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MEETING NOTICE AND AGENDA

SAN DIEGO CONFORMITY WORKING GROUP

The San Diego Conformity Working Group may take action on any item appearing on this agenda.

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 Unified Port District
 San Diego County
 Water Authority
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Wednesday, June 4, 2014

10:30 a.m. to 12 noon

SANDAG, Conference Room 8C
 401 B Street, Suite 800
 San Diego, CA 92101-4231

Staff Contact: Rachel Kennedy
 (619) 699-1929
 rachel.kennedy@sandag.org

AGENDA HIGHLIGHTS

- **2014 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM: DRAFT REGIONAL EMISSIONS ANALYSIS AND MODELING PROCEDURES**

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SAN DIEGO CONFORMITY WORKING GROUP

Wednesday, June 4, 2014

ITEM NO.		RECOMMENDATION
1.	INTRODUCTIONS	
+2.	APPROVAL OF MEETING MINUTES The San Diego Conformity Working Group (CWG) is asked to review and approve the minutes from its March 5, 2014, meeting.	INFORMATION
3.	PUBLIC COMMENTS/COMMUNICATIONS Members of the public will have the opportunity to address the CWG during this time.	
+4.	2014 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM: DRAFT REGIONAL EMISSIONS ANALYSIS AND MODELING PROCEDURES The draft 2014 Regional Transportation Improvement Program Regional Emissions Analysis and Modeling Procedures was distributed to the CWG on May 20, 2014, for a 30-day review and comment period. The CWG will be asked to review and provide comments on this draft report.	DISCUSSION
5.	DEVELOPMENT OF NEXT VERSION OF EMFAC California Air Resources Board staff will update the CWG on the development of the next version of the EMFAC model.	INFORMATION
6.	IMPLEMENTATION OF THE 2008 NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE: STATE IMPLEMENTATION PLAN REQUIREMENTS PROPOSED RULE On June 6, 2013, the U.S. Environmental Protection Agency (EPA) published a proposed rule that would address a range of implementation requirements for the 2008 National Ambient Air Quality Standards for ground-level ozone. The public comment period closed on September 4, 2013. U.S. EPA staff will provide an update on this rule.	INFORMATION
7.	OTHER BUSINESS	INFORMATION
8.	ADJOURNMENT AND NEXT MEETING The next meeting of the CWG is scheduled for Wednesday, July 2, 2014, from 10:30 a.m. to 12 noon at SANDAG.	

+ next to an item indicates an attachment

San Diego Association of Governments
SAN DIEGO CONFORMITY WORKING GROUP

June 4, 2014

AGENDA ITEM NO.: **2**

Action Requested: INFORMATION

APPROVAL OF APRIL 2, 2014, MEETING MINUTES

File Number 3100600

1. INTRODUCTIONS

Self-introductions were made. See attached attendance list.

2. SUMMARY OF MARCH 5, 2014, MEETING (INFORMATION)

Rachel Kennedy, SANDAG, asked the Conformity Working Group (CWG) to review the meeting minutes. There were no comments or edits made to the minutes of the March 5, 2014, meeting.

3. PUBLIC COMMENTS/COMMUNICATIONS/MEMBER COMMENTS

There were no public comments/communications/member comments.

4. 2014 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM: DRAFT PROJECT LIST (DISCUSSION)

At the March 5, 2014, meeting, the CWG discussed the conformity criteria and procedures to be followed to determine conformity of the 2014 Regional Transportation Improvement Program (RTIP) and redetermine conformity of the 2050 Regional Transportation Plan for consistency purposes. On March 28, 2014, the Draft Capacity Increasing (CI) project listings and Draft Non-Capacity Increasing (NCI) project listings were distributed to the CWG via email.

Michelle Smith, SANDAG, provided an overview of the draft list of CI and NCI projects. There are 78 CI projects and 260 NCI projects with approximately 30 new projects being added to the RTIP and approximately 130 projects being closed out or delayed. SANDAG is currently reviewing some of the projects to make sure they are being programmed correctly. The CWG was asked to review these two project listings and provide comments to Ms. Smith or Ms. Kennedy by April 11, 2014. At that time, staff will begin their coding and model runs, which are anticipated to be complete by the beginning of May.

Ms. Smith highlighted key dates where the CWG will be consulted, including model updates, comment periods, and policy review/action. The draft conformity analysis is scheduled to be distributed for a 30-day review and comment period from May 16 to June 16 and will be presented to the CWG on June 4, 2014. SANDAG is currently scheduled to present the draft 2014 RTIP, along with its draft conformity determination to the Transportation Committee on July 18, 2014, and to the SANDAG Board on July 25, 2014. At that time, the draft 2014 RTIP will be distributed for a 30-day public comment period, ending August 25, 2014. The draft 2014 RTIP will be presented to the SANDAG Board for adoption on September 26, 2014.

5. DEVELOPMENT OF NEXT VERSION OF EMFAC (INFORMATION)

Cari Anderson, California Air Resources Board (CARB), reported that an internal schedule for the next version of EMFAC is still under development. Currently, there are no updates on the estimated timeframe for next version of EMFAC.

6. DEVELOPMENT OF TRANSPORTATION CONFORMITY STATE IMPLEMENTATION PLAN (INFORMATION)

Ms. Kennedy drew attention to the revised guidance on the development of Transportation Conformity State Implementation Plans, used by the U.S. Environmental Protection Agency (EPA) in 2009. The guidance packet (Item 6) includes information about the required elements for developing a conformity State Implementation Plan (SIP).

Carl Selnick, Air Pollution Control District (APCD), stated APCD, CARB, and the EPA will be working together to prioritize the SIP backlog rules to determine which ones will be withdrawn, and which ones will need to be moved forward. The CARB stated its intention to replace the old conformity SIP submittals with new ones that meet the guidelines; however, the timing for the backlog is still being examined. Mr. Selnick asked if any of the CWG members had any input regarding the process for replacing the priority SIP. Elisa Arias, SANDAG, suggested explaining the backlog in more clear terms. Mr. Selnick responded that as APCD, CARB, and the EPA begin to phase in the prioritization process, the South Coast and San Joaquin districts, which have the most extreme pollution problems, will be taking priority over the other districts.

