

**Transmittal Date:** May 19, 2006

**TO:**

Caltrans, Division of Programming  
Office of Federal Transportation  
Management Program

**Attn:** Mr. Abhijit Badge

**FROM:**

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**MPO Name:** San Diego Association of Governments (SANDAG)

**Amendment Number:** 16 to the 2004 RTIP

**Amendment Type:** Formal

**Number of Projects in this Amendment:** There are 14 projects in this amendment.

**Brief Description of the Amendment:**

The SANDAG Transportation Committee at its meeting on April 21, 2006 accepted the draft Amendment No. 16 for review and distribution. We have received no public comment to this amendment. Amendment includes new capacity increasing projects that triggered a new emissions analysis.

**Board Resolution:** See signed resolution

**Conformity Determination:** See resolution attesting to conformity. SANDAG conducted a new emissions analysis which is included in the report

**Financial Constraint:** 2004 RTIP including Amendment No. 16 is fiscally constrained; redetermination of fiscal constraint is included in the report.

**MPO's CTIPS Approval Date:** Transportation Committee approval May 19, 2006.

# TRANSPORTATION COMMITTEE

May 19, 2006

AGENDA ITEM NO.: **3**

**Action Requested: APPROVE**

2004 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (RTIP): File Number 4000600  
FINAL AIR QUALITY EMISSIONS ANALYSIS FOR AMENDMENT NO. 16

## Introduction

SANDAG, as the Metropolitan Planning Organization (MPO), is responsible for the adoption of a biennial Regional Transportation Improvement Program (RTIP), a five-year program of major transportation projects in the San Diego region. The 2004 RTIP, which covers the fiscal years from 2005 through 2009, must conform to the State Implementation Plan (SIP) for air quality. Conformity to the SIP means that transportation activities in the 2004 RTIP will not create new air quality violations, worsen existing violations, or delay the attainment of the national ambient air quality standards. The SANDAG Board adopted the 2004 RTIP including the emissions analysis at its meeting on July 23, 2004, and the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) jointly approved the 2004 RTIP on October 4, 2004.

## Recommendation

The Transportation Committee is asked to adopt Resolution No. 2006-18 (Attachment 1), approving 2004 RTIP Amendment No. 16, including the final air quality conformity analysis and conformity redetermination for the 2030 RTP: 2006 Update.

SANDAG processes amendments generally on a quarterly basis and occasionally on a more frequent basis as unforeseen circumstances arise. This report includes Amendment No. 16 which includes the addition of capacity-increasing projects prompting a new regional emissions analysis for air quality conformity purposes. At the April 21, 2006 meeting, the Transportation Committee accepted for distribution the draft air quality conformity analysis for Amendment No. 16 and the conformity redetermination for the 2030 Regional Transportation Plan: 2006 Update for public comment. As of the date of mailing this report, SANDAG had received no public comments.

## Discussion

Federal metropolitan planning and air quality regulations prescribe the process for determining air quality conformity. These regulations require that the RTIP: (1) provide for the timely implementation of Traffic Control Measures (TCMs); (2) include a quantitative emissions analysis of projects programmed in the RTIP, including all regionally-significant projects; and (3) meet the applicable emissions budgets (targets) and interim emissions tests for the 8-Hour Ozone and the Carbon Monoxide standards.

The 2004 RTIP programs substantial funds for the implementation of the four TCMs (identified as "T-tactics") adopted in the 1982 Regional Air Quality Strategy (RAQS)/1982 SIP for air quality improvement. The four TCMs/T-tactics are ridesharing, transit improvements, traffic flow improvements, and bicycle facilities and programs. The TCMs/T-tactic projects programmed for

implementation total approximately \$1.9 billion, or about 31.5 percent of the total funds programmed in the 2004 RTIP. The addition of the capacity increasing projects does not impact the timely implementation of TCMs.

A quantitative air quality emissions analysis was conducted for the years 2002, 2009, 2010, 2014, 2020, and 2030 revenue-constrained transportation scenarios. The results of this analysis are included in the attached final report (Attachment 2). The draft report was reviewed by the San Diego Region Conformity Working Group (CWG) at its meeting on April 19, 2006. The CWG is the interagency consultation group made up of various transportation and air quality agencies including the San Diego Air Pollution Control District, Caltrans, California Air Resources Board, the U.S. Department of Transportation (DOT), and the U.S. Environment Protection Agency.

### ***Independent Taxpayer Oversight Committee (ITOC)***

The ITOC is the independent citizen oversight committee that reviews *TransNet* funded projects. At its meeting on April 19, 2006, the ITOC reviewed Amendment No 16 focusing on the Early Action Program (EAP) and other *TransNet* funded projects. Issues of clarification regarding the RTIP process and the role of ITOC were discussed, but there were no comments on specific projects.

Based on the analysis, the 2004 RTIP Amendment No. 16 meets the conditions for determining conformity with the applicable SIP for air quality. This amendment reflects new projects and changes to existing projects, which are described below. The attached 2004 RTIP Amendment No. 16 (Attachment 2), provides additional details for the projects being amended.

### ***Caltrans***

As part of the approval for the *TransNet* Early Action Program (EAP) and the *TransNet* Plan of Finance (POF), the Board committed 85 percent of state and federal transportation funds available to the region toward the EAP projects. Those funds include the State Transportation Improvement Program-Regional Improvement Program (STIP-RIP), Regional Surface Transportation Program (RSTP), and Congestion Mitigation and Air Quality (CMAQ). The change to CAL09A below reflects the programming of the RSTP funds. All other programming changes related to the 85 percent federal funds were included with Amendment No. 15, approved by the Transportation Committee on April 21, 2006.

*I-5 HOV Managed Lanes (CAL09)*: This amendment proposes to divide this project in order to implement certain ready-to-go segments (see CAL09A and CAL09B below). The current program of \$31,165,000 funds the Preliminary Engineering (PE) phase which includes the environmental document.

*I-5 Lomas Santa Fe Interchange/HOV Lanes (CAL09A)*: This project, which has been split from CAL09, would construct the interchange and HOV lanes to San Elijo. As stated above, \$18,177,000 of RSTP funds was added while reducing \$21,901,000 of *TransNet*-Major Corridor (MC) funds. The total program of \$56,290,000 fully funds this project.

*I-5 Auxiliary Lanes [Go California (CAL09B)]*: The amendment adds \$11,520,000 from Go California, a ten-year mobility action plan funded through the State Highway Operation and Protection Program (SHOPP), designed to be implemented as soon as possible and achieve measurable congestion relief

on some of the most heavily traveled sections of the California highway system. This project constructs north and southbound auxiliary lanes between Via De La Valle to Lomas Santa Fe Drive. The total program of \$11,520,000 fully funds this project.

*SR 52 Managed Lanes/HOV (CAL26A)*: This amendment proposes to divide this project in order to implement certain ready-to-go segments (see CAL26B and CAL26C below). The current program of \$28,000,000 funds the PE phase which includes the environmental document.

*SR 52 Auxiliary Lanes (CAL26B)*: This project, which has been split from CAL26A, would construct east and westbound auxiliary lanes from the SR 52/I-15 separation to Mast Boulevard. A total of \$2,800,000 of *TransNet-MC* funding is added for a total project of \$43,200,000.

*SR 52 Truck Lane [Go California (CAL26C)]*: This project, which is split from CAL26A, would add \$6,100,000 of *TransNet-MC* and \$2,000,000 of SHOPP funding to extend the westbound truck lane from Santo Road to Oak Canyon Bridge to facilitate traffic flow. Total project is \$8,100,000.

*SR 905 New Freeway (CAL38)*: This amendment revises the project description to be consistent with a Caltrans request to the FHWA for an environmental re-evaluation of the project. The new programming also adds \$107,315,000 in new federal Borders Corridors Infrastructure (CBI) funds as well as State Transportation Improvement Program – Interregional Improvement Program (STIP-IIP) funds. The total programming for this project, which increases to \$338,450,000, fully funds Phase 1. It should be noted that the project programming includes advancing of the project utilizing State Cash assuming future reimbursement when the new CBI funds become available.

*SR 54 HOV Restripe [Go California (CAL81)]*: This project restripes the HOV lanes to integrate it with the existing mixed flow lanes. Total project is \$265,000.

*HOV Bypass to SR 94/SR 125 Connector [Go California (CAL82)]*: This project adds an HOV bypass to minimize SR 94 westbound queuing. Total project is \$1,143,000.

### ***City of Escondido***

*Centre City Parkway (ESC24)*: This carryover project from the 1998 RTIP would widen Centre City Parkway from four to six lanes. Total project is \$1,728,000.

*Citracado/Nordahl (ESC25)*: This carryover project from 1998 RTIP would widen Country Club to SR 78 from four to six lanes. Total project is \$2,649,000.

### ***San Dieguito River Park***

*Lake Hodges Bicycle/Pedestrian Bridge (SDRP04)*: This new project would improve the connection for bicyclists and pedestrians between Escondido, Poway, and Rancho Bernardo. At the March 24, 2006, meeting, the Board approved additional Transportation Enhancements (TE) funding for this project. Total project is \$7 million.

***Various Agencies***

*Smart Growth Incentive Program (V04):* The amendment transfers \$2 million in FY 2006 TE funds in order to fund the Lake Hodges project (SDRP04) above. Total project is reduced to \$15,287,000.

RENEE WASMUND  
Director of Finance

Attachments: 1. Resolution No. 2006-18  
2. Final 2004 RTIP Amendment No. 16

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# **RESOLUTION NO. 2006-18**

## **APPROVING AMENDMENT NO. 16 TO THE 2004 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM**

WHEREAS, on July 23, 2004, SANDAG adopted the 2004 Regional Transportation Improvement Program (RTIP) and found the 2004 RTIP in conformance with the 1998 Regional Air Quality Strategy (RAQS) and the 2002 Ozone Maintenance Plan; and

WHEREAS, WHEREAS, on April 22, 2005, SANDAG made a finding of conformity of the 2030 RTP and 2004 RTIP, as amended, to the 8-hour ozone standard; and

WHEREAS, on May 20, 2005, the U.S. Department of Transportation (DOT) issued its conformity finding of the 2030 RTP and 2004 RTIP, as amended, to the 8-hour ozone standard; and

WHEREAS, on February 24, 2006, SANDAG made a finding of conformity of the 2030 Revenue Constrained Regional Transportation Plan (RTP): 2006 Update with the State Implementation Plan (SIP) and the 1998 RAQS; and

WHEREAS, the U.S. DOT issued its conformity finding to the 2030 Revenue Constrained RTP: 2006 Update on March 29, 2006; and

WHEREAS, local agencies have requested the addition of new capacity increasing projects for inclusion into the 2004 RTIP as shown in Table 1-2 of Attachment 2; and

WHEREAS, the updated air quality conformity analysis for Amendment No. 16 to the 2004 RTIP as shown in Attachment 2 has been conducted simultaneously for the 2030 Revenue Constrained RTP: 2006 Update to ensure consistency of the RTP and RTIP; and

WHEREAS, Amendment No. 16 to the 2004 RTIP continues to provide for timely implementation of transportation control measures contained in the adopted RAQS/SIP for air quality and a quantitative emissions analysis demonstrates that the implementation of the RTIP projects and programs meet all the federally required emissions budget targets; and

WHEREAS, on April 21, 2006, SANDAG released the draft air quality conformity analysis to the public and affected agencies for opportunities to comment on Amendment No. 16 to the 2004 RTIP and its air quality conformity determination; and

WHEREAS, the SANDAG Board of Directors delegated the authority for RTIP amendments, including findings of air quality conformity, to the Transportation Committee;  
NOW THEREFORE

BE IT RESOLVED that the Transportation Committee does hereby approve Attachment 2 as Amendment No. 16 to the 2004 Regional Transportation Improvement Program, its air quality conformity determination, and the re-determination of the 2030 Revenue Constrained RTP: 2006 Update; and

BE IT FURTHER RESOLVED that SANDAG finds the 2004 RTIP, including Amendment No. 16, is in conformance with the SIP and RAQS for the San Diego region, is consistent with SANDAG Intergovernmental Review Procedures, and is consistent with SANDAG Public Participation Policy, as amended.

