If the problems with the plan are not adequately addressed or remedied, the CMA submits a finding of nonconformance for all participating jurisdictions.

SCHEDULE: Following completion of the biennial CMP update, deficiency plans shall be submitted within 12 months of the identification of a deficiency. The deficiency shall be determined by monitoring and shall be within an area not already encompassed by an area-wide deficiency plan.

Land Use/Transportation Analysis Program.

Local jurisdictions are required to adopt and implement a Land Use/Transportation Analysis Program. Chapter 4 presents the program for San Bernardino County. Following the adoption of the program, local jurisdictions are required to implement its provisions. A brief annual report is to be provided to the CMA indicating the number of development projects or plans affected. The CMA will include the information in the biennial CMP update.

RESPONSIBILITY: Local jurisdictions

SCHEDULE: Information supplied to the CMA on an ongoing basis

6.E.5 LOCAL JURISDICTION SELF-CERTIFICATION

Local jurisdiction findings of conformity.

A local jurisdiction may, by resolution of its governing body, prepare and submit findings of conformance describing how the local jurisdiction has complied with the CMP provisions of the Government Code Section and any other provisions of the CMP. At local jurisdiction request, the CMA shall provide local jurisdictions with available monitoring information relevant to the local jurisdiction's conformance requirements to review the monitoring information, prepare and submit the findings prior to the annual conformity review.

RESPONSIBILITY: The CMA and local jurisdictions.

SCHEDULE: Information to be supplied by the CMA biennially.

6.F TRANSPORTATION MODELING FOR THE CMP

6.F.1 BACKGROUND

Traffic modeling capability provides several important functions in the implementation of the CMP including:

- Forecasting on the CMP network for facility programming purposes.
- Forecasting in conjunction with TIA reports.
- Forecasting for area-wide deficiency plans.
- Evaluating and prioritizing transportation improvement projects, such as capital projects, transit projects, Transportation Systems Management (TSM) projects, Transportation Demand Management (TDM) strategies and other programs that improve the transportation system and air quality.

In 2013 SBTAM was developed based on the SCAG regional model. This model is maintained and updated by the CMA. Local models are derived from the subregional model by local agencies to provide more detailed local modeling capability.

Each level of model has specific applications. Neither the SCAG regional model nor SBTAM can be detailed enough to meet all the objectives of the Land Use/Transportation Analysis Program. On the other hand, local models are not designed to address regional needs. To address both scales, consistency must be maintained among the modeling systems and the results they produce.

6.F.2 TYPES OF MODELING ACTIVITIES FOR THE CMP

A summary of the modeling activities to be conducted as part of the CMP is presented below. In addition **Appendix B**, Guidelines for Preparing TIA Reports, identifies several possible approaches to the development of forecasts for the Land Use/Transportation Analysis Program.

6.F.2.1 Modeling for RTP/SCS

- Purpose: To evaluate the RTP/SCS on approximately a four-year cycle and to provide base data for other applications by local agencies, either related to their local models or independently from their local models.
- Model: SCAG regional model.
- Responsibility: SCAG.
- Time-frame: Four year cycle and as otherwise required for special studies.

6.F.2.2 Modeling for the CTP and Area-wide Deficiency Plans

- Purpose: Evaluate transportation system needs along corridors or within given areas.
- Model: SBTAM or a local model, depending on the specific application; model with mode split capability is needed in urban areas.
- Responsibility: Local jurisdictions, Caltrans, SCAG and/or the CMA.
- Time-frame: Four-year cycle and as otherwise required for special studies.

6.F.2.3 Modeling for Land Use/Transportation Analysis Program

- Purpose: Evaluate the impacts of land use decisions on the CTP network or for other local analysis purposes. Forecasting could be associated with specific development projects, general plan updates/revisions, specific plans and other changes in land use.
- Model: SBTAM and local models.
- Responsibility: CMA and local jurisdictions.
- Time-frame: Project-specific.
-

6.G SUMMARY OF RESPONSIBILITIES

CMA Responsibilities

- Maintain, with SCAG, SBTAM to produce CMP system forecasts.
- Review local models for consistency with the CMP.
- With SCAG, predict future deficiencies through the modeling process.
- Confirm adoption and implementation of the Land Use/Transportation Analysis Program and the trip reduction and travel demand management ordinance by local agencies.
- Confirm the maintenance of LOS standards and the adequacy of deficiency plans prepared by local jurisdictions.
- Confirm the reported performance of the transit system.
- Make findings of nonconformance for local agencies not complying with provisions of the CMP.
- When applicable, review local jurisdiction findings of conformance in conjunction with other conformity information.
- Maintain demographic files that are input into transportation models and the RTP/SCS.

Local Jurisdiction Responsibilities

- Maintain current, consistent local transportation models or utilize consistent alternative analytic methods and utilize such models or consistent methods to analyze the impact of land use decisions, prepare congestion management master plans and other activities related to the CMP.
- Maintain current land use data as part of ongoing local transportation modeling activities.
- Identify when segments become deficient and prepare or participate in preparation of a deficiency plan when necessary.
- Plan for the mitigation of future deficiencies using strategies developed through the CTP process and incorporated

into area-wide deficiency plans and TIA Reports.

- At the discretion of local jurisdictions, submit findings of conformance to the CMA.

CALTRANS Responsibilities

- Maintain existing State highway traffic count information in a set of data bases that can be easily accessed and shared with multiple agencies.
- With local jurisdictions, plan for the mitigation of future deficiencies on State highways through the preparation of congestion management master plans.

SCAG Responsibilities

- Maintain, with the CMA, SBTAM. Produce forecasts on the CMP network.
- Develop regional land use forecasts for input into SBTAM and local models.

7. CAPITAL IMPROVEMENT PROGRAM ELEMENT

7.A. LEGAL REQUIREMENTS

California Government Code Section 65089 (b) (5) states the requirements for the Capital Improvement Program (CIP):

> "The program shall contain...a seven year capital improvement program, developed using the performance measures described in (the performance measures element) to determine effective projects that maintain or improve the performance of the multimodal system for the movement of people and goods, to mitigate regional transportation impacts identified pursuant to paragraph (4). The program shall conform to transportation-related vehicle emissions air quality mitigation measures and include any project that will increase the capacity of the multimodal system. It is the intent of the Legislature that, when roadway projects are identified in the program, consideration be given to maintaining bicycle access and safety at a level comparable to that which existed prior to the improvement or alteration. The capital improvement program may also include safety, maintenance and rehabilitation projects that do not enhance the capacity of the system but are necessary to preserve the investment in existing facilities."

Programming of certain federal transportation funds is also linked to the CMP by Section 65089.2(c):

> "(1) The regional agency shall not program any surface transportation funds and congestion mitigation and air quality funds pursuant to Section 182.6 and 192.7 of the Streets and Highways Code in a county unless a congestion management program has been adopted by December 31, 1992, as required pursuant to Section 65089. No surface transportation program funds or congestion mitigation and air quality funds shall be programmed for a project in a local jurisdiction that has been found to be in nonconformance with a congestion management program pursuant to Section 65089.5 unless the agency finds that the project is of regional significance."

7.B. IMPLICATIONS OF CMP CIP DEVELOPMENT AND RELATIONSHIP TO OTHER PLANS

The CIP presents information on the transportation-related improvements anticipated for the multimodal CMP system. For purposes of satisfying the CIP requirement, the Federal Transportation Improvement Program (FTIP) is defined as the CMP CIP for San Bernardino County and these terms are used interchangeably. Over time, these projects may be identified through the CTP, the Land Use/Transportation Analysis Program (i.e., mitigating actions in TIA Reports) and deficiency plans. Projects funded by both public and private sources are shown, where appropriate.

The CIP must be consistent with the assumptions, goals, policies, actions and projects identified in the SCAG RTP/SCS. SCAG is expected to review the CIP to avoid inconsistencies.

The FTIP must conform to the State Implementation Plan (SIP), which is the State's Plan, subject to federal approval, that specifies the measures to be taken within each of the State's Air Quality Management Districts to attain federal air quality standards. For the CMP CIP to be adopted into the regional transportation plan, it must also conform to the SIP. Projects in the CMP CIP must be consistent with acceptable strategies or improvement types provided by the South Coast Air Quality Management District (SCAQMD) or the Mojave Desert Air Quality Management District (MDAQMD).

7.C OBJECTIVES, POLICIES AND ACTIONS

Objective 7.1 Implementation - Provide a framework for the funding and implementation of improvements that will maintain or improve regional mobility and meet federal, State and regional air quality requirements.

Policy 7.1.1 - Incorporate projects into the CIP consistent with the

inclusion into the FTIP and the Development Mitigation Nexus Study.

Action Within the CTP and other CMP elements, use measures from the performance measures element to select and prioritize projects or strategies for inclusion in the CMP CIP which best meet the objectives of the CTP and RTP/SCS.

RESPONSIBILITY: The CMA, local jurisdictions and Caltrans.

Policy 7.1.2 - Provide information in the CIP on project location, type, funding, implementation responsibility and justification, consistent with the format of the FTIP.

Action Prepare the CIP in accordance with Government Code section 65089 (b) (5) and the guidelines established in this chapter.

RESPONSIBILITY: The CMA, in cooperation with local jurisdictions and Caltrans.

Policy 7.1.3 - Develop the CIP in conformance with transportation-related air quality mitigation measures.

Action Prepare the CIP in accordance with Government Code section 65089 (b) (5), the SIP and the respective air quality management plans and guidelines established in this chapter.

RESPONSIBILITY: The CMA, in cooperation with local jurisdictions, the regional agency, Caltrans and air districts.

7.D PROCESS OF CIP DEVELOPMENT

The process for developing the CMP CIP is as follows:

- Local governments and the County Transportation Commission identify projects or other transportation programs through local planning processes, the CTP and other CMP elements. Projects are identified through the FTIP process and/or the Development Mitigation Nexus Study. Near-term capital projects to be implemented in accordance with the CTP, deficiency plans or TIA reports must be included in the CIP. Projects to be included in the CIP should be submitted in a format that can be directly integrated into the FTIP. The most recently adopted FTIP can be accessed on the SCAG website at http://ftip.scag.ca.gov/Pages/default.aspx.
- Transit providers should identify their projects that are necessary to maintain or improve multimodal system performance and the basis for prioritization. These projects may need to be coordinated with the local governments.
- Within the SCAQMD, the transportation control measures contained in the State-approved SIP and air quality management plan must be incorporated in the FTIP/CMP CIP. Within the Southeast Desert Air Basin, any TCM's identified within the Air Quality Management Plan to be funded through the FTIP must be included. The CMA will coordinate FTIP/CIP development with SCAG, the SCAQMD and the MDAQMD.
- The CMA will compile the projects submitted for the CIP and will evaluate projects submitted for non-local funding, based on the data submitted by the agencies.
- Because the CMP system includes State Highways, Caltrans should be consulted during FTIP/CIP formulation. Caltrans has specific project and cost information for State Highway projects needed for CIP preparation. The CMA will coordinate closely with Caltrans and other agencies to ensure that Project Study Reports (PSR's), TIA reports and deficiency plans are adequately prepared.

7.F SUMMARY OF RESPONSIBILITIES

CMA Responsibilities

- Work with local jurisdictions, Caltrans, transit agencies and the air districts to identify and select CIP projects based on

the objectives of the CTP and performance measures identified within the CMP.

- Develop project priorities for non-locally funded projects based on the CTP objectives, CMP performance measures and additional information submitted by local jurisdictions, Caltrans and transit agencies.

Local Jurisdiction Responsibilities

- Based on the CTP and CMP performance measures, work with the CMA, Caltrans, transit agencies and the air districts to identify CIP projects.
- Submit CIP project proposals to the CMA.

Caltrans Responsibilities

- Based on the CTP and CMP performance measures, work with the CMA, local jurisdictions, transit agencies and the air districts to identify CIP projects.
- Submit CIP project proposals to the CMA.

Transit Agency Responsibilities

- Based on the CTP and CMP performance measures, work with the CMA, local jurisdictions, Caltrans and the air districts to identify CIP projects.
- Submit CIP project proposals and supporting data to the CMA.

SCAQMD and MDAQMD Responsibilities

- Maintain a list of improvement types that satisfy air quality requirements.
- Review proposed CIP projects for consistency with air quality requirements and ensure consistency with State and federal law.

8. DEFICIENCY PLANS

This element discusses the process to be used within San Bernardino County to address transportation system deficiencies through preparation of deficiency plans. In addition to statutory requirements, policy guidance regarding deficiency plans was provided by the CMA Board of Directors in October 1994. This guidance is reflected in policies identified in Section 8.C.

Statutory requirements added by the passage of AB 1963 in 1994 require CMA's to prepare and adopt procedures for deficiency plan development and implementation responsibilities. These procedures are developed through the TTAC and approval by the CMA Board of Directors. The conceptual and policy framework for these procedures is described below.

8.A. LEGAL REQUIREMENTS

California Government Code Section 65089(b)(2)(B) states the following requirement to prepare deficiency plans:

> "... When the LOS on a segment or at an intersection fails to attain the established LOS standard, a deficiency plan shall be adopted pursuant to Section 65089.4."

Detailed CMP deficiency plan requirements are specified in Government Code Section 65089.4:

> "(a) A local jurisdiction shall prepare a deficiency plan when highway or roadway LOS standards are not maintained on segments or intersections of the designated system. The deficiency plan shall be adopted by the city or county at a noticed public hearing.
>
> (b) The agency shall calculate the impacts subject to exclusion pursuant to subdivision (f) of this section, after consultation with the regional agency, the department and the local air quality management district or air pollution control district. If the calculated traffic LOS following exclusion of these impacts is consistent with the LOS standard, the agency shall make a finding at a publicly noticed meeting that no deficiency plan is required and so notify the affected local jurisdiction.
>
> (c) The agency shall be responsible for preparing and adopting procedures for local deficiency plan development and implementation responsibilities, consistent with the requirements of this section. The deficiency plan shall include all of the following:
>
> (1) An analysis of the cause of the deficiency. This analysis shall include the following:
>
> (A) Identification of the cause of the deficiency.
>
> (B) Identification of the impacts of those local jurisdictions within the jurisdiction of the agency that contribute to the deficiency. These impacts shall be identified only if the calculated traffic LOS following exclusion of impacts pursuant to subdivision (f) indicates that the LOS standard has not been maintained and shall be limited to impacts not subject to exclusion.
>
> (2) A list of improvements necessary for the deficient segment or intersection to maintain the minimum LOS otherwise required and the estimated costs of the improvements.
>
> (3) A list of improvements, programs, or actions and estimates of costs, that will (A) measurably improve multimodal performance, using measures defined in paragraphs (1) and (2) of subdivision (b) of Section 65089 and (B) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved non-motorized transportation facilities, high occupancy vehicle facilities, parking cash-out programs and transportation control measures. The air quality management district or air pollution control district shall establish and periodically revise a list of approved improvements, programs and actions that meet the scope of this paragraph. If an improvement, program, or action on the approved list has not been fully

implemented, it shall be deemed to contribute to significant improvements in air quality. If an improvement, program, or action is not on the approved list, it shall not be implemented unless approved by the local air quality management district or air pollution control district.

(4) An action plan, consistent with the provisions of Chapter 5 (commencing with Section 66000), that shall be implemented, consisting of improvements identified in paragraph (2), or improvements, programs, or actions identified in paragraph (3), that are found by the agency to be in the interest of the public health, safety and welfare. The action plan shall include a specific implementation schedule. The action plan shall include implementation strategies for those jurisdictions that have contributed to the cause of the deficiency in accordance with the agency's deficiency plan procedures. The action need not mitigate the impacts of any exclusions identified in subdivision (f). Action plan strategies shall identify the most effective implementation strategies for improving current and future system performance.

(d) A local jurisdiction shall forward its adopted deficiency plan to the agency within 12 months of the identification of the deficiency. The agency shall hold a noticed public hearing within 60 days of receiving the deficiency plan. Following that hearing, the agency shall either accept or reject the deficiency plan in its entirety, but the agency may not modify the deficiency plan. If the agency rejects the plan, it shall notify the local jurisdiction of the reasons for that rejection and the local jurisdiction shall submit a revised plan within 90 days addressing the agency's concerns. Failure of a local jurisdiction to comply with the schedule and requirements of this section shall be considered to be nonconformance for the purposes of Section 65089.5.

(e) The agency shall incorporate into its deficiency plan procedures a methodology for determining if deficiency impacts are caused by more than one local jurisdiction within the boundaries of the agency.

(1) If, according to the agency's methodology, it is determined that more than one local jurisdiction is responsible for causing a deficient segment or intersection, all responsible local jurisdictions shall participate in the development of a deficiency plan to be adopted by all participating local jurisdictions.

(2) The local jurisdiction in which the deficiency occurs shall have lead responsibility for developing the deficiency plan and for coordinating with other impacting local jurisdictions. If a local jurisdiction responsible for participating in a multi-jurisdictional deficiency plan does not adopt the deficiency plan in accordance with the schedule and requirements of paragraph (a) of this section, that jurisdiction shall be considered in nonconformance with the program for purposes of Section 65089.5.

(3) The agency shall establish a conflict resolution process for addressing conflicts or disputes between local jurisdictions in meeting the multi-jurisdictional deficiency plan responsibilities of this section.

(f) The analysis of the cause of the deficiency prepared pursuant to paragraph (1) of subdivision (c) shall exclude the following:

(1) Interregional travel.

(2) Construction, rehabilitation, or maintenance of facilities that impact the system.

(3) Freeway ramp metering.

(4) Traffic signal coordination by the state or other multijurisdictional agencies.

(5) Traffic generated by the provision of low and very low income housing.

(6) (A) Traffic generated by high density residential development located within one-fourth of a mile of a fixed

rail passenger station. (B) Traffic generated by any mixed use development located within one-fourth of a mile of a fixed rail passenger station, if more than half of the land area, or floor area, of the mixed use development is used for high density housing, as determined by the agency.

(g) For the purposes of this section, the following terms have the following meanings:

(1) "High density" means residential density development which contains a minimum of 24 dwelling units per acre and a minimum density per acre which is equal to or greater than 120 percent of the maximum residential density allowed under the local general plan and zoning ordinance. A project providing a minimum of 75 dwelling units per acre shall automatically be considered high density.

(2) "Mixed use development" means development which integrates compatible commercial or retail uses, or both, with residential uses, and which, due to the proximity of job locations, shopping opportunities and residences, will discourage new trip generation."

8.B BENEFITS AND IMPLICATIONS OF DEFICIENCY PLANS

Deficiency plans provide a mechanism for development and implementation of strategies to address inadequate system performance and avoid future problems, including identification of causes and mitigation responsibilities.

If the LOS drops below the established LOS standard or if the LOS deteriorates greater than 10 percent below its LOS value at the time of initial CMP adoption for any LOS F facility, local jurisdictions are required to develop these plans to correct the deficiency by making improvements that elevate the LOS to a condition equal to or better than the prescribed LOS standard for that intersection or segment, or by implementing strategies that will measurably improve the LOS of the system and contribute to significant improvements in air quality.

8.C OBJECTIVES, POLICIES AND ACTIONS

San Bernardino County deficiency plan objectives:

Objective 8.1. Maintain or improve the performance of the multimodal transportation system within San Bernardino County through development and implementation of deficiency plans.

Policy 8.1.1 - Address existing and future deficiencies on all CMP facilities through Deficiency Plans which cover large geographic areas of the county (such as the Valley or Victor Valley), rather than individual facilities or individual corridors.

Action Prepare area-wide deficiency plan(s) which address all CMP roads and other significant components of the multimodal transportation system through a participatory process involving all impacting and affected jurisdictions.

RESPONSIBILITY: Local jurisdictions.

Policy 8.1.2 - Establish and maintain procedures for local deficiency plan development and implementation responsibilities, consistent with statute.

Action Prepare and periodically update deficiency plan procedures, subject to approval by the CMA Board of Directors.

RESPONSIBILITY: The CMA in cooperation with local jurisdictions.

Policy 8.1.3 - Prepare and adopt area-wide deficiency plans within one year for areas in which the CMP monitoring has identified deficiencies and recommended deficiency plan development.

Action Develop area-wide deficiency plan based on local actions identified within the CTP as it applies to that area.

RESPONSIBILITY: Local jurisdictions in which deficiency has been identified as lead agency, other jurisdictions within area participate in preparation and adoption of deficiency plan.

Policy 8.1.4 - Use the CTP to analyze causes of deficiencies and define the local jurisdiction actions to be implemented through area-wide deficiency plans.

Action Develop the CTP on a subarea basis to facilitate its use in defining actions to be implemented through area-wide deficiency plans.

RESPONSIBILITY: The CMA, in consultation with the regional agency, Caltrans, transit providers and the appropriate AQMD.

Policy 8.1.5 - To the greatest extent possible, provide technical and financial support for the process of developing area-wide deficiency plans from subarea components of the CTP.

Action Give priority to area-wide deficiency plan preparation in allocating discretionary transportation monies.

RESPONSIBILITY: The CMA.

Policy 8.1.6 - Incorporate into the adopted deficiency plan procedures a methodology for determining if deficiency impacts are caused by more than one local jurisdiction within the boundaries of the CMA.

Action Through the TTAC, develop and maintain a methodology for fairly attributing deficiency impacts and plan implementation responsibilities to all jurisdictions within a deficiency planning area which contribute to the cause of the deficiency.

RESPONSIBILITY: The CMA.

Policy 8.1.7 - Calculate the impacts subject to exclusion and if the calculated traffic LOS following exclusion of these impacts is consistent with the LOS standard, find at a publicly noticed meeting that no deficiency plan is required and so notify the affected local jurisdiction.

Action Through the TTAC, develop and maintain a methodology for calculating the traffic LOS following exclusion of impacts from sources specified in statute.

RESPONSIBILITY: The CMA, in consultation with the regional agency, Caltrans and the appropriate AQMD.

Policy 8.1.8 - All local jurisdictions responsible for contributing to deficiencies within an area shall participate in the development of the area-wide deficiency plan and shall adopt the plan.

Action Participate in development of area-wide deficiency plans and adopt final deficiency plans.

RESPONSIBILITY: Local jurisdictions, with assistance from the CMA if requested.

Policy 8.1.9 - Establish and maintain a conflict resolution process for addressing conflicts or disputes between local jurisdictions in meeting the multi-jurisdictional deficiency plan responsibilities.

Action Implement conflict resolution procedures at the request of one or more local jurisdictions.

RESPONSIBILITY: The CMA.

8.E DEFICIENCY PLAN STRATEGY

Consistent with statute and CMA Board policy, adoption of the applicable area-wide deficiency plan by each local government in that area would constitute that local government's commitment to implement actions identified by the CTP as being the responsibility of local governments within the respective areas. No additional deficiency plans would be required, in contrast to the alternative, in which facility specific, usually multi-jurisdictional deficiency plans would be required for each CMP facility if the CMP LOS standard were exceeded. The

deficiency plan policy reflects a recognition of the administrative infeasibility of a facility-specific approach relying on a patchwork of overlapping, multi-jurisdictional deficiency plans. Periodic updates of the area-wide deficiency plans would be required in conjunction with CMP and CTP updates to ensure that the plans continue to reflect the mobility strategy defined by the CTP, which in turn must maintain consistency with the locations, rates and types of land use changes that occur through time. Because preparation of the CTP is supported by non-local transportation planning funds, local governments can reduce deficiency plan preparation costs by using the CTP as the basis for each deficiency plan's action plan. The effort and cost to complete the area-wide deficiency plans leading to adoption by local governments will depend on the nature of the transportation strategy adopted through the CTP, but will be far less than if numerous facility-specific deficiency plans were required under the previous deficiency plan strategy.

8.F COMPONENTS OF DEFICIENCY PLANS

Government Code Section 65089.4 specifies the components of an approvable deficiency plan. The CMA is required to calculate the impacts subject to exclusion prior to inception of the process of preparing a deficiency plan, to determine if the calculated LOS following exclusion is consistent with the LOS standard. If the calculated LOS following subtraction of the impacts subject to exclusion remains below the CMP LOS standard, the deficiency plan is required. It is required to include:

1. *Analysis of the cause of the deficiency.* Although this component of a deficiency plan may have been originally intended to identify specific land use decisions that caused a particular roadway to exceed the LOS standard, experience in the larger urbanized areas of Southern California indicates that most deficiencies are a result of many local actions involving a multitude of local jurisdictions. In the case of a program which focuses on multi-jurisdictional, area-wide deficiency plans, this element of the deficiency plan instead serves to identify the jurisdictions required to participate in and contribute to preparation and implementation of the deficiency plan.

2. List of improvements needed to maintain LOS standard. This element identifies the capital improvements or other strategies which, if implemented, would return the CMP facilities addressed by a deficiency plan to the CMP LOS standard. If a series of phased improvements would be needed through time to maintain the LOS standard because of continuing growth, all the improvements, along with a schedule which phases the improvements in relation to rates of development, could be incorporated within a single deficiency plan. This could avoid the need for preparation of numerous deficiency plans to address a single continuing problem. In the case of an area-wide deficiency plan, any improvements needed to maintain the LOS standard on every facility in the area encompassed by the deficiency plan must be identified.

3. A list of improvements or strategies that will improve system performance and air quality. This element provides flexibility to move beyond (but not necessarily ignore) facility-specific, roadway LOS maintenance, to focus instead on multimodal transportation system performance throughout the entire area of interest. Instead of concentration solely on one or more facilities in relation to the CMP LOS standard, this approach also permits local policy to dictate the level of system performance (or performance improvement) to be achieved through implementation of the deficiency plan. According to CMA Board policy, the CTP is the mechanism through which the actions to be implemented through area-wide deficiency plans are to be defined. The system performance objectives of the CTP then become the system performance level to be achieved in the respective areas addressed by deficiency plans. In effect, the deficiency plans are the implementation mechanisms for local government actions in accordance with the CTP.

4. An action plan based either on strategy (2) or strategy (3) above, that shall be implemented, including a specific implementation schedule. The scheduling or phasing of implementation is this section's key component. The deficiency plan's implementation schedule for long-term strategies should be based on monitored increases in land use or actual traffic, rather than on absolute dates.

Under the area-wide deficiency plan strategy of the CMP for San Bernardino County, much of the effort of deficiency plan preparation and implementation is accomplished through other planning efforts or other elements of the CMP. The improvements to be implemented through the deficiency plan are to be identified for each subarea of the county through the CTP. The Land Use/Transportation Analysis Program element of the CMP described in Chapter 4 and the CMP monitoring program described in Chapter 6, are designed to support the deficiency plan process by tracking changes in land use that affect traffic locations, volumes and modes to determine how actual population, housing, jobs and traffic growth is varying from the growth assumptions on which the CTP was based. As disparities are identified between actual events identified by the monitoring program and the forecasts of growth, biennial updates of the CTP will include tests of the original transportation strategy to determine if transportation performance objectives are met despite changes in growth patterns or rates and refinements to the CTP will be needed. Accordingly, deficiency plan updates will be undertaken as part of the biennial CMP update process to incorporate these refinements.

8.G SUMMARY OF RESPONSIBILITIES

CMA Responsibilities

- In cooperation with member jurisdictions, the regional agency, Caltrans, transit providers and air quality districts, develop the CTP to facilitate its use in defining actions to be implemented through area-wide deficiency plans.
- Coordinate periodic updates to the CTP to serve as a basis for periodic updates or revisions to deficiency plan action programs.
- In cooperation with the local jurisdictions and Caltrans, prepare and periodically update deficiency plan procedures.
- Through the TTAC, develop and maintain a methodology for fairly attributing deficiency impacts and plan implementation responsibilities to all jurisdictions within a deficiency planning area which contribute to the cause of the deficiency.
- In consultation with the TTAC, the regional agency, Caltrans and the air quality management districts, develop and maintain a methodology for calculating the traffic LOS following exclusion of impacts from sources specified in statute.

Local Jurisdiction Responsibilities

- Through the TTAC, participate in preparation and periodic updating of deficiency plan procedures.
- Prepare area-wide deficiency plan(s) which address all CMP roads and other significant components of the multimodal transportation system through a participatory process involving all impacting and affected jurisdictions.
- Participate in development of the area-wide deficiency plan based on the local actions identified within the pertinent subarea plan of the CTP.
- Act as lead agency to coordinate preparation of a multi-jurisdictional deficiency plan if the deficiency has been identified within your jurisdictional boundaries.
- Participate in updates to both the CTP and deficiency plan action programs as needed to achieve the desired systemwide performance level, in light of revised estimates of growth or travel behavior.

CALTRANS Responsibilities

- Participate in preparation of the CTP to define local actions to be implemented through area-wide deficiency plans and in periodic updates of the CTP.
- Participate in preparation and periodic updates to deficiency plan procedures.
- Participate through the TTAC in development and maintenance of a methodology for fairly attributing deficiency impacts and plan implementation responsibilities to all jurisdictions within a deficiency planning area which contribute to the cause of the deficiency.

- Participate in development and maintenance of a methodology for calculating the traffic LOS following exclusion of impacts from sources specified in statute.
- Assist local jurisdictions in preparing area-wide deficiency plans as they relate to or impact the system of State highways.

Air District Responsibilities

- Establish and periodically revise a list of approved improvements, programs and actions that it deems will contribute to significant improvements in air quality.
- Assist local governments within the respective air quality district jurisdictions to determine if area-wide deficiency plans will contribute to significant improvements in air quality.