Ms. Anderson confirmed that CARB is working on a 4-year management plan with EPA and the California Air Pollution Control Officers Association with all the air districts and SIP submittals. With respect to the transportation conformity SIP, the hope is that Metropolitan Planning Organizations consult their respective air districts to develop a tentative schedule to provide feedback for how they would like to proceed. Ms. Anderson also noted that the backlog includes pending SIPs that require action.

7. IMPLEMENTATION OF THE 2008 NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE: STATE IMPLEMENTATION PLAN REQUIREMENTS RULE (INFORMATION)

Mr. Selnick and Ms. Anderson confirmed that the requirements rule is expected to be complete by the fall of 2014.

8. OTHER BUSINESS (INFORMATION)

There were no announcements.

9. ADJOURNMENT AND NEXT MEETING

Ms. Kennedy stated that the next scheduled meeting is scheduled for Wednesday, May 7, 2014, from 10:30 a.m. to 12 noon at SANDAG. The agenda package will be sent out prior to the meeting.

San Diego Region Conformity Working Group

Meeting Attendance

April 2, 2014

Name	Agency
Cari Anderson (Phone)	CARB
Ilene Gallo (Phone)	Caltrans
Marilee Mortenson (Phone)	Caltrans
Michael Morris (Phone)	FHWA
Elisa Arias	SANDAG
Elena Chang	SANDAG
Rachel Kennedy	SANDAG
Michelle Smith	SANDAG
Scott Strelecki	SANDAG
Carl Selnick (Phone)	SDAPCD
Carla Walecka (Phone)	TCA

APPENDIX A-6
REGIONAL EMISSIONS ANALYSIS
AND MODELING PROCEDURES

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Appendix A-6

Regional Emissions Analysis and Modeling Procedures

BACKGROUND

The federal Clean Air Act (CAA), which was last amended in 1990, requires the United States Environmental Protection Agency (U.S. 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 violate the standard for specified pollutants are designated as non-attainment areas.

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

SANDAG and the United States Department of Transportation (U.S. 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 October 28, 2011, the SANDAG Board made a finding of conformity of the 2050 San Diego Regional Transportation Plan: Our Region, Our Future (2050 RTP) and the 2010 RTIP Amendment No. 13 and adopted the plan. The U.S. DOT, in consultation with U.S. EPA, made its conformity determination on December 2, 2011.

On September 28, 2012, the SANDAG Board of Directors adopted the final 2012 RTIP and its conformity determination and redetermination of conformity for the 2050 RTP. The U.S. DOT, in consultation with U.S. EPA, made its conformity determination on December 13, 2012.

On May 24, 2013, the SANDAG Board of Directors adopted the 2012 RTIP Amendment No. 2, including the air quality conformity analysis and redetermination of the 2012 RTIP and 2050 RTP. The U.S. DOT, in consultation with U.S. EPA, made its conformity determination on June 28, 2013.

On April 15, 2004, the EPA designated the San Diego air basin as non-attainment for the 1997 Eight-Hour Ozone Standard. This designation took effect on June 15, 2004. However, several areas that are tribal lands in eastern San Diego County were excluded from the non-attainment designation. As shown in Figure A-6.1, La Posta Areas #1 and #2, Cuyapaibe, Manzanita, and Campo Areas #1 and #2 are attainment areas for the 1997 Eight-Hour Ozone NAAQS.

The air basin initially was classified as a basic non-attainment area under Subpart 1 of the CAA, and the attainment date for the 1997 Eight-Hour Ozone Standard was set as June 15, 2009. In cooperation SANDAG and the San Diego APCD developed an Eight-Hour Ozone Attainment Plan for

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the 1997 standard, which was submitted to the U.S. EPA on June 15, 2007. The budgets in the Eight-Hour Ozone Attainment Plan for San Diego County were found adequate for transportation conformity purposes by the U.S. EPA, effective June 9, 2008.

However, on April 27, 2012, in response to a Court decision, U.S. EPA ruled that the San Diego basic non-attainment area be reclassified as a Subpart 2 moderate non-attainment area, with an attainment deadline of June 15, 2010. This reclassification became effective on June 13, 2012. Air quality data for 2009, 2010, and 2011 demonstrated that the San Diego air basin attained the 1997 ozone standard; APCD prepared a Maintenance Plan, with a request for re-designation to attainment/maintenance. On December 6, 2012, the California Air Resources Board (CARB) approved the Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County for submittal to U.S. EPA as a SIP revision. On May 14, 2013, U.S. EPA approved California's request to redesignate the San Diego County ozone nonattainment area to attainment for the 1997 8-hour ozone National Ambient Air Quality Standard and their plan for continuing to attain the 1997 ozone standard for ten years beyond redesignation.

On May 21, 2012, the U.S. EPA designated the San Diego air basin as a non-attainment area for the new 2008 Eight-Hour Ozone standard and classified it as a marginal area with an attainment date of December 31, 2015. This designation became effective on July 20, 2012. SANDAG determined conformity to the new standard on May 24, 2013 using the new model approved by the U.S. EPA to forecast regional emissions (EMFAC 2011). The U.S. DOT, in consultation with U.S. EPA, made its conformity determination on June 28, 2013. The U.S. EPA final rule also provides for the revocation of the 1997 Eight-Hour Ozone NAAQS for transportation conformity purposes to become effective on July 20, 2013. For this non-attainment designation, tribal areas that were previously excluded are now included as part of the San Diego region non-attainment designation¹.

The San Diego region also has been designated by the U.S. EPA as a federal maintenance area for the Carbon Monoxide (CO) standard. On November 8, 2004, CARB submitted the 2004 revision to the California SIP for CO to the U.S. EPA. Effective January 30, 2006, the U.S. EPA has approved this maintenance plan as a SIP revision.

¹ One small portion (approximately 119 acres) of the Pechanga Band of Luiseno Indians purchased within the north portion of San Diego County piece of tribal land was excluded from the San Diego region 2008 Eight-Hour ozone standard non-attainment designation. All other tribal lands within San Diego County were included in the designation.