PASSED AND ADOPTED this 19<sup>th</sup> day of May 2006.

 CHAIRPERSON

ATTEST:  SECRETARY

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista, and County of San Diego  
ADVISORY MEMBERS: California Department of Transportation, Metropolitan Transit System, North San Diego County Transit Development Board, Imperial County, U.S. Department of Defense, San Diego Unified Port District, San Diego County Water Authority, and Baja California/Mexico

**FINAL  
2004  
REGIONAL TRANSPORTATION  
IMPROVEMENT PROGRAM,  
AMENDMENT NO. 16**

**May 19, 2006**



*San Diego's Regional Planning Agency*

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# Chapter 1

## EXECUTIVE SUMMARY

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### OVERVIEW

The 2004 Regional Transportation Improvement Program (RTIP) is a five-year program of major transportation projects funded by federal, state, *TransNet* local sales tax, and other local funding covering the period FY 2004/05 to FY 2008/09. The RTIP, which includes an air quality emissions analysis for all regionally significant projects, requires the approval by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Amendment No. 16 includes the addition of new capacity increasing projects and revisions to existing projects, prompting an update to the regional emissions analysis.

The RTIP is a prioritized program designed to implement the region's overall strategy for providing mobility and improving the efficiency and safety of the transportation system, while reducing transportation-related air pollution in support of efforts to attain federal and state air quality standards for the region. The 2004 RTIP also incrementally develops the 2030 Regional Transportation Plan (RTP), the adopted long-range transportation plan for the San Diego region.

FHWA and FTA approved the Final 2004 RTIP, including the air quality emissions analysis, on October 4, 2004. Amendment No. 16 to the 2004 RTIP revises existing projects and adds new capacity increasing projects. The 2004 RTIP document, published in July 2004, fully documents the RTIP development process, project listings, financial capacity analysis, and the air quality conformity analysis. This report focuses on an updated fiscal capacity analysis and a new regional air quality emissions analysis for conformity purposes for both the 2004 RTIP and re-determination to the 2030 RTP: 2006 Update. The Final 2004 RTIP document as well as subsequent amendments are available on the SANDAG Web site.

### Consistency with the 2030 RTP

On March 29, 2006, FHWA and FTA issued a finding that the SANDAG 2030 RTP:2006 Update was in conformance with federal air quality and planning regulations. The 2004 RTIP, including Amendment No. 16, is consistent with the 2030 RTP: 2006 Update. As a financially constrained document, the 2004 RTIP contains only those major transportation projects listed in the revenue-constrained plan of the 2030 RTP: 2006 Update.

### Air Quality Conformity Determination

Federal metropolitan planning and air quality regulations prescribe the process for determining air quality conformity. These regulations require that the proposed RTIP: (1) provide for the timely implementation of transportation control measures (TCMs); (2) include a quantitative emissions analysis of projects programmed in the RTIP, including all regionally significant projects; and (3) be

within the region's emissions budgets (targets) included in the approved State Implementation Plan (SIP).

The 2004 RTIP programs substantial funds for the implementation of the four TCMs (identified as "T-tactics") adopted in the 1982 Regional Air Quality Strategy (RAQS)/1982 SIP for air quality improvement. As shown in Table 1-1, the TCMs/T-tactic projects programmed for implementation total approximately \$1.9 billion, or 31.5 percent of the total funds programmed. Included are \$30.8 million for Ridesharing, \$1.7 billion for Transit Improvements, \$60 million for Bicycle Facilities and Programs, and \$80.6 million for Traffic Flow Improvements. Based upon this analysis, the 2004 RTIP, Amendment No. 16 provides for the expeditious implementation of the four existing TCMs in the 1982 Revised RAQS, which remain the federally approved TCMs for the San Diego region.

Quantitative air quality emissions analyses were conducted for the years 2002, 2009, 2010, 2014, 2020, and 2030 Revenue Constrained transportation scenarios, as shown in Chapter 3. The results of this analysis, including Amendment No. 16, were distributed to the San Diego Region CWG on March 24, 2006 and are scheduled to be reviewed by the CWG at its meeting on April 19, 2006. The 2004 RTIP Amendment No. 16 meets the conditions for determining conformity with the applicable SIP for air quality. A detailed description of the regional emissions analysis and modeling procedures conducted for the 2004 RTIP Amendment No. 16 is included in Appendix B. Chapter 3 of this report summarizes the air quality conformity analysis for Amendment No. 16.

## **Financial Capacity Analysis**

Federal regulation require the 2004 RTIP to be a revenue-constrained document with programmed projects based upon available or committed funding and/or reasonable estimates of future funding. Funding assumptions are generally based upon: (1) authorized or appropriated levels of federal and state funding from current legislation; (2) conservative projections of future federal and state funding based upon a continuation of current funding levels; (3) the most current revenue forecasts for the *TransNet* program; and (4) the planning and programming documents of the local transportation providers.

The Chapter 4 of the Final 2004 RTIP discusses in detail the financial capacity analysis of major program areas including discussion of available revenues. Chapter 2 of this report provides updated program summaries. Based upon this analysis, the projects contained within the 2004 RTIP, including the projects in Amendment No. 16, are reasonable when considering available funding sources. Table 1-2 includes the projects proposed for Amendment No. 16.

## **Public Participation**

It is the policy of SANDAG to encourage public participation in the development of agency planning and programming activities. Public involvement consists of participation on various SANDAG working groups, opportunities to comment at SANDAG Board and committee meetings, public notices of document availability and public hearings, and through the SANDAG public communications program. For the 2004 RTIP process, SANDAG solicited the participation from the 17 tribal governments along with the Reservation Transportation Authority in San Diego County. Appendix A of the Final 2004 RTIP describes the SANDAG public participation process.

Table 1-1

**2004 RTIP - SAN DIEGO REGION (IN \$000s)****TRANSPORTATION CONTROL MEASURE PROJECTS**

<b>RIDESHARING</b>	
Transportation Demand Management (TDM)	<u>\$30,865</u>
<i>Subtotal:</i>	<i>\$30,865</i>
<b>TRANSIT IMPROVEMENTS</b>	
Transit - Bus/Rail Infrastructure	\$149,338
Transit - Bus/Rail Intermodal Stations	\$589,357
Transit - Bus/Rail Vehicle Purchase	\$117,106
Transit - I-15 BRT	\$119,156
Transit - Mid-Coast	\$56,822
Transit - Other BRT	\$52,050
Transit - Other Bus/Rail (Operations/Planning)	\$240,301
Transit - Sprinter	<u>\$404,624</u>
<i>Subtotal:</i>	<i>\$1,728,754</i>
<b>BICYCLE FACILITIES PROJECTS</b>	
Bicycle/Pedestrian Projects	<u>\$59,799</u>
<i>Subtotal:</i>	<i>\$59,799</i>
<b>TRAFFIC FLOW IMPROVEMENTS</b>	
Transportation Management System	\$40,264
Traffic Signal Projects	<u>\$40,333</u>
<i>Subtotal:</i>	<i>\$80,597</i>
<b>Total TCMs in 2004 RTIP:</b>	<b>\$1,900,015</b>
Total All Transportation Projects in 2004 RTIP:	\$6,025,607
Share of Transportation Control Measure Projects in 2004 RTIP:	31.5%

**2004 Regional Transportation Improvement Program  
Amendment No. 16  
San Diego Region (in \$000s)**

**Caltrans**

MPO ID: CAL09		Capacity Status: CI						RTIP #: 04-16		
TITLE: Interstate 5 - HOV Managed Lanes										
DESCRIPTION: From San Diego to Oceanside - construct of HOV/Managed Lanes										
CHANGE REASON: Revise project scope, Split project, see CAL09A, CAL09B										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
CBI	\$500		\$500					\$500		
IM	\$4,000	\$4,000						\$4,000		
RSTP	\$9,316	\$3,183	\$2,210	\$3,923				\$9,316		
STIP State Cash	\$321	\$321						\$321		
STIP-RIP NHS	\$2,475	\$2,475						\$2,475		
STP	\$2,000	\$1,236	\$764					\$2,000		
TransNet - MC	\$12,553		\$770	\$9,521	\$2,262			\$12,553		
<b>TOTAL</b>	<b>\$31,165</b>	<b>\$11,215</b>	<b>\$4,244</b>	<b>\$13,444</b>	<b>\$2,262</b>			<b>\$31,165</b>		

MPO ID: CAL09A		Capacity Status: CI						RTIP #: 04-16		
TITLE: I-5 Lomas Santa Fe Interchange/HOV lanes										
DESCRIPTION: Between via de la Valle and San Elijo Lagoon - construct interchange and HOV lane										
CHANGE REASON: New project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
RSTP	\$18,177				\$18,177					\$18,177
TCRP	\$6,000				\$6,000					\$6,000
TransNet - MC	\$32,113			\$3,626	\$28,487			\$3,626		\$28,487
<b>TOTAL</b>	<b>\$56,290</b>			<b>\$3,626</b>	<b>\$52,664</b>			<b>\$3,626</b>		<b>\$52,664</b>

MPO ID: CAL09B		Capacity Status: CI						RTIP #: 04-16		
TITLE: Interstate 5 - Auxiliary Lanes										
DESCRIPTION: Between Via de la Valle and Lomas Santa Fe - construct north and southbound auxiliary lanes										
CHANGE REASON: New project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
SHOPP - State Cash	\$11,520			\$220	\$11,300			\$220		\$11,300
<b>TOTAL</b>	<b>\$11,520</b>			<b>\$220</b>	<b>\$11,300</b>			<b>\$220</b>		<b>\$11,300</b>

**2004 Regional Transportation Improvement Program  
Amendment No. 16  
San Diego Region (in \$000s)**

**Caltrans**

MPO ID: CAL26A		Capacity Status: CI						RTIP #: 04-16		
TITLE: SR 52 HOV/Managed Lanes										
DESCRIPTION: From I-805 to SR 125 - construct HOV/Managed Lanes										
CHANGE REASON: Revise project scope, Split project, see CAL26B, and CAL26C										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
TransNet - MC	\$28,000			\$4,000	\$12,000	\$12,000		\$28,000		
<b>TOTAL</b>	<b>\$28,000</b>			<b>\$4,000</b>	<b>\$12,000</b>	<b>\$12,000</b>		<b>\$28,000</b>		

MPO ID: CAL26B		Capacity Status: CI						RTIP #: 04-16		
TITLE: SR 52 Auxiliary Lanes										
DESCRIPTION: From .2 km east of SR 52/I-15 separation to Mast Blvd. undercrossing - construct east and westbound auxiliary lanes										
CHANGE REASON: New project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
Local Funds	\$1,000			\$750	\$250			\$1,000		
TransNet - MC	\$42,200			\$3,800	\$29,500	\$8,900		\$3,800		\$38,400
<b>TOTAL</b>	<b>\$43,200</b>			<b>\$4,550</b>	<b>\$29,750</b>	<b>\$8,900</b>		<b>\$4,800</b>		<b>\$38,400</b>

MPO ID: CAL26C		Capacity Status: CI						RTIP #: 04-16		
TITLE: SR 52 Truck Lane										
DESCRIPTION: From 2.km west of Santo Road overcrossing to 2.4 km west of Oak Canyon Bridge - extend westbound truck lane										
CHANGE REASON: New project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
SHOPP - State Cash	\$2,000				\$2,000					\$2,000
TransNet - MC	\$6,100			\$900	\$5,200			\$900		\$5,200
<b>TOTAL</b>	<b>\$8,100</b>			<b>\$900</b>	<b>\$7,200</b>			<b>\$900</b>		<b>\$7,200</b>