SCAG Responsibilities

- In cooperation with the CMA and local jurisdictions, prepare and update growth forecasts on which to base the CTP, deficiency plan action programs and their periodic updates.
- In cooperation with CMA, local jurisdictions, Caltrans, transit providers and air quality districts, participate in development of the CTP on a subarea basis to facilitate its use in defining actions to be implemented through area-wide deficiency plans.
- Consult with CMA, Caltrans and the air quality management districts, on development and maintenance of a methodology for calculating the traffic LOS following exclusion of impacts from sources specified in statute.

APPENDIX A

2015 LEVEL OF SERVICE MONITORING REPORT

SANBAG CONGESTION MANAGEMENT PROGRAM

2015 LEVEL OF SERVICE MONITORING

November 2015

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INTRODUCTION

Originally adopted in 1992, San Bernardino Associated Governments (SANBAG) has periodically updated their Congestion Management Program (CMP) since 1993. The Level of Service (LOS) monitoring element of the CMP is one of five elements required by California Government Code Section 65088-65089.10.

Through its LOS monitoring, SANBAG monitored the performance of approximately 1,500 miles of interstate, state highway and principal arterial facilities, of which 500 miles are in the Valley Region and 176 miles are in the Victor Valley Region. In previous cycles, the monitoring was undertaken annually through the use of traffic counts conducted by local jurisdictions and Caltrans. Similar to other counties at the time, the 2007 CMP was presented in an extensive electronic (PDF) report and published on the SANBAG website for review by the community.

Recently, new data technologies and performance measurement approaches have been radically transforming congestion monitoring practices nationwide. For the LOS monitoring component of the 2015 CMP, SANBAG has adopted an online tool which utilizes commercial speed data from HERE. HERE provides real time speeds and travel times for each minute via their TrafficML feed and these data points have been ingested into the tool since April 2015. The online tool is the principal element of the LOS monitoring and this report provides supplementary information to:

- Record the methodology;
- Identify deficiencies; and
- Provide other commentary requested by the Southern California Association of Governments (SCAG).

The online tool can be accessed at the following link: http://sanbag.iteris-pems.com/. SANBAG staff and staff of member agencies may apply for accounts from the homepage.

Transition to Modern LOS Monitoring Practices

To ensure that these methodological changes were acceptable, guidance was sought from SCAG.

Use of an Online Monitoring Tool vs a Traditional LOS Report: Traditionally, LOS reporting requirements have been met by conducting field based monitoring and recording the results in a report. The report was submitted to SCAG and posted on the SANBAG website. Advice was sought from SCAG about whether an online monitoring tool would be an acceptable alternative to the traditional method of reporting system performance. SCAG confirmed its adequacy in satisfying the CMP LOS monitoring element, however indicated that a condensed report is required to:

- Highlight deficient segments and whether exemptions were available for these CMP segments; and
- Monitor road segments not included in the monitoring tool due to lack of coverage from commercial speed data.

Transition to a Speed Based Approach: In previous LOS monitoring efforts, SANBAG measured the performance using volume to capacity (V/C) ratios and highway capacity manual (HCM) estimation methods to translate the V/C ratios into a LOS. In this monitoring effort, commercial speed data is used

to measure the speed and translate the speed into LOS using HCM methods. SCAG also confirmed that this was acceptable, however requested the following additional commentary in the final report:

- Identify significant cross-border inconsistencies between the LOS measurements derived from commercial speed data for San Bernardino County roadways and the LOS measurements from adjacent county CMPs on inter-county roadways.
- Identify significant differences between the LOS measurements derived from commercial speed data and the LOS measurements derived from the previous SANBAG methodology, specifically in terms of identifying deficient roadway segments.

METHODOLOGY

Monitoring Period

The LOS analysis was conducted for the time period between April 13, 2015 and May 22, 2015. These dates were chosen to represent normal traffic conditions when there were no public holidays and while schools were in session. The monitoring was conducted on Tuesdays, Wednesdays and Thursdays.

The morning peak period was defined as between 7:00 a.m. and 9:00 a.m. and the evening peak period was defined as between 4:00 p.m. and 6:00 p.m. The intent in selecting these time periods was to focus on recurring weekday conditions rather than traffic congestion related to recreational travel that occurs in the mountain and desert areas.

CMP Network

The description of the CMP network was obtained from the CMP for San Bernardino County, 2007 Update, **Appendix A**[1]. The road segmentation was also adopted from this Appendix.

In San Bernardino County, the CMP network is separated into three categories: Freeways, Arterials and Two Lane Highways. The two lane highway category is further sub-divided according to the Highway Capacity Manual (HCM) into higher speed rural roads (Class 1) and lower speed rural roads (Class II / III).

Each CMP segment from the 2007 report was entered into the online tool for both directions. In addition, each segment was assigned a unique identifier consisting of a:

- Letter to designate the class of CMP segment; F – Freeway, A – Arterial, H – Two Lane Highway (Class I), T – Two Lane Highway (Class II or III); and
- Number to uniquely identify the segment.

Data Collection

HERE data

In 2014, Caltrans District 8 contracted with HERE to obtain region-wide commercial speed data and has made the data available free of charge to SANBAG for planning and monitoring purposes. This LOS Monitoring Study used the commercial speed data from HERE through the Caltrans contract.

The real-time data was collected, aggregated and stored in the iPeMS software (http://sanbag.iteris-pems.com) beginning in April 2015. The SANBAG CMP segments were entered into the software and the route performance tool was used to generate performance metrics across the network for all CMP segments with coverage by HERE data.

Additional data

By segment distance, approximately 92% of the SANBAG CMP segments have at least some coverage by HERE data and 80% have full coverage. The remaining 8% have no coverage. Coverage is available on all interstate highways and the majority of state routes. Roads without coverage are typically lower volume urban streets or rural roads. For segments without HERE coverage, alternative data sources were reviewed. The following sources were investigated:

[1] http://www.sanbag.ca.gov/planning2/cmp/cmp07-full%20version.pdf

- Survey data collected by cities, SANBAG, or San Bernardino County;
- Speed data from Google Earth;
- Survey data collected on behalf of developers and included in Traffic Impact Assessment Reports;
- Survey data collected under the highway performance monitoring system (HPMS) on the National Highway System (NHS);
- Speed data in the regional travel demand model; and
- Estimated survey data based on traffic counts and highway capacity analysis.

For segments without HERE coverage, it was possible to provide an estimate of peak hour LOS and average travel speed in the peak direction of travel. The opposite direction was conservatively approximated to equal the peak direction. These segments are noted in the performance tables included in Appendices A, B and C. The following methodology was used for these estimated segments:

- Estimates of LOS were obtained from reports available from local agencies or estimated based on previous CMP data.
- Speeds were estimated based on the mid-range of the estimated LOS using the 2010 HCM.

LOS Calculation

Provision of a LOS performance metric is necessary to meet state legislative requirements. Using average speed as the input, LOS is assigned using look-up tables based on the HCM. This section presents the LOS tables for each category of CMP segment.

Freeways

LOS for freeways is estimated using the speed based methodology of the HCM 1985 version (Table A-1). Several other California counties use these tables. It should be noted that more recent versions of the HCM use density rather than speed to determine freeway LOS. Therefore, the 1985 HCM is considered to be an appropriate reference for determination of LOS based on speed.

Table A-1: LOS Assignment on Freeways (based on HCM 1985)

Level of Service	Speed (mph)	Conformance to CMP Legislation[†]
A	≥ 60	Acceptable
B	≥ 55	Acceptable
C	≥ 49	Acceptable
D	≥ 41	Acceptable
E	≥ 30	Acceptable
F	< 30	Deficiency planning may be required

[†] California Government Code Section 65088-65089.10

Arterials

For arterials, the HCM 2010 primarily bases LOS assignment on the average speed as a proportion of the free flow speed. For example, an arterial road with a free flow speed of 42 mph (i.e. posted speed limit ~ 35 mph) and an average peak period speed of 26 mph would have an average speed 62% of the free

flow speed and would be assigned LOS C. Both the average peak period speed and free flow speed must be known.

The free flow speed limit should represent the average running speed during low volume conditions and when not delayed by traffic control devices. The speed limit is a primary consideration when approximating the free flow speed. Therefore, the representative speed limit was surveyed across the arterial CMP segments. Then, the posted speed limit was increased by an additional 5 mph[2] (to calibrate to local conditions) in order to obtain the estimated free flow speed.

Table A-2: LOS Assignment on Urban Street Segments (Source: HCM 2010 Exhibit 17-2)

Level of Service	Travel Speed as a Percentage of Base Free-Flow Speed (%)	Conformance to CMP Legislation[†]
A	> 85	Acceptable
B	> 67-85	Acceptable
C	> 50-67	Acceptable
D	> 40-50	Acceptable
E	> 30-40	Acceptable
F	≤ 30	Deficiency planning may be required

[†] California Government Code Section 65088-65089.10

Two Lane Highways

The HCM 2010 separates LOS calculations into three classes of two-lane highways. Class I represents major links in the state or national highway network where motorists expect to travel at high speeds. Class II is used for two-lane highways serving scenic routes or passing through rugged terrain where high speeds are impossible. Class III rural highways serve moderately developed areas, sometimes with reduced speed limits.

The HCM assigns LOS differently for each class based on three performance metrics presented in Extract HCM 2010 Exhibit 15-3; percentage time spent following (PTSF), average travel speed (ATS) and percent of free flow speed (PFFS). Both average travel speed and percent of free flow speed can be calculated through the use of commercial speed data. Therefore, Class I and III two-lane highways can be measured using the standard HCM 2010 methodology in the congestion monitoring tool.

Conversely, the percentage of time spent following cannot be estimated from commercial speed data as it relies on knowing the headway of each vehicle. Since these routes are often characterized by slower travel speeds similar to Class III, Class II highways also used the Class III criteria. This measure, the percentage of free flow speed, will capture the impact of geometric constraints as is appropriate for these classes of rural road.

For the lower order two lane highways (i.e. Class II /III), the free flow speed is needed for the LOS calculation. For these roads, the free flow speed is primarily based on the influence from the cross section, terrain and horizontal / vertical geometry (HCM 2010). Therefore, it was not appropriate to rely upon the posted speed limit. Instead, the congestion monitoring tool was used to survey the average speed during weekend mornings when the traffic conditions were expected to be at LOS A, but during

[2] Florida Department of Transportation Research (2013) Evaluation of Free Flow Speeds on Interrupted Flow Facilities http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PL/FDOT-BDK83-977-18-rpt.pdf

daylight hours (so as to avoid capturing possible excessive speeding behavior sometimes observed at night). The average running speed obtained during these conditions was adopted as the free flow speed and input into the LOS calculations for each Class II and III two lane highway.

Table A-3: LOS assignment for Two-Lane Highways (Extract HCM 2010 Exhibit 15-3)

Level of Service	Class I Highways Average Travel Speed (mph)	Class II and III Highways Percentage of Free Flow Speed (%)	Conformance to CMP Legislation†
A	> 55	> 91.7	Acceptable
B	> 50-55	> 83.3 - 91.7	Acceptable
C	> 45-50	> 75.0 - 83.3	Acceptable
D	> 40-45	> 66.7 - 75.0	Acceptable
E	> 30-40	> 50 - 66.7	Acceptable
F	< 30	< 50	Deficiency planning may be required

† California Government Code Section 65088-65089.10

Results and Exemptions

The results for the SANBAG LOS monitoring are presented in the following Tables:

- Table A-5: Freeways
- Table A-6: Arterials
- Table A-7: Two Lane Highways

In these appendices, segments without coverage from HERE are designated via a note indicating that the performance was estimated. For segments with HERE data, additional data on each segment may be sought from the congestion monitoring tool.

Identification of Exemptions

Background

Based on the analysis, if the roadway is identified to be deficient, the respective local jurisdiction will be required to prepare a deficiency plan that details the cause of the deficiency, identify measures to improve the performance of the roadway and a funding plan for the proposed improvements. A roadway may be exempt from being identified as deficient for the following reasons:

- It operated at LOS F in the base monitoring year and is therefore "grandfathered" in at LOS F (Table A-4);
- It is located within an Infill Opportunity Zone (IOZ);
- It is under construction, rehabilitation, or maintenance of facilities that impact the system;
- It carries a certain volume of interregional trips;
- It is impacted due to freeway ramp metering or recent traffic signal coordination;
- It operated at LOS F due to traffic generated by developments such as low-income housing, a high-density development, or a mixed-use development subject to certain criteria.

Extract from 2007 SANBAG CMP: *Level of Service Standards. The adopted level of service standards for the CMP system are the minimum standards allowed in California Government Code Section 65089(b)(1)(B): level of service E for all segments and intersections except those designated level of service F in Chapter 2 of the CMP. In addition, a provision is made for any level of service F facility not to deteriorate greater than 10 percent below its level of service value at the time of initial CMP adoption. This provision is included to avoid dismissal of a serious congestion problem.*

…

Lower traffic levels of service could be employed within these areas if combinations of modal alternatives, higher land use intensity, mixed uses and compact land development patterns suggest that the multimodal transportation system could perform adequately in those areas, even with lower traffic levels of service. This concept is consistent with the statutory exemptions provided for in Government Code Section 65089.3(c)(6) and can be implemented through the deficiency plan process.

Table A-4: 1992 Segments Designated as LOS F

Category	Freeways
Freeways	I-10 Westbound, Milliken Avenue to Central Avenue
	I-10 Westbound, Waterman Avenue to EB Rt-30
	I-10 Eastbound, Central Avenue to Milliken Avenue
	I-10 Eastbound, NB Rt-15 to SB Rt-15
	I-10 Eastbound, SB Waterman to California Street
	SR-60 Westbound, Milliken Avenue to Central Avenue
	SR-60 Eastbound, Central Avenue to Milliken Avenue
	I-215 Northbound, Inland Center Drive to Route 30/Highland Avenue
Valley East/West Arterial Segments	Foothill Boulevard between Mountain Avenue and Archibald Avenue
Valley North/South Arterial Segments	Citrus Avenue between Slover Avenue and Valley Boulevard
	Cedar Avenue between Slover Avenue and Valley Boulevard
	Mt. View Avenue between Barton Road and Redlands Boulevard
	Mountain Avenue between Mission Boulevard and Holt Boulevard
Victor Valley Arterial Segments	Bear Valley Road between Amargosa Road and Mariposa Road
	Bear Valley Road between Hesperia Road and Peach Avenue
	SR-18 between I-15 (North) and Stoddard Wells Road

Identification of LOS F in 2015

Based on the 2015 CMP data, only one roadway location was indicated to be at LOS F resulting in the potential for a CMP deficiency. This was the segment of the northbound I-15 freeway between I-10 and Fourth Street. This segment was not identified as LOS F in 1992 and therefore, is not considered to be grandfathered in as an acceptable LOS F. Current SANBAG CMP guidelines indicate that a location at LOS F would only be considered to be a deficiency if it also experienced a degradation in performance of

10% or more. Since this location was at LOS C in the previous CMP, it would be considered to have degraded more than 10%.

Although this location was identified as a potential deficiency, there are a few reasons why an actual deficiency may not exist:

- This roadway segment is considered to carry a large number of interregional trips, for example trips headed from other Southern California counties to Nevada;
- Improvements are planned for this location through SANBAG's I-15 Corridor Improvement Project[3]. Therefore, any deficiency planning that would be undertaken could be considered to be a duplication of effort;
- Freeway ramp metering is present at 4th Street and as such can be excluded from deficiency planning.

For the reasons described above, the segment of northbound I-15 between I-10 and Fourth Street is not considered to constitute a CMP deficiency.

[3] http://www.1015projects.com/

Discussion

Comparison of Results to Previous CMPs

This section compares the performance on each class of the CMP network between this cycle and the most current monitoring cycle. In 2015, the methodology for measuring the LOS has changed from a volume based to a speed based approach.

In conducting this comparison, a result of LOS A through D in both the current and previous CMP was considered to be an indication of a lack of traffic congestion. Therefore, only locations with a LOS E or F result in either the current or previous CMP are presented in Table A-8, Table A-9 and Table A-10.

Freeways

In 2007, volumes were taken from Caltrans data and the HCM 2000 methodology was applied using the following global input assumptions across all freeway CMP segments:

- Capacity of 2,000 passenger cars per hour per lane;
- Peak-hour factor of up to 0.98 for urban freeways; .09 to 0.92 for less congested areas;
- 5% heavy vehicles;
- 4% annual growth factor;
- Directional distribution of 55/45;
- Peak-hour mainline volume was taken to be 90% of the PM peak-hour; and
- Design speed of 70mph.

In 2015, speeds were obtained from the HERE data and transferred directly to LOS using Table A-1.

While the LOS on many CMP segments is comparable, it has changed more significantly on a minority of segments. Table A-4 presents the CMP segments at E / F in either 2007 or 2015 and primarily these segments occur on I-10, I-15, SR-60 and I-215. Largely in 2007, these segments were at LOS E or F under the volume based estimation approach and eight years later they are LOS A – C with the speed based approach. Apart from the change in methodology and the time between monitoring cycles, other reasons for changes in performance may include:

- Increase / decrease in congestion;
- Increase / decrease in queue lengths i.e. a segment that was previously uncongested could be F in this cycle where queues extended from an adjacent congested segment;
- Presence of active construction or construction completed between monitoring cycles; and / or
- Changes in surrounding land use.

It is recommended that the 2015 results be viewed as a baseline for future CMPs.

Arterials and Two Lane Highways

Similarly on arterials and two lane highways, the methodology has changed from a volume based to a speed based methodology.

In both 2007 and 2015, the majority of arterials were at LOS A through D. Table A-5 presents the CMP segments at E / F in either 2007 or 2015. On many of these arterials, the LOS is similar in 2007 and 2015.

Milliken Avenue and Cedar Avenue show larger differences in LOS, however a review of typical traffic conditions in Google, anecdotally confirms the 2015 performance.

For two lane highways in 2007, the volume based methodology has highlighted a higher proportion of LOS E than for arterials. Refer to Table A-6. With a transition to a speed based methodology, it is reasonable to expect an apparent improvement in LOS on these types of roads.

On an overall basis, the only trend that is apparent is a reduction in the number of locations indicated to be at LOS F. It is recommended that this information be used in discussions with local agencies to determine whether the results are reasonable in comparison to observed local conditions.

Comparison of Results to Adjacent Counties

A comparison of results was conducted for SANBAG CMP roadways to connecting roadways in adjacent counties reported in the most current CMPs for Riverside County (2011) and Los Angeles County (2010). The results are presented in Table A-11, Table A-12 and Table A-13. The most notable locations were those in which the LOS in the SANBAG CMP roadway was LOS E or better and the LOS in the adjacent County was LOS F. These locations are summarized below:

- The segment of I-15 between Jurupa Avenue and the Riverside County line indicated a LOS D in the AM peak hour and a LOS E in the PM peak hour, while the adjacent segment of I-15 was listed at LOS F in the Riverside County CMP.
- The segment of SR-60 between Ramona Avenue and the Los Angeles County line indicated a LOS C in the AM peak hour and LOS A in the PM peak hour, while the adjacent segment of SR- 60 was listed at LOS F in the AM peak hour and LOS F in the PM peak hour in the Los Angeles County CMP. This large difference in the PM is likely due to the presence of the interchange with SR-71 which is very close to the county boundary.
- The segment of I-215 between Iowa Avenue and the Riverside County line indicated LOS D in the AM peak hour and LOS E in the PM peak hour, while the adjacent segment of I-215 was listed at LOS F in the Riverside County CMP. However, the Riverside County portion was listed as exempt.
- The segment of SR-2 (WB) between the County line and Sheep Creek Drive indicated LOS B in the AM peak hour using the speed based methodology, while the adjacent segment in LA County indicated a LOS F using a volume based methodology. The LA segment received a LOS F, because the demand of 10,500 exceeded the estimated capacity of 10,000. This also occurred in previous CMPs indicating that the capacity of the road is likely to be higher than 10,000.

For the locations above, it would be recommended that consideration be given to whether any lack of coordination exists between the adjacent counties in processes outside the CMP. For other border crossings, the performance was comparable.

LOS RESULTS: FREEWAYS

Table A-5: Freeway LOS Results

ID	Freeway	Dir	End Points	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
F1	I-10	EB	LA County Line to Monte Vista Avenue	0.9	57.7	B	52.2	C
F2	I-10	WB	Monte Vista Avenue to LA County Line	0.9	50.3	C	60.7	A
F3	I-10	EB	Monte Vista Avenue to Central Avenue	0.9	57.1	B	53.6	C
F4	I-10	WB	Central Avenue to Monte Vista Avenue	0.6	51.8	C	60.8	A
F5	I-10	EB	Central Avenue to Mountain Avenue	1.0	57.0	B	54.1	C
F6	I-10	WB	Mountain Avenue to Central Avenue	1.0	52.1	C	60.0	A
F7	I-10	EB	Mountain Avenue to SR-83/Euclid Ave	1.1	57.5	B	53.0	C
F8	I-10	WB	SR-83/Euclid Ave to Mountain Avenue	1.3	51.6	C	57.7	B
F9	I-10	EB	SR-83/Euclid Ave to Fourth Street	1.9	59.7	B	54.3	C
F10	I-10	WB	Fourth Street to SR-83/Euclid Ave	1.6	51.6	C	55.6	B
F11	I-10	EB	Fourth Street to Vineyard Avenue	0.8	60.0	A	49.6	C
F12	I-10	WB	Vineyard Avenue to Fourth Street	1.0	50.9	C	49.4	C
F13	I-10	EB	Vineyard Avenue to Archibald Avenue	1.1	58.3	B	39.5	E
F14	I-10	WB	Archibald Avenue to Vineyard Avenue	1.1	53.8	C	47.5	D
F15	I-10	EB	Archibald Avenue to Haven Avenue	1.0	57.3	B	33.3	E
F16	I-10	WB	Haven Avenue to Archibald Avenue	1.0	55.0	B	47.1	D
F17	I-10	EB	Haven Avenue to Milliken Avenue	1.0	56.4	B	38.6	E
F18	I-10	WB	Milliken Avenue to Haven Avenue	1.0	48.3	D	41.1	D
F19	I-10	EB	Milliken Avenue to I-15	0.9	56.1	B	46.0	D
F20	I-10	WB	I-15 to Milliken Avenue	0.6	44.8	D	41.4	D
F21	I-10	EB	I-15 to Etiwanda Avenue	1.0	60.4	A	41.2	D
F22	I-10	WB	Etiwanda Avenue to I-15	1.3	48.9	D	50.1	C
F23	I-10	EB	Etiwanda Avenue to Cherry Avenue	2.0	62.6	A	31.4	E
F24	I-10	WB	Cherry Avenue to Etiwanda Avenue	2.0	56.3	B	57.8	B
F25	I-10	EB	Cherry Avenue to Citrus Avenue	2.0	62.7	A	43.7	D
F26	I-10	WB	Citrus Avenue to Cherry Avenue	2.0	57.5	B	61.4	A
F27	I-10	EB	Citrus Avenue to Sierra Avenue	1.0	63.2	A	53.5	C
F28	I-10	WB	Sierra Avenue to Citrus Avenue	1.0	56.4	B	61.8	A
F29	I-10	EB	Sierra Avenue to Cedar Avenue	2.1	63.7	A	53.3	C
F30	I-10	WB	Cedar Avenue to Sierra Avenue	2.1	57.5	B	62.2	A
F31	I-10	EB	Cedar Avenue to Riverside Avenue	1.5	63.2	A	53.0	C
F32	I-10	WB	Riverside Avenue to Cedar Avenue	1.8	58.4	B	62.3	A
F33	I-10	EB	Riverside Avenue to Pepper Avenue	1.1	62.9	A	57.0	B
F34	I-10	WB	Pepper Avenue to Riverside Avenue	0.9	60.1	A	61.6	A
F35	I-10	EB	Pepper Avenue to Rancho Avenue	1.0	63.0	A	59.5	B
F36	I-10	WB	Rancho Avenue to Pepper Avenue	1.0	59.8	B	59.5	B
F37	I-10	EB	Rancho Avenue to Ninth Street	1.0	61.5	A	58.7	B
F38	I-10	WB	Ninth Street to Rancho Avenue	0.9	60.4	A	59.1	B
F39	I-10	EB	Ninth Street to Mt Vernon Avenue	0.7	61.1	A	57.8	B
F40	I-10	WB	Mt Vernon Avenue to Ninth Street	0.3	61.2	A	58.3	B
F41	I-10	EB	Mt Vernon Avenue to I-215	0.9	60.4	A	50.7	C
F42	I-10	WB	I-215 to Mt Vernon Avenue	1.1	62.0	A	58.6	B
F43	I-10	EB	I-215 to Waterman Avenue	1.1	59.1	B	44.0	D
F44	I-10	WB	Waterman Avenue to I-215	1.0	63.2	A	59.9	B
F45	I-10	EB	Waterman Avenue to Tippecanoe Avenue	0.9	61.3	A	46.9	D
F46	I-10	WB	Tippecanoe Avenue to Waterman Avenue	1.0	62.3	A	59.0	B
F47	I-10	EB	Tippecanoe Avenue to Mountain View Avenue	1.0	61.9	A	48.4	D
F48	I-10	WB	Mountain View Avenue to Tippecanoe Avenue	1.0	61.5	A	60.1	A
F49	I-10	EB	Mountain View Avenue to California Street	1.0	62.3	A	52.5	C
F50	I-10	WB	California Street to Mountain View Avenue	1.0	59.3	B	62.2	A
F51	I-10	EB	California Street to SR-210	1.4	62.7	A	48.1	D

Table A-5: Freeway LOS Results (Continued)

ID	Freeway	Dir	End Points	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
F52	I-10	WB	SR-210 to California Street	1.4	59.2	B	64.1	A
F53	I-10	EB	SR-210 to Orange Street/Route 38	1.2	63.1	A	43.0	D
F54	I-10	WB	Orange Street/Route 38 to SR-210	1.2	61.5	A	64.5	A
F55	I-10	EB	Orange Street/Route 38 to Sixth Street	0.1	63.4	A	48.0	D
F56	I-10	WB	Sixth Street to Orange Street/Route 38	0.1	60.2	A	64.2	A
F57	I-10	EB	Sixth Street to University Street	0.9	63.3	A	51.1	C
F58	I-10	WB	University Street to Sixth Street	0.9	55.0	B	64.5	A
F59	I-10	EB	University Street to Cypress Avenue	0.2	63.5	A	55.9	B
F60	I-10	WB	Cypress Avenue to University Street	0.2	51.0	C	65.2	A
F61	I-10	EB	Cypress Avenue to Ford Street	1.0	63.2	A	57.4	B
F62	I-10	WB	Ford Street to Cypress Avenue	1.0	52.7	C	65.2	A
F63	I-10	EB	Ford Street to Redlands Boulevard	0.3	63.7	A	60.6	A
F64	I-10	WB	Redlands Boulevard to Ford Street	0.2	55.6	B	65.5	A
F65	I-10	EB	Redlands Boulevard to Wabash Avenue	0.8	63.1	A	61.3	A
F66	I-10	WB	Wabash Avenue to Redlands Boulevard	0.9	58.3	B	65.9	A
F67	I-10	EB	Wabash Avenue to Yucaipa Boulevard	1.2	61.7	A	58.5	B
F68	I-10	WB	Yucaipa Boulevard to Wabash Avenue	1.2	59.8	B	64.9	A
F69	I-10	EB	Yucaipa Boulevard to Live Oak Canyon Road	1.6	63.9	A	58.2	B
F70	I-10	WB	Live Oak Canyon Road to Yucaipa Boulevard	1.7	60.9	A	64.4	A
F71	I-10	EB	Live Oak Canyon Road to County Line Road (Riverside County Line)	2.0	61.5*	A	65.3*	A
F72	I-10	WB	County Line Road (Riverside County Line) to Live Oak Canyon Road	2.0	61.5	A	65.3	A
F73	I-15	NB	Riverside County Line to Jurupa Avenue	1.0	42.0	D	38.8	E
F74	I-15	SB	Jurupa Avenue to Riverside County Line	0.7	46.1	D	39.7	E
F75	I-15	NB	Jurupa Avenue to I-10	1.1	57.1	B	39.4	E
F76	I-15	SB	I-10 to Jurupa Avenue	1.8	43.7	D	32.9	E
F77	I-15	NB	I-10 to Fourth Street	0.9	60.0	A	26.8	**F**
F78	I-15	SB	Fourth Street to I-10	0.5	57.2	B	54.4	C
F79	I-15	NB	Fourth Street to Foothill Boulevard	2.2	62.8	A	41.4	D
F80	I-15	SB	Foothill Boulevard to Fourth Street	2.2	61.3	A	63.9	A
F81	I-15	NB	Foothill Boulevard to Baseline Interchange	1.4	63.5	A	56.6	B
F82	I-15	SB	Baseline Interchange to Foothill Boulevard	1.4	55.8	B	64.8	A
F83	I-15	NB	Baseline Interchange to SR-210	1.3	63.8	A	62.0	A
F84	I-15	SB	SR-210 to Baseline Interchange	1.6	52.4	C	64.9	A
F85	I-15	NB	SR-210 to Sierra Avenue	4.1	64.3	A	60.1	A
F86	I-15	SB	Sierra Avenue to SR-210	4.1	65.2	A	65.7	A
F87	I-15	NB	Sierra Avenue to I-215	3.8	63.9	A	52.3	C
F88	I-15	SB	I-215 to Sierra Avenue	3.9	64.9	A	64.5	A
F89	I-15	NB	I-215 to Kenwood Avenue	1.8	61.5	A	49.4	C
F90	I-15	SB	Kenwood Avenue to I-215	1.1	63.8	A	64.8	A
F91	I-15	NB	Kenwood Avenue to Cleghorn Road	5.3	59.3	B	43.7	D
F92	I-15	SB	Cleghorn Road to Kenwood Avenue	5.1	62.9	A	62.1	A
F93	I-15	NB	Cleghorn Road to SR-138	1.4	61.1	A	47.5	D
F94	I-15	SB	SR-138 to Cleghorn Road	1.5	60.6	A	58.7	B
F95	I-15	NB	SR-138 to Oak Hill Road	5.5	59.7	B	55.1	B
F96	I-15	SB	Oak Hill Road to SR-138	5.8	59.9	B	58.4	B
F97	I-15	NB	Oak Hill Road to U.S. 395 North	3.2	68.4	A	68.1	A
F98	I-15	SB	U.S. 395 North to Oak Hill Road	3.2	61.2	A	63.6	A
F99	I-15	NB	U.S. 395 North to Joshua Street/Palm Avenue	0.5	68.7	A	68.9	A
F100	I-15	SB	Joshua Street/Palm Avenue to U.S. 395 North	0.7	64.2	A	64.2	A
F101	I-15	NB	Joshua Street/Palm Avenue to Phelan Road	1.7	68.5	A	68.4	A
F102	I-15	SB	Phelan Road to Joshua Street/Palm Avenue	1.7	65.0	A	63.9	A
F103	I-15	NB	Phelan Road to Bear Valley Road	3.6	68.4	A	68.4	A
F104	I-15	SB	Bear Valley Road to Phelan Road	3.6	65.8	A	64.0	A
F105	I-15	NB	Bear Valley Road to SR-18 West	2.9	67.2	A	67.2	A
F106	I-15	SB	SR-18 West to Bear Valley Road	3.0	65.4	A	63.8	A