FIGURE A.6-1

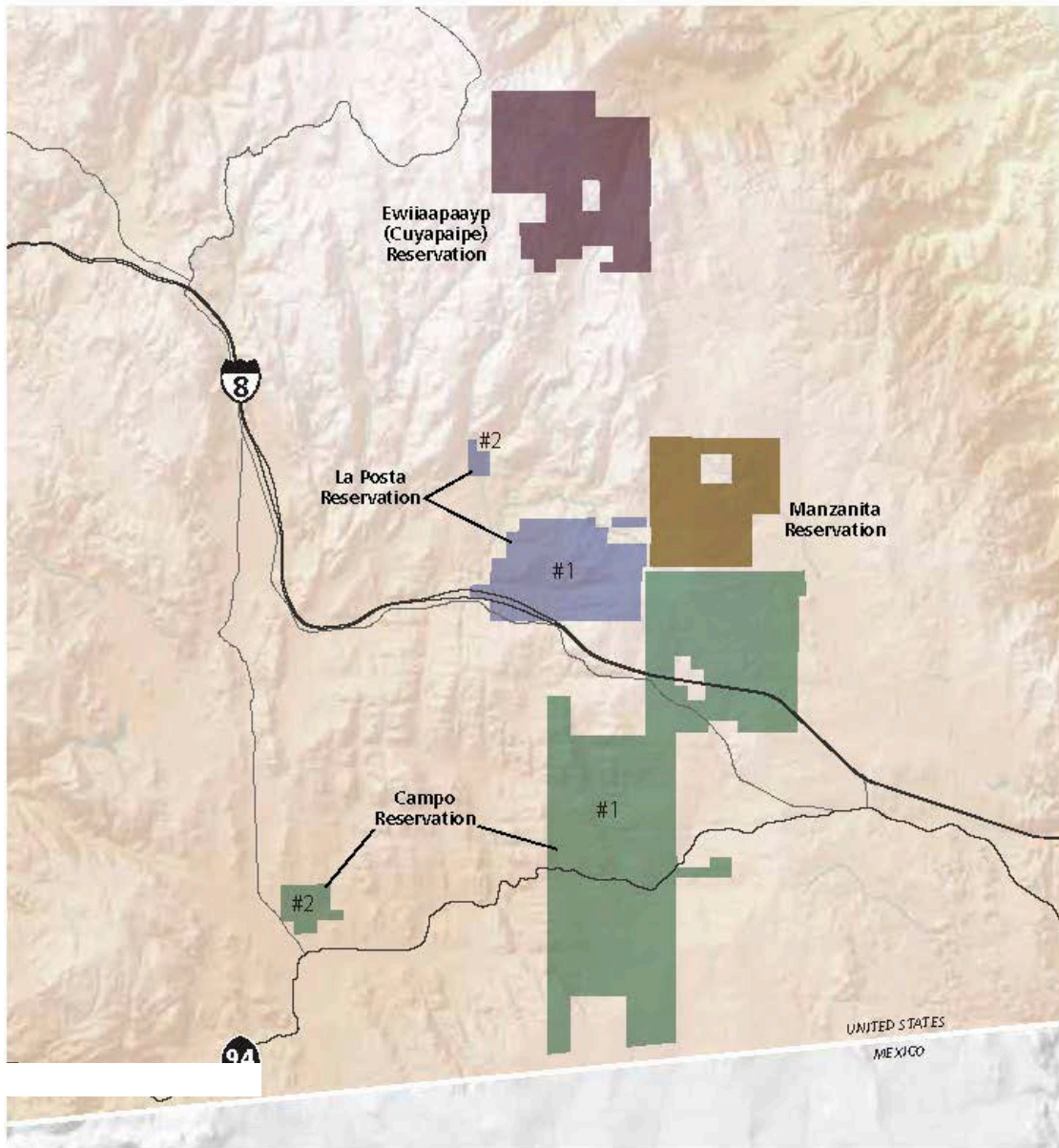


Figure B.1
Eastern San Diego County
Attainment Areas
for the Eight-Hour Ozone
NAAQS
October 2011

Data Source: USEPA, Region 9 GIS Center
1997 Eight-Hour Ozone Standard



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TRANSPORTATION CONFORMITY: MODELING PROCEDURES

Introduction

The draft 2014 RTIP is consistent with the 2050 RTP. As a financially constrained plan, the draft 2014 RTIP only contains major transportation projects listed in the Revenue Constrained 2050 RTP that are being implemented in the five-year draft 2014 RTIP period. Chapter 4 of the draft 2014 RTIP includes a detailed discussion on fiscal constraint. Conformity of the 2050 RTP expires on December 2, 2015; Tables A-6.2 and A-6.4 include the conformity analysis for both the draft 2014 RTIP and the conformity redetermination for the 2050 RTP.

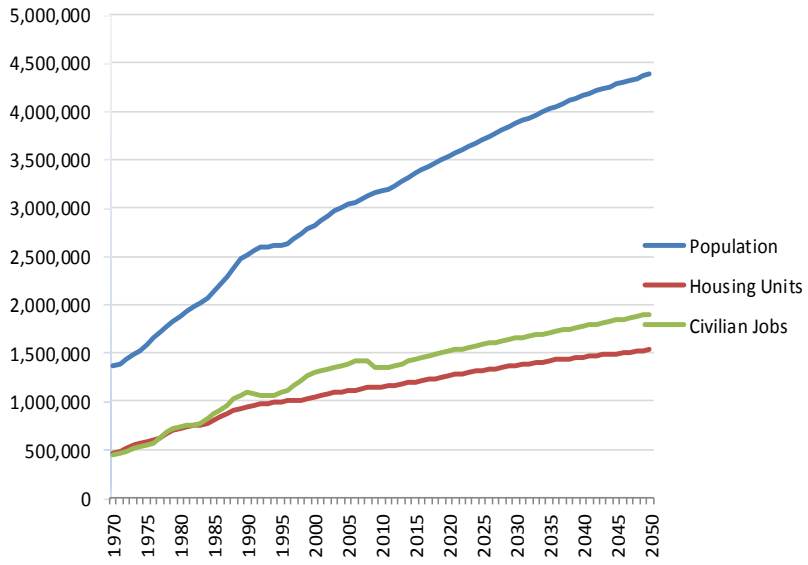
Growth Forecasts

Every three to five years, SANDAG produces a long-range forecast of population, housing, and employment growth for the San Diego region. The most recently adopted forecast is the 2050 Regional Growth Forecast (adopted by the SANDAG Board on October 28, 2011), and was utilized in the development of the 2050 RTP and the draft 2014 RTIP.