**2004 Regional Transportation Improvement Program  
Amendment No. 16  
San Diego Region (in \$000s)**

**Caltrans**

MPO ID: CAL38		Capacity Status: CI								
TITLE: SR 905 New Freeway										
DESCRIPTION: I-805 to Otay Mesa border station - construct 6-lane freeway (phase 1) - construct eastbound truck climbing lane from I-805 to east of Caliente Avenue; construct Airway Road between Cactus Road and Britannia Blvd. including the westbound auxiliary lane west of Caliente Avenue, and the eastbound auxiliary lane between Britannia Blvd. and La Media Rd.										
Change Reason: Revise project description; increase funding										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
CBI	\$102,657		\$25,342		\$54,126	\$23,189			\$25,342	\$77,315
DEMO-LU	\$7,200				\$7,200					\$7,200
DEMO-LU AC	\$4,800					\$2,400	\$2,400			\$4,800
DEMO -Sec 115	\$3,000		\$3,000						\$3,000	
DEMO - TEA21	\$40,485		\$40,485						\$40,485	
STIP-IIP Interstate	\$105,044	\$16,695		\$73,314	\$15,035			\$14,920	\$34,974	\$55,150
STIP-RIP NHS	\$22,353			\$22,353					\$11,066	\$11,287
STIP-St Cash	\$29,911	\$2,163		\$12,783	\$14,965			\$1,933	\$5,965	\$22,013
STP	\$1,000		\$1,000						\$1,000	
STP - Sec 117	\$1,000		\$1,000						\$1,000	
TCRP	\$21,000	\$21,000							\$21,000	
State Cash AC	\$0				\$27,989					\$0
<b>TOTAL</b>	<b>\$338,450</b>	<b>\$39,858</b>	<b>\$70,827</b>	<b>\$108,450</b>	<b>\$119,315</b>	<b>\$0</b>	<b>\$0</b>	<b>\$16,853</b>	<b>\$143,832</b>	<b>\$177,765</b>

MPO ID: CAL81		Capacity Status: NCI								
TITLE: SR 54 HOV Restripe										
DESCRIPTION: From I-805 to SR 125 and on SR 125 from SR 54 to SR 94 - restripe HOV lanes										
Change Reason: New Project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
SHOPP Mobility - St Cash	\$265			\$10	\$255			\$10		\$255
<b>TOTAL</b>	<b>\$265</b>	<b>\$0</b>		<b>\$10</b>	<b>\$255</b>			<b>\$10</b>		<b>\$255</b>

**2004 Regional Transportation Improvement Program  
Amendment No. 16  
San Diego Region (in \$000s)**

**Caltrans**

MPO ID: CAL82		Capacity Status: CI					RTIP #: 04-16			
TITLE: HOV bypass to SR 94/SR 125 Connector										
DESCRIPTION: From Grove Street to west of Kenwood Drive - add HOV bypass to minimize SR 94 westbound meter queuing										
CHANGE REASON: New project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
SHOPP - State Cash	\$1,143			\$135	\$1,008			\$135		\$1,008
<b>TOTAL</b>	<b>\$1,143</b>			<b>\$135</b>	<b>\$1,008</b>			<b>\$135</b>		<b>\$1,008</b>

**2004 Regional Transportation Improvement Program  
Amendment No. 16  
San Diego Region (in \$000s)**

**Escondido, City of**

MPO ID: ESC24		Capacity Status: CI						RTIP #: 04-16		
TITLE: Centre City Parkway										
DESCRIPTION: State Route 78 to Mission Avenue. Widen 4 lanes to 6 lanes with intersection improvements on Mission Avenue.										
CHANGE REASON: New project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
Local Funds	\$846	\$846						\$300	\$100	\$446
TransNet - H (78)	\$882				\$882					\$882
<b>TOTAL</b>	<b>\$1,728</b>	<b>\$846</b>			<b>\$882</b>			<b>\$300</b>	<b>\$100</b>	<b>\$1,328</b>

MPO ID: ESC25		Capacity Status: CI						RTIP #: 04-16		
TITLE: Citracado / Nordahl										
DESCRIPTION: Country Club to State Route 78. Widen from 4 lanes to 6 lanes with double left turn lanes and exclusive right turn lanes.										
CHANGE REASON: New project										
	<b>TOTAL</b>	<b>PRIOR</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>PE</b>	<b>RW</b>	<b>CON</b>
Local Funds	\$477	\$477						\$25		\$452
TransNet - H (78)	\$1,272			\$1,272						\$1,272
TransNet - L	\$900		\$200	\$700				\$375	\$200	\$325
<b>TOTAL</b>	<b>\$2,649</b>	<b>\$477</b>	<b>\$200</b>	<b>\$1,972</b>				<b>\$400</b>	<b>\$200</b>	<b>\$2,049</b>

**2004 Regional Transportation Improvement Program  
Amendment No. 16  
San Diego Region (in \$000s)**

**San Dieguito River Valley Regional Open Space Park**

MPO ID: SDRP04	Capacity Status: NCI	RTIP #: 04-16
TITLE: Lake Hodges Bicycle/Pedestrian Bridge	Exempt Category: Air Quality - Bicycle and pedestrian facilities.	
DESCRIPTION: At Lake Hodges just west of I-15 - design and construct bike and pedestrian bridge		
CHANGE REASON: New project		

	TOTAL	PRIOR	04/05	05/06	06/07	07/08	08/09	PE	RW	CON
Local Funds	\$1,500			\$1,500						\$1,500
SHOPP - State Cash	\$344	\$70		\$274				\$70		\$274
SHOPP STP - TE	\$2,656	\$542		\$2,114				\$542		\$2,114
STIP State Cash	\$229			\$229						\$229
STIP-RIP STP TE	\$1,771			\$1,771						\$1,771
TransNet - B	\$500	\$250	\$250							\$500
<b>TOTAL</b>	<b>\$7,000</b>	<b>\$862</b>	<b>\$250</b>	<b>\$5,888</b>				<b>\$612</b>		<b>\$6,388</b>

**2004 Regional Transportation Improvement Program  
Amendment No. 16  
San Diego Region (in \$000s)**

**Various Agencies**

MPO ID: V04	Capacity Status: NCI	RTIP #: 04-16
TITLE: Smart Growth Incentive Program - Lump Sum Exempt Category: Other - Transportation enhancement activities. for Transportation Enhancement Program		
DESCRIPTION: Various locations - enhancement of sidewalks and pedestrian plazas (landscaping, kiosks, trees, lighting, benches), intersection bulb-outs, traffic calming, landscaping and safety enhancements, and enhanced pedestrian amenities around transit stations		
CHANGE REASON: Reduce funding, Transfer \$2M from FY 2006 to SDRP04 project		

	TOTAL	PRIOR	04/05	05/06	06/07	07/08	08/09	PE	RW	CON
STIP State Cash	\$1,754			\$57	\$691	\$490	\$516	\$57		\$1,697
STIP-RIP STP TE	\$13,533			\$436	\$5,335	\$3,778	\$3,984	\$436		\$13,097
<b>TOTAL</b>	<b>\$15,287</b>			<b>\$493</b>	<b>\$6,026</b>	<b>\$4,268</b>	<b>\$4,500</b>	<b>\$493</b>		<b>\$14,794</b>

## **Chapter 2**

### **FINANCIAL CAPACITY ANALYSIS**

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This chapter provides an update to the analysis of the financial capacity of the region's transportation agencies to implement the programmed projects. Financial capacity is measured by a comparison of the total cost of the proposed projects against the available revenues and a test of the reasonableness of the revenue assumptions.

An overview of the program and available revenues by funding sources for all projects are included in Chapter 4 of the Final 2004 RTIP. The assumptions used in the forecasts of available funding are based upon information in the Final 2004 State Transportation Improvement Program (STIP) adopted by the California Transportation Commission (CTC) on August 5, 2004 and any subsequent amendments, forecasts provided by the California Department of Transportation, and other forecasts of ongoing transportation funding programs.

#### **PROGRAM AND REVENUES**

Table 2-1a summarizes the revenue available by major funding source (i.e., federal, state, and local), Table 2-1b summarizes the program to implement the projects, and Table 2-c provides the remaining revenues available for additional programming. Tables 2-1a to 2-1c include all costs and revenues for all projects in the 2004 RTIP including Amendment No. 16.

Due to the requirement that each phase show full funding, SANDAG utilized the Advanced Construction (AC) tool which 'advances' local funds with the anticipation that the 'advanced' funds would be reimbursed once the federal funds become available.

Table 2-1a  
**2004 Regional Transportation Improvement Program (RTIP)**  
**San Diego Region**  
**Revenue Totals (\$000s)**

REVENUE DESCRIPTION	PRIOR	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	TOTAL
<b>State Highway Account Funds(State &amp; State FHWA Funds)</b>							
SHOPP	\$10,895	\$126,171	\$35,400	\$60,546	\$14,276	\$0	\$247,288
STIP	\$593,211	\$34,930	\$151,868	\$88,651	\$62,909	\$116,270	\$1,178,849
<b>Local Assistance</b>							
Congestion Mitigation and Air Quality	\$103,533	\$36,133	\$30,716	\$31,289	\$31,871	\$32,508	\$266,050
Regional Surface Transportation Program	\$202,469	\$29,363	\$33,619	\$33,578	\$37,000	\$37,654	\$373,683
Highway Bridge Replacement and Rehabilitation Program	\$12,824	\$19,006	\$2,137	\$10,645	\$129,727	\$0	\$174,339
Surface Transportation Program Hazard Elimination & Safety	\$2,020	\$633	\$13,304	\$0	\$0	\$0	\$15,957
<b>Other Federal Highway Programs</b>							
Federal Lands Highway Program	\$4,318	\$1,815	\$2,005	\$115	\$0	\$0	\$8,253
NCPD Program/Borders/Corridor Program	\$3,940	\$26,542	\$23,892	\$0	\$0	\$0	\$54,374
Recreational Trails	\$0	\$237	\$164	\$0	\$0	\$142	\$543
Transportation and Community and System Preservation Pilot Program	\$564	\$1,000	\$0	\$0	\$0	\$0	\$1,564
Highway Priority/Demonstration Projects	\$3,925	\$48,725	\$12,398	\$15,339	\$14,224	\$11,912	\$106,523
Congressionally Directed STP	\$1,981	\$7,364	\$2,500	\$3,500	\$0	\$0	\$15,345
Other (IM/ITS/AMTRAK/HUD/IBRC/VP)	\$7,245	\$4,185	\$2,733	\$518	\$0	\$0	\$14,681
<b>Federal Transit Administration Funds</b>							
5307 - Urbanized Area Formula Program	\$69,848	\$31,035	\$53,159	\$50,215	\$51,420	\$52,654	\$308,331
5309(a) - Fixed Guideway Modernization	\$19,919	\$8,646	\$16,646	\$12,801	\$13,108	\$13,142	\$84,262
5309(b) - New Starts	\$283,178	\$129,219	\$75,564	\$7,018	\$0	\$0	\$494,979
5309(c) - Bus Allocation	\$17,795	\$4,402	\$6,246	\$0	\$0	\$0	\$28,443
5310 - Elderly & Persons with Disabilities Formula Program	\$3,595	\$927	\$0	\$0	\$0	\$0	\$4,522
5311 - Nonurbanized Area Formula Program	\$277	\$240	\$265	\$255	\$255	\$0	\$1,292
<b>Other State Funds</b>							
Traffic Congestion Relief Program	\$171,239	\$0	\$139,590	\$14,700	\$75,800	\$0	\$401,329
FSP	\$8,826	\$2,175	\$2,225	\$2,102	\$2,102	\$2,102	\$19,532
Other (PTA/TCI/TSM/TDA)	\$26,099	\$2,662	\$2,346	\$175	\$0	\$0	\$31,282
<b>Local Funds</b>							
TransNet*	\$342,939	\$157,377	\$292,392	\$438,468	\$220,150	\$291,570	\$1,742,896
Local Funds	\$478,337	\$136,443	\$208,873	\$137,739	\$135,863	\$33,933	\$1,131,188
<b>Total Revenues Available</b>	<b>\$2,368,977</b>	<b>\$809,230</b>	<b>\$1,108,042</b>	<b>\$907,654</b>	<b>\$788,705</b>	<b>\$591,887</b>	<b>\$6,705,505</b>