Table A-5: Freeway LOS Results (Continued)

ID	Freeway	Dir	End Points	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
F107	I-15	NB	SR-18 West to Mojave Drive	1.7	66.4	A	66.1	A
F108	I-15	SB	Mojave Drive to SR-18 West	1.6	63.9	A	63.5	A
F109	I-15	NB	Mojave Drive to SR-18 (D St)	1.3	66.3	A	66.1	A
F110	I-15	SB	SR-18 (D St) to Mojave Drive	1.4	62.1	A	62.6	A
F111	I-15	NB	SR-18 (D St) to E Street	0.1	66.8	A	65.9	A
F112	I-15	SB	E Street to SR-18 (D St)	0.2	63.1	A	64.0	A
F113	I-15	NB	E Street to S Junction Stoddard Wells	0.8	66.7	A	65.5	A
F114	I-15	SB	S Junction Stoddard Wells to E Street	0.9	64.2	A	65.3	A
F115	I-15	NB	S Junction Stoddard Wells to N Junction Stoddard Wells	3.0	66.5	A	64.7	A
F116	I-15	SB	N Junction Stoddard Wells to S Junction Stoddard Wells	3.0	65.1	A	66.7	A
F117	I-15	NB	N Junction Stoddard Wells to Dale Evans Parkway	4.0	67.2	A	66.1	A
F118	I-15	SB	Dale Evans Parkway to N Junction Stoddard Wells	4.6	65.4	A	67.5	A
F119	I-15	NB	Dale Evans Parkway to Wild Wash	4.2	68.1	A	67.2	A
F120	I-15	SB	Wild Wash to Dale Evans Parkway	4.1	63.8	A	66.2	A
F121	I-15	NB	Wild Wash to Hodge Road	4.6	68.0	A	66.8	A
F122	I-15	SB	Hodge Road to Wild Wash	3.8	64.5	A	66.7	A
F123	I-15	NB	Hodge Road to Outlet Center Drive	5.8	67.5	A	66.3	A
F124	I-15	SB	Outlet Center Drive to Hodge Road	5.7	64.5	A	66.6	A
F125	I-15	NB	Outlet Center Drive to Lenwood Road	3.1	67.2	A	65.6	A
F126	I-15	SB	Lenwood Road to Outlet Center Drive	3.1	64.5	A	65.9	A
F127	I-15	NB	Lenwood Road to SR-58 West	1.4	65.1	A	63.3	A
F128	I-15	SB	SR-58 West to Lenwood Road	1.4	64.1	A	64.5	A
F129	I-15	NB	SR-58 West to SR-247 South	3.4	65.5	A	64.0	A
F130	I-15	SB	SR-247 South to SR-58 West	3.3	63.6	A	63.8	A
F131	I-15	NB	SR-247 South to I-40 East	0.6	66.5	A	65.2	A
F132	I-15	SB	I-40 East to SR-247 South	0.9	59.3	B	59.5	B
F133	I-15	NB	I-40 East to East Main Street	0.8	66.9	A	65.8	A
F134	I-15	SB	East Main Street to I-40 East	0.5	60.7	A	60.9	A
F135	I-15	NB	East Main Street to Junction Old Route 58 West	2.0	65.2	A	64.7	A
F136	I-15	SB	Junction Old Route 58 West to East Main Street	2.0	64.5	A	64.0	A
F137	I-15	NB	Junction Old Route 58 West to Fort Irwin Road	2.6	66.4	A	65.5	A
F138	I-15	SB	Fort Irwin Road to Junction Old Route 58 West	2.9	64.4	A	64.5	A
F139	I-15	NB	Fort Irwin Road to Dagett-Yermo Road	2.3	67.0	A	66.2	A
F140	I-15	SB	Dagett-Yermo Road to Fort Irwin Road	2.3	64.9	A	65.1	A
F141	I-15	NB	Dagett-Yermo Road to Calico Road	3.2	66.8	A	66.4	A
F142	I-15	SB	Calico Road to Dagett-Yermo Road	2.3	66.3	A	66.3	A
F143	I-15	NB	Calico Road to Yermo Road	2.2	67.1	A	66.5	A
F144	I-15	SB	Yermo Road to Calico Road	2.2	63.4	A	63.6	A
F145	I-15	NB	Yermo Road to Minneola Road	2.3	67.1	A	66.6	A
F146	I-15	SB	Minneola Road to Yermo Road	2.3	49.1	C	46.9	D
F147	I-15	NB	Minneola Road to Harvard Road	8.0	66.8	A	66.5	A
F148	I-15	SB	Harvard Road to Minneola Road	8.4	65.8	A	65.6	A
F149	I-15	NB	Harvard Road to Afton Road	15.6	66.9	A	66.1	A
F150	I-15	SB	Afton Road to Harvard Road	14.6	65.8	A	65.9	A
F151	I-15	NB	Afton Road to Kelbaker Road	25.4	66.3	A	65.6	A
F152	I-15	SB	Kelbaker Road to Afton Road	25.0	64.7	A	64.5	A
F153	I-15	NB	Kelbaker Road to Baker Boulevard	2.0	64.3	A	64.2	A
F154	I-15	SB	Baker Boulevard to Kelbaker Road	2.0	64.3*	A	64.2*	A
F155	I-15	NB	Baker Boulevard to Nipton Road	39.6	60.4	A	61.3	A
F156	I-15	SB	Nipton Road to Baker Boulevard	40.1	63.0	A	62.6	A
F157	I-15	NB	Nipton Road to Yates Well Road	4.4	64.6	A	66.2	A
F158	I-15	SB	Yates Well Road to Nipton Road	4.4	59.2	B	57.6	B
F159	I-15	NB	Yates Well Road to Nevada State Line	4.5	65.6	A	66.7	A
F160	I-15	SB	Nevada State Line to Yates Well Road	5.2	66.9	A	65.4	A
F161	I-40	EB	I-15 East to Montara Avenue	1.0	64.7	A	63.9	A

Table A-5: Freeway LOS Results (Continued)

ID	Freeway	Dir	End Points	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
F162	I-40	WB	Montara Avenue to I-15 East	1.0	59.4	B	59.7	B
F163	I-40	EB	Montara Avenue to Main Street	1.8	61.6*	A	62.8*	A
F164	I-40	WB	Main Street to Montara Avenue	1.8	61.6	A	62.8	A
F165	I-40	EB	Main Street to Nebo Street	2.2	63.4	A	62.6	A
F166	I-40	WB	Nebo Street to Main Street	2.2	63.0	A	64.0	A
F167	I-40	EB	Nebo Street to A Street	2.2	64.8	A	63.7	A
F168	I-40	WB	A Street to Nebo Street	2.2	62.6	A	63.7	A
F169	I-40	EB	A Street to Airport Road/Hidden Springs Road	5.1	64.9	A	64.4	A
F170	I-40	WB	Airport Road/Hidden Springs Road to A Street	5.1	63.7	A	64.2	A
F171	I-40	EB	Airport Road/Hidden Springs Road to West Newberry Road	6.6	65.0	A	64.8	A
F172	I-40	WB	West Newberry Road to Airport Road/Hidden Springs Road	6.6	63.4	A	64.0	A
F173	I-40	EB	West Newberry Road to Fort Cady Road	5.0	64.5	A	64.0	A
F174	I-40	WB	Fort Cady Road to West Newberry Road	5.0	64.1	A	63.9	A
F175	I-40	EB	Fort Cady Road to Hector Road	8.6	63.6	A	63.9	A
F176	I-40	WB	Hector Road to Fort Cady Road	8.6	63.8	A	64.3	A
F177	I-40	EB	Hector Road to Crucero Road	17.4	64.4	A	64.3	A
F178	I-40	WB	Crucero Road to Hector Road	17.4	63.3	A	63.9	A
F179	I-40	EB	Crucero Road to Kelbaker Road	28.1	63.4	A	63.4	A
F180	I-40	WB	Kelbaker Road to Crucero Road	28.2	64.2	A	64.5	A
F181	I-40	EB	Kelbaker Road to Essex Road	22.0	64.7	A	65.1	A
F182	I-40	WB	Essex Road to Kelbaker Road	22.1	63.4	A	63.2	A
F183	I-40	EB	Essex Road to Goffs Road	8.1	63.4	A	64.2	A
F184	I-40	WB	Goffs Road to Essex Road	7.4	63.8	A	63.8	A
F185	I-40	EB	Goffs Road to Mountain Springs Road	8.0	63.2	A	63.5	A
F186	I-40	WB	Mountain Springs Road to Goffs Road	8.0	65.1	A	64.1	A
F187	I-40	EB	Mountain Springs Road to Water Road	5.3	64.2	A	65.2	A
F188	I-40	WB	Water Road to Mountain Springs Road	5.3	61.5	A	59.2	B
F189	I-40	EB	Water Road to U.S. 95 North	12.7	63.3	A	63.6	A
F190	I-40	WB	U.S. 95 North to Water Road	12.8	59.8	B	57.9	B
F191	I-40	EB	U.S. 95 North to Park Road	6.6	64.1	A	64.0	A
F192	I-40	WB	Park Road to U.S. 95 North	6.5	63.2	A	61.7	A
F193	I-40	EB	Park Road to River Road	1.8	62.6	A	62.1	A
F194	I-40	WB	River Road to Park Road	1.9	62.8	A	62.6	A
F195	I-40	EB	River Road to J Street	1.3	60.6	A	61.1	A
F196	I-40	WB	J Street to River Road	1.7	61.1	A	62.0	A
F197	I-40	EB	J Street to U.S. 95 South	1.8	61.4	A	61.7	A
F198	I-40	WB	U.S. 95 South to J Street	1.8	63.0	A	62.5	A
F199	I-40	EB	U.S. 95 South to Five Mile Road	5.0	63.8*	A	62.2*	A
F200	I-40	WB	Five Mile Road to U.S. 95 South	5.0	63.8	A	62.2	A
F201	I-40	EB	Five Mile Road to Park Moabi Road	5.6	63.2	A	63.1	A
F202	I-40	WB	Park Moabi Road to Five Mile Road	4.6	58.9	B	56.8	B
F203	I-40	EB	Park Moabi Road to Arizona State Line	1.6	63.1	A	63.9	A
F204	I-40	WB	Arizona State Line to Park Moabi Road	1.5	63.3	A	62.1	A
F205	SR-60	EB	LA County Line to Ramona Avenue	1.4	49.6*	C	60.9*	A
F206	SR-60	WB	Ramona Avenue to LA County Line	1.4	49.6	C	60.9	A
F207	SR-60	EB	Ramona Avenue to Central Avenue	1.1	55.2	B	35.2	E
F208	SR-60	WB	Central Avenue to Ramona Avenue	1.3	53.7	C	61.3	A
F209	SR-60	EB	Central Avenue to Mountain Avenue	1.5	55.4	B	36.4	E
F210	SR-60	WB	Mountain Avenue to Central Avenue	1.2	57.0	B	60.9	A
F211	SR-60	EB	Mountain Avenue to SR-83/Euclid Avenue	1.0	55.8	B	38.2	E
F212	SR-60	WB	SR-83/Euclid Avenue to Mountain Avenue	1.0	58.3	B	58.9	B
F213	SR-60	EB	SR-83/Euclid Avenue to Grove Avenue	1.0	55.7	B	39.0	E
F214	SR-60	WB	Grove Avenue to SR-83/Euclid Avenue	1.3	58.3	B	56.4	B
F215	SR-60	EB	Grove Avenue to Vineyard Avenue	1.4	56.8	B	41.3	D
F216	SR-60	WB	Vineyard Avenue to Grove Avenue	1.2	57.8	B	55.3	B

Table A-5: Freeway LOS Results (Continued)

ID	Freeway	Dir	End Points	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
F217	SR-60	EB	Vineyard Avenue to Archibald Avenue	0.9	57.0	B	45.2	D
F218	SR-60	WB	Archibald Avenue to Vineyard Avenue	1.5	56.4	B	54.3	C
F219	SR-60	EB	Archibald Avenue to Haven Avenue	1.2	57.1	B	51.7	C
F220	SR-60	WB	Haven Avenue to Archibald Avenue	0.8	56.6	B	55.6	B
F221	SR-60	EB	Haven Avenue to Riverside County Line	1.1	58.5	B	53.4	C
F222	SR-60	WB	Riverside County Line to Haven Avenue	1.0	56.6	B	58.4	B
F223	I-215	NB	Riverside County Line to Iowa Avenue	0.1	44.6*	D	35.6*	E
F224	I-215	SB	Iowa Avenue to Riverside County Line	0.1	44.6	D	35.6	E
F225	I-215	NB	Iowa Avenue to Barton Road	0.9	46.2	D	39.8	E
F226	I-215	SB	Barton Road to Iowa Avenue	0.8	42.9	D	34.3	E
F227	I-215	NB	Barton Road to Washington Avenue	1.4	54.2	C	53.8	C
F228	I-215	SB	Washington Avenue to Barton Road	1.4	40.8	E	32.6	E
F229	I-215	NB	Washington Avenue to I-10	1.4	60.1	A	59.2	B
F230	I-215	SB	I-10 to Washington Avenue	1.6	40.8	E	33.1	E
F231	I-215	NB	I-10 to Orange Show Road	1.0	61.1	A	59.0	B
F232	I-215	SB	Orange Show Road to I-10	1.1	51.2	C	47.3	D
F233	I-215	NB	Orange Show Road to Inland Center Drive	0.6	63.3	A	58.2	B
F234	I-215	SB	Inland Center Drive to Orange Show Road	0.6	59.4	B	57.0	B
F235	I-215	NB	Inland Center Drive to Mill Street	0.5	63.1	A	55.9	B
F236	I-215	SB	Mill Street to Inland Center Drive	0.5	61.9	A	61.5	A
F237	I-215	NB	Mill Street to Second Street	0.8	63.0	A	57.7	B
F238	I-215	SB	Second Street to Mill Street	0.7	62.1	A	62.6	A
F239	I-215	NB	Second Street to Foothill Boulevard	0.2	64.0	A	61.1	A
F240	I-215	SB	Foothill Boulevard to Second Street	0.4	62.8	A	64.2	A
F241	I-215	NB	Foothill Boulevard to Baseline Road	0.9	64.2	A	61.9	A
F242	I-215	SB	Baseline Road to Foothill Boulevard	0.9	63.4	A	64.7	A
F243	I-215	NB	Baseline Road to SR-259	0.5	64.5	A	64.2	A
F244	I-215	SB	SR-259 to Baseline Road	0.5	63.8	A	65.2	A
F245	I-215	NB	SR-259 to Massachusetts Avenue	0.5	64.0	A	64.0	A
F246	I-215	SB	Massachusetts Avenue to SR-259	0.5	63.6	A	65.3	A
F247	I-215	NB	Massachusetts Avenue to Highland Avenue	0.3	64.2	A	64.0	A
F248	I-215	SB	Highland Avenue to Massachusetts Avenue	0.3	62.8	A	65.5	A
F249	I-215	NB	Highland Avenue to Twenty-seventh Street	0.4	64.5	A	64.3	A
F250	I-215	SB	Twenty-seventh Street to Highland Avenue	0.6	63.2	A	65.5	A
F251	I-215	NB	Twenty-seventh Street to SR-210	0.3	64.3	A	64.1	A
F252	I-215	SB	SR-210 to Twenty-seventh Street	0.4	63.5	A	65.4	A
F253	I-215	NB	SR-210 to University Parkway	1.6	64.0	A	62.0	A
F254	I-215	SB	University Parkway to SR-210	1.6	63.3	A	64.6	A
F255	I-215	NB	University Parkway to Palm Avenue	2.4	64.0	A	59.3	B
F256	I-215	SB	Palm Avenue to University Parkway	2.4	63.5	A	64.9	A
F257	I-215	NB	Palm Avenue to Devore Road	3.2	64.4	A	56.9	B
F258	I-215	SB	Devore Road to Palm Avenue	3.3	65.1	A	65.9	A
F259	I-215	NB	Devore Road to I-15	0.2	61.7	A	52.0	C
F260	I-215	SB	I-15 to Devore Road	0.4	64.0	A	65.1	A
F261	SR-71	NB	SR-83 to Soquel Canyon Parkway	2.7	65.2	A	64.9	A
F262	SR-71	SB	Soquel Canyon Parkway to SR-83	2.8	46.9	D	63.0	A
F263	SR-71	NB	Soquel Canyon Parkway to LA County Line	3.9	64.5	A	63.9	A
F264	SR-71	SB	LA County Line to Soquel Canyon Parkway	4.2	65.2	A	66.1	A
F265	SR-210	EB	Mountain Avenue to Euclid Avenue	1.1	64.6	A	33.6	E
F266	SR-210	WB	Euclid Avenue to Mountain Avenue	1.1	58.5	B	65.1	A
F267	SR-210	EB	Euclid Avenue to Archibald Avenue	3.5	64.0	A	42.6	D
F268	SR-210	WB	Archibald Avenue to Euclid Avenue	3.3	52.3	C	64.3	A
F269	SR-210	EB	Archibald Avenue to Haven Avenue	0.7	64.9	A	48.0	D
F270	SR-210	WB	Haven Avenue to Archibald Avenue	1.1	49.8	C	64.6	A
F271	SR-210	EB	Haven Avenue to Milliken Avenue	1.0	64.8	A	48.2	D

Table A-5: Freeway LOS Results (Continued)

ID	Freeway	Dir	End Points	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
F272	SR-210	WB	Milliken Avenue to Haven Avenue	0.9	51.9	C	63.1	A
F273	SR-210	EB	Milliken Avenue to Etiwanda Avenue	2.0	65.1	A	55.9	B
F274	SR-210	WB	Etiwanda Avenue to Milliken Avenue	2.0	51.6	C	62.7	A
F275	SR-210	EB	Etiwanda Avenue to Cherry Avenue	1.7	65.3	A	61.5	A
F276	SR-210	WB	Cherry Avenue to Etiwanda Avenue	1.7	51.1	C	62.6	A
F277	SR-210	EB	Cherry Avenue to Citrus Avenue	2.3	65.1	A	53.1	C
F278	SR-210	WB	Citrus Avenue to Cherry Avenue	2.3	59.8	B	65.4	A
F279	SR-210	EB	Citrus Avenue to Sierra Avenue	1.0	64.3	A	59.6	B
F280	SR-210	WB	Sierra Avenue to Citrus Avenue	1.0	62.6	A	64.7	A
F281	SR-210	EB	Sierra Avenue to Cedar Avenue (Ayala Drive)	2.3	65.6	A	63.3	A
F282	SR-210	WB	Cedar Avenue (Ayala Drive) to Sierra Avenue	2.4	64.0	A	64.0	A
F283	SR-210	EB	Cedar Avenue (Ayala Drive) to Riverside Avenue	1.0	66.8	A	64.5	A
F284	SR-210	WB	Riverside Avenue to Cedar Avenue (Ayala Drive)	1.1	65.3	A	64.9	A
F285	SR-210	EB	Riverside Avenue to State Street	2.2	65.5	A	65.9	A
F286	SR-210	WB	State Street to Riverside Avenue	2.1	65.2	A	64.3	A
F287	SR-210	EB	State Street to I-215	1.1	64.2	A	65.0	A
F288	SR-210	WB	I-215 to State Street	1.3	65.2	A	64.0	A
F289	SR-210	EB	I-215 to H Street	1.0	63.7	A	63.0	A
F290	SR-210	WB	H Street to I-215	0.9	65.1	A	63.1	A
F291	SR-210	EB	H Street to SR-259	0.5	63.8	A	57.5	B
F292	SR-210	WB	SR-259 to H Street	0.6	66.9	A	65.3	A
F293	SR-210	EB	SR-259 to SR-18/Waterman Avenue	0.9	63.6	A	51.8	C
F294	SR-210	WB	SR-18/Waterman Avenue to SR-259	0.8	65.4	A	64.7	A
F295	SR-210	EB	SR-18/Waterman Avenue to Del Rosa Avenue	1.5	64.1	A	53.0	C
F296	SR-210	WB	Del Rosa Avenue to SR-18/Waterman Avenue	1.5	65.6	A	64.7	A
F297	SR-210	EB	Del Rosa Avenue to Highland Avenue	1.0	64.5	A	57.9	B
F298	SR-210	WB	Highland Avenue to Del Rosa Avenue	1.0	64.8	A	64.2	A
F299	SR-210	EB	Highland Avenue to SR-330	1.9	63.7	A	60.4	A
F300	SR-210	WB	SR-330 to Highland Avenue	1.8	64.7	A	64.2	A
F301	SR-210	EB	SR-330 to Baseline Street	0.7	62.4	A	60.4	A
F302	SR-210	WB	Baseline Street to SR-330	0.6	63.5	A	62.5	A
F303	SR-210	EB	Baseline Street to Fifth Street	0.9	58.0	B	55.6	B
F304	SR-210	WB	Fifth Street to Baseline Street	1.0	63.6	A	61.9	A
F305	SR-210	EB	Fifth Street to San Bernardino Avenue	2.1	58.0	B	54.6	C
F306	SR-210	WB	San Bernardino Avenue to Fifth Street	2.2	63.3	A	51.3	C
F307	SR-210	EB	San Bernardino Avenue to I-10	0.3	63.2	A	56.8	B
F308	SR-210	WB	I-10 to San Bernardino Avenue	0.4	64.2	A	49.2	C
F309	SR-259	NB	I-215 to Highland Avenue	0.5	62.1	A	61.1	A
F310	SR-259	SB	Highland Avenue to I-215	0.7	56.2	B	60.0	A
F311	SR-259	NB	Highland Avenue to SR-210	1.0	62.1	A	59.0	B
F312	SR-259	SB	SR-210 to Highland Avenue	1.1	60.2	A	60.8	A

* Values are estimated for the peak direction. The opposing direction is conservatively approximated to equal the peak direction.

LOS RESULTS: ARTERIALS

Table A-6: Arterials LOS Results

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A1	Central Avenue	NB	Chino Hills Parkway to Riverside Drive	45	2.5	30.6	C	27.5	C
A2	Central Avenue	SB	Riverside Drive to Chino Hills Parkway	45	2.5	29.8	C	29.3	C
A3	Central Avenue	NB	Riverside Drive to Arrow Highway	40	5.6	26.8	C	24.0	C
A4	Central Avenue	SB	Arrow Highway to Riverside Drive	40	5.4	27.6	C	25.3	C
A5	Central Avenue	NB	Arrow Highway to Foothill Boulevard	40	0.5	25.5	C	24.8	C
A6	Central Avenue	SB	Foothill Boulevard to Arrow Highway	40	0.5	24.6	C	22.5	C
A7	Mountain Avenue	NB	SR-60 to Mission Boulevard	50	1.7	30.7	C	29.4	C
A8	Mountain Avenue	SB	Mission Boulevard to SR-60	50	1.8	30.9	C	28.9	C
A9	Mountain Avenue	NB	Mission Boulevard to Holt Boulevard	50	0.5	29.1	C	27.6	C
A10	Mountain Avenue	SB	Holt Boulevard to Mission Boulevard	50	0.5	29.6	C	27.3	D
A11	Mountain Avenue	NB	Holt Boulevard to 4th Street	40	1.0	26.0	C	23.0	C
A12	Mountain Avenue	SB	4th Street to Holt Boulevard	40	1.0	28.4	C	25.6	C
A13	Mountain Avenue	NB	4th Street to 8th Street	40	1.0	21.9	D	18.8	D
A14	Mountain Avenue	SB	8th Street to 4th Street	40	1.0	23.6	C	19.3	D
A15	Mountain Avenue	NB	8th Street to Foothill Boulevard	40	1.0	25.1	C	23.2	C
A16	Mountain Avenue	SB	Foothill Boulevard to 8th Street	40	1.0	24.9	C	22.3	D
A17	Mountain Avenue	NB	Foothill Boulevard to 16th Street	45	1.0	30.5	C	27.9	C
A18	Mountain Avenue	SB	16th Street to Foothill Boulevard	45	1.0	32.4	C	30.5	C
A19	Mountain Avenue (SR-30)	NB	16th Street to 19th Street	45	0.7	29.2	C	28.2	C
A20	Mountain Avenue (SR-30)	SB	19th Street to 16th Street	45	0.7	33.5	B	32.2	C
A21	Euclid Avenue (SR-83)	NB	SR-71 to Edison Avenue	55	4.7	40.5	B	37.4	C
A22	Euclid Avenue (SR-83)	SB	Edison Avenue to SR-71	55	4.7	37.5	C	42.6	B
A23	Euclid Avenue (SR-83)	NB	Edison Avenue to Riverside Drive	55	1.5	31.3	C	29.6	D
A24	Euclid Avenue (SR-83)	SB	Riverside Drive to Edison Avenue	55	1.5	31.5	C	32.7	C
A25	Euclid Avenue (SR-83)	NB	Riverside Drive to SR-60 Eastbound Ramp	45	0.7	22.5	D	20.9	D
A26	Euclid Avenue (SR-83)	SB	SR-60 Eastbound Ramp to Riverside Drive	45	0.7	25.8	C	26.7	C
A27	Euclid Avenue (SR-83)	NB	SR-60 Eastbound Ramp to Mission Boulevard	40	1.7	28.7	C	26.7	C
A28	Euclid Avenue (SR-83)	SB	Mission Boulevard to SR-60 Eastbound Ramp	40	1.7	30.1	C	28.2	C
A29	Archibald Avenue	NB	Baseline Road to 19th Street	45	0.8	29.1	C	26.6	C
A30	Archibald Avenue	SB	19th Street to Baseline Road	45	0.8	30.6	C	28.8	C
A31	Haven Avenue	NB	Baseline Road to 19th Street	50	0.7	29.1	C	25.1	D
A32	Haven Avenue	SB	19th Street to Baseline Road	50	0.7	31.7	C	29.4	C
A33	Milliken Avenue	NB	I-10 to 4th Street	50	0.6	23.7	D	20.4	E
A34	Milliken Avenue	SB	4th Street to I-10	50	0.7	23.3	D	19.0	E
A35	Milliken Avenue	NB	4th Street to Foothill Boulevard	50	2.0	31.8	C	28.1	C
A36	Milliken Avenue	SB	Foothill Boulevard to 4th Street	50	2.0	32.0	C	30.0	C
A37	Milliken Avenue	NB	Foothill Boulevard to Baseline Road	50	1.0	32.2	C	28.8	C
A38	Milliken Avenue	SB	Baseline Road to Foothill	50	1.1	30.9	C	28.4	C