The forecast process relies upon three integrated forecasting models. The first one, the Demographic and Economic Forecasting Model (DEFM), provides a detailed econometric and demographic forecast for the entire region. The second one, the Interregional Commuting Model, provides a forecast of commuting between the San Diego region, Orange County, southwest Riverside County, Imperial County, and Tijuana/Northern Baja California. The third one, 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.

On March 5, 2014, SANDAG consulted with the San Diego Region Conformity Working Group (CWG) on the use of the 2050 Regional Growth Forecast (2011) for the air quality conformity analysis of the draft 2014 RTIP and 2050 RTP conformity redetermination. Previously, both the U.S. DOT and the U.S. EPA concurred that approved plans should be used as input in the air quality conformity process. Figure A-6.2 and Table A-6.1 show the regional population, jobs, and housing growth forecast for the San Diego region through 2050.

Figure A-6.2
San Diego Regional Population, Jobs, and Housing Forecast



Source: 2050 Regional Growth Forecast, SANDAG, October 2011

Table A-6.1
San Diego Regional Population and Employment Forecast

2050 Regional Growth Forecast

Year	Population	Civilian Employment
2008	3,131,552	1,411,811
2020	3,535,000	1,515,346
2030	3,870,000	1,648,361
2040	4,163,688	1,773,399
2050	4,384,867	1,898,769

Source: 2050 Regional Growth Forecast, SANDAG, October 2011

The 2050 Regional Growth Forecast is based largely upon the adopted general plans and community plans and policies of the 18 cities and, in some cases, includes draft plans which are nearing completion. Because many of the local general plans have horizon years of 2030 – twenty years before the 2050 Growth Forecast horizon year- the later part of the forecast was developed in collaboration with each of the local jurisdictions through an iterative process that allowed each city to provide their projections for land uses in those later years. For the unincorporated area, the forecast is based upon the County’s Referral Alternative draft of the General Plan update, with additional constraints included for sensitive habitat areas.

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 a first pass through the four steps, a feedback process is used to pass congested travel conditions back into trip distribution and through to assignment. After several feedback iterations, a final pass is made through the mode choice and assignment steps to reflect congested travel conditions in mode decision making. Travel model results then are combined with additional post-process input and output functions to form the complete modeling chain. A truck model is run parallel to the four-step model and truck origin-destination trip tables are merged with vehicle trip tables for highway assignment and air quality procedures.

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 5.0 is the transportation planning computer package used by SANDAG to provide a framework for performing much of the computer processing involved with modeling and is used for the trip distribution and assignment steps. 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 custom programs 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:

- 1991 San Diego Visitor Survey
- 1995 San Diego Region Travel Behavior Study
- 2000 Census Transportation Planning Package
- 2000 Market Research Survey
- 2001 Caltrans Statewide Travel Survey
- 2001-2003 San Diego Regional Transit Survey
- 2002 Freight Analysis Framework
- 2006 San Diego Household Travel Study
- 2010 Freight Gateway Study
- External Trip Surveys (2006 Interregional Travel Behavior Study)
- Traffic Generation Studies

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 the draft 2014 RTIP and 2050 RTP 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 draft 2014 RTIP and 2050 RTP are developed to provide 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 "other principal arterials" functionally classified by the Federal Highway Administration.

The networks also account for programs intended to improve the operation of the highway system, including High Occupancy Vehicle (HOV) lanes, Managed Lanes, and ramp metering. Existing and proposed toll facilities also are modeled to reflect time, cost, and capacity effects of these facilities.

State Route (SR) 125 South, SR 11, and SR 241, and additional lanes on Interstate 15 (I-15) north of SR 78 and additional lanes on I-5 north of Vandegrift Boulevard are modeled toll facilities included in the Revenue Constrained Plan for the San Diego region.

In addition, several managed/HOV lanes are included in the Revenue Constrained Plan. Facilities with proposed Managed Lanes include Interstate 5 (I-5), I-15, I-805, and SR 52, SR 54, SR 78, SR 94, and SR 125. Managed Lanes are defined as reversible HOV routes and HOV routes with two or more lanes in the peak direction. Additionally, one-lane HOV facilities that operate as two-person carpool lanes in the earlier years of the plan transition to Managed Lanes by 2035. 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 D or better.

Based upon the networks and programs described above, the transportation forecasts of the draft 2014 RTIP and 2050 RTP differentiate between eight highway modes:

- Drive alone non-toll
- Drive alone toll
- Shared-ride non HOV/non-toll
- Shared-ride HOV/non-toll
- Shared-ride HOV/Toll
- Light-heavy-duty
- Medium-heavy-duty
- Heavy-heavy-duty

SANDAG maintains a master highway network from which a specific year network, between the years 2008 (the 2050 Regional Growth Forecast base year) and 2050, can be built. Five networks were built and verified (2015, 2025, 2035, and 2040) for air quality conformity analyses of the draft 2014 RTIP and 2050 RTP. ROG and NO_x data were interpolated for 2020 and CO data was interpolated for 2018. A network also was built and verified for the year 2050 for an air quality analysis for informational purposes.

A list of the major highway and near-term regional arterial projects included in the conformity analysis, along with information on phasing for their implementation, is included in Tables A-6.6 and A-6.8. Locally funded, regionally significant projects also have been included in the air quality conformity analysis. These projects are funded with *TransNet* funds, a 20-year, half-cent local sales tax for transportation that expired in 2008; *TransNet* Extension funds, a 40-year, half-cent local sales tax extension approved by voters in 2004 that expires in 2048; and other local revenue sources.