Table 2-1b  
**2004 Regional Transportation Improvement Program (RTIP)**  
**San Diego Region**  
**Program Totals (\$000s)**

PROGRAM DESCRIPTION	PRIOR	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	TOTAL
<b>State Highway Account Funds(State &amp; State FHWA Funds)</b>							
SHOPP	\$10,895	\$126,171	\$35,400	\$60,546	\$14,276	\$0	\$247,288
STIP	\$593,211	\$34,930	\$151,582	\$87,960	\$62,419	\$115,754	\$1,176,866
<b>Local Assistance</b>							
Congestion Mitigation and Air Quality	\$103,533	\$36,133	\$30,716	\$25,795	\$28,622	\$28,577	\$253,376
Regional Surface Transportation Program	\$202,469	\$29,363	\$33,619	\$29,475	\$31,671	\$32,083	\$358,680
Highway Bridge Replacement and Rehabilitation Program	\$12,824	\$19,006	\$2,137	\$10,645	\$129,727	\$0	\$174,339
Surface Transportation Program Hazard Elimination & Safety	\$2,020	\$633	\$13,304	\$0	\$0	\$0	\$15,957
<b>Other Federal Highway Programs</b>							
Federal Lands Highway Program	\$4,318	\$1,815	\$2,005	\$115	\$0	\$0	\$8,253
NCPD Program/Borders/Corridor Program	\$3,940	\$26,542	\$23,892	\$0	\$0	\$0	\$54,374
Recreational Trails	\$0	\$237	\$164	\$0	\$0	\$142	\$543
Transportation and Community and System Preservation Pilot Program	\$564	\$1,000	\$0	\$0	\$0	\$0	\$1,564
Highway Priority/Demonstration Projects	\$3,925	\$48,725	\$12,398	\$15,339	\$14,224	\$11,912	\$106,523
Congressionally Directed STP	\$1,981	\$7,364	\$2,500	\$3,500	\$0	\$0	\$15,345
Other (IM/ITS/AMTRAK/HUD/IBRC/VP)	\$7,245	\$4,185	\$2,733	\$518	\$0	\$0	\$14,681
<b>Federal Transit Administration Funds</b>							
5307 - Urbanized Area Formula Program	\$69,848	\$31,035	\$53,159	\$13,378	\$14,712	\$1,214	\$183,346
5309(a) - Fixed Guideway Modernization	\$19,919	\$8,646	\$16,646	\$3,940	\$3,940	\$0	\$53,091
5309(b) - New Starts	\$283,178	\$129,219	\$75,564	\$7,018	\$0	\$0	\$494,979
5309(c) - Bus Allocation	\$17,795	\$4,402	\$6,246	\$0	\$0	\$0	\$28,443
5310 - Elderly & Persons with Disabilities Formula Program	\$3,595	\$927	\$0	\$0	\$0	\$0	\$4,522
5311 - Nonurbanized Area Formula Program	\$277	\$240	\$265	\$255	\$255	\$0	\$1,292
<b>Other State Funds</b>							
Traffic Congestion Relief Program	\$171,239	\$0	\$139,590	\$14,700	\$75,800	\$0	\$401,329
FSP	\$8,826	\$2,175	\$2,225	\$2,102	\$2,102	\$2,102	\$19,532
Other (PTA/TCI/TSM/TDA)	\$26,099	\$2,662	\$2,346	\$175	\$0	\$0	\$31,282
<b>Local Funds</b>							
TransNet*	\$342,939	\$157,377	\$292,392	\$438,468	\$220,150	\$11,727	\$1,463,053
TransNet AC				\$0		\$0	
Local Funds	\$478,337	\$136,443	\$208,873	\$137,739	\$135,863	\$33,933	\$1,131,188
Local Funds AC					\$0	\$0	
<b>Total Program</b>	<b>\$2,368,977</b>	<b>\$809,230</b>	<b>\$1,104,756</b>	<b>\$846,868</b>	<b>\$522,522</b>	<b>\$237,444</b>	<b>\$6,025,607</b>

Table 2-1c  
**2004 Regional Transportation Improvement Program (RTIP)**  
**San Diego Region**  
**Program Capacity (\$000s)**

PROGRAM DESCRIPTION	PRIOR	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	TOTAL
<b>State Highway Account Funds(State &amp; State FHWA Funds)</b>							
SHOPP	\$0	\$0	\$0	\$0	\$0	\$0	\$0
STIP	\$0	\$0	\$286	\$691	\$490	\$516	\$1,983
<b>Local Assistance</b>							
Congestion Mitigation and Air Quality	\$0	\$0	\$0	\$5,494	\$3,249	\$3,931	\$12,674
Regional Surface Transportation Program	\$0	\$0	\$0	\$4,103	\$5,329	\$5,571	\$15,003
Highway Bridge Replacement and Rehabilitation Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Surface Transportation Program Hazard Elimination & Safety	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Other Federal Highway Programs</b>							
Federal Lands Highway Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
NCPD Program/Borders/Corridor Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Recreational Trails	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transportation and Community and System Preservation Pilot Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Highway Priority/Demonstration Projects	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Congressionally Directed STP	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other (IM/ITS/AMTRAK/HUD/IBRC/VP)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Federal Transit Administration Funds</b>							
5307 - Urbanized Area Formula Program	\$0	\$0	\$0	\$36,837	\$36,708	\$51,440	\$124,985
5309(a) - Fixed Guideway Modernization	\$0	\$0	\$0	\$8,861	\$9,168	\$13,142	\$31,171
5309(b) - New Starts	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5309(c) - Bus Allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5310 - Elderly & Persons with Disabilities Formula Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5311 - Nonurbanized Area Formula Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Other State Funds</b>							
Traffic Congestion Relief Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FSP	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other (PTA/TCI/TSM/TDA)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Local Funds</b>							
TransNet	\$0	\$0	\$0	\$0	\$0	\$279,843	\$279,843
Other Local/Private	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Program Balance</b>	<b>\$0</b>	<b>\$0</b>	<b>\$286</b>	<b>\$55,986</b>	<b>\$54,944</b>	<b>\$354,443</b>	<b>\$465,659</b>

## Chapter 3

### AIR QUALITY CONFORMITY ANALYSIS

---

The U.S. Environmental Protection Agency (EPA) designated the San Diego air basin as non-attainment for the federal 8-Hour Ozone standard. This designation took effect on June 15, 2004. The air basin has been classified as a basic nonattainment area under Subpart 1 of the Clean Air Act and the attainment date for the 8-Hour Ozone standard is June 15, 2009. Several areas that are tribal lands in eastern San Diego County were excluded from the non-attainment designation. In cooperation with the San Diego Air Pollution Control District (APCD) and SANDAG, the California Air Resources Board (ARB) must develop an 8-Hour Ozone Attainment Plan for submission to the U.S. EPA by June 15, 2007.

The *Final Transportation Conformity Rule Amendments for the New 8-Hour Ozone and PM<sub>2.5</sub> National Ambient Air Quality Standards* of July 2004 require that conformity of the RTP and the RTIP for non-attainment areas be determined to the 8-Hour ozone standard by June 15, 2005. The SANDAG Board of Directors made a finding of conformity of the 2030 RTP and 2004 RTIP, as amended, on April 22, 2005. The U.S. DOT issued its conformity finding on May 20, 2005.

Also, the U.S. EPA designated the San Diego region as a federal maintenance area for the Carbon Monoxide (CO) standard. On January 30, 2006, the U.S. EPA approved the *2004 Revision to the California State Implementation Plan for Carbon Monoxide* or CO Maintenance Plan as a SIP revision.

#### DEVELOPMENT OF TRANSPORTATION CONTROL MEASURES

In 1982, SANDAG adopted four transportation tactics (T-tactics) as elements of the 1982 Revised Regional Air Quality Strategy (RAQS). These T-tactics are ridesharing, transit improvements, traffic flow improvements, and bicycle facilities and programs.

These four T-tactics were subsequently approved by the San Diego Air Pollution Control Board (APCB) and are the TCMs in the 1982 SIP for Air Quality. The U.S. EPA approved this SIP revision for the San Diego Air Basin in 1983, and these four T-tactics remain the federally approved Transportation Control Measures (TCMs) for the San Diego region.

The California Clean Air Act required the preparation of a 1991 RAQS, including TCMs. During 1991 and 1992, SANDAG, in cooperation with local agencies, transit agencies, and the APCD developed a Transportation Control Measures (TCM) Plan. SANDAG approved the TCM Plan on March 27, 1992.

On June 30, 1992, the APCD amended the TCM Plan and adopted the 1991 RAQS, including the amended TCM Plan. TCMs included in the 1991 RAQS include the four T-tactics described above, as well as a transportation demand management (TDM) program, vanpools, high occupancy vehicle

(HOV) lanes, and park-and-ride facilities. On November 12, 1992, ARB gave approval to the 1991 RAQS, including the TCMs.

The 1995 Triennial RAQS Update subsequently deleted the Employee Commute Travel Reduction Program contained in the TDM program because the program was no longer required under federal law. Assembly Bill 3048 (Statutes of 1996, Chapter 777) eliminated all state requirements for mandatory trip reduction programs. As a result, the Student Travel Reduction Program, the Non-Commute Travel Reduction Program, and the Goods Movement/Truck Operation Program proposed in the 1991 RAQS were no longer statutorily mandated and were deleted from the RAQS in 1998. Neither the 2001 nor the 2004 Triennial RAQS Revisions made changes to measures related to mobile sources or the TCM Plan.

## **AIR QUALITY CONFORMITY REQUIREMENTS**

SANDAG, as the Metropolitan Planning Organization (MPO), and the U.S. Department of Transportation (DOT), must make a determination that the 2004 RTIP conforms to the applicable SIP. Conformity to the SIP means that transportation activities will not create new air quality violations, worsen existing violations, or delay the attainment of the National Ambient Air Quality Standards (NAAQS).

Based upon the U.S. EPA's Transportation Conformity Rule, as amended, conformity of transportation plans and programs, including the 2004 RTIP Amendment No. 16, is determined according to the 1990 Clean Air Act Amendments (CAAA) [Section 176(c)(3)(A)] if the following is demonstrated:

1. The RTIP provides for the timely implementation of the TCMs contained in the adopted SIP.

A quantitative analysis is conducted on the cumulative emissions of projects programmed within the RTIP, including all regionally significant, capacity-increasing projects. Further, implementation of the projects and programs must meet the motor vehicle emissions budget developed by local and state air quality agencies and approved by the U.S. EPA. The 2004 RTIP must meet the interim regional emissions analysis prescribed in the *Final Transportation Conformity Rule Amendments for the New 8-Hour Ozone and PM<sub>2.5</sub> National Ambient Air Quality Standards* of July 2004. Also, the RTIP must meet the CO emissions budget established in the CO Maintenance Plan (approved by the U.S. EPA in January 2006). In addition to the required emissions tests, consultation with transportation and air quality agencies is required. The consultation process followed to prepare the air quality conformity analysis complies with the San Diego Transportation Conformity Procedures adopted in July 1998.

Interagency consultation involves SANDAG, the APCD, Caltrans, ARB, the U.S. DOT, and the U.S. EPA, which form the San Diego Region CWG.

Consultation is a three-tier process that:

1. formulates and reviews drafts through a conformity working group;
2. provides local agencies and the public with opportunities for input through existing regional advisory committees and workshops; and

3. seeks comments from affected federal and state agencies through participation in the development of draft documents and circulation of supporting materials prior to formal adoption.

SANDAG consulted with the San Diego Region CWG for the preparation of the new air quality analysis of the 2004 RTIP Amendment No. 16. Conformity of the 2030 Revenue Constrained RTP: 2006 Update will also be redetermined for consistency purposes.

The schedule for the development of the 2004 RTIP Amendment No. 16, as well as criteria and procedures for determining conformity of this amendment were presented at the CWG meeting on March 15, 2006. SANDAG also followed interagency consultation procedures for exempt projects.