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
			Boulevard						
A39	Milliken Avenue	NB	Baseline Road to SR-210	50	1.0	30.6	C	28.5	C
A40	Milliken Avenue	SB	SR-210 to Baseline Road	50	1.0	31.7	C	31.9	C
A41	Etiwanda Avenue	NB	Philadelphia Avenue to I-10	55	2.3	28.6	D	26.2	D
A42	Etiwanda Avenue	SB	I-10 to Philadelphia Avenue	55	2.3	29.9	D	28.3	D
A43	Cedar Avenue	NB	Jurupa Avenue to Slover Avenue	45	1.0	24.6	D	17.7	E
A44	Cedar Avenue	SB	Slover Avenue to Jurupa Avenue	45	1.0	30.3	C	28.0	C
A45	Cedar Avenue	NB	Slover Avenue to Valley Boulevard	40	0.5	21.5	D	15.8	E
A46	Cedar Avenue	SB	Valley Boulevard to Slover Avenue	40	0.5	19.5	D	17.2	E
A47	Cedar Avenue	NB	Valley Boulevard to San Bernardino Avenue	40	0.5	26.5	C	23.7	C
A48	Cedar Avenue	SB	San Bernardino Avenue to Valley Boulevard	40	0.5	24.8	C	24.0	C
A49	Cedar Avenue	NB	San Bernardino Avenue to Merrill Avenue	40	1.0	31.1	B	29.0	C
A50	Cedar Avenue	SB	Merrill Avenue to San Bernardino Avenue	40	1.0	30.3	B	30.5	B
A51	Cedar Avenue	NB	Merrill Avenue to Rialto Avenue	40	0.5	29.4	C	27.4	C
A52	Cedar Avenue	SB	Rialto Avenue to Merrill Avenue	40	0.5	29.7	C	29.0	C
A53	Cedar Avenue	NB	Rialto Avenue to Foothill Boulevard	40	0.5	28.4	C	27.5	C
A54	Cedar Avenue	SB	Foothill Boulevard to Rialto Avenue	40	0.5	27.4	C	25.2	C
A55	Cedar Avenue	NB	Foothill Boulevard to Base Line Road	40	1.0	31.4	B	30.6	B
A56	Cedar Avenue	SB	Base Line Road to Foothill Boulevard	40	1.0	32.6	B	30.2	B
A57	Ayala Drive	NB	Base Line Road to Renaissance Pkwy	45	1.0	26.3*	C	26.3*	C
A58	Ayala Drive	SB	Renaissance Pkwy to Base Line Road	45	1.0	26.3*	C	26.3*	C
A59	Riverside Avenue	NB	Jurupa Avenue to Slover Avenue	40	1.1	29.8	C	24.6	C
A60	Riverside Avenue	SB	Solver Avenue to Jurupa Avenue	40	1.1	31.8	B	31.1	B
A61	Riverside Avenue	NB	Slover Avenue to San Bernardino Avenue	35	1.0	21.6	C	16.1	D
A62	Riverside Avenue	SB	San Bernardino Avenue to Slover Avenue	35	1.0	22.6	C	20.6	C
A63	Riverside Avenue	NB	San Bernardino Avenue to Merrill Avenue	40	1.0	31.0	B	27.9	C
A64	Riverside Avenue	SB	Merrill Avenue to San Bernardino Avenue	40	1.0	32.2	B	29.7	C
A65	Riverside Avenue	NB	Merrill Avenue to Rialto Avenue	30	0.4	22.9	C	20.4	C
A66	Riverside Avenue	SB	Rialto Avenue to Merrill Avenue	30	0.4	23.0	C	21.1	C
A67	Riverside Avenue	NB	Rialto Avenue to Foothill Avenue	30	0.6	22.7	C	20.4	C
A68	Riverside Avenue	SB	Foothill Avenue to Rialto Avenue	30	0.6	22.8	C	21.1	C
A69	Riverside Avenue	NB	Foothill Avenue to Baseline Avenue	40	1.0	30.4	B	29.2	C
A70	Riverside Avenue	SB	Baseline Avenue to Foothill Avenue	40	1.0	30.5	B	29.2	C
A71	Riverside Avenue	NB	Baseline Avenue to Easton Street	40	0.9	29.4	C	27.3	C
A72	Riverside Avenue	SB	Easton Street to Baseline Avenue	40	0.9	28.7	C	27.3	C
A73	Riverside Avenue	NB	Easton Street to Sierra Avenue	50	5.0	38.1	B	38.1	B
A74	Riverside Avenue	SB	Sierra Avenue to Easton Street	50	4.9	37.7	B	38.1	B
A75	Pepper Avenue	NB	Mill Street to Rialto Avenue	40	0.5	18.0*	D	18.0*	D

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A76	Pepper Avenue	SB	Rialto Avenue to Mill Street	40	0.5	18.0*	D	18.0*	D
A77	Pepper Avenue	NB	Rialto Avenue to Foothill Boulevard	40	0.5	18.0*	D	18.0*	D
A78	Pepper Avenue	SB	Foothill Boulevard to Rialto Avenue	40	0.5	18.0*	D	18.0*	D
A79	Mt. Vernon Avenue	NB	Mill Street to Rialto Avenue	35	0.6	26.8	B	25.6	C
A80	Mt. Vernon Avenue	SB	Rialto Avenue to Mill Street	35	0.6	25.1	C	24.8	C
A81	Mt. Vernon Avenue	NB	Rialto Avenue to Baseline Road	30	1.4	24.0	B	22.6	C
A82	Mt. Vernon Avenue	SB	Baseline Road to Rialto Avenue	30	1.4	23.7	B	23.1	C
A83	Mt. Vernon Avenue	NB	Baseline Road to Highland Avenue	35	1.1	26.3	C	26.7	C
A84	Mt. Vernon Avenue	SB	Highland Avenue to Baseline Road	35	1.1	27.2	B	25.6	C
A85	Mt. Vernon Avenue	NB	Washington Street to Colton Avenue	30	2.0	25.4	B	21.1	C
A86	Mt. Vernon Avenue	SB	Colton Avenue to Washington Street	30	2.0	24.0	B	21.3	C
A87	Mt. Vernon Avenue	NB	Colton Avenue to Mill Street	40	1.3	27.9	C	25.5	C
A88	Mt. Vernon Avenue	SB	Mill Street to Colton Avenue	40	1.3	27.4	C	24.3	C
A89	Hunts Lane	NB	Washington Street to Redlands Boulevard	35	1.0	20.0*	C	20.0*	C
A90	Hunts Lane	SB	Redlands Boulevard to Washington Street	35	1.0	20.0*	C	20.0*	C
A91	Hunts Lane & E Street	NB	Redlands Boulevard to Mill Street	40	2.3	26.7	C	23.8	C
A92	Hunts Lane & E Street	SB	Mill Street to Redlands Boulevard	40	2.3	25.5	C	24.8	C
A93	E Street	NB	Mill Street to Rialto Avenue	35	0.6	26.2	C	22.8	C
A94	E Street	SB	Rialto Avenue to Mill Street	35	0.6	26.1	C	24.6	C
A95	E Street	NB	Rialto Avenue to Baseline Road	35	1.4	20.1	C	17.9	D
A96	E Street	SB	Baseline Road to Rialto Avenue	35	1.4	19.7	D	18.0	D
A97	E Street	NB	Baseline Road to Highland Avenue	35	0.9	25.7	C	25.0	C
A98	E Street	SB	Highland Avenue to Baseline Road	35	1.0	26.7	C	25.4	C
A99	Waterman Avenue	NB	Barton Road to Redlands Boulevard	50	0.8	24.6	D	21.0	E
A100	Waterman Avenue	SB	Redlands Boulevard to Barton Road	50	0.8	27.1	D	25.6	D
A101	Waterman Avenue	NB	Redlands Boulevard to Mill Street	50	2.0	30.1	C	28.3	C
A102	Waterman Avenue	SB	Mill Street to Redlands Boulevard	50	2.0	31.5	C	28.3	C
A103	Waterman Avenue	NB	Mill Street to 3rd Street	40	0.9	29.9	C	28.1	C
A104	Waterman Avenue	SB	3rd Street to Mill Street	40	1.0	28.4	C	27.3	C
A105	Waterman Avenue	NB	3rd Street to 5th Street	35	0.3	23.1	C	22.2	C
A106	Waterman Avenue	SB	5th Street to 3rd Street	35	0.3	23.4	C	22.1	C
A107	Waterman Avenue	NB	5th Street to Baseline Street	35	0.9	24.6	C	22.6	C
A108	Waterman Avenue	SB	Baseline Street to 5th Street	35	0.9	24.6	C	22.3	C
A109	Waterman Avenue	NB	Baseline Street to Highland Avenue	35	1.0	24.4	C	22.8	C
A110	Waterman Avenue	SB	Highland Avenue to Baseline Street	35	1.0	24.7	C	22.2	C
A111	Tippecanoe Avenue	NB	San Bernardino Avenue to Mill Street	40	1.0	28.9	C	28.5	C
A112	Tippecanoe Avenue	SB	Mill Street to San Bernardino Avenue	40	1.0	29.3	C	26.0	C
A113	Alabama Street	NB	Barton Road to Redlands Boulevard	35	1.1	27.3	B	25.3	C
A114	Alabama Street	SB	Redlands Boulevard to Barton	35	1.1	27.6	B	26.1	C

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
			Road						
A115	Alabama Street	NB	Redlands Boulevard to San Bernardino Avenue	40	1.0	21.9	D	18.2	D
A116	Alabama Street	SB	San Bernardino Avenue to Redlands Boulevard	40	1.0	22.3	D	18.9	D
A117	Alabama Street, Palm Avenue	NB	San Bernardino Avenue to 3rd Street	40	2.0	35.4	B	34.3	B
A118	Alabama Street, Palm Avenue	SB	3rd Street to San Bernardino Avenue	40	2.0	36.7	B	37.4	B
A119	Palm Avenue	NB	5th Street to Base Line Street	45	0.9	33.0	C	33.9	B
A120	Palm Avenue	SB	Base Line Street to 5th Street	45	0.9	35.2	B	32.7	C
A121	Palm Avenue	NB	Base Line Street to Highland Avenue	45	1.0	25.5	C	24.0	D
A122	Palm Avenue	SB	Highland Avenue to Base Line Street	45	1.0	26.8	C	24.8	D
A123	Bryant Street	NB	Yucaipa Boulevard to SR-38	45	3.5	28.0*	C	28.0*	C
A124	Bryant Street	SB	SR-38 to Yucaipa Boulevard	45	3.5	28.0*	C	28.0*	C
A125	Cajon Boulevard	NB	Highland Avenue to I-215	55	7.9	42.5	B	43.6	B
A126	Cajon Boulevard	SB	I-215 to Highland Avenue	55	7.7	44.3	B	43.7	B
A127	Del Rosa Drive	NB	5th Street to Baseline Street	35	1.0	24.0*	C	24.0*	C
A128	Del Rosa Drive	SB	Baseline Street to 5th Street	35	1.0	24.0*	C	24.0*	C
A129	Sterling Avenue	NB	5th Street to Baseline Street	40	1.0	23.4*	C	23.4*	C
A130	Sterling Avenue	SB	Baseline Street to 5th Street	40	1.0	23.4*	C	23.4*	C
A131	Sterling Avenue	NB	Baseline Street to Highland Avenue	40	1.0	23.4*	C	23.4*	C
A132	Sterling Avenue	SB	Highland Avenue to Baseline Street	40	1.0	23.4*	C	23.4*	C
A133	Greenspot Rd, Florida Ave, Garnet Street	NB	SR-38 to Boulder Avenue	25	8.0	11.2*	D	11.2*	D
A134	Greenspot Rd, Florida Ave, Garnet Street	SB	Boulder Avenue to SR-38	25	8.0	11.2*	D	11.2*	D
A135	19th Street	EB	Mountain Avenue to Euclid Avenue	35	1.1	27.7	B	27.4	B
A136	19th Street	WB	Euclid Avenue to Mountain Avenue	35	1.5	29.3	B	26.9	B
A137	19th Street	EB	Euclid Avenue to Archibald Avenue	40	3.5	28.5	C	26.0	C
A138	19th Street	WB	Archibald Avenue to Euclid Avenue	40	3.5	28.3	C	24.7	C
A139	19th Street	EB	Archibald Avenue to Haven Avenue	45	0.9	33.5	B	31.1	C
A140	19th Street	WB	Haven Avenue to Archibald Avenue	45	1.0	32.4	C	29.3	C
A141	Highland Avenue	EB	Haven Avenue to Fairmont Way	45	1.0	26.3*	C	26.3*	C
A142	Highland Avenue	WB	Fairmont Way to Haven Avenue	45	1.0	26.3*	C	26.3*	C
A143	Highland Avenue	EB	Woodruff Place to East Avenue	45	2.5	26.3*	C	26.3*	C
A144	Highland Avenue	WB	East Avenue to Woodruff Place	45	2.5	26.3*	C	26.3*	C
A145	Highland Avenue	EB	Cherry Avenue to Citrus Avenue	35	2.0	35.8	A	33.1	B
A146	Highland Avenue	WB	Citrus Avenue to Cherry Avenue	35	2.0	37.2	A	35.1	A
A147	Highland Avenue	EB	Citrus Avenue to Sierra Avenue	35	1.0	34.9	A	35.2	A
A148	Highland Avenue	WB	Sierra Avenue to Citrus Avenue	35	1.0	36.3	A	34.5	A
A149	Highland Avenue	EB	Sierra Avenue to Palmetto Ave	25	0.6	33.8	A	31.8	A
A150	Highland Avenue	WB	Palmetto Ave to Sierra Avenue	25	0.6	38.4	A	37.3	A
A151	Renaissance Parkway	EB	Palmetto Ave to Ayala Avenue	25	2.1	32.4	A	29.7	A
A152	Renaissance Parkway	WB	Ayala Avenue to Palmetto Ave	25	2.1	32.2	A	30.5	A
A153	Renaissance Parkway	EB	Ayala Avenue to Arrowhead Ave	35	0.3	29.2	B	27.1	B
A154	Renaissance Parkway	WB	Arrowhead to Ayala Avenue	35	0.3	28.5	B	23.1	C
A155	Easton Street	EB	Arrowhead to Riverside Avenue	30	1.0	23.6	B	20.7	C

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A156	Easton Street	WB	Riverside Avenue to Arrowhead	30	1.0	24.4	B	20.2	C
A157	Highland Avenue	EB	Riverside Avenue to Mt. Vernon	40	3.2	31.2	B	29.6	C
A158	Highland Avenue	WB	Mt. Vernon to Riverside Avenue	40	3.2	30.7	B	29.1	C
A159	Highland Avenue	EB	Mt. Vernon Avenue to E Street	35	1.3	21.7	C	20.2	C
A160	Highland Avenue	WB	E Street to Mt. Vernon Avenue	35	1.3	21.9	C	20.4	C
A161	Highland Avenue	EB	E Street to SR-210 (EB Ramp)	40	3.3	26.4	C	23.6	C
A162	Highland Avenue	WB	SR-210 (EB Ramp) to E Street	40	3.3	27.3	C	24.3	C
A163	Highland Avenue	EB	SR-210 (EB Ramp) to Boulder	45	2.4	28.2	C	26.1	C
A164	Highland Avenue	WB	Boulder to SR-210 (EB Ramp)	45	2.4	28.5	C	26.1	C
A165	16th Street	EB	Mountain Avenue to Euclid Avenue	45	1.1	37.0	B	31.7	C
A166	16th Street	WB	Euclid Avenue to Mountain Avenue	45	1.1	34.0	B	33.6	B
A167	16th Street	EB	Euclid Avenue to Carnelian Street	45	2.0	35.7	B	31.4	C
A168	16th Street	WB	Carnelian Street to Euclid Avenue	45	2.0	28.6	C	29.8	C
A169	Base Line Road	EB	Carnelian Street to Milliken Avenue	45	3.3	29.4	C	27.2	C
A170	Base Line Road	WB	Milliken Avenue to Carnelian Street	45	3.3	28.2	C	28.5	C
A171	Base Line Road	EB	Milliken Avenue to Etiwanda Avenue	40	2.0	30.0	C	29.2	C
A172	Base Line Road	WB	Etiwanda Avenue to Milliken Avenue	40	2.0	30.6	B	30.0	C
A173	Base Line Road	EB	Etiwanda Avenue to East Avenue	40	0.5	27.4	C	27.4	C
A174	Base Line Road	WB	East Avenue to Etiwanda Avenue	40	0.5	29.2	C	28.4	C
A175	Base Line Road	EB	East Avenue to Cedar Avenue	40	6.4	32.0	B	31.4	B
A176	Base Line Road	WB	Cedar Avenue to East Avenue	40	5.9	33.4	B	30.8	B
A177	Base Line Road	EB	Cedar Avenue to Riverside Avenue	40	1.5	33.6	B	30.6	B
A178	Base Line Road	WB	Riverside Avenue to Cedar Avenue	40	1.5	32.4	B	31.6	B
A179	Base Line Road	EB	Riverside Avenue to Pepper Avenue	40	1.0	31.9	B	29.7	C
A180	Base Line Road	WB	Pepper Avenue to Riverside Avenue	40	1.0	28.3	C	26.9	C
A181	Base Line Road	EB	Pepper Avenue to Mt. Vernon Avenue	40	2.2	33.4	B	31.0	B
A182	Base Line Road	WB	Mt. Vernon Avenue to Pepper Avenue	40	2.2	30.0	C	28.6	C
A183	Base Line Road	EB	Mt. Vernon Avenue to Waterman Avenue	40	2.0	18.0*	C	18.0*	C
A184	Base Line Road	WB	Waterman Avenue to Mt. Vernon Avenue	40	2.0	18.0*	C	18.0*	C
A185	Base Line Road	EB	Waterman Avenue to Sterling Avenue	40	2.0	18.0*	C	18.0*	C
A186	Base Line Road	WB	Sterling Avenue to Waterman Avenue	40	2.0	18.0*	C	18.0*	C
A187	Base Line Road	EB	Sterling Avenue to Palm Avenue	40	2.0	30.4*	B	30.4*	B
A188	Base Line Road	WB	Palm Avenue to Sterling Avenue	40	2.0	30.4*	B	30.4*	B
A189	Base Line Road	EB	Palm Avenue to Boulder Avenue	40	0.7	30.4*	B	30.4*	B
A190	Base Line Road	WB	Boulder Avenue to Palm Avenue	40	0.7	30.4*	B	30.4*	B
A191	Foothill Boulevard (SR-66)	EB	Archibald Avenue to Haven Avenue	45	1.0	30.2	C	26.8	C
A192	Foothill Boulevard (SR-66)	WB	Haven Avenue to Archibald Avenue	45	1.0	29.3	C	25.9	C
A193	Foothill Boulevard (SR-66)	EB	Haven Avenue to Etiwanda Ave	50	3.0	29.7	C	24.1	D

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A194	Foothill Boulevard (SR-66)	WB	Etiwanda Avenue to Haven Avenue	50	3.0	29.4	C	25.3	D
A195	Foothill Boulevard (SR-66)	EB	Etiwanda Avenue to Cherry Avenue	50	2.0	36.0	C	32.9	C
A196	Foothill Boulevard (SR-66)	WB	Cherry Avenue to Etiwanda Avenue	50	2.0	34.2	C	34.3	C
A197	Foothill Boulevard (SR-66)	EB	Cherry Avenue to Citrus Avenue	45	2.0	34.9	B	32.1	C
A198	Foothill Boulevard (SR-66)	WB	Citrus Avenue to Cherry Avenue	45	2.0	36.8	B	33.9	B
A199	Foothill Boulevard (SR-66)	EB	Citrus Avenue to Sierra Avenue	45	1.0	29.4	C	24.5	D
A200	Foothill Boulevard (SR-66)	WB	Sierra Avenue to Citrus Avenue	45	1.0	32.3	C	27.4	C
A201	Foothill Boulevard (SR-66)	EB	Sierra Avenue to Cedar Avenue	45	2.2	30.2	C	30.1	C
A202	Foothill Boulevard (SR-66)	WB	Cedar Avenue to Sierra Avenue	45	2.2	29.7	C	26.2	C
A203	Foothill Boulevard (SR-66)	EB	Cedar Avenue to Riverside Avenue	45	1.5	32.2	C	29.9	C
A204	Foothill Boulevard (SR-66)	WB	Riverside Avenue to Cedar Avenue	45	1.5	32.3	C	28.8	C
A205	Foothill Boulevard (SR-66)	EB	Riverside Avenue to Pepper Avenue	45	1.0	28.3	C	25.4	C
A206	Foothill Boulevard (SR-66)	WB	Pepper Avenue to Riverside Avenue	45	1.0	29.7	C	26.0	C
A207	Foothill Boulevard (SR-66)	EB	Pepper Avenue to Mt. Vernon Avenue	40	2.3	35.8	B	33.7	B
A208	Foothill Boulevard (SR-66)	WB	Mt. Vernon Avenue to Pepper Avenue	40	2.3	34.1	B	31.2	B
A209	5th Street	EB	Mt. Vernon Avenue to Waterman Avenue	40	2.0	23.5	C	22.5	C
A210	5th Street	WB	Waterman Avenue to Mt. Vernon Avenue	40	2.0	24.2	C	20.9	D
A211	5th Street	EB	Waterman Avenue to Del Rosa Drive	40	1.6	32.6	B	30.8	B
A212	5th Street	WB	Del Rosa Drive to Waterman Avenue	40	1.5	32.4	B	33.2	B
A213	5th Street	EB	Del Rosa Drive to Sterling Avenue	40	0.4	38.2	B	36.2	B
A214	5th Street	WB	Sterling Avenue to Del Rosa Drive	40	0.4	40.0	A	38.5	A
A215	5th Street	EB	Sterling Avenue to Palm Avenue	40	2.0	37.7	B	36.7	B
A216	5th Street	WB	Palm Avenue to Sterling Avenue	40	2.0	38.3	A	37.6	B
A217	5th Street	EB	Palm Avenue to Boulder Avenue	40	1.4	28.4	C	26.2	C
A218	5th Street	WB	Boulder Avenue to Palm Avenue	40	1.4	29.4	C	28.5	C
A219	Arrow Hwy	EB	Central Avenue to Benson Avenue	45	0.5	27.5	C	24.1	D
A220	Arrow Hwy	WB	Benson Avenue to Central Avenue	45	0.5	29.1	C	24.7	D
A221	8th Street	EB	Benson Avenue to Mountain Avenue	35	0.6	30.8	B	26.0	C
A222	8th Street	WB	Mountain Avenue to Benson Avenue	35	0.6	30.3	B	29.4	B
A223	Arrow Route	EB	Grove Avenue to Baker Avenue	45	0.5	34.4	B	32.6	C
A224	Arrow Route	WB	Baker Avenue to Grove Avenue	45	0.5	33.4	C	31.2	C
A225	Arrow Route	EB	Baker Avenue to Vineyard Avenue	45	0.5	34.5	B	32.7	C
A226	Arrow Route	WB	Vineyard Avenue to Baker Avenue	45	0.5	33.5	B	31.3	C
A227	Arrow Route	EB	Vineyard Avenue to Archibald Avenue	45	1.0	31.9	C	30.4	C
A228	Arrow Route	WB	Archibald Avenue to Vineyard Avenue	45	1.0	34.2	B	32.0	C

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A229	Arrow Route	EB	Archibald Avenue to Haven Avenue	45	1.0	31.1	C	28.0	C
A230	Arrow Route	WB	Haven Avenue to Archibald Avenue	45	1.0	31.0	C	28.6	C
A231	Arrow Route	EB	Haven Avenue to Milliken Avenue	50	1.0	22.5*	D	22.5*	D
A232	Arrow Route	WB	Milliken Avenue to Haven Avenue	50	1.0	22.5*	D	22.5*	D
A233	4th Street	EB	Vineyard Avenue to Archibald Avenue	45	1.0	35.2	B	35.6	B
A234	4th Street	WB	Archibald Avenue to Vineyard Avenue	45	1.0	35.7	B	33.9	B
A235	4th Street	EB	Archibald Avenue to Haven Avenue	55	1.0	32.8	C	31.9	C
A236	4th Street	WB	Haven Avenue to Archibald Avenue	55	1.0	34.7	C	32.2	C
A237	4th Street	EB	Haven Avenue to Milliken Avenue	55	1.0	34.2	C	28.8	D
A238	4th Street	WB	Milliken Avenue to Haven Avenue	55	1.0	31.5	C	29.8	D
A239	4th Street	EB	Milliken Avenue to Etiwanda Avenue	50	2.0	30.4	C	25.3	D
A240	4th Street	WB	Etiwanda Avenue to Milliken Avenue	50	1.9	28.3	C	24.1	D
A241	San Bernardino Avenue	EB	Tippecanoe Avenue to Mt. View Avenue	40	0.9	31.3	B	30.1	C
A242	San Bernardino Avenue	WB	Mt. View Avenue to Tippecanoe Avenue	40	0.9	33.0	B	31.9	B
A243	San Bernardino Avenue	EB	Mt. View Avenue to California Avenue	45	1.0	32.8	C	31.4	C
A244	San Bernardino Avenue	WB	California Avenue to Mt. View Avenue	45	1.0	33.9	B	32.7	C
A245	San Bernardino Avenue	EB	California Avenue to Alabama Street	45	1.0	33.7	B	32.1	C
A246	San Bernardino Avenue	WB	Alabama Street to California Avenue	45	1.0	34.8	B	33.4	C
A247	San Bernardino Avenue	EB	Alabama Street to SR-210	45	0.5	27.3	C	22.7	D
A248	San Bernardino Avenue	WB	SR-210 to Alabama Street	45	0.5	30.5	C	28.1	C
A249	San Bernardino Avenue	EB	SR-210 to Orange Street	45	1.0	33.7	B	31.6	C
A250	San Bernardino Avenue	WB	Orange Street to SR-210	45	1.0	32.4	C	32.9	C
A251	Holt Boulevard	EB	Central Avenue to Mountain Avenue	45	1.1	33.7	B	28.4	C
A252	Holt Boulevard	WB	Mountain Avenue to Central Avenue	45	1.1	32.7	C	26.6	C
A253	Holt Boulevard	EB	Mountain Avenue to Grove Avenue	40	2.4	26.7	C	23.5	C
A254	Holt Boulevard	WB	Grove Avenue to Mountain Avenue	40	2.4	28.5	C	25.0	C
A255	Holt Boulevard	EB	Grove Avenue to Vineyard Avenue	40	1.0	32.1	B	29.6	C
A256	Holt Boulevard	WB	Vineyard Avenue to Grove Avenue	40	1.0	31.8	B	29.2	C
A257	Holt Boulevard	EB	Vineyard Avenue to Guasti Road	50	0.4	36.2	C	30.6	C
A258	Holt Boulevard	WB	Guasti Road to Vineyard Avenue	50	0.4	26.2	D	23.8	D
A259	Mission Boulevard	EB	Central Avenue to Benson Avenue	45	0.5	30.6	C	29.3	C

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A260	Mission Boulevard	WB	Benson Avenue to Central Avenue	45	0.5	31.4	C	29.7	C
A261	Mission Boulevard	EB	Benson Avenue to Mountain Avenue	50	0.6	31.4	C	29.9	C
A262	Mission Boulevard	WB	Mountain Avenue to Benson Avenue	50	0.6	32.3	C	30.5	C
A263	Mission Boulevard	EB	Mountain Avenue to Euclid Avenue	50	1.1	30.7	C	28.7	C
A264	Mission Boulevard	WB	Euclid Avenue to Mountain Avenue	50	1.1	30.4	C	29.1	C
A265	Mission Boulevard	EB	Euclid Avenue to Grove Avenue	45	1.3	29.7	C	28.3	C
A266	Mission Boulevard	WB	Grove Avenue to Euclid Avenue	45	1.3	28.9	C	27.4	C
A267	Mission Boulevard	EB	Grove Avenue to Vineyard Avenue	55	1.1	40.1	C	39.5	C
A268	Mission Boulevard	WB	Vineyard Avenue to Grove Avenue	55	1.1	43.2	B	39.5	C
A269	Mission Boulevard	EB	Vineyard Avenue to Archibald Avenue	55	1.1	40.5	B	40.2	B
A270	Mission Boulevard	WB	Archibald Avenue to Vineyard Avenue	55	1.1	43.4	B	39.8	C
A271	Mission Boulevard	EB	Archibald Avenue to Milliken Avenue	55	2.2	36.4	C	37.0	C
A272	Mission Boulevard	WB	Milliken Avenue to Archibald Avenue	55	2.2	39.6	C	36.8	C
A273	Riverside Drive	EB	East End Avenue to Central Avenue	40	2.0	25.9	C	25.6	C
A274	Riverside Drive	WB	Central Avenue to East End Avenue	40	2.0	28.1	C	26.5	C
A275	Riverside Drive	EB	Central Avenue to Mountain Avenue	35	1.3	25.9	C	25.3	C
A276	Riverside Drive	WB	Mountain Avenue to Central Avenue	35	1.3	25.5	C	25.3	C
A277	Riverside Drive	EB	Mountain Avenue to Euclid Avenue	45	1.0	29.3	C	27.1	C
A278	Riverside Drive	WB	Euclid Avenue to Mountain Avenue	45	1.0	30.0	C	30.2	C
A279	Riverside Drive	EB	Euclid Avenue to Grove Avenue	45	1.3	32.7	C	30.7	C
A280	Riverside Drive	WB	Grove Avenue to Euclid Avenue	45	1.3	33.2	C	32.4	C
A281	Chino Hills Pkwy	EB	SR-71 to Central Avenue	45	1.2	32.1	C	30.0	C
A282	Chino Hills Pkwy	WB	Central Avenue to SR-71	45	1.2	28.9	C	26.2	C
A283	3rd Street	EB	Waterman Avenue to Del Rosa Drive	35	1.6	31.3	B	30.6	B
A284	3rd Street	WB	Del Rosa Drive to Waterman Avenue	35	1.6	32.6	B	32.3	B
A285	3rd Street	EB	Del Rosa Drive to Sterling Avenue	45	0.5	39.8	B	40.6	B
A286	3rd Street	WB	Sterling Avenue to Del Rosa Drive	45	0.5	39.8	B	37.8	B
A287	3rd Street	EB	Sterling Avenue to Palm Avenue	45	2.0	40.1	B	41.0	B
A288	3rd Street	WB	Palm Avenue to Sterling Avenue	45	1.9	40.4	B	39.1	B
A289	Edison Avenue	EB	SR-71 to Central Avenue	35	2.1	28.3	B	24.7	C
A290	Edison Avenue	WB	Central Avenue to SR-71	35	2.0	26.9	B	24.1	C
A291	Edison Avenue	EB	Central Avenue to Euclid Avenue	35	2.2	31.8	B	31.7	B
A292	Edison Avenue	WB	Euclid Avenue to Central Avenue	35	2.2	30.9	B	31.2	B
A293	SR-38	EB	Orange Street to Wabash Avenue	40	2.5	34.4	B	32.3	B
A294	SR-38	WB	Wabash Avenue to Orange Street	40	2.5	34.8	B	34.4	B
A295	SR-38	EB	Wabash Avenue to Garnet Street	40	2.3	36.4	B	35.3	B
A296	SR-38	WB	Garnet Street to Wabash Avenue	40	2.3	36.2	B	36.5	B