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

Seven transit modes group routes with similar operating characteristics. They are:

- Commuter Rail
- Trolley/Light Rail
- Bus Rapid Transit (BRT)
- Rapid Bus
- Limited-Express Bus
- Express Bus
- Local Bus

BRT service would have stations similar to commuter rail and light rail, and operating characteristics midway between rail and bus service. BRT service would be provided by advanced design buses operating on HOV lanes or Managed Lanes, some grade-separated transit ways, and surface streets with priority transit systems. 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:

- A.M. Peak-period local bus
- A.M. 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 which differ among:

- Buses which collect a flat fare of between \$1 and \$4, depending on the type of service
- Trolleys, which charge \$2.50 for all trips
- SPRINTER, which charges \$2
- Commuter rail (COASTER), which has a zone-based fare of between \$5 and \$6.50
- Proposed regional BRT routes, which are assumed to charge \$4
- Proposed Rapid Bus routes, which are assumed to charge \$2.50

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Fares are expressed in 1999 dollars (consistent with household incomes from the 2050 Regional Growth Forecast) and are assumed to remain constant in inflation-adjusted dollars over the forecast period.

Near-term transit route changes are drawn from the Coordinated Plan, which was 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 transit projects that are regionally significant have been included in the air quality conformity analysis of the draft 2014 RTIP and 2050 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 (2015, 2025, 2035, 2040, and 2050 [for informational purposes]). A list of major regional transit projects included in the analysis and their implementation phasing are provided in Table A-6.7.

Trip Generation

A trip generation analysis is the first step in the transportation modeling process. Average weekday trip ends, by all forms of transportation and starting and ending in each zone, are estimated for ten trip types.

- Home-to-work
- Home-to-college
- Home-to-school
- Home-to-shop
- Home-to-other
- Work-to-other
- Other-other
- Serve passenger
- Visitor
- 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 2050 Regional Growth Forecast was used to produce trip generation forecasts for the years 2015, 2025, 2035, 2040, and 2050. Trip generation rates were established by utilizing data from traffic generator studies, as well as expanding rates from the 1995 San Diego Region Travel Behavior Study, the 2006 San Diego Household Travel Study, and the 2001 Caltrans Statewide Travel Survey.

The model reduces future year person-trips by a small amount to reflect increased use of teleworking and e-commerce. Reduction factors of 1, 3, or 5 percent were applied to selected trip purposes and land uses. Telework reduction factors depend on the likelihood the land use type would have employee categories that could feasibly telecommute. Reduction factors start in year 2020.

The truck model follows a process similar to the one followed by the person model. The model computes truck vehicle trips for heavy-duty trucks, including light heavy-duty, medium heavy-duty,

and heavy heavy-duty trucks. The truck classifications correspond to the CARB truck classifications used in the air quality model EMFAC 2011. Trip production and attraction rates are expressed as trips per employee and the rates vary by employee industry category.

Trip Distribution

After trip generation analysis is completed, trip movements between zones are determined using a form of the trip distribution models known as the doubly-constrained, gamma-function gravity 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 and 4D category. 4D index categories attempt to define locations by their density, diversity, distance, and urban design characteristics. A high 4D index value represents areas that would be considered smart growth and would result in shortened trip lengths. In this way, the model is designed to reflect changing trip patterns in response to the types of new development in land use scenarios. The model also modifies trip patterns as new roadways are added.

A truck trip distribution analysis is performed in a similar manner, but is used to distribute vehicle trips rather than person trips by purpose, as in the person model. The truck model also uses different distribution parameters by vehicle type, which are not segmented by 4D category.

The model is calibrated to match observed trip length frequencies from the 2006 Household Travel Study and the 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.

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 non HOV/non-toll, shared-ride HOV/non-toll, and shared-ride HOV/toll. Nine transit modes differentiate transit trips by three ride modes (rail, BRT, and 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 with 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, because 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 upon time and convenience rather than cost. The mode choice model is calibrated using the 1995 San Diego Region Travel Behavior Study and the 2006 Household Travel Study trip tables by mode and income and 2001-2003 Regional Transit Survey transit trip characteristics. Regional-level Census 2000 work-trip mode shares also were 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 a.m. and the p.m. peak period is from 3 to 6 p.m. The off-peak period covers the remaining 18 hours of the day.

Highway and Transit Assignment

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.

Highway

SANDAG loads traffic using the TransCAD Multimodal Multiclass Assignment function. Before loading the traffic onto the network, the three truck modes are combined with the five passenger vehicle modes. Multi-class assignment allows SANDAG to assign the eight vehicle modes (as defined in the highway network section) in one combined procedure.

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 the SANDAG traffic monitoring program and Highway Performance Monitoring System 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, and travel time.

Transit

For transit assignment, TransCAD software assigns 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 need to be 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 United States-Mexico border each day. To account for these trips, an external transit trip table for the base year is developed from on-board transit ridership surveys and factored to future years based upon border crossing trends.

For accuracy, transit ridership forecasts from the transit assignment model are compared with transit counts from the SANDAG 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
- A Centre City screenline crossings, which may lead to changes in parking costs, and boardings by stop location, which may indicate problems with 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 errors
- Adding in estimated travel on roads not in the transportation modeling process
- Computing link speeds based upon 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 and VMT by speed category by time of day for each vehicle class.