The quantitative emissions analyses for the 2004 RTIP Amendment No. 16 were initiated on March 15, 2006 and the results distributed on March 24, 2006 for a 30-day public review and comment period. Exempt projects are identified in the list of projects amended into the RTIP. The San Diego Region CWG is scheduled to review the draft air quality conformity assessment at its April 19, 2006 meeting. The results of the draft regional emissions analysis indicate that the 2004 RTIP, including Amendment No. 16, meets the air quality conformity requirements.

On April 21, 2006, SANDAG's Transportation Committee will be asked to authorize distribution of the Draft 2004 RTIP Amendment No. 16 for public review and comment. This Committee will be asked to make a conformity finding and approve Amendment No. 16 of the 2004 RTIP on May 19, 2006.

The following sections provide a summary of the air quality conformity analysis of the 2004 RTIP Amendment No. 16 in relation to the above conformity requirements. Appendix B provides additional information related to regional emissions analysis and modeling procedures and expeditious Implementation of TCMs

The first requirement of the air quality conformity finding is to provide for the expeditious implementation of adopted TCMs, or T-tactics. There are four TCMs that must be implemented in San Diego, which the SIP refers to as Transportation Tactics. They include ridesharing, transit service improvements, traffic flow improvements, and bicycle facilities and programs.

The 1982 SIP established the TCMs, which identified general objectives and implementing actions for each tactic. Due to substantial investments since 1982, SANDAG has fully implemented the TCMs. Ridesharing, transit, bicycling, and traffic flow improvements continue to be funded, although the level of implementation established in the SIP has been surpassed. No TCMs have been removed or substituted from the SIP.

The 2004 RTIP, including Amendment No. 16, makes substantial progress in programming funds for implementation of the four adopted TCMs for the San Diego region contained in the 1982 SIP. Table 3-1 shows that TCMs programmed for implementation total approximately \$1.9 billion, or 3034 percent of the total funds programmed. Included are \$30.8 million for Ridesharing, \$1.7 billion for Transit Improvements, \$60 million for Bicycle Facilities and Programs, and \$80.6 million for Traffic Flow Improvements.

Based upon this analysis, the 2004 RTIP Amendment No. 16 continues to provide for the expeditious implementation of the four existing TCMs in the 1982 Revised RAQS, which remain the federally approved TCMs for the San Diego region.

Table 3-1

**2004 RTIP - SAN DIEGO REGION (IN \$000s)****TRANSPORTATION CONTROL MEASURE PROJECTS**

<b>RIDESHARING</b>	
Transportation Demand Management (TDM)	<u>\$30,865</u>
<i>Subtotal:</i>	<i>\$30,865</i>
<b>TRANSIT IMPROVEMENTS</b>	
Transit - Bus/Rail Infrastructure	\$149,338
Transit - Bus/Rail Intermodal Stations	\$589,357
Transit - Bus/Rail Vehicle Purchase	\$117,106
Transit - I-15 BRT	\$119,156
Transit - Mid-Coast	\$56,822
Transit - Other BRT	\$52,050
Transit - Other Bus/Rail (Operations/Planning)	\$240,301
Transit - Sprinter	<u>\$404,624</u>
<i>Subtotal:</i>	<i>\$1,728,754</i>
<b>BICYCLE FACILITIES PROJECTS</b>	
Bicycle/Pedestrian Projects	<u>\$59,799</u>
<i>Subtotal:</i>	<i>\$59,799</i>
<b>TRAFFIC FLOW IMPROVEMENTS</b>	
Transportation Management System/Intelligent Transportation System	\$40,264
Traffic Signal Projects	<u>\$40,333</u>
<i>Subtotal:</i>	<i>\$80,597</i>
<b>Total TCMs in 2004 RTIP:</b>	<b>\$1,900,015</b>
Total All Transportation Projects in 2004 RTIP:	\$6,025,607
Share of Transportation Control Measure Projects in 2004 RTIP:	31.5%

## **QUANTITATIVE EMISSIONS ANALYSIS**

The second requirement of the conformity finding is to conduct a quantitative emissions analysis on the proposed RTIP amendment. The emissions analysis must show that implementation of the 2004 RTIP, including Amendment No. 16, meets the emissions budget established in the 2004 CO Maintenance Plan and the interim emissions analysis for the 8-Hour Ozone standard prescribed by the July 2004 Transportation Conformity Rule Amendments.

A quantitative emissions analysis was conducted according to the requirements established in the Transportation Conformity Rule, under Section 93.122(b). Motor vehicle emissions forecasts were produced for the following analysis years: 2002, 2009, 2010, 2014, 2020, and 2030.

SANDAG's regional growth forecasts and transportation models, as well as ARB's emissions model, were used to generate the emissions forecasts. Transportation forecasts were developed using the TransCAD transportation planning computer package. The four-step transportation modeling process includes trip generation, trip distribution, mode split, and trip assignment. The quantitative emissions analysis was conducted with the EMFAC 2002 model.

All of the proposed capacity-increasing improvements identified in the 2004 RTIP Amendment No. 16 that are on the Regional Arterial System (as defined in the RTP) or the FHWA functional classification system (other Principal Arterials and higher classifications) were modeled.

### **Emissions Budget Analysis**

Tables 3-2 and 3-3, on the following page, provide a summary of the results of the quantitative emissions analysis conducted for the 2004 RTIP Amendment No. 16.

The analysis shown in Table 3-2 demonstrates that the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update (including interim years) meets the applicable budgets and interim tests for the 8-Hour Ozone standard. Projected ROG and NO<sub>x</sub> emissions for 2009 are lower than the base year 2002 and those for 2010, 2014, 2020, and 2030 are below the SIP budgets for 2010 and 2014.

Table 3-3 shows that projected CO emissions from the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update is below the 2003 CO budget of 730 tons per day.

**Table 3.2—2004 RTIP AMENDMENT No. 16 & 2030 REVENUE CONSTRAINED RTP: 2006 UPDATE**  
**Air Quality Conformity Analysis for 8-Hour Ozone**

Year	Average Weekday Vehicle Starts (1,000s)	Average Weekday Vehicle Miles (1,000s)	ROG		NOx	
			SIP Emissions Budget Tons/Day	ROG Emissions Tons/Day	SIP Emissions Budget Tons/Day	NOx Emissions Tons/Day
2002	13,311	79,231	---	73	---	133
2009	14,130	87,063	---	43	---	86
2010	14,265	87,857	46	40	88	79
2014	14,837	91,762	36	31	66	57
2020	15,571	97,037	36	24	66	38
2030	17,116	107,154	36	17	66	22

Note: Emissions budgets from *San Diego Region 1-Hour Ozone Maintenance Plan* (Approved as SIP revision in July 2003).

**Table 3.3—2004 RTIP AMENDMENT No. 16 & 2030 REVENUE CONSTRAINED RTP: 2006 UPDATE**  
**Air Quality Conformity Analysis for Carbon Monoxide**

Year	Average Weekday Vehicle Starts (1,000s)	Average Weekday Vehicle Miles (1,000s)	CO	
			SIP Emissions Budget Tons/Day	CO Emissions Tons/Day
2010	14,265	87,857	730	425
2018	15,310	95,201	730	256
2020	15,571	97,037	730	214
2030	17,116	107,154	730	136

Note: Emissions budgets for the San Diego region from *2004 Revision to California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas* (Approved as SIP revision in January 2006).

**CONCLUSION**

Based upon an evaluation of projects and funds programmed and a quantitative emissions analysis, the 2004 RTIP Amendment No. 16 meets the U.S. EPA transportation conformity regulations contained within the federal guidelines published on August 15, 1997, and subsequent amendments, as well as the requirements of the federal Clean Air Act amendments of 1990.

## **APPENDICES**

## APPENDIX A

### PROJECTS EXEMPT FROM AIR QUALITY CONFORMITY DETERMINATION\*

<b>SAFETY</b>	
<ul style="list-style-type: none"> <li>- Railroad/highway crossing.</li> <li>- Safer non-Federal-aid systems roads.</li> <li>- Increasing sight distance.</li> <li>- Traffic control devices and operating assistance other than signalization projects.</li> <li>- Pavement resurfacing and/or rehabilitation.</li> <li>- Emergency relief (23 U.S.C. 125).</li> <li>- Skid treatments.</li> <li>- Adding medians.</li> <li>- Lighting improvements.</li> <li>- Emergency truck pullovers.</li> </ul>	<ul style="list-style-type: none"> <li>- Hazard elimination program.</li> <li>- Shoulder improvements.</li> <li>- Safety Improvement program.</li> <li>- Railroad/highway crossing warning devices.</li> <li>- Guardrails, median barriers, crash cushions.</li> <li>- Pavement marking demonstration.</li> <li>- Fencing.</li> <li>- Safety roadside rest areas.</li> <li>- Truck climbing lanes outside the urbanized area.</li> <li>- Widening narrow pavements or reconstructing bridges (no additional travel lanes).</li> </ul>
<b>MASS TRANSIT</b>	
<ul style="list-style-type: none"> <li>- Operating assistance to transit agencies.</li> <li>- Rehabilitation of transit vehicles.</li> <li>- Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.).</li> <li>- Construction of small passenger shelters and information kiosks.</li> <li>- Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way.</li> <li>- Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of fleet.</li> </ul>	<ul style="list-style-type: none"> <li>- Purchase of support vehicles.</li> <li>- Purchase of office, shop, and operating equipment for existing facilities.</li> <li>- Construction or renovation of power, signal, and communications systems.</li> <li>- Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).</li> <li>- Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR part 771.</li> </ul>
<b>AIR QUALITY</b>	
<ul style="list-style-type: none"> <li>- Continuation of ride-sharing and van-pooling promotion activities at current levels.</li> </ul>	<ul style="list-style-type: none"> <li>- Bicycle and pedestrian facilities.</li> </ul>
<b>OTHER</b>	
<ul style="list-style-type: none"> <li>- Specific activities which do not involve or directly lead to construction, such as:                             <ul style="list-style-type: none"> <li>Planning and technical studies.</li> <li>Grants for training and research programs.</li> <li>Planning activities conducted pursuant to titles 23 and 49 U.S.C.</li> <li>Federal-aid systems revisions.</li> </ul> </li> <li>- Sign removal.</li> <li>- Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities).</li> </ul>	<ul style="list-style-type: none"> <li>- Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.</li> <li>- Noise attenuation.</li> <li>- Emergency or hardship advance land acquisitions (23 CFR 710.204(d)).</li> <li>- Acquisition of scenic easements.</li> <li>- Plantings, landscaping, etc.</li> <li>- Directional and informational signs.</li> <li>- Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational or capacity changes.</li> </ul>
<b>ALL PROJECTS</b>	
<ul style="list-style-type: none"> <li>- Intersection channelization projects.</li> <li>- Interchange reconfiguration projects.</li> <li>- Truck size and weight inspection stations.</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection signalization projects at individual intersections.</li> <li>- Changes in vertical and horizontal alignment.</li> <li>- Bus terminal and transfer points.</li> </ul>

\*Source: Part II Environmental Protection Agency 40 CFR Parts 51 & 93 Transportation Conformity Rule, as amended, July 1, 2004.

# **APPENDIX B**

## **TRANSPORTATION CONFORMITY: REGIONAL EMISSIONS ANALYSIS AND MODELING PROCEDURES**

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### **BACKGROUND**

The federal Clean Air Act (CAA), last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. California has adopted state air quality standards that are more stringent than the NAAQS. Areas with levels that exceed the standard for specified pollutants are designated as nonattainment areas.

The U.S. EPA requires that each state containing nonattainment areas develop plans to attain the NAAQS by a specified attainment deadline. These attainment plans are called State Implementation Plans. The San Diego County Air Pollution Control District (APCD) prepares the San Diego portion of the California State Implementation Plan (SIP). Once the standards are attained, further plans—called Maintenance Plans—are required to demonstrate continued maintenance of the NAAQS.

SANDAG and the U.S. Department of Transportation (DOT) must make a determination that the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP) conform to the SIP for air quality. Conformity to the SIP means that transportation activities will not create new air quality violations, worsen existing violations, or delay the attainment of the national ambient air quality standards.