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A297	SR-38	EB	Garnet Street to Bryant Avenue	50	3.0	45.6	B	47.7	A
A298	SR-38	WB	Bryant Avenue to Garnet Street	50	3.0	48.6	A	47.2	A
A299	5th Avenue/Sand Canyon	EB	Wabash Avenue to Yucaipa Boulevard	50	3.0	38.0*	B	38.0*	B
A300	5th Avenue/Sand Canyon	WB	Yucaipa Boulevard to Wabash Avenue	50	3.0	38.0*	B	38.0*	B
A301	Yucaipa Boulevard	EB	I-10 WB Ramp to 14th Street	35	1.5	37.5	A	38.2	A
A302	Yucaipa Boulevard	WB	14th Street to I-10 WB Ramp	35	1.5	35.9	A	37.1	A
A303	Yucaipa Boulevard	EB	14th Street to Oak Glen Road	35	1.3	30.6	B	30.1	B
A304	Yucaipa Boulevard	WB	Oak Glen Road to 14th Street	35	1.3	32.8	B	33.7	B
A305	County Line Road	EB	I-10 WB Ramp to Bryant Avenue	35	1.8	26.6*	B	26.6*	B
A306	County Line Road	WB	Bryant Avenue to I-10 WB Ramp	35	1.8	26.6*	B	26.6*	B
A307	Avenue F	EB	I-10 WB Ramp to Bryant Avenue	35	2.5	26.6*	B	26.6*	B
A308	Avenue F	WB	Bryant Avenue to I-10 WB Ramp	35	2.5	26.6*	B	26.6*	B
A309	Redlands Boulevard	EB	Alabama Street to Citrus Avenue	45	2.0	22.8	D	21.4	D
A310	Redlands Boulevard	WB	Citrus Avenue to Alabama Street	45	2.0	25.6	C	23.5	D
A311	Redlands Boulevard	EB	Citrus Avenue to Ford Street	30	1.6	25.5	B	23.4	C
A312	Redlands Boulevard	WB	Ford Street to Citrus Avenue	30	1.6	28.7	B	26.3	B
A313	Barton Rd/Brookside/Citrus Ave	EB	Alabama Street to Redlands Boulevard	35	2.1	23.6	C	21.6	C
A314	Barton Rd/Brookside/Citrus Ave	WB	Redlands Boulevard to Alabama Street	35	2.1	23.3	C	21.5	C
A315	Citrus Avenue	EB	Redlands Boulevard to I-10	35	0.6	20.1	C	19.5	D
A316	Citrus Avenue	WB	I-10 to Redlands Boulevard	35	0.6	19.4	D	21.8	C
A317	Citrus Avenue	EB	I-10 to Wabash Avenue	35	1.4	26.3	C	26.1	C
A318	Citrus Avenue	WB	Wabash Avenue to I-10	35	1.4	27.1	B	27.5	B
A319	Merrill/Mill Avenue	EB	Riverside Ave to Pepper Avenue	35	1.0	15.8*	D	15.8*	D
A320	Merrill/Mill Avenue	WB	Pepper Avenue to Riverside Ave	35	1.0	15.8*	D	15.8*	D
A321	Mill Street	EB	Pepper Avenue to Rancho Avenue	35	1.0	15.8*	D	15.8*	D
A322	Mill Street	WB	Rancho Avenue to Pepper Avenue	35	1.0	15.8*	D	15.8*	D
A323	Mill Street	EB	Rancho Avenue to Mt. Vernon Avenue	40	1.0	23.4*	C	23.4*	C
A324	Mill Street	WB	Mt. Vernon Avenue to Rancho Avenue	40	1.0	23.4*	C	23.4*	C
A325	Jurupa Street	EB	I-15 to Etiwanda Avenue	35	1.4	32.2	B	31.8	B
A326	Jurupa Street	WB	Etiwanda Avenue to I-15	35	1.5	30.7	B	28.5	B
A327	Arrowhead Lake Road	NB	SR-SR-173 to Ranchero Road	50	2.7	30.0	C	30.0	C
A328	Arrowhead Lake Road	SB	Ranchero Road to SR-173	50	2.7	30.0	C	30.0	C
A329	Arrowhead Lake Road	NB	Ranchero Road to Rock Springs Road	45	1.5	20.2*	D	20.2*	D
A330	Arrowhead Lake Road	SB	Rock Springs Road to Ranchero Road	45	1.5	20.2*	D	20.2*	D
A331	Bear Valley Road	EB	Kiowa Road to Navajo Road	55	1.0	42.8	B	41.6	B
A332	Bear Valley Road	WB	Navajo Road to Kiowa Road	55	1.0	41.6	B	39.9	C
A333	Bear Valley Road	EB	Navajo Road to SR-SR-18	55	3.7	49.2	B	49.7	B
A334	Bear Valley Road	WB	SR-18 to Navajo Road	55	3.7	47.2	B	47.3	B
A335	El Mirage Road	EB	LA County Line to Sheep Creek Road	55	5.2	45.0*	B	45.0*	B
A336	El Mirage Road	WB	Sheep Creek Road to LA County Line	55	5.2	45.0*	B	45.0*	B
A337	El Mirage Road	EB	Sheep Creek Road to SR-395	55	9.2	45.0*	B	45.0*	B
A338	El Mirage Road	WB	SR-395 to Sheep Creek Road	55	9.2	45.0*	B	45.0*	B
A339	SR-18	EB	LA County Line to SR-395	55	14.9	53.8	A	53.9	A
A340	SR-18	WB	SR-395 to LA County Line	55	14.8	54.3	A	53.3	A

Table A-6: Arterials LOS Results (Continued)

ID	Arterial	Dir	End Points	Posted Speed	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
A341	SR-18	EB	SR-395 to Amargosa Road	50	4.0	41.0	B	39.6	B
A342	SR-18	WB	Amargosa Road to SR-395	50	4.0	41.3	B	39.9	B
A343	SR-18	EB	Amargosa Road to I-15	35	0.4	23.0	C	21.2	C
A344	SR-18	WB	I-15 to Amargosa Road	35	0.4	23.2	C	20.4	C
A345	Phelan Road	EB	SR-138 to Sheep Creek Road	50	2.6	45.9	B	43.8	B
A346	Phelan Road	WB	Sheep Creek Road to SR-138	50	2.7	43.3	B	43.5	B
A347	Phelan Road	EB	Sheep Creek Road to Baldy Mesa Road	55	6.9	49.6	B	49.9	B
A348	Phelan Road	WB	Baldy Mesa Road to Sheep Creek Road	55	6.9	48.0	B	48.8	B
A349	Phelan Road	EB	Baldy Mesa Road to SR-395	55	2.9	51.4	A	50.5	B
A350	Phelan Road	WB	SR-395 to Baldy Mesa Road	55	2.9	49.6	B	49.1	B
A351	SR-18	EB	Apple Valley Road to Apple Valley Inn Road	55	3.4	46.5	B	41.2	B
A352	SR-18	WB	Apple Valley Inn Road to Apple Valley Road	55	3.5	43.1	B	41.5	B
A353	SR-18	EB	Apple Valley Inn Road to Yucca Loma Road	55	2.2	46.0	B	41.4	B
A354	SR-18	WB	Yucca Loma Road to Apple Valley Inn Road	55	2.2	45.2	B	40.7	B
A355	SR-18	EB	Yucca Loma Road to Bear Valley Road	55	4.5	50.2	B	48.1	B
A356	SR-18	WB	Bear Valley Road to Yucca Loma Road	55	4.5	48.9	B	48.3	B
A357	Sheep Creek Road	NB	SR-138 to Phelan Road	30	2.0	30.0*	A	30.0*	A
A358	Sheep Creek Road	SB	Phelan Road to SR-138	30	2.0	30.0*	A	30.0*	A
A359	Sheep Creek Road	NB	Phelan Road to SR-18	55	5.7	45.0*	B	45.0*	B
A360	Sheep Creek Road	SB	SR-18 to Phelan Road	55	5.7	45.0*	B	45.0*	B
A361	Sheep Creek Road	NB	SR-18 to El Mirage Road	55	7.0	45.0*	B	45.0*	B
A362	Sheep Creek Road	SB	El Mirage Road to SR-18	55	7.0	45.0*	B	45.0*	B
A363	SR-395	NB	I-15 to SR-18	55	6.9	46.2	B	43.6	B
A364	SR-395	SB	SR-18 to I-15	55	7.5	43.5	B	42.1	B
A365	SR-395	NB	SR-18 to Air Base Road	55	4.6	46.1	B	44.7	B
A366	SR-395	SB	Air Base Road to SR-18	55	4.6	42.4	B	35.9	C
A367	SR-395	NB	Air Base Road to El Mirage Road	50	2.1	50.9	A	48.3	A
A368	SR-395	SB	El Mirage Road to Air Base Road	50	2.1	48.4	A	44.3	B
A369	Old Route 58	EB	Fort Irwin Road to I-15	50	2.9	41.2	B	39.0	B
A370	Old Route 58	WB	I-15 to Fort Irwin Road	50	2.9	40.2	B	40.7	B

* Values are estimated for the peak direction. The opposing direction is conservatively approximated to equal the peak direction.

LOS RESULTS: TWO LANE HIGHWAYS

Table A-7: Two Lane Highways LOS Results

ID	Highway	Dir	End Points	Class	FFS (mph)	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
T1	SR-2	EB	County Line to Sheep Creek Drive	II / III	38.7	2.3	37.1	A	35.4	B
H1	SR-2	EB	Sheep Creek Drive to SR-138	I	50.6	4.1	49.8	C	48.5	C
H2	SR-2	WB	SR-138 to Sheep Creek Drive	I	48.4	4.1	43.2	D	46.0	C
T2	SR-2	WB	Sheep Creek Drive to County Line	II / III	39.9	2.3	35.6	B	33.2	C
T3	SR-18	NB	SR-210 to Waterman Canyon Road	II / III	43.4	2.9	38.6	B	40.6	A
T4	SR-18	SB	Waterman Canyon Road to SR-210	II / III	44.2	2.9	39.9	B	38.5	B
H3	SR-18	NB	Waterman Canyon Road to SR-138	I	48.0	8.3	44.7	D	48.3	C
H4	SR-18	SB	SR-138 to Waterman Canyon Road	I	50.7	8.4	50.3	B	48.1	C
T5	SR-18	NB	SR-138 to SR-189 N	II / III	38.1	2.9	37.8	A	38.2	A
T6	SR-18	SB	SR-189 N to SR-138	II / III	40.4	2.8	40.2	A	38.4	A
T7	SR-18	NB	SR-189 N to SR-330 S	II / III	39.4	11.0	38.2	A	36.7	A
T8	SR-18	SB	SR-330 S to SR-189 N	II / III	40.4	11.0	39.4	A	38.0	A
T9	SR-18	NB	SR-330 S to Blue Jay Road	II / III	37.3	14.7	36.4	A	34.6	A
T10	SR-18	SB	Blue Jay Road to SR-330	II / III	37.6	14.7	37.0	A	33.6	B
T11	SR-18	NB	Blue Jay Road to Lakeview Drive	II / III	33.2	2.0	32.6	A	29.4	B
T12	SR-18	SB	Lakeview Drive to Blue Jay Road	II / III	33.7	2.0	33.0	A	29.5	B
T13	SR-18	NB	Lakeview Drive to Stanfield Cutoff	II / III	33.4	2.9	32.7	A	29.6	B
T14	SR-18	SB	Stanfield Cutoff to Lakeview Drive	II / III	33.9	2.9	33.1	A	29.7	B
T15	SR-18	NB	Stanfield Cutoff to SR-38 E	II / III	34.0	2.3	33.2	A	30.1	B
T16	SR-18	SB	SR-38 E to Stanfield Cutoff	II / III	34.2	2.3	32.4	A	30.5	B
T17	SR-18	NB	SR-38 E to North Shore Road	II / III	33.7	0.6	30.8	B	27.9	C
T18	SR-18	SB	North Shore Road to SR-38 E	II / III	32.5	0.6	29.1	B	30.2	A
T19	SR-18	NB	North Shore Road to SR-247	II / III	46.0	19.6	45.8	A	45.2	A
T20	SR-18	SB	SR-247 to North Shore Road	II / III	46.1	19.7	44.8	A	42.7	A
H5	SR-18	NB	SR-247 to Central Road	I	52.1	14.1	51.7	B	52.1	B
H6	SR-18	SB	Central Road to SR-247	I	53.0	14.1	52.6	B	52.0	B
T21	SR-18	NB	Central Road to E Cahuenga Road	II / III	47.1	12.8	41.9	B	39.3	B
T22	SR-18	SB	E Cahuenga Road to Central Road	II / III	48.4	12.9	42.7	B	38.3	C
T23	SR-18	NB	E Cahuenga Road to U.S. 395	II / III	47.9	3.5	42.5	B	41.1	B
T24	SR-18	SB	U.S. 395 to E Cahuenga Road	II / III	48.4	3.5	41.9	B	40.8	B
H7	SR-18	NB	U.S. 395 to LA County Line	I	54.8	14.9	54.3	B	53.3	B
H8	SR-18	SB	LA County Line to U.S. 395	I	54.6	14.9	53.8	B	53.9	B
T25	SR-38	EB	Crafton Avenue to Two Lakes Road	II / III	44.3	21.0	43.8	A	42.7	A
T26	SR-38	WB	Two Lakes Road to Crafton Avenue	II / III	46.1	21.0	45.8	A	44.7	A
T27	SR-38	EB	Two Lakes Road to Santa Ana River Bridge	II / III	47.5	5.2	46.8	A	45.2	A
T28	SR-38	WB	Santa Ana River Bridge to Two Lakes Roads	II / III	49.8	5.2	48.2	A	45.7	A
T29	SR-38	EB	Santa Ana River Bridge to SR-18	II / III	47.4	18.6	48.0	A	46.3	A
T30	SR-38	WB	SR-18 to Santa Ana River Bridge	II / III	48.5	18.6	48.3	A	45.8	A
T31	SR-38	EB	SR-18 to Big Bear Dam	II / III	35.9	10.4	35.2	A	33.8	A
T32	SR-38	WB	Big Bear Dam to SR-18	II / III	35.9	10.5	34.7	A	33.7	A
H9	SR-58	EB	County Line to U.S. 395	I	54.8	5.6	54.4	B	52.1	B
H10	SR-58	WB	U.S. 395 to County Line	I	54.8	5.6	54.4*	B	52.1*	B
H11	SR-58	EB	U.S. 395 to Lenwood Road	I	59.9	25.1	58.8	A	58.8	A
H12	SR-58	WB	Lenwood Road to U.S. 395	I	59.8	25.1	59.2	A	58.4	A
H13	SR-95	NB	County Line to Havasu Lake Road	I	63.0	37.3	61.4	A	60.8	A
H14	SR-95	SB	Havasu Lake Road to County Line	I	63.5	37.3	62.7	A	61.4	A
H15	SR-95	NB	Havasu Lake Road to I-40 E	I	58.3	19.9	57.0	A	56.7	A

Table A-7: Two Lane Highways LOS Results (Continued)

ID	Highway	Dir	End Points	Class	FFS (mph)	Length (mi)	AM Speed (mph)	AM LOS	PM Speed (mph)	PM LOS
H16	SR-95	SB	I-40 E to Havasu Lake Road	I	56.6	19.9	56.3	A	53.2	B
H17	SR-95	NB	I-40 E to Nevada State Line	I	62.8	33.9	61.3	A	61.0	A
H18	SR-95	SB	Nevada State Line to I-40 E	I	63.4	34.1	62.5	A	61.1	A
H19	SR-127	NB	I-15 to Saratoga Springs Road	I	54.2	29.8	54.4	B	53.8	B
H20	SR-127	SB	Saratoga Springs Road to I-15	I	54.1	29.8	53.9	B	54.2	B
H21	SR-138	EB	County Line to I-15	I	54.3	14.8	52.2	B	52.0	B
H22	SR-138	WB	I-15 to County Line	I	54.3	14.7	52.1	B	52.0	B
T33	SR-138	EB	I-15 to Cleghorn Canyon Road	II / III	30.0*	3.9	42.0*	A	42.0*	A
T34	SR-138	WB	Cleghorn Canyon Road to I-15	II / III	30.0*	3.9	42.0*	A	42.0*	A
T35	SR-138	EB	Cleghorn Canyon Road to Waters Drive	II / III	50.0*	15.5	48.0*	A	48.0*	A
T36	SR-138	WB	Waters Drive to Cleghorn Canyon Road	II / III	50.0*	15.5	48.0*	A	48.0*	A
T37	SR-138	EB	Waters Drive to Knapps Cutoff	II / III	25.0*	0.5	25.0*	A	25.0*	A
T38	SR-138	WB	Knapps Cutoff to Waters Drive	II / III	25.0*	0.5	25.0*	A	25.0*	A
T39	SR-138	EB	Knapps Cutoff to SR-18	II / III	30.0*	1.5	30.0*	A	30.0*	A
T40	SR-138	WB	SR-18 to Knapps Cutoff	II / III	30.0*	1.5	30.0*	A	30.0*	A
T41	SR-173	EB	SR-138 to Arrowhead Lake Road	II / III	50.0*	7.0	49.0*	A	49.0*	A
T42	SR-173	WB	Arrowhead Lake Road to SR-138	II / III	50.0*	7.0	49.0*	A	49.0*	A
T43	SR-173	EB	Arrowhead Lake Road to Hook Creek Road	II / III	50.0*	9.0	44.0*	B	44.0*	B
T44	SR-173	WB	Hook Creek Road to Arrowhead Lake Road	II / III	50.0*	9.0	44.0*	B	44.0*	B
T45	SR-173	EB	Hook Creek Road to SR-18	II / III	40.0*	3.5	38.0*	A	38.0*	A
T46	SR-173	WB	SR-18 to Hook Creek Road	II / III	40.0*	3.5	38.0*	A	38.0*	A
T47	SR-189	EB	SR-18 to SR-173	II / III	40.0*	3.0	36.0*	B	36.0*	B
T48	SR-189	WB	SR-173 to SR-18	II / III	40.0*	3.0	36.0*	B	36.0*	B
H23	SR-247	NB	SR-62 to Camp Rock Road	I	60.7	39.5	59.8	A	59.5	A
H24	SR-247	SB	Camp Rock Road to SR-62	I	60.6	39.5	59.9	A	58.0	A
T49	SR-247	NB	Camp Rock Road to Barstow City Limits	II / III	55.0	36.3	54.6	A	54.6	A
T50	SR-247	SB	Barstow City Limits to Camp Road	II / III	54.5	36.3	53.8	A	54.1	A
T51	SR-247	NB	Barstow City Limits to I-15	II / III	43.5	1.7	41.4	A	38.8	B
T52	SR-247	SB	I-15 to Barstow City Limits	II / III	44.6	1.7	41.6	A	40.0	B
T53	SR-330	NB	SR-210 to SR-18	II / III	46.0	15.0	44.6	A	43.8	A
T54	SR-330	SB	SR-18 to SR-210	II / III	47.7	14.8	47.2	A	44.6	A
T55	SR-395	NB	I-15 to SR-18	II / III	51.1	7.4	46.4	B	43.8	B
T56	SR-395	SB	SR-18 to I-15	II / III	48.3	7.5	43.5	B	42.1	B
T57	SR-395	NB	SR-18 to El Mirage Road	II / III	51.9	6.7	47.4	B	45.7	B
T58	SR-395	SB	El Mirage Road to SR-18	II / III	47.5	6.7	44.0	A	37.9	C
H25	SR-395	NB	El Mirage Road to County Line	I	62.8	55.4	62.0	A	60.0	A
H26	SR-395	SB	County Line to El Mirage Road	I	62.0	55.4	60.8	A	60.3	A
T59	SR-178	EB	County Line to Culvert at 35.645711/117.522009	II / III	55.0*	17.6	46.0*	B	46.0*	B
T60	SR-178	WB	Culvert at 35.645711/117.522009 to County Line	II / III	55.0*	17.6	46.0*	B	46.0*	B

* Values are estimated for the peak direction. The opposing direction is conservatively approximated to equal the peak direction.

COMPARISON TO PREVIOUS CMPS

Table A-8: Freeways: Comparison to Previous CMP (LOS E and F)

ID	Road	Dir	End Points	2015		2007	
				AM Speed (mph) / LOS	PM Speed (mph) / LOS	AM LOS	PM LOS
F1	I-10	EB	LA County Line to Monte Vista Avenue	57.7 / B	52.2 / C	D	F
F2	I-10	WB	Monte Vista Avenue to LA County Line	50.3 / C	60.7 / A	F	D
F3	I-10	EB	Monte Vista Avenue to Central Avenue	57.1 / B	53.6 / C	D	F
F4	I-10	WB	Central Avenue to Monte Vista Avenue	51.8 / C	60.8 / A	F	D
F5	I-10	EB	Central Avenue to Mountain Avenue	57.0 / B	54.1 / C	D	F
F6	I-10	WB	Mountain Avenue to Central Avenue	52.1 / C	60.0 / A	F	D
F7	I-10	EB	Mountain Avenue to SR-83/Euclid Ave	57.5 / B	53.0 / C	D	F
F8	I-10	WB	SR-83/Euclid Ave to Mountain Avenue	51.6 / C	57.7 / B	F	D
F9	I-10	EB	SR-83/Euclid Ave to Fourth Street	59.7 / B	54.3 / C	D	F
F10	I-10	WB	Fourth Street to SR-83/Euclid Ave	51.6 / C	55.6 / B	E	D
F11	I-10	EB	Fourth Street to Vineyard Avenue	60.0 / A	49.6 / C	C	E
F12	I-10	WB	Vineyard Avenue to Fourth Street	50.9 / C	49.4 / C	E	C
F13	I-10	EB	Vineyard Avenue to Archibald Avenue	58.3 / B	39.5 / E	C	E
F14	I-10	WB	Archibald Avenue to Vineyard Avenue	53.8 / C	47.5 / D	E	C
F15	I-10	EB	Archibald Avenue to Haven Avenue	57.3 / B	33.3 / E	D	E
F16	I-10	WB	Haven Avenue to Archibald Avenue	55.0 / B	47.1 / D	E	D
F17	I-10	EB	Haven Avenue to Milliken Avenue	56.4 / B	38.6 / E	D	E
F18	I-10	WB	Milliken Avenue to Haven Avenue	48.3 / D	41.1 / D	E	D
F19	I-10	EB	Milliken Avenue to I-15	56.1 / B	46.0 / D	D	E
F20	I-10	WB	I-15 to Milliken Avenue	44.8 / D	41.4 / D	E	D
F21	I-10	EB	I-15 to Etiwanda Avenue	60.4 / A	41.2 / D	D	E
F22	I-10	WB	Etiwanda Avenue to I-15	48.9 / D	50.1 / C	E	D
F23	I-10	EB	Etiwanda Avenue to Cherry Avenue	62.6 / A	31.4 / E	E	E
F24	I-10	WB	Cherry Avenue to Etiwanda Avenue	56.3 / B	57.8 / B	E	E
F25	I-10	EB	Cherry Avenue to Citrus Avenue	62.7 / A	43.7 / D	E	E
F26	I-10	WB	Citrus Avenue to Cherry Avenue	57.5 / B	61.4 / A	E	E
F27	I-10	EB	Citrus Avenue to Sierra Avenue	63.2 / A	53.5 / C	E	E
F28	I-10	WB	Sierra Avenue to Citrus Avenue	56.4 / B	61.8 / A	E	E
F29	I-10	EB	Sierra Avenue to Cedar Avenue	63.7 / A	53.3 / C	E	E
F30	I-10	WB	Cedar Avenue to Sierra Avenue	57.5 / B	62.2 / A	E	E
F31	I-10	EB	Cedar Avenue to Riverside Avenue	63.2 / A	53.0 / C	D	E
F32	I-10	WB	Riverside Avenue to Cedar Avenue	58.4 / B	62.3 / A	E	D
F33	I-10	EB	Riverside Avenue to Pepper Avenue	62.9 / A	57.0 / B	D	E
F34	I-10	WB	Pepper Avenue to Riverside Avenue	60.1 / A	61.6 / A	E	D
F35	I-10	EB	Pepper Avenue to Rancho Avenue	63.0 / A	59.5 / B	D	E
F36	I-10	WB	Rancho Avenue to Pepper Avenue	59.8 / B	59.5 / B	E	D
F37	I-10	EB	Rancho Avenue to Ninth Street	61.5 / A	58.7 / B	D	E
F38	I-10	WB	Ninth Street to Rancho Avenue	60.4 / A	59.1 / B	E	D
F39	I-10	EB	Ninth Street to Mt Vernon Avenue	61.1 / A	57.8 / B	D	E
F40	I-10	WB	Mt Vernon Avenue to Ninth Street	61.2 / A	58.3 / B	E	D
F43	I-10	EB	I-215 to Waterman Avenue	59.1 / B	44.0 / D	C	E
F44	I-10	WB	Waterman Avenue to I-215	63.2 / A	59.9 / B	E	C
F45	I-10	EB	Waterman Avenue to Tippecanoe Avenue	61.3 / A	46.9 / D	C	F
F46	I-10	WB	Tippecanoe Avenue to Waterman Avenue	62.3 / A	59.0 / B	F	C
F47	I-10	EB	Tippecanoe Avenue to Mountain View Avenue	61.9 / A	48.4 / D	C	E
F48	I-10	WB	Mountain View Avenue to Tippecanoe Avenue	61.5 / A	60.1 / A	E	C
F49	I-10	EB	Mountain View Avenue to California Street	62.3 / A	52.5 / C	C	E
F50	I-10	WB	California Street to Mountain View Avenue	59.3 / B	62.2 / A	E	C
F57	I-10	EB	Sixth Street to University Street	63.3 / A	51.1 / C	C	E
F58	I-10	WB	University Street to Sixth Street	55.0 / B	64.5 / A	E	C

Table A-8: Freeways: Comparison to Previous CMP (LOS E and F) (Continued)

ID	Road	Dir	End Points	2015		2007	
				AM Speed (mph) / LOS	PM Speed (mph) / LOS	AM LOS	PM LOS
F71	I-10	EB	Live Oak Canyon Road to County Line Road (Riverside County Line)	61.5 / A	65.3 / A	N/A	N/A
F72	I-10	WB	County Line Road (Riverside County Line) to Live Oak Canyon Road	61.5 / A	65.3 / A	N/A	B
F73	I-15	NB	Riverside County Line to Jurupa Avenue	42.0 / D	38.8 / E	D	D
F74	I-15	SB	Jurupa Avenue to Riverside County Line	46.1 / D	39.7 / E	D	D
F75	I-15	NB	Jurupa Avenue to I-10	57.1 / B	39.4 / E	D	D
F76	I-15	SB	I-10 to Jurupa Avenue	43.7 / D	32.9 / E	D	D
F77	I-15	NB	I-10 to Fourth Street	60.0 / A	26.8 / F	C	D
F88	I-15	SB	I-215 to Sierra Avenue	64.9 / A	64.5 / A	E	B
F89	I-15	NB	I-215 to Kenwood Avenue	61.5 / A	49.4 / C	C	E
F90	I-15	SB	Kenwood Avenue to I-215	63.8 / A	64.8 / A	E	C
F91	I-15	NB	Kenwood Avenue to Cleghorn Road	59.3 / B	43.7 / D	C	E
F92	I-15	SB	Cleghorn Road to Kenwood Avenue	62.9 / A	62.1 / A	E	C
F93	I-15	NB	Cleghorn Road to SR-138	61.1 / A	47.5 / D	C	E
F207	SR-60	EB	Ramona Avenue to Central Avenue	55.2 / B	35.2 / E	D	E
F208	SR-60	WB	Central Avenue to Ramona Avenue	53.7 / C	61.3 / A	E	C
F209	SR-60	EB	Central Avenue to Mountain Avenue	55.4 / B	36.4 / E	D	E
F210	SR-60	WB	Mountain Avenue to Central Avenue	57.0 / B	60.9 / A	E	D
F211	SR-60	EB	Mountain Avenue to SR-83/Euclid Avenue	55.8 / B	38.2 / E	D	E
F212	SR-60	WB	SR-83/Euclid Avenue to Mountain Avenue	58.3 / B	58.9 / B	E	D
F213	SR-60	EB	SR-83/Euclid Avenue to Grove Avenue	55.7 / B	39.0 / E	D	E
F214	SR-60	WB	Grove Avenue to SR-83/Euclid Avenue	58.3 / B	56.4 / B	F	D
F215	SR-60	EB	Grove Avenue to Vineyard Avenue	56.8 / B	41.3 / D	D	E
F216	SR-60	WB	Vineyard Avenue to Grove Avenue	57.8 / B	55.3 / B	F	D
F217	SR-60	EB	Vineyard Avenue to Archibald Avenue	57.0 / B	45.2 / D	D	E
F218	SR-60	WB	Archibald Avenue to Vineyard Avenue	56.4 / B	54.3 / C	F	D
F219	SR-60	EB	Archibald Avenue to Haven Avenue	57.1 / B	51.7 / C	D	E
F220	SR-60	WB	Haven Avenue to Archibald Avenue	56.6 / B	55.6 / B	F	D
F221	SR-60	EB	Haven Avenue to Riverside County Line	58.5 / B	53.4 / C	D	F
F222	SR-60	WB	Riverside County Line to Haven Avenue	56.6 / B	58.4 / B	F	D
F223	I-215	NB	Riverside County Line to Iowa Avenue	44.6 / D	35.6 / E	N/A	E
F224	I-215	SB	Iowa Avenue to Riverside County Line	44.6 / D	35.6 / E	E	E
F225	I-215	NB	Iowa Avenue to Barton Road	46.2 / D	39.8 / E	N/A	E
F226	I-215	SB	Barton Road to Iowa Avenue	42.9 / D	34.3 / E	E	F
F227	I-215	NB	Barton Road to Washington Avenue	54.2 / C	53.8 / C	N/A	F
F228	I-215	SB	Washington Avenue to Barton Road	40.8 / E	32.6 / E	F	F
F229	I-215	NB	Washington Avenue to I-10	60.1 / A	59.2 / B	N/A	D
F230	I-215	SB	I-10 to Washington Avenue	40.8 / E	33.1 / E	D	D
F231	I-215	NB	I-10 to Orange Show Road	61.1 / A	59.0 / B	N/A	D
F232	I-215	SB	Orange Show Road to I-10	51.2 / C	47.3 / D	D	D
F233	I-215	NB	Orange Show Road to Inland Center Drive	63.3 / A	58.2 / B	N/A	D
F234	I-215	SB	Inland Center Drive to Orange Show Road	59.4 / B	57.0 / B	D	D
F235	I-215	NB	Inland Center Drive to Mill Street	63.1 / A	55.9 / B	N/A	F
F236	I-215	SB	Mill Street to Inland Center Drive	61.9 / A	61.5 / A	E	E
F237	I-215	NB	Mill Street to Second Street	63.0 / A	57.7 / B	N/A	E
F238	I-215	SB	Second Street to Mill Street	62.1 / A	62.6 / A	E	E
F239	I-215	NB	Second Street to U.S. 66	64.0 / A	61.1 / A	N/A	E
F240	I-215	SB	U.S. 66 to Second Street	62.8 / A	64.2 / A	E	E
F241	I-215	NB	U.S. 66 to Baseline Road	64.2 / A	61.9 / A	N/A	E
F242	I-215	SB	Baseline Road to U.S. 66	63.4 / A	64.7 / A	E	D
F265	SR-210	EB	Mountain Avenue to Euclid Avenue	64.6 / A	33.6 / E	N/A	N/A