Motor Vehicle Emissions Modeling

Emissions Model

In September 2011, CARB released EMFAC 2011 and the U.S. EPA approved this emissions model for use in conformity determinations on March 6, 2013. EMFAC2011 is an integrated model that combines emission rate data with vehicle activity to calculate regional emissions. EMFAC 2011 reflects recent CARB rulemakings for on-road diesel fleet rules, Pavley Clean Car Standards, and the Low Carbon Fuel Standard (LCFS). EMFAC 2011 is made up of three modules: EMFAC2011-SG (scenario air quality assessment); EMFAC 2011-LDV (passenger vehicle emissions); and EMFAC 2011-HD (diesel trucks and buses). As noted in CARB's EMFAC 2011 Technical Documentation, EMFAC 2011-SG takes the output from EMFAC 2011-LDV and EMFAC 2011-HD and applies scaling factors to estimate emissions consistent with regional vehicle miles of travel (VMT) and speeds. Scaling factors are based on changes in total VMT, VMT distribution by vehicle class, and speed distribution. The SG module reports total emissions as tons per average weekday for each pollutant by vehicle class, and the total vehicle fleet for years between 1990 and 2035.

Using EMFAC 2011-SG, projections of daily regional emissions we prepared for reactive organic gases (ROG), nitrogen oxides (NOx), and CO.

The following process emissions are generated for each pollutant.

- All Pollutants – Running Exhaust, Idling Exhaust, Starting Exhaust, Total Exhaust.
- ROG and total organic gasses (TOG) – Diurnal Losses, Hot-Soak Losses, Running Losses, Resting Losses, Total Losses
- PM10 and PM2.5 – Break wear, Tire wear, Total Wear

EMFAC 2011 models two fuels; gasoline and diesel. Forty-two vehicle classes are modeled in EMFAC 2011, including the following vehicle class categories:

- Passenger cars
- Motorcycles
- Motor homes
- Light-duty trucks
- Medium-duty trucks
- Light-heavy duty trucks
- Medium-heavy duty trucks
- Heavy-heavy duty trucks
- School buses
- Urban buses
- Motor coaches
- Other bus types

The draft air quality analysis of the draft 2014 RTIP and 2050 RTP conformity redetermination was conducted using EMFAC 2011-SG.

Regional Emissions Forecasts

Regional transportation forecasts were initiated in April 2014. Output from the TransCAD model was then reformatted and adjusted to be useful for emissions modeling.

Eight-Hour Ozone Standard

Effective April 4, 2013, the U.S. EPA found the Eight-Hour Ozone budgets included in the *Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County* adequate for transportation conformity purposes. Beginning in April 2014, SANDAG prepared countywide forecasts of average weekday ROG and NOx emissions for 2015, 2020 (interpolated), 2025, 2035, 2040, and 2050 (for informational purposes), using the EMFAC 2011 model. ROG and NOx emissions are based upon the summer season.

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The analysis years were selected to comply with 40 CFR 93.106(a)(1) and 93.118(a) of the Transportation Conformity Rule and the approved methodology for conducting the air quality conformity analyses for the draft 2014 RTIP and 2050 RTP, which shortened the conformity horizon to 2040 and requires an informational analysis of the plan horizon year (2050). According to these sections of the Conformity Rule, the first horizon year (2015) must be within ten years from the base year used to validate the regional transportation model (2008), the last horizon year must be the last year of the transportation plan's forecast period, or in the case of the draft 2014 RTIP and 2050 RTP, the last year of the conformity determination (2040), and the horizon years may be no more than ten years apart (2025 and 2035), ROG and NO_x data for the year 2020 were interpolated and included to demonstrate conformity to the budgets included in the Maintenance Plan.

CO Standard

CO regional emissions were projected for 2015, 2018 (interpolated), 2025, 2035, 2040, and 2050 (for informational purposes) for the conformity determination of the draft 2014 RTIP and 2050 RTP conformity redetermination. CO emissions are based upon 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 draft 2014 RTIP and redetermine conformity of the 2050 RTP, the plan must comply with the emission analysis described in the Regional Emissions Forecast section. Table A-6.2 shows that the projected ROG and NO_x emissions from the draft 2014 RTIP and 2050 RTP are below the ROG and NO_x budgets.

Table A-6.2
 Draft 2014 RTIP and 2050 Revenue Constrained RTP Air Quality Conformity Analysis for 2008 Eight-Hour
 Ozone Standard

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
2015	14,371	84,996	53	24	98	38
2020	15,030	89,270	23	19	38	30
2025	15,689	93,544	21	15	30	21
2035	17,364	103,806	21	14	30	19
2040 ⁽¹⁾	18,131	108,389	21	15	30	20
2050 ⁽²⁾	19,819	118,476	21	16	30	21

1. The emissions data for 2040 and 2050 was prepared using 2035 emission factors, as emission factors for 2040 and 2050 are not available from CARB. Also, adjustment factors are not available for 2035, 2040, and 2050 years. Modeled emission results for 2035, 2040, and 2050 likely are overestimated due to these two factors.
2. The air quality conformity analysis was conducted for the years 2015 – 2040. Emissions data for 2050 is included for informational purposes only

Note: Emissions budgets are from the *Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County*, which were found adequate for transportation conformity purposes by the U.S. EPA, effective April 4, 2013.

Adjustment factors for ROG and NOx were provided by CARB to account for regulations and minor technical improvements not yet included in the California Emissions Forecasting System inventories at the time of EMFAC 2011 development. Table A-6.3 includes the adjustment factors by category and analysis year. Adjustment factors were provided for the years 2015, 2020, and 2025. Factors for later years were not available from CARB and, therefore, the adjustment factors for 2025 were carried over into later years.

Table A-6.3
EMFAC 2011 Adjustment Factors

Category	ROG Adjustment Factor (tons/day)						NOx Adjustment Factor (tons/day)					
	2015	2020	2025	2035	2040	2050	2015	2020	2025	2035	2040	2050
AB 1493	0.12	0.22	0.35	0.35	0.35	0.35	0.01	0.01	0.02	0.02	0.02	0.02
Moyer	-	-	-	-	-	-	-	-	-	-	-	-
Reformulated Gasoline	0.97	0.72	0.54	0.54	0.54	0.54	-	-	-	-	-	-
Prop 1B	-	-	-	-	-	-	0.71	-	-	-	-	-
Smog Check	1.05	0.87	0.50	0.50	0.50	0.50	0.54	0.38	0.20	0.20	0.20	0.20
Advanced Clean Cars	0.04	0.21	0.39	0.39	0.39	0.39	0.08	0.24	0.94	0.94	0.94	0.94
Total*	2.17	2.03	1.78	1.78	1.78	1.78	1.33	0.63	1.16	1.16	1.16	1.16

* Totals represent unrounded adjustment factors.