On February 24, 2006, the SANDAG Board of Directors made a finding of conformity of the 2030 Revenue Constrained RTP: 2006 Update and adopted the RTP. The U.S. DOT made its conformity determination on March 29, 2006.

The 2004 RTIP was found in conformity with the SIP by the SANDAG Board of Directors and by the U.S. DOT on July 23, 2004, and on October 4, 2004, respectively. Several amendments to the 2004 RTIP have been processed since then. The current conformity analysis is being prepared for Amendment No. 16. To ensure consistency of the long-range transportation plan and the improvement program, conformity of the 2030 Revenue Constrained RTP: 2006 Update will be redetermined simultaneously.

The U.S. EPA designated the San Diego air basin as nonattainment for the federal 8-Hour Ozone standard. This designation took effect on June 15, 2004. The air basin has been classified as a basic nonattainment area under Subpart 1 of the Clean Air Act and the attainment date for the 8-Hour Ozone standard is June 15, 2009. Several areas that are tribal lands in eastern San Diego County were excluded from the nonattainment designation. As shown in Figure B.1 on page B-14, La Posta Areas #1 and #2, Cuyapaibe, Manzanita, and Campo Areas #1 and #2 are attainment areas for the 8-Hour Ozone NAAQS. In cooperation with the San Diego APCD and SANDAG, the California Air Resources Board (ARB) must develop an 8-Hour Ozone Attainment Plan for submission to the U.S. EPA by June 15, 2007.

The *Final Transportation Conformity Rule Amendments for the New 8-Hour Ozone and PM2.5 National Ambient Air Quality Standards* of July 2004 require that conformity of the RTP and the RTIP for nonattainment areas be determined to the 8-Hour ozone standard by June 15, 2005. The SANDAG Board of Directors made a finding of conformity of the 2030 RTP and 2004 RTIP, as amended, on April 22, 2005. The U.S. DOT issued its conformity finding on May 20, 2005.

The San Diego region attained the federal 1-Hour ozone standard in 2001. The U.S. EPA redesignated the San Diego air basin as attainment/maintenance and approved the 1-Hour Ozone Maintenance Plan as a SIP revision, effective on July 28, 2003. On June 15, 2005, the U.S. EPA revoked the federal 1-Hour ozone standard.

The U.S. EPA also designated the San Diego region as a federal maintenance area for the Carbon Monoxide (CO) standard. On January 30, 2006, the U.S. EPA approved the *2004 Revision to the California State Implementation Plan for Carbon Monoxide* or CO Maintenance Plan as a SIP revision. The new CO motor vehicle emissions budgets are the applicable budgets for transportation conformity.

## **TRANSPORTATION CONFORMITY: REGIONAL EMISSIONS ANALYSIS AND MODELING PROCEDURES**

### **Introduction**

SANDAG is conducting a new regional air quality emissions analysis for Amendment No. 16 of the 2004 RTIP. Conformity of the 2030 Revenue Constrained RTP: 2006 Update will be redetermined also for consistency purposes. The table in Chapter 3 includes the projects proposed for inclusion in the 2004 RTIP Amendment No. 16.

### **Growth Forecasts**

Every three to five years, SANDAG produces a long-range forecast of population, housing, and employment growth for the San Diego region. The most recent is the Final 2030 Regional Growth Forecast, which was accepted by the SANDAG Board of Directors on December 19, 2003, for use in planning studies.

The forecast process relies on three integrated forecasting models. First is the Demographic and Economic Forecasting Model (DEFM), which provides a detailed econometric and demographic forecast for the entire region. Second is the Interregional Commuting Model, which provides a forecast of commuting between the San Diego region, southwest Riverside County, and Tijuana/Northern Baja California. Third, the Urban Development Model, allocates the results of the first two models to subregional areas based upon the current plans and policies of the jurisdictions.

The Final 2030 Regional Growth Forecast is based solely on the adopted general plans and community plans and policies of the 18 cities. For the unincorporated area, the forecast is based on the most recent (December 2002) version of the County's GP2020 plan update, as directed by the County Board of Supervisors.

In March 2006, SANDAG consulted with the San Diego Region Conformity Working Group (CWG) on the use of the Final 2030 Regional Growth Forecast for the air quality conformity analysis of Amendment No. 16 of the 2004 RTIP and conformity redetermination of the 2030 Revenue Constrained RTP 2006 Update. Previously, both U.S. DOT and U.S. EPA concurred that approved plans should be used as input in the air quality conformity process. Table B.1 shows the regional population and employment growth forecast for the San Diego region through 2030.

**TABLE B.1—SAN DIEGO REGIONAL POPULATION AND EMPLOYMENT FORECAST**

Final 2030 Regional Growth Forecast		
Year	Total Population	Total Employment
2000	2,813,833	1,384,676
2010	3,211,721	1,528,522
2020	3,528,605	1,672,883
2030	3,855,085	1,824,030

Source: SANDAG, December 2003

## Transportation Modeling

SANDAG follows a widely used four-step transportation modeling process of trip generation, trip distribution, mode choice, and assignment to forecast travel activity in the San Diego region. After trip generation, several iterations through the trip distribution, mode choice, and assignment steps are made to bring travel demand into equilibrium with supply. Finally, travel model results are combined with additional input and output functions to form the complete modeling chain. Travel forecasting procedures are described in more detail in SANDAG's *Final 2030 Forecast Process and Model Documentation* (April 2004) and the *Addendum to Transportation Model Documentation* (June 2005).

The estimates of regional transportation-related emissions analysis meet the requirements established in the Transportation Conformity Rule, Sections 93.122(b) and 93.122(c). These requirements relate to the procedures to determine regional transportation-related emissions, including the use of network-based travel models, methods to estimate traffic speeds and delays, and the estimation of vehicle miles of travel.

TransCAD is the transportation planning computer package used by SANDAG to provide a framework for performing much of the computer processing involved with modeling. Another software package used extensively in the modeling process is ArcInfo. This geographic information system (GIS) maintains, manipulates, and displays transportation, land use, and demographic data. SANDAG has written numerous programs that provide a linkage between TransCAD and ArcInfo. Other programs manipulate data and perform some modeling functions such as trip generation and mode choice.

A number of data files and surveys are used to calibrate the transportation models. These include:

- 1995 Travel Behavior Survey
- 2001 Caltrans Statewide Travel Survey
- 2001-2003 San Diego Regional Transit Survey
- External Trip Surveys
- Traffic Generation Studies
- 1991 San Diego Visitor Survey
- 2000 Census Transportation Planning Package

In addition to model parameters derived from these surveys, there are three major inputs to the transportation models:

- growth forecast inputs used to describe existing and planned land use patterns and demographic characteristics
- highway networks used to describe existing roadway facilities and planned improvements to the roadway system
- transit networks used to describe existing and planned public transit service

## **Highway Networks**

The regional highway networks in Amendment No. 16 of the 2004 RTIP and the 2030 Revenue Constrained RTP: 2006 Update include all roads classified by local jurisdictions in their General Plan circulation elements. These roads include freeways, expressways, and the Regional Arterial System (RAS). The RAS consists of all conventional state highways, prime arterials, and selected major streets. In addition, some local streets are included in the networks for connectivity between zones.

The route improvements and additions in the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update provides adequate travel service that is compatible with adopted regional policies for land use and population growth. All regionally significant projects are included in the quantitative emissions analysis. These include all state highways, all proposed National Highway System routes, all regionally significant arterials, and all FHWA functionally classified "Other Principal Arterials."

The networks also account for programs intended to improve the operation of the highway system, including high-occupancy-vehicle (HOV) lanes and ramp metering. Existing and proposed toll facilities also are modeled to reflect time, cost, and capacity effects of these facilities. The SR 125 South project and SR 241 are the only modeled toll facilities in the San Diego region.

In addition, several managed/HOV lanes are included in the Revenue Constrained Plan. Facilities with proposed managed lanes include I-5, I-15, I-805, and SR 52. Managed lanes are defined as reversible HOV routes and HOV routes with two or more lanes in the peak direction. It is assumed that the excess capacity not utilized by carpools and transit on these facilities would be managed so that single occupant vehicles could use these lanes under a pricing mechanism. Traffic flows would be managed so that the facility would operate at level of service C or better.

Based on the networks and programs described above, the transportation forecasts of the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update differentiate between

four highway modes: drive alone/non-toll, drive alone/toll, shared-ride/HOV, and shared-ride/non-HOV.

SANDAG normally maintains networks for 2000 (the 2030 Regional Growth Forecast base year) and the years 2010, 2020, and 2030. A 2014 network also was created to conduct air quality conformity analyses for the 2004 RTIP Amendment No. 16 and conformity redetermination of the 2030 Revenue Constrained RTP: 2006 Update to the 2014 1-Hour ozone emissions budgets. Additionally, a base year 2002 network and a 2009 network were created to conduct the interim emissions test for the 8-Hour ozone standard attainment year.

## **Transit Networks**

SANDAG also maintains transit network datasets for existing and proposed transit systems. Most transit routes run over the same streets, freeways, HOV lanes and ramps used in the highway networks. As a result the only additional facilities that are added to the transportation coverage for transit modeling purposes are:

- trolley and commuter rail lines
- streets used by buses that are not part of local general plan circulation elements

There are seven transit modes, which group routes with similar operating characteristics: commuter rail, trolley, regional bus rapid transit (BRT), corridor BRT, limited express bus, express bus, and local bus. Regional and corridor BRT modes were recently added to represent a new type of transit service proposed in the 2030 RTP. BRT service would have stations and operating characteristics similar to commuter rail and trolleys, but service would be provided by advanced design buses operating on HOV lanes, some grade-separated transit ways, and surface streets. Once TransCAD transit networks have been built, TransCAD finds minimum time paths between transit access points (TAPs). TAPs are selected transit stops that are used to represent walk and auto access to the transit system. The following four sets of paths are created for modes:

- AM peak period local bus
- AM peak period premium service
- Mid-day local bus
- Mid-day premium service

Bus speeds assumed in the transit networks are derived from modeled highway speeds and reflect the effects of congestion. Regional and express transit routes on surface streets are assumed to operate out of congestion due to priority transit treatments. Higher bus speeds may result for transit vehicles operating on highways with HOV lanes and HOV bypass lanes at ramp meters, compared to those routes that operate on highways where these facilities do not exist.

In addition to transit travel times, transit fares are required as input to the mode choice model. TransCAD procedures replicate the San Diego region's complicated fare policies that differ between:

- buses which collect a flat fare of between \$1.75 and \$4.00 depending on the type of service;
- trolleys which charge a variable fare of between \$1.25 and \$3.00 depending on how many stations are traversed;
- commuter rail which has a zone-based fare of between \$3.50 and \$4.75;
- proposed regional BRT routes which are assumed to charge a distance based fare of between \$0.14 and \$0.60 per mile that replicates limited express and commuter rail fares; and
- proposed corridor BRT routes which are assumed to use trolley station-based fares.

Fares are expressed in 2004 dollars and assumed to remain constant in inflation-adjusted dollars over the forecast period.

Near-term transit route changes are drawn from the Regional Short-Range Transit Plan produced in cooperation with the region's transit agencies. Longer-range improvements are proposed as a part of the RTP development and other transit corridor studies. In addition to federal and state funded projects, locally funded regionally significant transit projects have been included in the air quality conformity analysis of the 2006 Revenue Constrained Scenario of the 2030 RTP. These transit projects also are funded with *TransNet* funds or other local revenue sources. Once network coding is completed, the transportation models are run for the applicable scenarios (2002, 2009, 2010, 2014, 2020, and 2030).

## **Trip Generation**

Trip generation is the first step in the transportation modeling process. Average weekday trip ends by all forms of transportation starting and ending in each zone are estimated for ten trip types: home-work, home-college, home-school, home-shop, home-other, work-other, and other-other, serve passenger, visitor, and airport. The model computes person trips, which account for all forms of transportation including automobiles, trucks, taxicabs, motorcycles, public transit, bicycling and walking.