LOS RESULTS: TWO LANE HIGHWAYS

Table A-9: Arterials: Comparison to Previous CMP (LOS E and F)

ID	Road	Dir	End Points	2015		2007	
				AM Speed (mph) / LOS	PM Speed (mph) / LOS	AM LOS	PM LOS
A11	Mountain Avenue	NB	Holt Boulevard to 4th Street	26.0 / C	23.0 / C	D	E
A12	Mountain Avenue	SB	4th Street to Holt Boulevard	28.4 / C	25.6 / C	D	E
A13	Mountain Avenue	NB	4th Street to 8th Street	21.9 / D	18.8 / D	E	E
A14	Mountain Avenue	SB	8th Street to 4th Street	23.6 / C	19.3 / D	E	E
A33	Milliken Avenue	NB	I-10 to 4th Street	23.7 / D	20.4 / E	A	A
A34	Milliken Avenue	SB	4th Street to I-10	23.3 / D	19.0 / E	A	A
A43	Cedar Avenue	NB	Jurupa Avenue to Slover Avenue	24.6 / D	17.7 / E	A	A
A44	Cedar Avenue	SB	Slover Avenue to Jurupa Avenue	30.3 / C	28.0 / C	A	A
A45	Cedar Avenue	NB	Slover Avenue to Valley Boulevard	21.5 / D	15.8 / E	E	F
A46	Cedar Avenue	SB	Valley Boulevard to Slover Avenue	19.5 / D	17.2 / E	E	F
A99	Waterman Avenue	NB	Barton Road to Redlands Boulevard	24.6 / D	21.0 / E	D	D
A100	Waterman Avenue	SB	Redlands Boulevard to Barton Road	27.1 / D	25.6 / D	D	D

Table A-10: Two Lane Highways: Comparison to Previous CMP (LOS E and F)

ID	Road	Dir	End Points	Class	2015 CMP		2007
					AM Speed (mph) / LOS	PM Speed (mph) / LOS	LOS
T1	SR-2	EB	County Line to Sheep Creek Drive	II / III	37.1 / A	35.4 / B	E
H1	SR-2	EB	Sheep Creek Drive to SR-138	I	49.8 / A	48.5 / A	E
H2	SR-2	WB	SR-138 to Sheep Creek Drive	I	43.2 / B	46.0 / A	E
T2	SR-2	WB	Sheep Creek Drive to County Line	II / III	35.6 / B	33.2 / C	E
T5	SR-18	NB	SR-138 to SR-189 N	II / III	37.8 / A	38.2 / A	E
T6	SR-18	SB	SR-189 N to SR-138	II / III	40.2 / A	38.4 / A	E
T7	SR-18	NB	SR-189 N to SR-330 S	II / III	38.2 / A	36.7 / A	E
T8	SR-18	SB	SR-330 S to SR-189 N	II / III	39.4 / A	38.0 / A	E
T9	SR-18	NB	SR-330 S to Blue Jay Road	II / III	36.4 / A	34.6 / A	E
T10	SR-18	SB	Blue Jay Road to SR-330	II / III	37.0 / A	33.6 / B	E
T11	SR-18	NB	Blue Jay Road to Lakeview Drive	II / III	32.6 / A	29.4 / B	E
T12	SR-18	SB	Lakeview Drive to Blue Jay Road	II / III	33.0 / A	29.5 / B	E
T15	SR-18	NB	Stanfield Cutoff to SR-38 E	II / III	33.2 / A	30.1 / B	E
T16	SR-18	SB	SR-38 E to Stanfield Cutoff	II / III	32.4 / A	30.5 / B	E
H5	SR-18	NB	SR-247 to Central Road	I	51.7 / A	52.1 / A	E
H6	SR-18	SB	Central Road to SR-247	I	52.6 / A	52.0 / A	E
T25	SR-38	EB	Crafton Avenue to Two Lakes Road	II / III	43.8 / A	42.7 / A	E
T26	SR-38	WB	Two Lakes Road to Crafton Avenue	II / III	45.8 / A	44.7 / A	E
T29	SR-38	EB	Santa Ana River Bridge to SR-18	II / III	48.0 / A	46.3 / A	E
T30	SR-38	WB	SR-18 to Santa Ana River Bridge	II / III	48.3 / A	45.8 / A	E
T31	SR-38	EB	SR-18 to Big Bear Dam	II / III	35.2 / A	33.8 / A	E
T32	SR-38	WB	Big Bear Dam to SR-18	II / III	34.7 / A	33.7 / A	E
H21	SR-138	EB	County Line to I-15	I	52.2 / A	52.0 / A	E
H22	SR-138	WB	I-15 to County Line	I	52.1 / A	52.0 / A	E
T37	SR-138	EB	Waters Drive to Knapps Cutoff	II / III	25.0 / A	25.0 / A	E
T38	SR-138	WB	Knapps Cutoff to Waters Drive	II / III	25.0 / A	25.0 / A	E
T39	SR-138	EB	Knapps Cutoff to SR-18	II / III	30.0 / A	30.0 / A	E
T40	SR-138	WB	SR-18 to Knapps Cutoff	II / III	30.0 / A	30.0 / A	E
T45	SR-173	EB	Hook Creek Road to SR-18	II / III	38.0 / A	38.0 / A	E
T46	SR-173	WB	SR-18 to Hook Creek Road	II / III	38.0 / A	38.0 / A	E
T53	SR-330	NB	SR-210 to SR-18	II / III	44.6 / A	43.8 / A	E
T54	SR-330	SB	SR-18 to SR-210	II / III	47.2 / A	44.6 / A	E
T55	SR-395	NB	I-15 to SR-18	II / III	46.4 / B	43.8 / B	E
T56	SR-395	SB	SR-18 to I-15	II / III	43.5 / B	42.1 / B	E
T57	SR-395	NB	SR-18 to El Mirage Road	II / III	47.4 / B	45.7 / B	E
T58	SR-395	SB	El Mirage Road to SR-18	II / III	44.0 / A	37.9 / C	E

COMPARISON TO ADJACENT COUNTIES

Table A-11: Comparison to Adjacent Counties: Freeways

	Road	Dir	End points	AM Speed (mph) / LOS	PM Speed (mph) / LOS	Comparison to Adjacent County CMPs
F1	I-10	EB	LA County Line to Monte Vista Avenue	57.7 / B	52.2 / C	LA County CMP Peak Movement AM LOS "E" D/C =0.97 (WB) PM LOS "D" D/C = 0.87 (EB)
F2	I-10	WB	Monte Vista Avenue to LA County Line	50.3 / C	60.7 / A	
F71	I-10	EB	Live Oak Canyon Road to County Line Road (Riverside County Line)	61.5 / A	65.3 / A	Riverside County CMP LOS "D"
F72	I-10	WB	County Line Road (Riverside County Line) to Live Oak Canyon Road	61.5 / A	65.3 / A	
F73	I-15	NB	Riverside County Line to Jurupa Avenue	42.0 / D	38.8 / E	Riverside County CMP LOS "F" south of SR-60
F74	I-15	SB	Jurupa Avenue to Riverside County Line	46.1 / D	39.7 / E	
F205	SR-60	EB	LA County Line to Ramona Avenue	49.6 / C	60.9 / A	LA County CMP Peak Movement AM LOS "F" D/C = 1.03 (WB) PM LOS "F" D/C = 1.17 (EB)
F206	SR-60	WB	Ramona Avenue to LA County Line	49.6 / C	60.9 / A	
F221	SR-60	EB	Haven Avenue to Riverside County Line	58.5 / B	53.4 / C	Riverside County CMP LOS "D"
F222	SR-60	WB	Riverside County Line to Haven Avenue	56.6 / B	58.4 / B	
F223	I-215	NB	Riverside County Line to Iowa Avenue	44.6 / D	35.6 / E	Exempt in Riverside County CMP - Assumes LOS "F"
F224	I-215	SB	Iowa Avenue to Riverside County Line	44.6 / D	35.6 / E	
F263	SR-71	NB	Soquel Canyon Parkway to LA County Line	64.5 / A	63.9 / A	Not in LA County CMP
F264	SR-71	SB	LA County Line to Soquel Canyon Parkway	65.2 / A	66.1 / A	

Table A-12: Comparison to Adjacent Counties: Arterials

ID	Road	Dir	End points	AM Speed (mph) / LOS	PM Speed (mph) / LOS	Comparison to Adjacent County CMPs
A41	Etiwanda Avenue	NB	Philadelphia Avenue to I-10	28.6 / D	26.2 / D	Riverside County CMP = LOS "C"
A42	Etiwanda Avenue	SB	I-10 to Philadelphia Avenue	29.9 / D	28.3 / D	
A43	Cedar Avenue	NB	Jurupa Avenue to Slover Avenue	24.6 / D	17.7 / E	Riverside County CMP = LOS "C"
A44	Cedar Avenue	SB	Slover Avenue to Jurupa Avenue	30.3 / C	28.0 / C	
A59	Riverside Avenue	NB	Jurupa Avenue to Slover Avenue	29.8 / C	24.6 / C	Riverside County CMP = LOS "C"
A60	Riverside Avenue	SB	Solver Avenue to Jurupa Avenue	31.8 / B	31.1 / B	Main Street
A169	Base Line Road	EB	Carnelian Street to Milliken Avenue	29.4 / C	27.2 / C	1.25 Miles to LA County Line AM LOS "B" V/C = 0.62 PM LOS "B" V/C = 0.68
A170	Base Line Road	WB	Milliken Avenue to Carnelian Street	28.2 / C	28.5 / C	
A191	Foothill Boulevard (SR-66)	EB	Archibald Avenue to Haven Avenue	30.2 / C	26.8 / C	1.25 Miles to LA County Line AM LOS "C" V/C = 0.73 PM LOS "D" V/C = 0.83
A192	Foothill Boulevard (SR-66)	WB	Haven Avenue to Archibald Avenue	29.3 / C	25.9 / C	
A219	Arrow Hwy	EB	Central Avenue to Benson Avenue	27.5 / C	24.1 / D	1 Mile to LA County Line AM LOS "A" V/C = 0.56 PM LOS "C" V/C = 0.72
A220	Arrow Hwy	WB	Benson Avenue to Central Avenue	29.1 / C	24.7 / D	
A223	Arrow Route	EB	Grove Avenue to Baker Avenue	34.4 / B	32.6 / C	Not in LA County CMP
A224	Arrow Route	WB	Baker Avenue to Grove Avenue	33.4 / C	31.2 / C	
A241	San Bernardino Avenue	EB	Tippecanoe Avenue to Mt. View Avenue	31.3 / B	30.1 / C	Not in LA County CMP
A242	San Bernardino Avenue	WB	Mt. View Avenue to Tippecanoe Avenue	33 / B	31.9 / B	
A251	Holt Boulevard	EB	Central Avenue to Mountain Avenue	33.7 / B	28.4 / C	Not in LA County CMP
A252	Holt Boulevard	WB	Mountain Avenue to Central Avenue	32.7 / C	26.6 / C	
A289	Edison Avenue	EB	SR-71 to Central Avenue	28.3 / B	24.7 / C	Not in LA County CMP
A290	Edison Avenue	WB	Central Avenue to SR-71	26.9 / B	24.1 / C	

Table A-13: Comparison to Adjacent Counties: Two Lane Highways

ID	Road	Dir	End points	Class	AM Speed (mph) / LOS	PM Speed (mph) / LOS	Comparison to Adjacent County CMPs
T1	SR-2	EB	County Line to Sheep Creek Drive	II / III	37.1 / A	35.4 / B	LA County CMP AM LOS "F" D/C = 1.05 (WB) PM LOS "D" D/C = 0.83 (EB)
T2	SR-2	WB	Sheep Creek Drive to County Line	II / III	35.6 / B	33.2 / C	
H7	SR-18	NB	U.S. 395 to LA County Line	I	54.3 / A	53.3 / A	Not in LA County CMP
H8	SR-18	SB	LA County Line to U.S. 395	I	53.8 / A	53.9 / A	
H9	SR-58	EB	County Line to U.S. 395	I	54.4 / A	52.1 / A	Kern County Assumes LOS "D" or better
H10	SR-58	WB	U.S. 395 to County Line	I	54.4 / B	52.1 / B	
H13	SR-95	NB	County Line to Havasu Lake Road	I	61.4 / A	60.8 / A	Riverside County CMP LOS "B"
H14	SR-95	SB	Havasu Lake Road to County Line	I	62.7 / A	61.4 / A	
H21	SR-138	EB	County Line to I-15	I	52.2 / A	52.0 / A	Not in LA County CMP
H22	SR-138	WB	I-15 to County Line	I	52.1 / A	52.0 / A	
H25	SR-395	NB	El Mirage Road to County Line	I	62.0 / A	60.0 / A	Kern County Assumes LOS "D" or better
H26	SR-395	SB	County Line to El Mirage Road	I	60.8 / A	60.3 / A	
T59	SR-178	EB	County Line to Culvert at 35.645711/117.522009	II / III	46.0 / B	46.0 / B	
T60	SR-178	WB	Culvert at 35.645711/117.522009 to County Line	II / III	46.0 / B	46.0 / B	

APPENDIX B
(FORMERLY APPENDIX C)

GUIDELINES FOR CMP TRAFFIC IMPACT ANALYSIS REPORTS IN SAN BERNARDINO COUNTY

These guidelines describe the key elements required for preparing Traffic Impact Analysis Reports (TIA Reports) for the Congestion Management Program (CMP) in San Bernardino County. The purpose of these guidelines is to achieve a common approach to preparation of TIA Reports by all jurisdictions, thereby reducing inconsistencies and disagreements on how such studies should be performed.

TIA Reports shall be prepared by local jurisdictions when local criteria and thresholds indicate they are necessary. However, TIA Reports must be prepared to satisfy CMP requirements, except as noted below, when a proposed change in land use, development project, or at local discretion, a group of projects are forecast to equal or exceed the CMP threshold of 250 two-way peak hour trips generated, based on trip generation rates published for the applicable use or uses in the Institute of Transportation Engineers' Trip Generation or other CMA-approved data source. Pass-by trips shall not be considered in the threshold determination. However, industrial, warehousing and truck projects shall convert trucks to PCE's before applying the threshold.

Jurisdictions that have implemented qualifying development mitigation programs that achieve development contribution requirements established by the SANBAG Development Mitigation Nexus Study are not required to prepare TIA reports for CMA review. However, until these jurisdictions have agreements with Caltrans regarding State highway facilities within the jurisdiction, any project meeting the CMP threshold of 250 two-way peak hour trips that expects to add at least 50 peak hour trips to a State highway facility is required to prepare a TIA report for Caltrans' review. If a project is forecast to generate 100 to 250 peak hour trips and expects to add at least 50 peak hour trips to a State highway facility, the jurisdiction should consult with Caltrans to determine the need for a TIA report. Refer to Figure B-1 at the end of this appendix for a flow chart that defines when TIA reports need to be prepared.

Projects shall not be split to avoid the CMP requirements. If an additional phase of a project, when added to the preceding phases, causes the sum of the phases to exceed the threshold, the entire project must be analyzed as a unit. The analysis must be conducted when the phases are anticipated and should not wait for later phases, even if earlier phases alone would not exceed the threshold.

Locally determined criteria may be developed which are more stringent than those identified above. Individual development projects, parcels, or proposals in the same geographic vicinity that can reasonably be combined into a single project for analysis purposes which meets the threshold requirements for a TIA Report shall be analyzed as a single project.

TIA REVIEW

All TIA Reports shall be copied to the CMA. If a TIA Report is prepared by the local jurisdiction as stated above and if the TIA Report determines that the project would add 50 or more 2-way peak-hour trips to a CMP arterial within another jurisdiction or 100 2-way peak-hour trips to a freeway, that jurisdiction (and Caltrans, if a state highway) shall be provided a copy of the TIA Report by the permitting jurisdiction. However, these criteria are not intended to determine when a local jurisdiction prepares a TIA Report.

It is the responsibility of the local jurisdiction to provide review copies of the TIA Report to the CMA and to potentially impacted jurisdictions so that review will occur in concert with the permitting jurisdiction's project review schedule and prior to any approval or permitting activity. (Note: the transmittal letter shall indicate the agencies receiving the TIA report.) The period allotted for review shall be stipulated by the permitting jurisdiction but shall not be less than 15 working days from the date the CMA receives the report. To establish the date of receipt, it is encouraged the report be transmitted by certified mail. Should serious technical flaws be identified in the TIA Report such that the permitting jurisdiction chooses to recirculate the TIA Report, the recirculated document shall be reviewed no later than 10 working days from the date of receipt.

Note: Caltrans' review period is 30 days, consistent with CEQA. Lack of comment by Caltrans does not imply acceptance. If an encroachment permit will be required for the project, it is recommended that the jurisdiction work with Caltrans to resolve any outstanding comments before proceeding to project approval.

The reports focus on the potential impacts of land use decisions on the CMP system. These reports are used in conjunction with modeling for the CMP system to forecast transportation deficiencies in San Bernardino County. While there are unique aspects to many projects, the approach outlined here can be applied to the vast majority of projects. The preparer of the report is responsible for presenting all the relevant information that would be helpful in making transportation-related decisions. The guidelines presented here should be regarded as typical minimum requirements. They are not a substitute for exercising good planning and engineering judgment. Local agencies may wish to include additional requirements for traffic analysis beyond those for the CMP. Only the CMP requirements are addressed here; any requirements added by a jurisdiction apply only in that jurisdiction, unless otherwise agreed.

Other information relating to the preparation of a TIA Report may be found in Chapter 4 of the Congestion Management Program for San Bernardino County. Preparers of TIA Reports should consult the CMP for additional detail.

Implications of CMP Review

The authority to make land use decisions rests with local jurisdictions. A Land Use/Transportation Analysis Program consistent with the CMP guidelines has the potential to influence local land use decisions by requiring full evaluation and disclosure of impacts to the regional transportation system, regardless of jurisdictional boundaries. Local jurisdictions are required to maintain the adopted standards on the CMP system, so it is essential that local jurisdictions consider the necessary actions and costs required to mitigate impacts that result from local land use decisions.

The success of the program relies on consistency with applicable regional plans and the cooperative efforts of local jurisdictions, Caltrans and the CMA. If an integration of land use decisions and the provision of transportation facilities is not accomplished as required by the program, a jurisdiction which fails to mitigate deficiencies on the CMP system caused by its land use decisions will face withholding of its Proposition 111 gas tax increment funds.

TIA Report Content

The TIA Report may be contained within other similar documents (e.g. an EIR prepared under CEQA), or it may be an independent document. The intent is to address all CMP concerns without duplication of other work. In some jurisdictions, the TIA Report may be prepared by the developer or developer's consultant. In other jurisdictions, the TIA Report may be prepared by the jurisdiction or jurisdiction's consultant. In either case, it is in the interest of all parties that the participants fully understand and come to agreement on the assumptions and methodology prior to conducting the actual analysis. This is particularly important when considering using assumptions that vary from the norm. The local jurisdiction may request a meeting with the developer and/or preparer of the TIA Report to discuss the methodology prior to the initiation of work on the analysis. A meeting with the CMA and/or Caltrans, where applicable, is also encouraged to address issues associated with large or extraordinary projects.

The following outline and commentary represents the recommended structure for the TIA Report.

I. Introduction

Set the stage for the analysis, providing background information necessary for the unfamiliar reader to understand the magnitude of the project, location of the project and special characteristics.

A. Project, general plan, or specific plan description

The description must include project size by land use type, location of project, approximate location of proposed access points to the local and regional roadway system and movements from adjacent streets allowed into and out of the project. This should be shown in a site diagram. Special characteristics of the site, such as

unusual daily or seasonal peaking characteristics or heavy involvement of truck traffic, should be mentioned. If the description is included in another part of a more comprehensive document, that is acceptable.

B. Analysis methodology

Provide a general description (overview) of the process used to analyze the project. Analysis years should be specified and the approach to the modeling/traffic forecasting process should be explained. The sources of information should be identified. The study area and method for LOS analysis for the various roadway types should be identified. At a minimum, the study area must include all freeway links with 100 or more peak-hour project trips (two-way) and other CMP roadways with 50 or more peak-hour project trips (two-way). The study area does not end with a city or county boundary. The study area is defined by the magnitude of project trips alone. In most cases, the analysis need not extend more than five miles beyond the project site, even if there are more than 50 project trips on an arterial and 100 project trips on a freeway. However, analysis of projects in isolated areas with few access routes should be continued until the 100 or 50-trip threshold is met. Within the defined study area, all "key intersections," as listed in the most current CMP, must be analyzed. Key intersections represent intersections of CMP roadways plus those additional intersections recognized by local jurisdictions and/or SANBAG to be important to mobility on CMP roadways. At a minimum, key intersections will include signalized intersections operating at LOS D or below. The distribution of traffic must be shown for all roadways on which project trips occur (except those for internal circulation), whether or not they are on the CMP network.

The analysis of traffic operations and LOS is to be provided for the following conditions and is to include an assessment of traffic mitigation requirements for project opening day and future conditions.

1. Existing conditions – the conditions at the time of TIA preparation without the inclusion of the project generated trips. Existing deficiencies should be identified, but mitigation analysis is not required. The existing conditions analysis must include the full project impact area as defined above.
2. Project opening day conditions - the conditions on the opening day of the project for two scenarios: 1) excluding the project traffic and 2) including the project traffic. Assume full trip generation impact of the site. Full mitigation analysis is to be performed for project opening day conditions. If it is deemed more appropriate because of the nature of the project, another intermediate scenario may be included to focus on the access requirements and/or immediate area surrounding the project, subject to a request by the local jurisdiction. The methodology used for distribution of project traffic at project opening day conditions is at the discretion of the local jurisdiction.
3. Future conditions - the conditions for two model forecast year scenarios: 1) excluding the project traffic and 2) including the project traffic. Full mitigation analysis is to be performed for future conditions. In addition, a staging analysis of mitigations may be required for large projects constructed over a long time period. The need for a staging analysis will be determined by the local jurisdiction.

The analysis of the project opening day and future condition shall be based on, at a minimum, the PM peak-hour of the adjacent street traffic. An analysis of the AM peak-hour of the adjacent street traffic is also required for developments containing residential land uses and may be required for other types of development at local discretion. Analysis may be required for peak-hours other than the AM and PM peak for some land uses. This determination will be made by the local jurisdiction. The peak traffic generation hour of the development, if different from peak AM and PM hours, must also be identified and the total vehicle trips during the peak-hour of the generator must be estimated. This will facilitate a decision regarding the need to evaluate time periods other than the peak-hours of the adjacent streets.

Note: For State highway facilities, analysis of future conditions for is only required for the following: 1) jurisdictions that have not adopted

qualifying development mitigation programs that achieve development contribution requirements established by the SANBAG Development Mitigation Nexus Study and 2) State highway facilities that are not included in the SANBAG Development Mitigation Nexus Study or are not subject to an agreement with Caltrans.

II. Existing conditions

A. Existing roadway system

Provide a map and brief written description of the roadway network. The number and type of lanes on freeways, principal arterials and other impacted roadways should be identified. Signalized intersections and plans for signalization should be identified. The existing number of lanes at key CMP intersections should be clearly identified on a graphic or in conjunction with the LOS analysis output. Maps of the CMP network are available in the Congestion Management Program documentation, available from the CMA. Also describe the relevant portions of the future network as specified with officially approved funding sources.

B. Existing volumes

Existing average weekday daily traffic (AWDT) should be identified for the CMP links in the study area. Historic volume growth trends in the study area should be shown. Consult the local jurisdiction, Caltrans and San Bernardino County for additional information.

C. Existing LOS

A LOS analysis must be conducted on all existing segments and intersections on the CMP network potentially impacted by the project or plan (as defined by the thresholds in Section I. B). Urban segments (i.e., segments on roadways that are generally signalized with spacing less than 2 miles) do not require segment analysis. Segment requirements can normally be determined by the analysis of lane requirements at intersections. Freeway mainline must be analyzed and ramp/weaving analysis may be required at local discretion, if a ramp or weaving problem is anticipated. Several software packages are available for conducting LOS analysis for signalized intersections, freeways and other types of roadways. The software package and version used must be identified. Normally, the existing LOS analysis for intersections will be run using optimized signal timing, since the future analysis will normally need to be run using optimized timing. Signal timing optimization should consider pedestrian safety and signal coordination requirements. Minimum times should be no less than 10 seconds.

Saturation flow rates are considered as average field measured saturation flow rates and in no case shall the adjusted saturation flow rates of the 2000 Highway Capacity Software be allowed to go lower than the specified saturation flow rates listed on page C-13, when field data are not available. However, there shall be no restriction on minimum saturation flow rates if actual saturation flow rates are available.

Default lost time is two seconds per phase and a clearance signal time of three seconds. Without local data to show otherwise, a peak-hour factor of 0.95 may be assumed for existing and full generation scenarios. Variations from these values must be documented and justified. LOS analyses should be field-verified so that the results are reasonably consistent with observation and errors in the analysis are more likely to be caught. A brief commentary on existing problem areas must be included in this section, bringing existing problems to the attention of the readers.

Only project opening day and future scenarios with project require that traffic operational problems be mitigated to provide LOS E or better operation. If the lead agency or an affected adjacent jurisdiction requires mitigation to a higher LOS, this takes precedence over the CMP requirements. The LOS threshold for State highway facilities will be the same as the jurisdiction where the facility is located but no greater than a 45 second average delay per vehicle in the peak hour (middle of LOS “D”). Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing LOS should be maintained.

D. Related general plan issues

The relationship to the general plan may be identified. This section should provide general background information from the Traffic Circulation Element of the General Plan, including plans for the ultimate number of lanes, new roadways planned for the future and other information that provides a context for how the proposed project interrelates with the future planned transportation system.

III. Future conditions

A. Traffic forecasts

One of the primary products of the TIA is the comparison of future traffic conditions with and without the project. The primary forecasts will be for the CMP forecast year (consult the CMA for the most currently applicable forecast years). If a project is phased over a development period past the CMP forecast year, a buildout forecast with forecast background traffic must also be provided. There are two components of the forecast that need to be considered: background traffic and project traffic. Acceptable methodologies for these forecasts are described below.

1. Project Traffic Forecasts - Two basic alternatives are available for forecasting project traffic:

Manual method - Generate project trips using rates from the ITE Trip Generation report. Distribute and assign the trips based on the location of the project relative to the remainder of the urban area and on the type of land use. Rather than relying on pure judgment to develop the distribution of project traffic, the future year CMP model select zone needs to be obtained from SCAG to determine the distribution pattern. The percentage distribution should be reasonably related to the location of and the number of trips generated by zones surrounding the project. Computer-assisted trip distribution and assignment methods may be used as long as they reasonably represent the travel characteristics of the area in which the project is located. It should be noted that the model does not forecast project trucks. Therefore distribution needs to be made in a reasonable manner.

Use of local model - Create a zone or zones that represent the project (if not already contained in the local model). The CMP model may be used if new zones are created to represent the project (it is unlikely that the CMP model will already have zones small enough to represent the project). The zone or zones should include the exact representation of driveway locations with centroid connectors. It is important that the driveway representations be exact to produce acceptable turning movement volumes. Some adjustments to the turning movement volumes may be needed, depending on the adequacy of this representation.

The above methodologies may produce different results, both in the generation of trips and the distribution of trips. However, both methods will have application, depending on the jurisdiction and on the type and size of project. It should be noted that a model select zone run shall be used for distribution and ITE trip generation rates for project trips.

2. Background Traffic Forecasts - Background traffic refers to all traffic other than the traffic associated with the project itself. The background traffic shall include intersection turning movement and segment truck volumes by classification (converted to PCE's) as shown on page C-12 on arterial streets, interchange ramps and mainline freeway lanes. Future scenarios shall use the truck model (converted to PCEs) or 150 percent of the existing truck volume for arterials and freeway ramps and 160 percent for mainline freeway lanes in a special generator area such as found in the City of Fontana (between I-15 and Citrus Avenue and between San Bernardino Avenue and Jurupa Avenue).