Note: Adjustment factors were provided by CARB. The tons listed are subtracted from the EMFAC 2011 output of tons per day for ROG and NOx. Adjustment factors were not available for years 2035, 2040, and 2050 and therefore reflect 2025 adjustments for those years.

Table A-6.4 shows that projected CO emissions from the draft 2014 RTIP and 2050 RTP are below the 2003 CO budget of 730 tons per day.

Table A-6.4

Draft 2014 RTIP and 2050 Revenue Constrained RTP Air Quality Conformity Analysis for Carbon Monoxide Standard

Year	Average Weekday Vehicle Starts (1,000s)	Average Weekday Vehicle Miles (1,000s)	CO	
			SIP Emissions Budget Tons/Day	CO Emissions Tons/Day
2015	14,371	84,996	730	258
2018	14,766	87,560	730	225
2025	15,689	93,544	730	146
2035	17,364	103,806	730	136
2040 ⁽¹⁾	18,131	108,389	730	142
2050 ⁽²⁾	19,819	118,476	730	155

1. The emissions data for 2040 and 2050 was prepared using 2035 emission factors, as emission factors for 2040 and 2050 are not available from CARB. Modeled emission results for 2040 and 2050 likely are overestimated due to this factor.
2. The air quality conformity analysis was conducted for the years 2014 – 2040. Emissions data for 2050 is included for informational purposes only.

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). Emissions results do not reflect CARB adjustment factors.

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 A-6.5 illustrates the exempt projects considered in the draft 2014 RTIP and 2050 Revenue Constrained RTP. This table shows short-term exempt projects. Additional unidentified projects could be funded with revenues expected to be available from the continuation of existing state and federal programs.

Table A-6.5
Exempt Projects

Project/Program Description	Project/Program Description
Bikeway, Rail Trail, and Pedestrian Projects	
Bayshore Bikeway	Maple Street Pedestrian Plaza
Bay-to-Ranch Bikeway	Mid-County Bikeway
Border Access Bicycle Corridor	Mira Mesa Bicycle Corridor
Camp Pendleton Trail	Mission Valley – Chula Vista Bicycle Corridor
Carlsbad – San Marcos Bicycle Corridor	National City – Highland Avenue Community Corridor
Central Coast Bicycle Corridor	North Park – Centre City Bicycle Corridor
Chula Vista Greenbelt	Oceanside – Bicycle Master Plan
City Heights – Old Town Bicycle Corridor	Otay Mesa Port of Entry Pedestrian/Bicycle Facilities
Clairemont – Centre City Bicycle Corridor	Park Boulevard Bicycle Connector
Coastal Rail Trail	Poway Bicycle Loop
East County Northern Bicycle Loop	San Diego Regional Bicycle Plan
East County Southern Bicycle Loop	San Diego River Multi-Use Bicycle and Pedestrian Path
El Camino Real Bicycle Corridor	San Luis Rey River Trail
Encinitas – San Marcos Bicycle Corridor	Santee – El Cajon Bicycle Corridor
Escondido Creek Bike Path Bridge and Bikeway	SR 52 BikewaySR
Gilman Bicycle Connector	SR 56 Bikeway
Hillcrest – El Cajon Bicycle Corridor	SR 56/Black Mountain Road Bikeway Interchange
Imperial Beach Bicycle Connector	SR 125 Bicycle Corridor
Inland Rail Trail	SR 905 Bicycle Corridor
Interstate 8 Bicycle Corridor	Sweetwater River Trail
SR 15 Bikeway	Tecate International Border Crossing Pedestrian Facilities
Interstate 805 Bicycle Corridor	Ted Williams Parkway Pedestrian Bridge at Shoal Creek
Kearny Mesa – Beaches Bicycle Corridor	Third Avenue Bicycle and Pedestrian Access
Kensington – Balboa Park Bicycle Corridor	Vista Way Bicycle Connector
	West Bernardo Bike Path

Project/Program Description (Cont.)	Project/Program Description
Safety Improvement Program	Transportation Systems Management
Bridge Rehabilitation/Preservation/Retrofit	Automated Traveler Information System (ATIS)
Collision Reduction	Bus on Shoulder Service
Emergency Response	Compass Card
Hazard Elimination/Safe Routes to School	FasTrak®
Highway Maintenance	Freeway Service Patrol
Safety Improvement Program	Connected Vehicle Roadside Devices
Roadway/Roadside Preservation	Regional Rideshare Program
Smart Growth Incentive Program	Intermodal Transportation Management System (IMTMS)
Transit Terminals	ITS Operations
Airport Intermodal Transit Center/Terminal	Joint Transportation Operations Center (JTOC)
San Ysidro Intermodal Transit Center/Terminal	Trolley Fiber Communication Network
University Town Center (UTC) Transit Center/Terminal	Universal Transportation Account
	Various Traffic Signal/Prioritization

Implementation of Transportation Control Measures

There are four federally-approved Transportation Control Measures (TCMs) that must be implemented in San Diego, which the SIP refers to as transportation tactics. They include ridesharing, transit improvements, traffic flow improvements, and bicycle facilities and programs.

These TCMs were established in the 1982 SIP, which identified general objectives and implementing actions for each tactic. The TCMs have been fully implemented. Ridesharing, transit, bicycling, and traffic flow improvements continue to be funded, although the level of implementation established in the SIP has been surpassed.