The trip generation model works by applying trip rates to zone level growth forecasts. The model calculates each of the trip ends separately, as trip productions and attractions. Trip production rates are expressed as trips per household while trip production rates vary by trip type and structure type. Trip attractions are expressed as trips per acre of nonresidential land use or trips per household. Trip attraction rates vary by trip type and land use category. The Final 2030 Regional Growth Forecast was used to produce trip generation forecasts for the years 2002, 2009, 2010, 2014, 2020, and 2030. Trip generation rates were established by utilizing data from traffic generator studies and expanding rates from the 1995 Travel Behavior Survey and 2001 Caltrans Statewide Travel Survey.

SANDAG's regional transportation model uses a relatively high trip generation rate for households (8.1 vehicle trips per day), which may account for possible increases in trip making as new facilities are built. Also, the model accounts for travel diversion among facilities.

The model reduces future year person trips by a small amount to reflect increased use of teleworking and e-commerce. Reduction factors of 3 to 5 percent were applied to selected trip purposes and land uses.

## **Trip Distribution**

After trip generation, trip movements between zones are determined using a doubly-constrained gamma-function gravity model form of the trip distribution model. Inputs to the trip distribution model include zone level trip generation forecasts by trip type, zone-to-zone impedances, and gamma function parameters by trip type. The model is designed to modify trip patterns in response to new development and reflects shortened trip lengths in the vicinity of Smart Growth, mixed-use developments. The model also modifies trip patterns as new roadways are added.

The model is calibrated to match observed trip length frequencies from the 1995 Travel Behavior Survey and 2001 Caltrans Statewide Travel Survey. Zone-to-zone impedances are a composite measure of peak and off-peak travel times and costs by highway, transit and non-motorized modes. Several iterations of trip distribution, mode choice, and assignment are performed to bring model-estimated highway travel into equilibrium with supply. After each iteration or feedback loop, impedances are recomputed to reflect changes in highway congestion.

## **Mode Choice**

At this point in the modeling process, total person trip movements between zones are split into different forms of transportation by highway, transit, and non-motorized modes (bicycling and walking). Highway modes include drive alone/non-toll, drive alone toll, shared-ride/HOV, and shared-ride/non-HOV. Nine transit modes differentiate transit trips by three ride modes (rail/BRT, express bus and local bus) and three access modes (walk, drive, and drop-off). The mode choice model is designed to link mode use to demographic assumptions, highway network conditions, transit system configuration, land use alternatives, parking costs, transit fares, and auto operating costs. Trips between zone pairs are allocated to modes based on the cost and time of traveling by a particular mode compared to the cost and time of traveling by other modes. For example, vehicle trips on a congested route would be more likely to be diverted to light rail than vehicle trips on an uncongested freeway.

Income level also is considered since lower income households tend to own fewer automobiles and therefore make more trips by transit and carpooling. People in higher income households tend to choose modes based on time and convenience rather than cost. The mode choice model is calibrated using 1995 and 2001 Travel Behavior Survey trip tables by mode and income and 2001-2003 Regional Transit Survey transit trip characteristics. Regional level Census 2000 work trip mode shares were also used to fine-tune mode share estimates.

Highway and transit travel times reflect highway congestion effects from the final iteration of the feedback loop. The model produces a.m. peak, p.m. peak, and off-peak period trip tables for vehicles and transit riders. The a.m. peak period is from 6 to 9 in the morning and the p.m. peak period is from 3 to 6 in the afternoon. The off-peak period covers the remaining 18 hours of the day. A series of mode choice model runs were performed in the course of analyzing the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update through two model iterations.

## Highway and Transit Assignment

### *Highway*

Highway assignment produces traffic volume estimates for all roadway segments in the system. These traffic volumes are an important input to emissions modeling. Similarly, transit trips are assigned to transit routes and segments.

SANDAG loads traffic using TransCAD's "Multimodal Multiclass Assignment" function. The highway assignment model works by finding roads that provide the shortest travel impedance between each zone pair. Trips between zone pairs are then accumulated on road segments making up minimum paths. Highway impedances consider posted speed limits, signal delays, congestion delays, and costs. The model computes congestion delays for each segment based on the ratio of the traffic volume to roadway capacity. Motorists may choose different paths during peak hours when congestion can be heavy and off-peak hours when roadways are typically free flowing. For this reason, traffic is assigned separately for a.m. peak, p.m. peak, and off-peak periods. Vehicle trip tables for each scenario reflect increased trip-making due to population growth and variations in travel patterns due to the alternative transportation facilities/networks proposed.

Model accuracy is assessed by comparing model estimated traffic volumes with actual traffic counts obtained through SANDAG's traffic monitoring program and Highway Performance Monitoring System (HPMS) estimates of vehicle miles of travel (VMT).

After completing the highway assignments additional processing is needed. Adjustments are made for calibration error volume, HOV/managed lane volume, bus volumes, hourly distribution factors, level-of-service (LOS), and travel time.

### *Transit*

For transit assignment, TransCAD software assigns Transit Access Point (TAP)-to-TAP transit trips to the network. Eight separate transit assignments are produced for peak and off-peak periods; walk and auto access; and local bus and premium service. These individual assignments are summed to obtain total transit ridership forecasts.

Before assigning transit trips, external transit trips coming into San Diego from outside the region are added to the internal transit trips estimated by the mode choice model. Currently few transit trips enter from the north or east, however, over 20,000 transit trips cross the Mexican border each day. An external transit trip table for the base year is developed from on-board transit ridership surveys and factored to future years based on border crossing trends to account for these trips.

For accuracy transit ridership forecasts from the transit assignment model are compared with transit counts from SANDAG's transit passenger counting program to determine whether transit modeling parameters need to be adjusted.

Some of these comparisons of model-estimated boardings with actual boardings include:

- system level boardings, which may reveal transfer rate problems and lead to changes to the transfer wait time factor in the mode choice model;

- boardings by mode, which may reveal modal biases and lead to changes in mode choice modal constants;
- boardings by frequency of service, which may show biases that lead to changes in the first wait factor in the mode choice model; and
- Centre City screenline crossings, which may lead to changes in parking costs, boardings by stop location, which may indicate problems which specific generators such as a university.

## **Post-TransCAD Processing**

Standard TransCAD output needs to be reformatted and adjusted to be useful for emissions modeling. Several routines and computer programs have been written to accomplish the following major functions:

- Correcting link specific traffic volume forecasts for calibration error
- Adding in estimated travel on roads not in the transportation modeling process
- Computing link speeds based on corrected link volumes, Highway Capacity Manual relationships between congestion and speed (or signal delay)
- Splitting link volumes into heavy-duty truck and other traffic to obtain speed distributions by vehicle class
- Preparing a data set that contains total VMT, number of trip starts, and VMT by speed category by time of day for each vehicle class.

## **Motor Vehicle Emissions Modeling**

### *Emissions Model*

In October 2002, ARB released EMFAC 2002, an emissions inventory model that calculates emissions for motor vehicles operating in California. It is an integrated model that combines emission rate data with vehicle activity to calculate regional emissions. The U.S. EPA approved EMFAC 2002 for use in conformity determinations on April 1, 2003.

The EMFAC 2002 model supports calculation of emissions for the Burden mode. The Burden mode is used for calculating regional emission inventories. In this mode, the model reports total emissions as tons per day for each pollutant, by vehicle class and the total vehicle fleet. The Burden mode uses emission factors that have been corrected for ambient conditions and speeds combined with vehicle activity to calculate emissions in tons per day. Vehicle activity includes the number of vehicles, daily vehicle miles traveled, and the number of daily trips.

The air quality analysis of the 2004 RTIP Amendment No. 16 and the conformity redetermination of the 2030 Revenue Constrained RTP: 2006 Update were conducted using EMFAC 2002's Burden mode. Projections of daily regional emissions were prepared for reactive organic gases (ROG), nitrogen oxides (NO<sub>x</sub>), and carbon monoxide (CO).

On-road motor vehicle emissions are attributed to several different processes:

- Starting exhaust

- Running exhaust
- Idle exhaust (calculated for heavy-duty trucks only)
- Resting and diurnal evaporation
- Running losses
- Hot soak evaporation

Emission factors vary by vehicle class, fuel usage, and technology. Thirteen vehicle classes are modeled: passenger car, two types of light-duty trucks, medium-duty truck, two types of light-heavy-duty trucks, medium-heavy-duty truck, heavy-heavy-duty truck, line-haul vehicle, urban bus, school bus, motorcycle, and motor-home. The fuels modeled are gasoline, diesel, and electrically powered vehicles. Technology categories can be grouped into catalyst, noncatalyst, and diesel.

Emission factors for processes that vary by temperature (i.e., starting exhaust, hot soak, and running exhaust) are broken down further by specified temperature ranges. Exhaust emission factors also are broken down by speed range.

## **Regional Emissions Forecasts**

Regional transportation forecasts were initiated in August 2005. Output from the TransCAD model was then reformatted and adjusted to be useful for emissions modeling.

### *8-Hour Ozone Standard*

The transportation conformity rule prescribes different conformity tests for 8-Hour ozone areas that have 1-Hour Ozone State Implementation Plan (SIP) budgets and for areas that do not have 1-Hour Ozone SIPs. The San Diego 1-Hour Ozone Maintenance Plan established ROG and NO<sub>x</sub> budgets for 2010 and 2014, but not for 2009. On June 26, 2003, The U.S. EPA approved the Maintenance Plan and motor vehicle emissions budgets as SIP revisions. These SIP revisions became effective on July 28, 2003.

In August 2004, SANDAG consulted with the CWG on various options for interim emissions analysis. The approach agreed by the CWG is as follows:

- Under the new 8-Hour ozone standard, the San Diego air basin falls under Boundary Scenario 2, where the 8-Hour ozone area is smaller than and within the 1-Hour ozone boundary. Figure B.1 shows the Eastern San Diego County attainment areas, which are tribal lands (Cuyapaipe, La Posta #1 and #2, Campo #1 and #2, and Manzanita). The CWG agreed to use the existing approved budget for the entire 1-Hour ozone nonattainment area for the analysis years for which 1-Hour ozone budgets are available (2010 and 2014) and for the remaining analysis years (2020 and 2030).
- To conduct the interim emissions test for 2009, the CWG agreed to use the no-greater-than-2002 test for the attainment year 2009.

In March 2006, the CWG reaffirmed the approach described above for the 8-hour ozone emissions analysis of the 2004 RTIP Amendment No. 16 and conformity redetermination of the 2030 Revenue Constrained RTP: 2006 Update. Countywide forecasts of average weekday ROG and NO<sub>x</sub> emissions

were produced for 2002, 2009, 2010, 2014, 2020, and 2030 using the EMFAC 2002 model. ROG and NOx emissions are based on the summer season.

The analysis years were selected to comply with Sections 93.106(a) (1) and 93.118 (a) of the Transportation Conformity Rule. According to these sections, the first horizon year (2010) must be within ten years from the base year used to validate the regional transportation model (2000), the last horizon year must be the last year of the transportation plan's forecast period (2030), and the horizon years may be no more than ten years apart (2020). In addition, as explained above, the interim regional emissions analysis for the 8-Hour ozone standard must be conducted for the emissions budgets in the applicable SIP (ROG and NOx budgets for 2010 and 2014). Finally, emissions forecasts for 2002 and 2009 were prepared to conduct the interim attainment year 2009 test.

#### *CO Standard*

CO regional emissions were projected for 2010, 2018, 2020, and 2030 for the conformity determination of the 2004 RTIP Amendment No. 16 and redetermination of the Constrained RTP: 2006 Update. CO emissions are based on the winter season.

#### *Emissions Modeling Results*

An emissions budget is the part of the SIP that identifies emissions levels necessary for meeting emissions reduction milestones, attainment, or maintenance demonstrations.

To determine conformity of the 2004 RTIP Amendment No. 16 and redetermine conformity of the 2030 Revenue Constrained RTP: 2006 Update, the plan must comply with the interim emission analysis described in the Regional Emissions Forecast section.