Several alternatives for forecasting background traffic are:

For project opening day analysis - Use accepted growth rates provided by the jurisdictions in which the analysis is to take place. Each jurisdiction's growth rates should be used for intersections and segments within that jurisdiction. A table of growth rates may be available from the jurisdictions.

For horizon year - The traffic passenger vehicle and truck classification (in PCEs) models will provide the needed forecasts and if requested, passenger vehicle background plus project forecasts. Local models may also be used to generate intersection and segment forecasts, if a traffic refinement process is properly applied to maximize the quality and reasonableness of the forecasts. Alternatively, the CMP model may be used to generate growth factors by subarea, which may be applied to existing intersection and segment volumes. The separate forecasting of background traffic by each TIA Report preparer is redundant, will only create conflict among reports and should be avoided by the city/county providing an acceptable background forecast for use by all TIA Report preparers. Ideally, cities and/or the County should establish the background forecasts annually for use by project applicants. Until the city/county is in a position to produce these forecasts on a routine basis, they may wish to use the results of the background forecasts from prior acceptable TIA Reports as the basis for background forecasts for other TIA Reports. The availability of such forecasts should be established before initiating the preparation of a TIA Report. If the CMP model is being used as the basis for the forecast, assume that the project is not included in the CMP model forecast (unless it can be definitively proven otherwise). If a local model is being used, the background traffic will be derived by subtracting the project traffic from the forecast where the project is already represented in the model. Where the project is not represented in the model, the background traffic can be directly derived from the model (with appropriate refinement to maintain quality and reasonableness of the forecasts).

A Note on Methodology for General Plans and Specific Plans:

In the case of analysis of general plan revisions/updates or specific plans, the same approach is applied as above. However, the "project" to be analyzed shall consist of the proposed land use. For threshold determination use the difference between the previously approved general plan and the proposed revision to the general plan. Unless otherwise agreed by the local jurisdiction, the analysis must assume the maximum intensity of land uses allowed (i.e., worst case) on the parcels to which the revision applies. All new specific plans must be analyzed based on worst case assumptions. Although general plans may not identify specific access locations, the analysis must assume access locations that are reasonable, based on the location and size of the plan.

B. Traffic added by project, general plan revision/update, or specific plan

The methods for generating and distributing project trips must be consistent with the appropriate methodology listed above. The total number of trips generated by the project must be specified by land use. The source of the trip generation rates must be documented. Project trips (inbound and outbound) must be identified on a graphic map for both the peak hour or hours being studied.

Any assumed reductions in trip generation rates, such as internal trips and transit/TDM reductions must be documented. Pass-by trips may be allowed only for retail uses and fast-food restaurants. The pass-by and internal trip percentages and methodology must be consistent with the estimates and methodology contained in the latest ITE Trip Generation handbook. The internal trip percentage must be justified by having a mixed-use development of sufficient size. In special cases, larger reductions may be allowed; but these must be documented and justified. Reductions for transit or TDM must be accompanied by an explanation of how the strategies will actually be implemented and may require a monitoring program.

Industrial and warehouse truck uses must also show the estimated number and distribution of truck trips (in PCE's) for the same hours. The methodology utilized to obtain trip generation rates and truck percentages applied in traffic impact analyses for industrial and warehouse (including 'high-cube') land uses must be clearly defined. Trip rates shall be obtained from the latest edition of ITE's *Trip Generation* manual or from current and relevant studies and shall be approved by the local jurisdiction.

C. Transit and TDM considerations

Transit and travel demand management strategies are a consideration in many development projects. Requirements within each jurisdiction are contained in the local TDM ordinance, to be adopted by each local jurisdiction as part of the CMP requirements. Examples of items to include are location of transit stops in relationship to the proposed project, designation of ridesharing coordinator, posting of information on transit routes and ridesharing information, provision of transit passes, etc.

D. Traffic model forecasts

Provide a map showing link volumes by direction. All CMP arterial links with 50 or more peak-hour project trips (two-way) and freeway links with 100 or more peak-hour project trips (two-way) must be shown. The factor to derive a peak-hour from the three-hour AM peak period is 0.38. The factor to derive a peak-hour from the four-hour PM peak is 0.28. All model forecasts shall be post processed. **Appendix E** contains guidelines for model post processing.

E. Future LOS

Compute levels of service for CMP segments and intersections based on the procedures in the 2000 Highway Capacity Manual and subsequent updates. Refer to the procedures adopted in Chapter 2 of the CMP and the assumptions specified in section II.C of this appendix. Copies of the volumes, intersection geometry, capacity analysis worksheets and all relevant assumptions must be included as appendices to the TIA Report. It should be noted that the v/c ratio and implied LOS that can be output by travel demand models are different from the LOS analysis prescribed in this section. The capacities used in the model are not typically the same capacities as used in the capacity analysis.

Intersections and segments on State highway facilities should be analyzed as a coordinated system. Left turn, through and right turn lane queuing analysis is highly desirable to validate an intersection's LOS. This more detailed analysis is meant to ensure the various movements do not overflow and impede adjacent movements and is left to the discretion of the local agency.

F. Description of projected LOS problems

Identify resulting levels of service for intersections and segments, as appropriate, on a map for applicable peak-hours. Describe in the text the nature of expected LOS problems. Describe any other impacts that the project may also have on the CMP roadway network, particularly access requirements.

G. Project contribution to total new volumes (forecast minus existing) on analyzed links

Compute the ratio of traffic generated by the proposed development to the total new traffic (including project traffic) generated between the existing condition and forecast year for each analyzed link or intersection. The purpose of this calculation is to identify the proportion of volume increase that can be attributed to the proposed project. This will be a necessary component of any deficiency plans prepared under the CMP at a later date. The calculations are to be conducted for all applicable peak-hours. The results may be shown on a map or in a table by percentages to the nearest tenth of a percent.

IV. Project mitigation.

The mitigation of project impacts is designed to identify potential LOS problems and to address them before they actually occur. This will also provide a framework for negotiations between the local jurisdiction and the project developer. The CMA will not be involved in these negotiations unless requested by a local jurisdiction. Impacts beyond the boundaries of the jurisdiction must be identified in the same fashion as impacts within the jurisdictional boundary. Impacted local agencies outside the boundary will be provided an opportunity for review of the TIA Report. Negotiations with these outside jurisdictions and with Caltrans are a possible outcome, depending on the magnitude and nature of the impacts. For the CMP, the mitigations must bring the roadway into conformance with the LOS standards established for the CMP. However, local agencies may require conformance to higher standards and these must be considered in consultation with the local jurisdiction. Measures to address local needs that are independent from the CMP network should be included in the TIA Report for continuity purposes. Consult the local

jurisdiction to determine requirements which may be beyond the requirements of the CMP. The information required in this part of the TIA Report is described below.

A. Other transportation improvements already programmed and fully funded

Only transportation improvements that are fully funded should be assumed in forecast.

B. Roadway improvements needed to maintain CMP LOS standard

These should include an evaluation of intersection turn lanes, signalization, signal coordination and link lane additions, at a minimum. If a freeway is involved, lane requirements and ramp treatments to solve LOS deficiencies must be examined. Prior studies on the same sections may be furnished to the preparer of the TIA and such studies may be referenced if they do, in fact, provide the necessary mitigation for the proposed project. However, the calculation of percentage of contribution of the project to the growth in traffic must still be provided for the appropriate peak-hours, as described earlier. If the physical or environmental constraints make mitigation unlikely, then the contribution may be used to improve LOS elsewhere on the system or another location that would relieve the impact. The point of referencing a previously conducted study is to avoid unnecessary duplication of effort on the same sections of roadway. Copies of previously conducted relevant studies in the area may be obtained from the local jurisdictions or the CMA, including any plans resulting from the annual modeling runs for the CMP.

C. Other improvements needed to maintain the LOS standard

In some cases, additional transit and TDM strategies beyond what was in the original assumptions may be necessary to provide an adequate mitigation. These must be described and the method for implementation must be discussed.

D. LOS with improvements

The LOS with improvements must be computed and shown on a map or table along with the traffic LOS without improvements. Delay values, freeway volume/capacity ratios, or other measures of LOS must be included in the results (could be in an appendix) along with the letter designation.

E. Cost estimates

The costs of mitigating deficiencies must be estimated for deficiencies that occur either within or outside the boundaries of the jurisdiction. The costs must be identified separately for each jurisdiction and for Caltrans roadways. Prior studies and cost estimates by SANBAG, Caltrans and other jurisdictions may be referenced. Used together with the analysis conducted in Section III.G, this will provide an approximation of project contribution to the needed improvements. This estimate is prepared for discussion purposes with the local jurisdiction and with neighboring jurisdictions and Caltrans. It does not imply any legal responsibility or formula for contributions to mitigations. If a mitigation measure is identified as necessary to bring a deficiency into conformance with the LOS standard, but physical or environmental constraints make the improvement impractical, an equivalent contribution should be considered to improve the LOS elsewhere on the system or another location providing direct relief.

F. Relationship to other elements

While the measures required to address air quality problems are not required for the TIA Report, they may be required as part of a CEQA review. The TIA Report may be integrated with environmental documents prepared for CEQA requirements. This is at the discretion of the local jurisdiction.

V. Conclusions and recommendations

A. Summary of proposed mitigations and costs

Provide a summary of the impacts, proposed mitigations and the costs of the mitigations. A cost estimate for the proposed mitigations must be included. Generalized unit costs will be available from either Caltrans or the local

jurisdiction. The source of the unit cost estimates used must be specified in the TIA Report.

B. Other recommendations

List any other recommendations that should be brought to the attention of the local jurisdiction, the CMA, or Caltrans. This may include anticipated problems beyond the forecast year or on portions of the network not analyzed.

Summary List of Typical Figures and Tables to Be Included in a TIA Report:

- Project location and 5 mile limit study area (map)
- Project size by land use (table)
- Trips generated by land use for AM and PM weekday peak-hours of adjacent street traffic and for daily traffic inbound and outbound (table) and other applicable peak-hours
- List of other planned transportation improvements affecting the project
- Existing intersection and link volumes and levels of service (map)
- Distribution and assignment of project trips (map)
- Forecast traffic without project and with project for applicable peak-hours (map or table)
- LOS without project and with project (map or table)
- Improvements required to mitigate project opening day and forecast year scenario impacts (map and/or table)
- Ratio of project traffic to new traffic (new traffic means the difference between existing and forecast) on analyzed links or intersections (map or table)
- Improvement costs by jurisdiction and for Caltrans roadways

SUMMARY OF ANALYSIS ASSUMPTIONS FOR THE CMP TRAFFIC IMPACT ANALYSIS GUIDELINES

LOS Analysis Procedures and Assumptions

Intersections

- Current HCM operational analysis.
- Optimized signal timing/phasing for future signal analysis, unless assumed to be in a coordinated system, in which case estimated actual cycle length is used. The maximum cycle length for a single signalized intersection or system should be 130 seconds.
- 10 second minimum phase time, including change interval.
- Average arrivals, unless a coordinated signal system dictates otherwise.
- Ideal lane width (12 feet).
- "Required" solution if analysis by Webster.
- Exclusive right turn lane is assumed to exist if pavement is wide enough to permit a separate right turn, even if it is not striped. (Minimum 20' from curb line to lane stripe).
- 2 second lost time/phase.
- A full saturation flow rate can be assumed for an extra lane provided on the upstream of the intersection only if this lane also extends at least 600 feet downstream of the intersection (or to the next downstream intersection).
- PHF = 0.95 for future analysis.
- The lane utilization factor may also be set at 1.00 when the v/c ratio for the lane group approaches 1.0, as lanes tend to be more equally utilized in such situations.
- For light duty trucks (such as service vehicles, buses, RV's and dual rear wheels) use a PCE of 1.5. For medium duty trucks with 3 axles use a PCE of 2.0. For heavy duty trucks with 4 axles, use a PCE of 3.0.
- Industrial, warehousing and other Projects with high truck percentages should convert to PCE's before applying thresholds.
- When field saturation flow rates and any special intersection characteristics are not available, the following field adjusted

saturation flow rates are recommended for analysis.

Existing and Opening Day Scenarios

- Exclusive thru: 1,800 vehicles per hour green per lane (vphgpl)
- Exclusive left: 1,700 vphgpl
- Exclusive right: 1,800 vphgpl
- Exclusive double left: 1,600 vphgpl
- Exclusive triple left: 1,500 vphgpl or less

Future Scenarios

- Exclusive thru: 1,900 vphgpl
- Exclusive left: 1,800 vphgpl
- Exclusive right: 1,900 vphgpl
- Exclusive double right: 1,800 vphgpl
- Exclusive double left: 1,700 vphgpl
- Exclusive triple left: 1,600 vphgpl or less

  Note: Existing field saturation flow rates should be used if they are available and any special traffic or geometric characteristics should also be taken into account if known to affect traffic flow.

Freeways

- Capacity of 2,200 vehicles/hour/lane (1,600/hr/lane/HOV)
- Use Caltrans truck percentages (includes trucks, buses and RV's)
- Peak-hour factor of 0.98 for congested areas and 0.95 for less congested areas
- Directional distribution of 55% and 45%, if using non-directional volumes from Caltrans volume book
- Design speed of 70 mph

Stop Controlled Intersections

- Current HCM for 2-way and 4-way stops

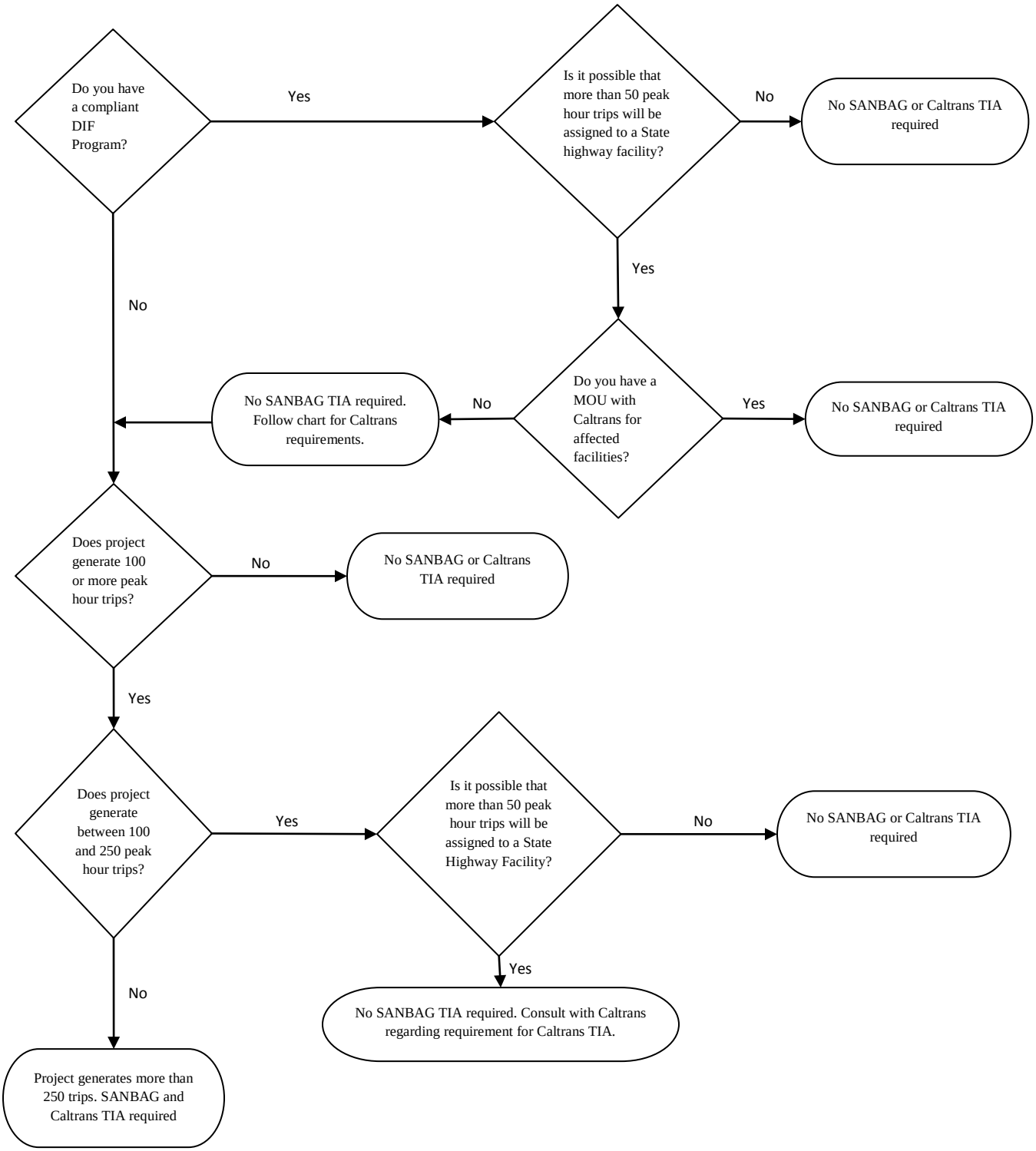
Project-Related Assumptions

- Use the latest ITE Trip Generation handbook for mixed use internal trip percentages. Higher percentages must be fully justified.
- Pass by trips - Retail uses and fast food restaurants only
  - Use ITE procedures to estimate percentage
  - For analysis at entry points into site, driveway volume is not reduced (i.e., trip generation rate is still the same). Rather, trips are redistributed based on the assumed prevalent directions of pass-by trips (see recommended ITE procedure).
- Reductions for transit or TDM are a maximum of 10% unless higher can be justified.

Other

- If a new traffic generating development project (other than a single family residential unit) within a federally designated urbanized area abuts a state highway or abuts a highway that intersects a State highway within 500 feet of that intersection, the local jurisdiction in which the development occurs must notify Caltrans and the CMA.
- The TIA procedures will be reviewed biannually. Forward comments to the CMA.
- Industrial warehouse and truck projects may distribute only truck trips by hand. (Employee trip distribution shall be modeled.)
- Intersections will be considered deficient (LOS “F”) if the critical v/c ratio equals or exceeds 1.0, even if the LOS defined by the delay value is above the defined LOS standard.
- All the computer-generated traffic forecasts need to be refined for use in TIA reports to provide the best estimate of future volumes possible. Traffic forecasts should be post processed by using “B” turns software available through SCAG or another approved methodology. However, the post processing of turning movements is restricted to local models only.

Figure B - 1: Peak Hour Trip Generation Thresholds for Preparation of SANBAG and Caltrans TIA Reports



APPENDIX C
(FORMERLY APPENDIX D)

GUIDELINES FOR THE PREPARATION OF DEFICIENCY PLANS

Chapter 8 of the CMP provides the background, including legal requirements, behind the preparation of deficiency plans.

If the traffic level of service (LOS) at an intersection or on a segment drops below the adopted LOS standard (LOS E), or if the current LOS is F and the quantitative measure of LOS increases by 10 percent or more, local jurisdictions are required to prepare, adopt and implement a deficiency to maintain conformance with the CMP and avoid loss of the increment of the local gas tax subvention added by Proposition 111 in 1990. A deficiency plan is the mechanism provided by the CMP to correct a deficiency by either implementing improvements or strategies that elevate the LOS to a condition equal to or better than the prescribed LOS standard, or implementing improvements or strategies that result in a measurable improvement in system performance and contribute to significant improvements in air quality.

POLICY GUIDANCE

In addition to statute, the CMP for San Bernardino County is guided by the following policies enacted by the CMA Board of Directors:

- Address existing and future deficiencies on all CMP facilities through Deficiency Plans which cover large geographic areas of the county (such as the Valley or Victor Valley), rather than individual facilities or individual corridors. (CMP Policy 8.1.1)
- Use the countywide Comprehensive Transportation Plan (CTP) to analyze causes of deficiencies and define the local jurisdiction actions to be implemented through area-wide Deficiency plans. (CMP Policy 8.1.3)
- If additional consultant assistance is needed to prepare the area-wide deficiency plans following completion of the CTP, it should be funded by local transportation sales tax (Valley only) and/or State or federal transportation planning funds. Updates of the deficiency plans, as needed, should be conducted in conjunction with biennial updates of the CMP.

BACKGROUND

Under the California Government Code, local jurisdictions are obligated to maintain the LOS at or above the performance standards on the CMP transportation system. This means that local jurisdictions are required to mitigate the impacts on the CMP network that occur as a result of their land use decisions, regardless of where the impacts occur, including within other jurisdictions. Therefore, if a potential deficiency is not avoided through the land use/transportation analysis process or other action that antecedes the impact, the deficiency occurs and must be addressed by a deficiency plan prepared under the auspices of the impacted jurisdiction at the time the impact occurs. The exception is the case in which the facility in question is already addressed through a multi-facility, system level or "area-wide" deficiency plan.

DEFICIENCY PLAN COMPONENTS

Government Code Section 65089.4(c) specifies the components of an approvable deficiency plan. The CMA is required to calculate the impacts subject to exclusion prior to inception of the process of preparing a deficiency plan, to determine if the calculated LOS following exclusion is consistent with the LOS standard. If the calculated LOS following subtraction of the impacts subject to exclusion remains below the CMP LOS standard, the deficiency plan is required and must include:

1. Analysis of the cause of the deficiency. Although this component of a deficiency plan may have been originally intended to identify specific land use decisions that caused a particular roadway to exceed the LOS standard, experience in the larger urbanized areas of Southern California indicates that most deficiencies are a result of many local actions involving a multitude of local jurisdictions. In the case of a program which focuses on multi-jurisdictional, area-wide deficiency plans, this element of the deficiency plan instead serves to identify the jurisdictions required to participate in and contribute to preparation and implementation of the deficiency plan.

2. List of improvements needed to maintain LOS standard. This element identifies the capital improvements or other strategies which, if implemented, would return the CMP facilities addressed by a deficiency plan to the CMP LOS standard. If a series of phased improvements would be needed through time to maintain the LOS standard because of continuing growth, all the improvements, along with a schedule which phases the improvements in relation to rates of development, could be incorporated within a single deficiency plan. This could avoid the need for preparation of numerous deficiency plans to address a single continuing problem. In the case of an area-wide deficiency plan, any improvements needed to maintain the LOS standard on every facility in the area encompassed by the deficiency plan must be identified.

3. A list of improvements or strategies that will improve system performance and air quality. This element provides flexibility to move beyond (but not necessarily ignore) facility-specific, roadway LOS maintenance, to focus instead on multimodal transportation system performance throughout the entire area of interest. Instead of concentration solely on one or more facilities in relation to the CMP level of service standard, this approach also permits local policy to dictate the level of system performance (or performance improvement) to be achieved through implementation of the deficiency plan. According to CMA Board policy, the CTP is the mechanism through which the actions to be implemented through area-wide deficiency plans are to be defined. The system performance objectives of the CTP then become the system performance level to be achieved in the respective areas addressed by deficiency plans. In effect, the deficiency plans are the implementation mechanisms for local government actions in accordance with the CTP.

4. An action plan based either on strategy (2) or strategy (3) above, that shall be implemented, including a specific implementation schedule. The scheduling or phasing of implementation is this section's key component. The deficiency plan's implementation schedule for long-term strategies should be based on monitored increases in land use or actual traffic, rather than on absolute dates.

Under the area-wide deficiency plan strategy of the CMP for San Bernardino County, much of the effort of deficiency plan preparation and implementation is accomplished through other planning efforts or other elements of the CMP. The improvements to be implemented through the deficiency plan are to be identified for each subarea of the county through the CTP. The Land Use/ Transportation Analysis element of the CMP described in Chapter 4, and the CMP monitoring program described in Chapter 7, are designed to support the deficiency plan process by tracking changes in land use that affect traffic locations, volumes and modes to determine how actual population, housing, jobs and traffic growth is varying from the growth assumptions on which the CTP was based. As disparities are identified between actual events identified by the monitoring program, and the forecasts of growth, biennial updates of the CTP will include tests of the original transportation strategy to determine if transportation performance objectives are met despite changes in growth patterns or rates, and if refinements to the CTP will be needed. Accordingly, deficiency plan updates will be undertaken as part of the biennial CMP update process to incorporate these refinements.

APPENDIX D
(FORMERLY APPENDIX F)

CONFLICT RESOLUTION PROCEDURE

1. Education

In order to provide member agencies with a working knowledge of dispute resolution options, to provide information on the methods and techniques for resolving disputes that require neutral intervention, and to reduce the frequency of unresolved disputes between local agencies, SANBAG shall provide an education program to Board members and staff in conflict management techniques.

2. Agreement to Participate

Local government agencies involved in an inter-jurisdictional conflict which cannot be resolved among the agencies may, through formal action of their policy bodies, agree to participate in resolving the dispute in accordance with this procedure. Evidence of the agreement to participate shall be forwarded by the local agencies to SANBAG, and shall describe the issue(s) for which review is requested. SANBAG's role shall be limited to providing assistance to the agencies in accordance with this procedure.

Participation in the conflict resolution process shall be voluntary, but is strongly encouraged prior to initiation of litigation by an agency. All parties involved in the dispute shall be requested to participate.

3. Implementation

The Conflict Resolution Procedure may be initiated by:

- One or more involved local agencies
- SANBAG Board of Directors

4. Confidentiality

The process set forth in Section 5, below, shall be subject to the provisions of California law relating to confidentiality, and specifically the provisions of Section 1152.5 of the Evidence Code.

5. Process

a. SANBAG staff meets with the affected agencies for purposes of interviewing them regarding the nature and scope of the conflict and to request all necessary information. Such interviews shall be undertaken as soon as possible, but in no case later than 30 days from the date of agreement by the agencies to participate. **SANBAG and the member agencies shall attempt to resolve the conflict based on this information within seven working days, prior to a continuation of the process.**

b. SANBAG staff facilitates the selection of a neutral third-party, **subject to approval and sharing of costs by both agencies,** to recommend an appropriate facilitation and negotiation model to be used in resolving the dispute which may include, but not be limited to:

- Mediation
- Arbitration

At any time, should the parties be unable to reach agreement on an issue associated with this conflict resolution process, they may choose to not continue further and attempt to resolve the issue by other means.

c. SANBAG staff serving, where appropriate, as a resource to the agencies, and a neutral third party convene the conflict resolution conference using the model agreed to by the agencies. The conference should generally consist of the following elements:

Stage I. Introduction

Stage II. Opening statement by the agencies

Stage III. Exchange (for purposes of developing an understanding of each agency's issues and positions)

Stage IV. Development of Options

Stage V. Draft and execute agreement

d. The agreement is implemented by the agencies. Follow up of implementation of the agreement is done by SANBAG.

e. The Executive Director shall report to the Board at regular intervals on the use of the procedure by local agencies.

APPENDIX E
(FORMERLY APPENDIX H)

POST-PROCESSED TRAFFIC VOLUME GUIDELINES

SBTAM Model Conversion Factors - Peak Period to Peak Hour

1. Passenger Car Model
   AM – 0.35
   PM – 0.28

2. Truck Model
   AM - 0.333
   PM – 0.25

Model Post Processing - Segment Volumes For Future Intersection Analysis

1. Passenger Car/Truck Model
   Base Year – 2012
   Future Year – 2040
   a. Determine the model growth:
      2040 minus 2012 = Model Growth
   b. Determine the model growth from existing year:
      If this is year 2022, then the model growth from 2022 to 2040 is 10/28 times Model Growth
   c. Determine the adjusted 2040 passenger car volume: Add the 2022 to 2040 model growth to the existing traffic count

Model Post Processing - When An Interchange or Intersection Does Not Exist At This Time

Proposed Interchange

1. Determine average % model error in the area of the new interchange and apply to future model intersection turning movements for input to your intersection analysis software. (Note: Model turning movements – Use a composite of passenger car and truck volumes in PCE's.)
   a. Take turning movement counts (Passenger Car and Trucks in PCE's) at the ramps of the existing interchanges on each side of the proposed interchange.
   b. Determine the volume of each approach count in PCE's for one of the two interchanges, 6 in all and add together. Then divide this total by the same model approach total in PCE's to get the % the model is over or under calculating the ground count.
   c. Determine the % the model is over- or under-estimating the ground count at the other interchange.
   d. Average the % changes between the two interchanges.
   e. Apply the average % change to the future proposed interchange ramp intersections and any new intersections in the vicinity of the proposed interchange.
   f. Input the resulting future turning movements to the new ramp and other intersections into your software for LOS analysis.

Proposed Intersection

   a. Apply same methodology as above to determine average model error.
   b. Use two similar existing intersections in the area of the proposed intersection for analysis.

APPENDIX F
(FORMERLY APPENDIX J)

REQUIREMENTS FOR THE LAND USE/TRANSPORTATION ANALYSIS PROGRAM FOR LOCAL JURISDICTIONS IN THE SAN BERNARDINO VALLEY AND VICTOR VALLEY AREAS

F.1 BACKGROUND

As noted in Chapter 5, the Measure I 2010-2040 Ordinance requires future development to pay for its fair share of transportation infrastructure improvements in the San Bernardino Valley and Victor Valley jurisdictions. Local jurisdictions in these areas must implement development mitigation programs that achieve development contribution requirements established by the SANBAG Development Mitigation Nexus Study (Nexus Study). The development contribution requirements are established by the Nexus Study for regional transportation improvements, including freeway interchanges, railroad grade separations, and regional arterial roadways on the Nexus Study Network. The Nexus Study Network for the San Bernardino Valley and the Victor Valley Subareas can be found in **Appendix G** of the CMP.

Implementation and maintenance of a development mitigation program is required of each local jurisdiction in the Valley and Victor Valley to maintain conformance with the SANBAG Land Use/Transportation Analysis Program of the CMP (see Chapter 4). The provisions of **Appendix F** are a part of the CMP Land Use/Transportation Analysis Program. SANBAG is required by the CMP to make an annual finding of local jurisdiction conformance to the provisions of the CMP. To support this finding, each jurisdiction must prepare a brief annual report demonstrating its continued compliance with the provisions of the Development Mitigation Program and other provisions of the CMP. The annual reporting requirements are discussed in Section F.8 of this appendix.

The requirements contained in this appendix are in response to the provisions of Section VIII of the Measure I 2010-2040 Ordinance. The requirements are based on the Development Mitigation Principles adopted by the SANBAG Board of Directors in July 2004. These principles are referenced in Chapter 4 of the CMP. The requirements in this appendix describe the key procedures local jurisdictions must follow when implementing and maintaining a conforming fair share development mitigation program.

F.2 PREPARATION OF THE DEVELOPMENT MITIGATION NEXUS STUDY

SANBAG has prepared and shall periodically update a Development Mitigation Nexus Study. The Nexus Study, contained in **Appendix G** of the CMP, identifies minimum fair share contributions from new development for capacity enhancements to the regional transportation system, including freeway interchanges, railroad grade separations and regional arterial roadways. The Nexus Study is based on development that was forecast to occur between 2004 and 2030. It contains the growth estimates and the corresponding development mitigation fair share estimates for projects included in the program. The methodologies used for calculating the fair share percentages associated with the freeway interchange, railroad grade separation and arterial roadway projects are included in the Nexus Study.

The Nexus Study is updated every odd year in close coordination with local jurisdictions. The update to the Nexus Study occurs in conjunction with the biennial update to the CMP, and SANBAG will notify local jurisdictions prior to initiating the update. During the update process, local jurisdictions are provided with the opportunity to review and comment on the Nexus Study and to include or exclude projects within their jurisdictions.

F.2.1 Nexus Study Project List

The Nexus Study identifies a Nexus Study Network, representing regional roadways in the urbanized areas of San Bernardino County. This network is based on a generalized set of criteria including roadway functional classification, propensity to carry inter-jurisdictional traffic and connection to the freeway system. The Nexus Study Network may be modified as part of a Nexus Study update. SANBAG is responsible for determining the inclusion or exclusion of a proposed regional roadway on the network. Local jurisdictions are responsible for the inclusion or exclusion of projects on the network.

In the urbanized San Bernardino Valley and Victor Valley, roadway improvement projects must be located on the Nexus Study Network for their costs to be included in the Nexus Study and to be eligible to receive Measure I 2010-2040 Valley Freeway Interchange, Valley Major Street and Victor Valley Major Local Highway funds. Additionally, projects not included in the Nexus Study are not eligible for SANBAG allocations of state or federal transportation funds included in the Measure I 2010-2040 Expenditure Plan. The Nexus Study development mitigation fair share requirements also apply to the Victor Valley Local Street Program insofar as the jurisdiction intends to use Measure I Local Street funds to add capacity to projects on the Nexus Study Network, per policy 40012, VVLS-8 of the Strategic Plan.

Inclusion in the Nexus Study is not a requirement to be eligible for receipt of state or federal transportation funds in areas outside of the urbanized areas. State or federal transportation funds, however, may not be used to supplant mitigation identified by a Traffic Impact Analysis Report (TIA) prepared in accordance with the requirements of Chapter 4 and **Appendix B** of the CMP.

The SANBAG Board may establish additional eligibility requirements for projects included in the Nexus Study either through amendment to the CMP or amendment to the Strategic Plan. Should an instance arise where the CMP and the Strategic Plan are inconsistent with each other, policies contained within the Strategic Plan shall prevail.

The Nexus Study identifies specific capacity enhancement projects for which development mitigation and public share funding are required. The Nexus Study also includes project descriptions, cost estimates and jurisdictional responsibilities for the projects where applicable. Local jurisdictions may wish to identify other local or non-regional improvements as part of their overall development mitigation program, but these will not be included in the Nexus Study.

F.2.2 Project Cost Estimates

The initial cost estimates for projects included in the Nexus Study were provided by local jurisdictions using the most current data available in 2005. Subsequent updates to the Nexus Study have allowed jurisdictions the opportunity to revisit the project cost estimates as project scopes have become more refined or additional planning efforts have been conducted.

Project costs may include costs associated with project study reports, preliminary engineering, environmental documentation, design, construction, construction management, project management, right-of- way and mitigation of impacts or any other component of project development and delivery. Strategic Plan policies should be consulted regarding specific conditions for eligibility of reimbursement of expenditures with Measure I funds. Local jurisdictions must indicate the basis for their cost estimates and expend development contributions only on the types of cost items and phases of project development included in their cost estimates. For costs other than construction to be included in the Nexus Study project list, jurisdictions must specify costs for projects by phase and include the information in their local development mitigation program in addition to the Nexus Study.

Preparation of a local jurisdiction nexus study or other analyses supporting their development mitigation program may be included in the jurisdiction's cost estimate, if the study or analysis is consistent with California Government Code 66000 et. seq. In the cost estimate for arterial projects, local jurisdictions may not include costs of improvements such as sidewalk, curb and gutter and match-up pavement along undeveloped frontages, for which developers would ordinarily be responsible. Such costs may be included when frontages are already developed, are otherwise undevelopable (e.g. easements or permanent open space), or have other circumstances that make it infeasible for a developer/property owner to construct the frontage improvements. The replacement of an existing bridge is permitted as an eligible expenditure in the program. The eligible cost for the project will be calculated based on the ratio of the added width to the total width of the bridge after the addition. Such circumstances must be specified in the local jurisdiction development mitigation program.

Project cost management and equity are major concerns for SANBAG with the implementation of the Development Mitigation Program. In

April 2009, the SANBAG Board adopted the Measure I 2010-2040 Strategic Plan, which established the policies and procedures for implementing Measure I. The effort to contain project costs resulted in several new elements to the Development Mitigation Program. These elements are discussed in greater detail below.

Equitable Shares: Within the Valley Subarea Arterial Sub-program, each jurisdiction is assigned an equitable share of Measure I 2010-2040 revenue from the program. The equitable share is defined as the ratio of public share costs for each jurisdiction's list of arterial projects to the total Valley arterial public share costs in the Development Mitigation Nexus Study approved by the SANBAG Board in November 2007. The equitable shares will remain fixed over the life of Measure I 2010-2040, being adjusted only as required due to annexation. A table has been added to the Nexus Study providing each jurisdiction's equitable share. Jurisdictions are permitted to include projects with costs that exceed their equitable share baseline within the Nexus Study. However, jurisdictions should be mindful that anticipated "public share" of project costs in excess of the equitable share baseline will need to be funded entirely by the jurisdiction, if Measure I revenue available to the Arterial Sub-program over the 30 years of the Measure proves to be consistent with the public share of project cost in the Arterial Sub-program.

Project Prioritization Lists: The Valley Freeway Interchange Program, Valley Rail/Highway Sub-program and the Victor Valley Major Local Highway Program are constrained by the total amount of Measure I, state, federal and development mitigation funds that can be contributed to the program. Consequently, each of the programs will be administered in accordance with a project prioritization list. Interchanges within the Valley Freeway Interchange Program were prioritized during the preparation of the Measure I 2010-2040 Strategic Plan. The prioritization list is based on a cost-benefit analysis using vehicle hours of delay reduced per million dollars invested.

The Rail/Highway Grade Separation Sub-program will also be administered in accordance with a project prioritization list. The project prioritization list will be based on the Public Utilities Commission (PUC) methodology used to prioritize all state grade separations for the allocation of PUC funds. The Grade Separation Prioritization List will be prepared during the 2011 Nexus Study update. Preparation of the Grade Separation Prioritization List is not required at this time, as the SANBAG Board has prioritized a shelf of grade separation projects to be delivered in part with State Proposition 1B Trade Corridors Improvement Funds.

The Victor Valley Major Local Highways Program is governed by a master list of eligible projects based on an approximately equivalent share of funds among jurisdictions. The list shall be maintained and periodically updated in accordance with the Strategic Plan policies based on a recommendation of the Victor Valley Subarea representatives and the Mountain/Desert Committee.

F.2.3 Project Cost Escalation

Biennially, project costs within the Nexus Study will be updated. The escalation of project costs is necessary to ensure that development pays its share of the increases in project cost that occur over time. For all programs contained in the Nexus Study, the escalation factor will be applied to the final project cost once construction of a project has been completed. This guarantees that future development will pay its fair share for projects constructed early in the Development Mitigation Program.

For projects that have yet to be constructed in the Valley Arterial Sub-program, an escalation factor can be applied to the equitable share baseline estimate for each jurisdiction. Jurisdictions are permitted to apply an escalation factor to all projects in the Valley Arterial Sub-program or to escalate costs at differential rates up to the amount of available equitable share projected for the jurisdiction. Jurisdictions that are able to demonstrate the sufficiency of their existing project costs may not be required to escalate costs in a given year. Sufficiency of existing project costs will be determined on a case-by-case basis subsequent to a thorough review of the project costs by SANBAG staff.

The annual escalation factor will be applied individually to project costs included in the Valley Freeway Interchange Program, Valley Rail/Highway Grade Separation Sub-program,

Victor Valley Major Local Highways Program and capacity enhancement projects on the Nexus Study Network for which Victor Valley jurisdictions will use Victor Valley Local Street funds.

Jurisdictions will have the opportunity to perform a more detailed review of project costs during the biennial Nexus Study updates. Updated project costs must be based on engineering estimates or another technically defensible planning-level study, including project study report, project report etc.). Local jurisdictions may be required to demonstrate to SANBAG that the estimates are reasonable and provide an accurate basis for cost escalation.

F.2.4 Addition/Subtraction of Projects

The addition or subtraction of projects to the Development Mitigation Program in the Nexus Study could affect all jurisdictions' ability to deliver projects under the program. Consequently, SANBAG has implemented safeguards on the programs to prevent over-subscribing the Measure I programs. As of the November 2007 update to the Development Mitigation Program approved by the Board, jurisdictions are no longer allowed to add to the net increase of the public share of a program. Consequently, interchanges, grade separations and arterial projects can only be added to the Nexus Study if a like amount of public share is subtracted from the program on another project or a jurisdiction increases its development share to mitigate any potential increase to the public share.

The subtraction of one or more projects from the Nexus Study is permitted by a jurisdiction, and any amount of escalated equitable share that results will be available for programming in subsequent updates to the Nexus Study by that jurisdiction so long as it does not result in a net increase to the public share obligation.

Any projects affected by annexation will be addressed individually at the time of annexation. Jurisdictions are subject to the provisions of state law regarding addition, deletion or substitution of projects.

F.2.5 Socio Economic Data and Development Mitigation Fair Share Percentages

The SANBAG Nexus Study includes an estimate of growth in dwelling units and employment expected over the planning period of the Nexus Study. These estimates were prepared by local jurisdictions in conjunction with SANBAG and development of the growth forecasts included in the 2004 SCAG RTP. The planning period for growth estimates will remain 2004 to 2030, corresponding to the timeframe for the project lists. Supplemental nexus studies with new project lists and a new planning horizon with revised growth estimates will require authorization by the SANBAG Board and will be structured as an overlay of the existing 2004-2030 program.

The Nexus Study includes an estimate of minimum fair share development contributions for regional transportation improvements based on the estimates of project costs and the growth data provided by local jurisdictions. The SANBAG Nexus Study contains the methodology for calculating the fair share requirement. It is the goal of SANBAG to maintain and use a stable dataset to calculate the development fair share percentages. Year 2004 will continue to serve as the Nexus Study baseline year and year 2030 will continue to serve as the horizon year for purposes of calculating minimum fair share percentages. Updates to the socio-economic data contained in the Nexus Study are possible when the jurisdiction has evidence to substantiate modification. Any modification to the socio-economic data should be logically related to the growth forecasts included in the currently adopted RTP/SCS.

The fixed equitable shares in the Valley Arterial Sub-program and the approximately equivalent shares in the Victor Valley Major Local Highways Program will require any jurisdiction reducing its growth forecast (and its associated fair share percentage) to either reduce the project costs included in its program or overmatch the minimum development share to maintain program balance. Jurisdictions may not increase the public share cost to SANBAG, or otherwise affect the availability of public share resources to other jurisdictions in the program.

The Nexus Study calculates minimum fair share targets for each local jurisdiction and for the jurisdiction's sphere of influence. Fair share amounts for special districts or subareas may

also be calculated based on the Nexus Study methodology if that information is provided to SANBAG by a local jurisdiction. For SANBAG to calculate fair share contributions for sphere areas, special districts or subareas, the city or County must be consistent with the boundaries they have defined.

F.3 Qualifying Local Jurisdiction Development Mitigation Programs

Each local jurisdiction in the San Bernardino Valley and Victor Valley shall implement and maintain a development mitigation program that is projected to meet or exceed the fair share requirement for development contributions identified in the most current SANBAG-approved version of the Nexus Study. The program must meet or exceed the requirement for each individual program area (i.e. regional arterials, interchanges and railroad grade separations) listed in the Nexus Study. The local jurisdiction has flexibility in designing a development mitigation program that achieves the level of contributions from new development consistent with that jurisdiction's total fair share requirement in the Nexus Study.

Types of development contributions may include a development impact fee (DIF) program, programs of road and bridge benefit districts, other special assessment districts, community facilities districts (CFDs), or other development contributions and funding consistent with the Measure I 2010-2040 ordinance and the SANBAG CMP. Each local jurisdiction must establish a clear definition of the sources of funds for inclusion in the development mitigation program.

Local jurisdictions may maintain development mitigation programs for local (non-regional) transportation improvements. However, non-regional projects will not be included in the SANBAG Nexus Study and will not be eligible for Measure I Valley Major Street, Freeway Interchange and Victor Valley Major Local Highways funds. In evaluating a local jurisdiction's development mitigation program for compliance with the CMP, SANBAG staff will exclude development contributions for transportation facilities not included on the Nexus Study Network.

Local jurisdictions may update their development mitigation programs at any time. Any updates must maintain compliance with CMP requirements. SANBAG must be notified of the intent to amend the program at least 60 days prior to amendment and full documentation of the amendment must be provided to SANBAG within 30 days following local jurisdiction approval. This includes any amendments to the program made as a result of annexations. For amendments made due to annexations, sufficient information (e.g. transfer of growth and project costs from the County to a city) must be provided to allow SANBAG to determine how each jurisdiction's fair share target amount and equitable share is affected, which will allow local jurisdictions to subsequently modify their development mitigation program. However, a formal revision of the Nexus Study by SANBAG will not occur until the next Nexus Study update cycle.

Originally, local jurisdiction development mitigation programs required adjustment to project cost estimates on an annual basis. The cost escalation methodology was revised by the SANBAG Board of Directors on May 6, 2009 and incorporated the following elements:

- Cost escalation factor is based on the prior calendar year's rate of escalation in the Caltrans Construction Cost Items Index.
- Cost escalation factor contains a floor of 0% and a ceiling of 15%.
- Any amount under the floor or over the ceiling was to be credited against the following year's escalation factor.

Each city council/Board of Supervisors was required to approve the adjustments on an annual basis and reflect those adjustments in local development impact fees or other per-unit mitigation levels or assessments. The adjustments were to be based on an escalation factor approved by the SANBAG Board of Directors. The adjustment must be adopted by the city council/Board of Supervisors by either January 1 or July 1 following the approval of the escalation factor by the SANBAG Board, depending on the timeline chosen by the local jurisdiction and documented in the Nexus Study. The Nexus Study includes a list of local jurisdiction development mitigation program update adoption timelines.

On January 7, 2015, the SANBAG Board of Directors approved a flexible mechanism for local jurisdictions to ensure compliance with Measure I by ensuring sufficient development fees will be collected to support implementation of Nexus study interchange, grade separation and arterial projects. Specifically, the Board approved the allowance for local jurisdictions to phase in DIF updates over a three year period and also eliminated the escalation requirement on project costs during even years. As the Nexus Study project lists and costs are updated during odd numbered years, adjustments to local agency DIF programs only need to be made with the biennial Nexus Study update.

Completed projects will remain in the Nexus Study project list throughout the balance of the program. Following project completion, the Nexus Study will be updated to include the actual project cost for the project. Biennially, project costs for completed projects must be escalated based an escalation factor derived from the Caltrans Construction Cost Items Index. The escalation of costs for completed projects ensures that all development that benefits from a project pay for its fair share of the project.

F.4 Maintenance of Local Jurisdiction Development Mitigation Funds

Contributions and funding from new development for regional transportation improvements will be retained and managed by local jurisdictions until expended. Each local jurisdiction must maintain a development mitigation account consistent with the California Government Code 66000 et. seq. Any fee credit program shall be the responsibility of the local jurisdiction. Policies governing fee credits are included in the Measure I Strategic Plan.

As an option, the local jurisdiction may arrange for SANBAG to retain the regional portion of the development contributions collected by the local jurisdiction, to be disbursed only on projects for which the local jurisdiction is responsible. This may, at the local jurisdiction's option, include SANBAG's retention of only the funds associated with the fair share contributions for interchange improvements. SANBAG reserves the right to audit transactions within local jurisdiction development mitigation funds pertaining to Nexus Study projects.

F.5 Coordinating Development Mitigation Programs for Cities with Spheres of Influence

Jurisdictions must maintain development mitigation fund accounts for any special districts or subareas used as the basis for establishing levels of contribution from new development. Where the County of San Bernardino and a city establish a combined development mitigation program for that jurisdiction and its sphere of influence, the County shall maintain a development mitigation fund specifically for that sphere of influence, unless the city and County make an alternate arrangement that still achieves their combined fair share requirement.

In a sphere of influence or other County subarea, the County determines which projects will be included in the Nexus Study. Local jurisdictions and the County may negotiate a common project list. However, should there be a discrepancy between the lists, SANBAG staff will defer to the County's desired project list.

Development contributions from growth in that sphere area shall be expended on projects in that sphere area and on the sphere's share of interchange projects. The County and cities may execute alternate agreements for the management of development contributions for sphere areas. Such agreements between the County and a city governing development mitigation in the sphere area shall address the use and/or transfer of funds in the event that an annexation occurs. A copy of this agreement, or any modifications to the agreement, shall be provided to SANBAG within 30 days of execution by the city and County.

When the sphere of influence is included as part of a city's geographic area for purposes of DIF program fee calculation, it is expected that the fees for regional transportation improvements by land use type will be the same for areas within the city boundary and within the sphere. If a city or the County includes additional local (non-regional) roadway projects in their program, it is possible that the fees may vary between the city and sphere areas. Fees will still be collected by the County for unincorporated areas and spent within the sphere area from which they were collected, unless a different agreement is executed between the city and County.

The County and each individual city may jointly determine whether or not to include the sphere area as part of the city's fair share calculation. If a sphere is not included with the corresponding city for fair share calculation purposes, the County will need to delineate the alternate geographic boundaries to be used for unincorporated areas. The County will need to maintain records for individual city spheres or other County-defined geographic areas.

F.6 Expenditure of Development Contributions

Each jurisdiction will be responsible for determining when development contributions from their own development mitigation program are to be expended on projects within their jurisdiction or on their portion of projects shared with another jurisdiction. Each jurisdiction will be expected to contribute dollars to a project equal to or greater than the fair share percentage (as determined by the Nexus Study) of the actual project cost (as adjusted based on qualifying federal or state appropriations that reduce the project cost). The Measure I Strategic Plan has identified additional requirements for use of Measure I, State or Federal funds. Jurisdictions should recognize that State, Federal, Measure I 2010-2040 Valley Interchange and Major Street Funds or Victor Valley Major Local Highways Funds may not be available on demand to cover the full non-fair share portion of the cost for a specific project listed in the Nexus Study. Policies are in place governing the identification of needs, apportionment and allocation process as well as the Advance Expenditure Program. Refer to the Strategic Plan for the specific policies.

Local jurisdictions will not be forced to participate in a multi-jurisdictional project but must abide by the provisions of state law regarding collection and disbursement of development contributions. Jurisdictions requesting funds for a multi-jurisdictional project must execute a Development Mitigation Cooperative Agreement prior to receiving an allocation of Measure I funding for the project.

Arterial Improvements: For arterial improvements and railroad grade separations, the lead local jurisdiction (jurisdiction in which the project is located) shall determine when development contributions are to be applied to specific projects and when application will be made for other funds (Measure I, State or Federal). Although each jurisdiction is responsible for its own arterial improvements under the development mitigation program, the provisions of the California Environmental Quality Act (CEQA) remain applicable when considering the impact of development projects on other jurisdictions. Adjacent jurisdictions should be informed via copies of Environmental Impact Reports (EIRs) when such impacts are identified and EIRs are prepared.

Interchange Improvements: Application for funds from the Freeway Interchange Program will need to include a Development Mitigation Cooperative Agreement prior to receiving an allocation of Measure I funds from SANBAG, where more than one jurisdiction is responsible for the development share. The sponsoring agency for the project will be required to coordinate the execution of the cooperative agreement. For interchange improvements, the lead local agency (or possibly co-lead agencies where the interchange footprint is in two or more jurisdictions) determines when requests will be made for funds (Measure I, State or Federal) to be used in combination with development contributions. Policy 40005 defines the conditions under which SANBAG may assume project management responsibilities for an interchange in the Valley. Should the SANBAG Board decide to assume project management responsibilities, SANBAG will be responsible for coordination of development mitigation for the project.

Provisions for development mitigation loan programs addressing internal loans (loans from various funds within a jurisdiction) and external loans (loans between SANBAG and a jurisdiction) may be found in the Measure I Strategic Plan.

F.7 Additional Guidelines for Development Impact Fee Programs and special assessment districts

For DIF programs, fees will be established by each local jurisdiction. Local jurisdictions must demonstrate that the development mitigation program established will achieve the Nexus Study fair share requirements for regional

projects by project type, if the projected growth occurs.

Fee and assessment districts may be established defining development contribution fair share requirements for regional transportation projects within subareas of a jurisdiction. The fair share requirements would be established based on the project costs and projected growth for that district. The development contribution requirement for the district must include the fair share of interchange improvement costs associated with that district in the SANBAG Nexus Study. Any project costs included in the special district would be excluded from the larger, jurisdiction-wide fee program.

Projects may be added to an existing special district to satisfy the fair share target amounts, but it must be demonstrated that the legal mechanism exists to assess the additional costs to development projects in that existing district. Otherwise, the additional costs for regional improvements associated with that special district must be included in the jurisdiction-wide development mitigation program. Development contributions obtained from the district would be expended on regional transportation projects in the district or on the fair share of an interchange project for which the district is responsible. The interchange portion of the district's development mitigation fund must be accounted for separately, or the special district may maintain an agreement for the local jurisdiction to manage the interchange portion of the fund in conjunction with the jurisdiction-wide development mitigation fund.

F.8 Annual Reports

The local jurisdiction must submit an annual development mitigation report to SANBAG. The annual report is an informational document and does not require approval by the local jurisdiction's elected body. If the development mitigation program contains individual districts (e.g. road and bridge benefit districts separate from a jurisdiction-wide program), reporting must be specified by district. The County must organize its annual report by sphere area or by other geographic subareas established in their development mitigation program. By agreement with the corresponding city, the County may include the reporting for its sphere together with the city's annual report. The annual report must contain the following information:

1. Quantity of development for which development contributions were generated by development type.
2. Total development contributions by development type, including any fee credits or in-lieu fees.
3. Other types of development-related transportation funds applied to projects during the year (e.g. grants)
4. Funds expended from the development mitigation program (engineering, right-of-way, construction, etc.) on regional transportation projects listed in the local jurisdiction's development mitigation program. The funds expended must be listed by individual project and must be reported for the current year and cumulatively for each project.
5. Credits, refunds or other adjustments to development mitigation accounts.
6. Dollar amount of internal loans to cover development mitigation used for projects without the full development mitigation share available at the time of allocation or as defined by the Capital Projects Need Analysis (CPNA).

The annual report shall be provided to SANBAG by local jurisdictions within 90 days of the end of the fiscal year (September 30 of each year). SANBAG will provide formats and forms (electronic and/or hard copy) for agencies to use in preparing the reports.

F.9 Compliance

Local jurisdictions must maintain their CMP development mitigation program in accordance with requirements in **Appendix F**. Local jurisdictions may be found out of compliance with the CMP Land Use/Transportation Analysis Program in one of the following ways:

1. Failure to adopt and maintain a development mitigation program that satisfies the CMP criteria.
2. Failure to provide development mitigation program updates within the prescribed time frames.

3. Failure to submit complete annual reports to SANBAG in a timely manner.

The SANBAG Executive Director will notify a local jurisdiction in writing when the jurisdiction appears to be failing to conform to the CMP and the development mitigation program. Following initial notification that a jurisdiction is failing to conform, the jurisdiction will have 30 days to respond to SANBAG with plan of action and up to 45 days to take the necessary corrective actions identified in the plan to bring the program back into conformity.

If a jurisdiction fails to provide a plan of corrective action within 30 days or fails to follow through with the corrective actions identified in the plan within 45 days, a public hearing on the matter will occur, per the provisions of State law, and SANBAG staff will request a determination by the Board of Directors that the jurisdiction is not conforming to the requirements of the CMP. Should the Board of Directors approve a finding that the jurisdiction is not conforming to the requirements of the CMP, the Executive Director will notify the jurisdiction in writing of the finding. Following receipt of the letter by a jurisdiction, it will have 90 days to bring its development mitigation program into compliance. If the program is not brought into compliance within the designated period, the Executive Director will recommend a final finding of non-conformity to the SANBAG Board of Directors. At that point, the provisions of state law will be applied regarding withholding of Section 2105 gas tax dollars and re-establishment of conformity with the CMP.

APPENDIX G
(FORMERLY APPENDIX K)

DEVELOPMENT MITIGATION NEXUS STUDY

APPENDIX H

ACRONYMS/DEFINITIONS

ACRONYMS/DEFINITIONS

AB – Assembly Bill

ADA – Americans with Disabilities Act

AQMD – Air Quality Management District

BRT – Bus Rapid Transit

Caltrans – The California Department of Transportation

CEQA – California Environmental Quality Act

CIP – Capital Improvement Program

CMA – Congestion Management Agency: From California Government Code Section 65089.(a), the county transportation commission or other public agency designated by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population within the incorporated area of the county. Within San Bernardino County, San Bernardino Associated Governments (SANBAG) is the designated CMA.

CMP – Congestion Management Program

CPNA – Capital Project Needs Assessment

CTP – Countywide Transportation Plan

DIF – Development Impact Fee

FHWA – Federal Highway Administration

FTIP – Federal Transportation Improvement Program

HCM – Highway Capacity Manual

ISR – Indirect Source Rules

ITE – Institute of Transportation Engineers

Local jurisdiction: The County of San Bernardino or any city within San Bernardino County. This term is used in place of the word "city" in the California Government Codes referencing Congestion Management Programs. Government Code Section 65088.1(c) states: "City" includes a city and county.

LOS – level of service

LRTP – Long-Range Transit Plan

MBTA – Morongo Basin Transit Authority
MDAQMD – Mojave Desert Air Quality Management District

Model consistency: The ability of a travel demand forecasting model to produce forecasts which are comparable or similar to forecasts produced by the regional and SBTAM travel demand models for a standard planning horizon (such as 2040), using demonstrably equivalent input data and modeling practice acceptable to the regional agency (Southern California Association of Governments).

NEPA – National Environmental Policy Act

NTD – National Transit Database

PCE – passenger car equivalents

PSR – Project Study Report

PUC – Public Utilities Commission

RCTC – Riverside County Transportation Commission

Regional agency: From California Government Code section 65088.1(a), regional agency means the agency responsible for preparation of the Federal Transportation Improvement Program (RTIP). For San Bernardino County, this agency is the Southern California Association of Governments (SCAG).

Responsibility: Use of this term implies jurisdictional or agency accountability for implementation of a provision of the Congestion Management Program and does not imply any relationship or linkage to the California Environmental Quality Act.

RTIP – Regional Transportation Improvement Program

RTP/SCS – Regional Transportation Plan/Sustainable Communities Strategy

SANBAG – San Bernardino Associated Governments

SB – Senate Bill

SBTAM - San Bernardino Transportation Analysis Model: A travel demand forecasting model maintained by SANBAG that provides CMP travel demand forecasts for San Bernardino County which are consistent with the regional travel demand forecasting model maintained by SCAG. Consistent annual forecasts for some less populous portions of the county may be provided by travel demand forecasting methods which are consistent with SBTAM. More detailed local travel demand forecasting models found by SANBAG to be consistent with SBTAM may also be used at the discretion of local jurisdictions to implement provisions of the CMP (Government Code Section 65089.(c)).

SCAG – Southern California Association of Governments

SCAQMD – South Coast Air Quality Management District

SCRRA – Southern California Regional Rail Authority

SIP – State Implementation Plan

SRTP – Short-Range Transit Plan

TCM – Transportation Control Measure

TDM – Travel Demand Management

TIA Report – Traffic Impact Analysis Report: A Traffic Impact Analysis Report, consistent with the CMP Guidelines, prepared by a local jurisdiction or development project applicant to identify the potential impact of the proposed project and mitigations needed to maintain the traffic level of service on the CMP network and the mitigation cost.

TOD – transit oriented development

TTAC – Transportation Technical Advisory Committee

V/C – volume to capacity ratio

VHT – vehicle hours travelled

VMT – vehicle miles travelled

vphgpl – vehicles per hour green per lane

VVTA – Victor Valley Transit Authority