Table B.2 summarizes the 2004 RTIP Amendment No. 16 and 2030 Revenue Constrained RTP: 2006 Update air quality conformity analysis for the 8-Hour ozone standard. This analysis shows that the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update (including interim years) meets the applicable budgets and interim tests. Projected ROG and NOx emissions for 2009 are lower than the base year 2002 and those for 2010, 2014, 2020, and 2030 are below the SIP budgets for 2010 and 2014.

**TABLE B.2**—2004 RTIP AMENDMENT No. 16 & 2030 REVENUE CONSTRAINED RTP: 2006 UPDATE  
Air Quality Conformity Analysis for 8-Hour Ozone

Year	Average Weekday Vehicle Starts (1,000s)	Average Weekday Vehicle Miles (1,000s)	ROG		NOx	
			SIP Emissions Budget Tons/Day	ROG Emissions Tons/Day	SIP Emissions Budget Tons/Day	NOx Emissions Tons/Day
2002	13,311	79,231	---	73	---	133
2009	14,130	87,063	---	43	---	86
2010	14,265	87,857	46	40	88	79
2014	14,837	91,762	36	31	66	57
2020	15,571	97,037	36	24	66	38
2030	17,116	107,154	36	17	66	22

Note: Emissions budgets from *San Diego Region 1-Hour Ozone Maintenance Plan* (Approved as SIP revision in July 2003).

Table B.3 shows that projected CO emissions from the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update are below the 2003 CO budget of 730 tons per day.

**TABLE B.3**—2004 RTIP AMENDMENT No. 16 & 2030 REVENUE CONSTRAINED RTP: 2006 UPDATE  
Air Quality Conformity Analysis for Carbon Monoxide

Year	Average Weekday Vehicle Starts (1,000s)	Average Weekday Vehicle Miles (1,000s)	CO	
			SIP Emissions Budget Tons/Day	CO Emissions Tons/Day
2010	14,265	87,857	730	425
2018	15,310	95,201	730	256
2020	15,571	97,037	730	214
2030	17,116	107,154	730	136

Note: Emissions budgets for the San Diego region from *2004 Revision to California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas* (Approved as SIP revision in January 2006).

## **Exempt Projects**

Section 93.126 of the Transportation Conformity Rule exempts certain highway and transit projects from the requirement to determine conformity. The categories of exempt projects include safety, mass transit, air quality (ridesharing and bicycle and pedestrian facilities), and other (such as planning studies).

Table 1-2 shows the exempt projects included in the 2004 RTIP Amendment No. 16.

## **Interagency Consultation Process and Public Input**

The consultation process followed to prepare the air quality conformity analysis for the 2004 RTIP Amendment No. 16 and the 2030 Revenue Constrained RTP: 2006 Update complies with the San Diego Transportation Conformity Procedures adopted in July 1998. In turn, these procedures comply with federal requirements under 40 CFR 93. Interagency consultation involves SANDAG (as the MPO for San Diego County), the APCD, Caltrans, ARB, U.S. DOT, and U.S. EPA.

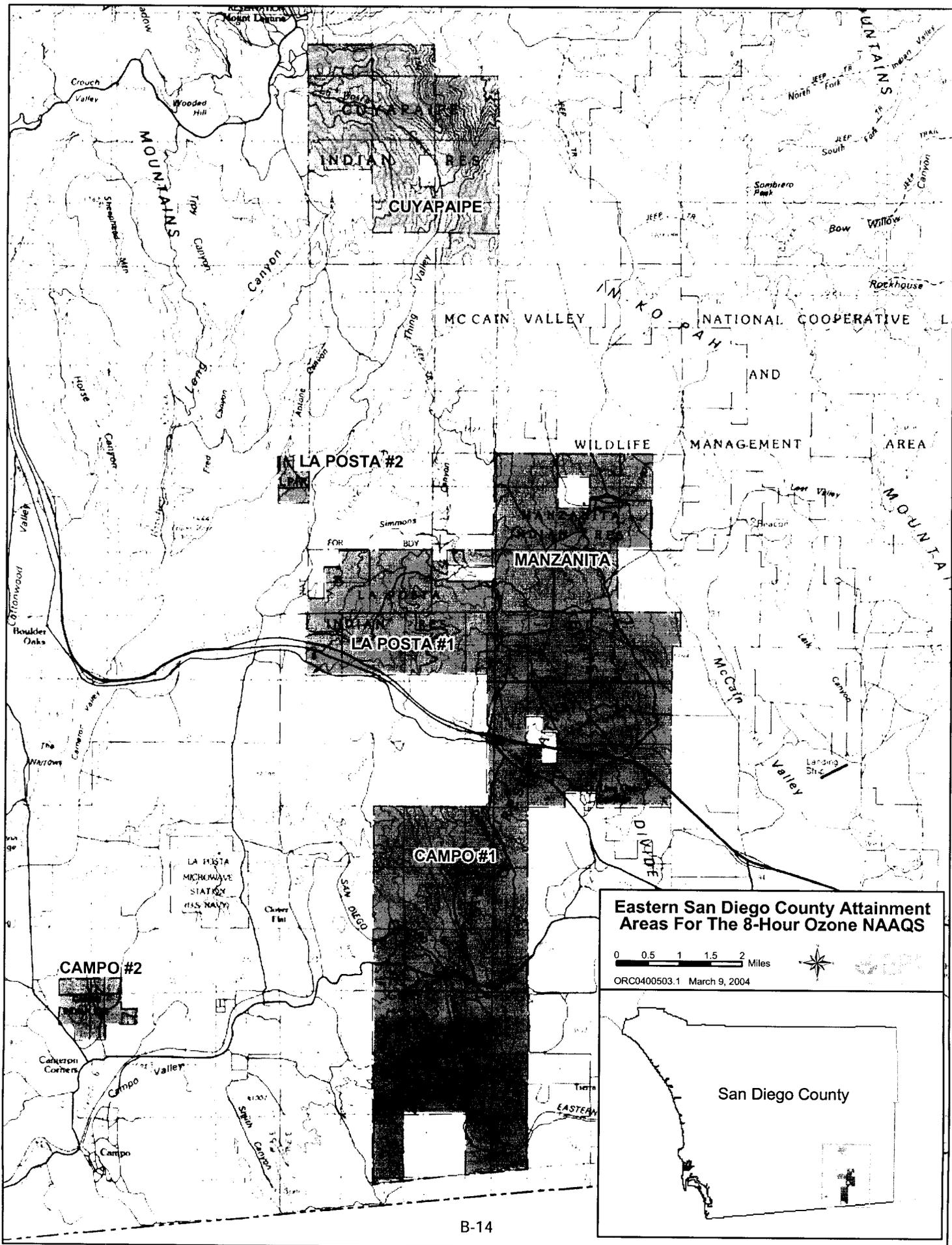
Consultation is a three-tier process that:

1. formulates and reviews drafts through a conformity working group
2. provides local agencies and the public with opportunities for input through existing regional advisory committees and workshops
3. seeks comments from affected federal and state agencies through participation in the development of draft documents and circulation of supporting materials prior to formal adoption

SANDAG consulted on the development of the air quality conformity analysis of the 2004 RTIP Amendment No. 16 and the redetermination of the 2030 Revenue Constrained RTP: 2006 Update at the March 15, 2006 meeting of the San Diego Region CWG.

SANDAG staff presented the schedule for the preparation and adoption of the 2004 RTIP Amendment No. 16 and its conformity analysis and the concurrent conformity determination of the 2030 Revenue Constrained RTP: 2006 Update. Staff also consulted on criteria and procedures for determining conformity. Items discussed included fiscal constraint analysis, projects exempt from regional emissions analysis, interim emissions analysis, the use of latest planning assumptions, implementation of TCMs, emissions model and budgets, as well as consultation and public involvement. The complete list of projects to be included in the 2004 RTIP Amendment No. 16 also was presented.

On April 21, 2006, the Transportation Committee will be asked to authorize the distribution of the draft 2004 RTIP Amendment No. 16 and draft conformity analysis for public review and comment. Members of the public are welcome to provide comments at meetings of the San Diego Region CWG, the Transportation Committee, and the SANDAG Board of Directors.



## Appendix C

### GLOSSARY OF TERMS AND ACRONYMS

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#### A

ADA	Americans with Disabilities Act
APCB/APCD	(San Diego) Air Pollution Control Board (District)
ARB	California Air Resources Board

#### B

BIA	Bureau of Indian Affairs
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#### C

Con	Construction Phase
CAA	1990 Clean Air Act, as amended
Caltrans	California Department of Transportation
CBI	Corridors and Borders Infrastructure
CDBG	Community Development Block Grant (Federal)
CI	Capacity Increasing
CMAQ	Congestion Mitigation and Air Quality Program
CMP	Congestion Management Program
CO	Carbon Monoxide
CTC	California Transportation Commission

#### D

DEMO	ISTEA Special Projects/TEA-21 High-Priority Demonstration
DOT	U.S. Department of Transportation

#### E

E	Engineering/planning phase
EPA	U.S. Environmental Protection Agency

#### F

FHWA	Federal Highway Administration
FSP	Freeway Service Patrol (and FSP Act)
FTA	Federal Transit Administration

#### H

HES/SR2S	Hazard Elimination Safety/Safe Routes to School program
HOV	High Occupancy Vehicle
HUD	Housing and Urban Development

<b>I</b>	
IM	Interstate Maintenance
IRR	Indian Reservation Road
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent Transportation Systems
<b>L</b>	
LRT	Light Rail Transit
<b>M</b>	
MPO	Metropolitan Planning Organization
MTDB/MTS	San Diego Metropolitan Transit Development Board/Metropolitan Transit System
<b>N</b>	
NAAQS	National Ambient Air Quality Standards
NCI	Non Capacity Increasing
NCTD/NSDCTDB	North County Transit District/ North San Diego County Transit Development Board
NHS	National Highway System
<b>P</b>	
P/PE	Preliminary Engineering Phase
PPNO	Project Number (Caltrans)
PM	Particulate Matter
<b>R</b>	
RAQS	Regional Air Quality Strategy
ROG	Reactive Organic Gas
RW/ROW	Right-of-Way phase
RTIP	Regional Transportation Improvement Program (SANDAG)
RTP	Regional Transportation Plan (SANDAG)
RSTP	Regional Surface Transportation Program
<b>S</b>	
SANDAG	San Diego Association of Governments
SBTA	State Bicycle Transportation Account
SDTC	San Diego Transit Corporation (San Diego Transit)
SDTI	San Diego Trolley, Incorporated (San Diego Trolley)
SHOPP	State Highway Operation and Protection Program
SIP	State Implementation Plan (for air quality)
SLTPP	State-Local Transportation Partnership Program/SB300
SR	State Route (as in SR 52 - State Route 52)
STA	State Transit Assistance
STIP	State Transportation Improvement Program
STIP-IIP	State Transportation Improvement Program - Interregional Program
STIP-RIP	State Transportation Improvement Program – Regional Improvement Program
STP	Surface Transportation Program

**T**

TE	Transportation Enhancement activities
TEA-21	Transportation Equity Act for the 21 <sup>st</sup> Century
TCI	Transit Capital Improvement
TCM	Transportation Control Measure
TCRP	Traffic Congestion Relief Program
TDA	Transportation Development Act
TDM	Transportation Demand Management
TIP	Transportation Improvement Program
TMA	Transportation Management Agency
TP&D	Transportation Planning and Development
<i>TransNet</i>	San Diego Region 1/2% Local Transportation Sales Tax Program (1987 & 2004)
<i>TransNet-H</i>	Highway program (1987)
<i>TransNet-T</i>	Transit program (1987)
<i>TransNet-L</i>	Local Street and Road program (1987)
<i>TransNet-MC</i>	Major Corridors program (2004)
TSM	Traffic Systems Management
T-1	Transportation T-tactic: Ridesharing
T-2	Transportation T-tactic: Transit
T-3	Transportation T-tactic: Bicycle
T-5	Transportation T-tactic: Traffic Improvement

**V**

VOC	Volatile Organic Compounds
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