Interagency Consultation Process and Public Input

The consultation process followed to prepare the Air Quality Conformity Analysis for the draft 2014 RTIP and 2050 RTP 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, CARB, 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 draft 2014 RTIP and 2050 RTP at meetings of the San Diego Region Conformity Working Group (CWG), as follows:

- On December 4, 2013, SANDAG staff presented the schedule for the preparation of the draft 2014 RTIP and its air quality conformity analysis. Staff confirmed that a redetermination of conformity would be done for the 2050 RTP, in conjunction with the draft 2014 RTIP for consistency purposes.
- On March 5, 2014, SANDAG staff presented information about the criteria and procedures to be followed for its conformity analysis. Staff presented information on the 2050 Regional Growth Forecast, Travel Demand Model, Transportation Control Measures, the Revenue Constrained financial assumptions, latest emissions model and emissions budgets, and public involvement and outreach.
- On March 28, 2014, SANDAG staff distributed the draft list of capacity increasing and non-capacity increasing projects to be included in the draft 2014 RTIP for interagency consultation. The project lists were discussed at the April 2, 2014, CWG meeting.
- On May 16, 2014, SANDAG released the draft air quality conformity analysis of the draft 2014 RTIP and 2050 RTP to the CWG for a 30-day review-and-comment period. The draft air quality analysis will be discussed at the June 4, 2014, meeting of the CWG. The draft 2014 RTIP will be

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presented to the *TransNet* Independent Taxpayer Oversight Committee (ITOC) on July 9, 2014 for input.

- On July 18, 2014 the SANDAG Transportation Committee will be asked to recommend to the Board of Directors to release the draft 2014 RTIP and its conformity determination and the 2050 RTP conformity redetermination for a 30-day public review period.
- On July 25, 2014, the Board of Directors will be asked to release the draft 2014 RTIP and its conformity determination and the 2050 RTP conformity redetermination for public comment. A public hearing will be requested to be held for the September 5, 2014 Transportation Committee meeting to discuss the Final 2014 RTIP and its conformity determination and the 2050 RTP conformity redetermination.
- On September 5, 2014, the SANDAG Transportation Committee will hold a public hearing and be asked to recommend that the Board of Directors adopt the Final 2014 RTIP and its conformity determination and the 2050 RTP conformity redetermination.
- On September 26, 2014, the SANDAG Board will be asked to adopt the Final 2014 RTIP and its conformity determination and the 2050 RTP conformity redetermination.

Members of the public are welcomed to provide comments at meetings of the CWG, the Transportation Committee, and the SANDAG Board of Directors.

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Table A-6.6
 Phased Highway Projects² – Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	Freeway	From	To	Existing	Improvements	(\$ Millions - 2010 Dollars) Cost
2015	I-805	Palomar St	SR 94	8F	8F+2HOV	\$200
2015	I-805	SR 52	Carroll Canyon Rd	8F/10F	8F/10F+2HOV	\$163
2015	I-805	Carroll Canyon Rd	I-5 (north)	8F/10F	8F/10F+2ML	\$87
2015	SR 905	I-805	Mexico	--	6F	\$595
2015	National City Marine Terminal		Bay Marina Drive, Civic Center Freeway Access Improvements			\$7
2025	I-5	Manchester Ave	SR 78	8F	8F+2HOV	\$480
2025	SR 11/ Otay Mesa East POE	SR 905	Mexico	--	4T	\$755
2025	I-15	SR 163	SR 56	8F+2ML(R)	10F+4ML/MB	\$419
2025	I-15	Centre City Parkway	SR 78	8F	8F+4ML	\$210
2015	SR 76	Melrose Drive	I-15	2C	4C	\$404
2025	SR 241	Orange County	I-5	--	4T	\$443
2025	Vesta Street Bridge		Mobility Connector over Harbor Drive at Naval Base San Diego			\$60
2025	32nd Street		Freeway Access Enhancement			\$119
2025	10th Avenue Marine Terminal Entrance		Rail Line Grade Separation/Barrio Logan Enhancement			\$67
2025	I-5	La Jolla Village Drive	I-5/I-805 Merge	8F/14F	8F/14F+2ML	\$250
2025	I-5/I-805		North to North & South to South (HOV Connectors)			\$110
2025	SR 15	I-805	I-8	8F	8F+2TL	\$45
2025	I-15	I-8	SR 163	8F	8F+2ML	\$130
2025	SR 15/ I-805	North to North & South to South (HOV Connectors)				\$90
2025	I-15/SR 78	East to South & North to West (HOV Connectors)				\$105

² Projects listed are included in the 2050 Regional Transportation Plan and Sustainable Communities Strategy

Table A-6.6 (continued)
 Phased Highway Projects – Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	Freeway	From	To	Existing	Improvements	(\$ Millions - 2010 Dollars) Cost
2025	SR 78	I-5	I-15	6F	6F+2ML/Operational	\$570
2025	SR 94	I-5	I-805	8F	8F+2ML	\$480
2025	SR 94/ SR 125	South to East (Freeway Connector)				\$139
2025	I-805	Palomar St	SR 15	8F/8F+2HOV ¹	8F+4ML	\$1,200
2025	I-805/ SR 94	North to West & East to South (HOV Connectors)				\$160
2025	I-805	SR 52	Carroll Canyon Rd	8F/10F+2HOV	8F/10F+4ML	\$391
2025	National City Rail Yard					\$7
2035	I-5/SR 56	West to North (Freeway Connector)				\$65
2035	I-5/SR 56	South to East (Freeway Connector)				\$120
2035	I-5	Palomar St	SR 15	8F	8F+2ML	\$200
2035	I-5	I-5/I-805 Merge	SR 56	8F/14F+2HOV	8F/14F+4ML	\$50
2035	I-5	SR 56	Manchester Ave	8F+2HOV	8F+4ML	\$500
2035	I-5	Manchester Ave	Palomar Airport Rd	8F+2HOV*	8F+4ML	\$950
2035	SR 67	Mapleview St	Dye Rd	2C/4C	4C	\$570
2035	SR 94/SR 125	West to North (Freeway Connector)				\$180
2035	SR 125	SR 94	I-8	8F	10F	\$215
2035	SR 241	Orange County	I-5	4T	6T	\$58
2035	I-805	SR 905	Palomar St	8F	8F+4ML	\$350

Table A-6.6 (continued)
 Phased Highway Projects – Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	Freeway	From	To	Existing	Improvements	(\$ Millions - 2010 Dollars) Cost
2035	I-805	SR 15	Mission Valley Viaduct	8F	8F+4ML	\$230
2035	I-805	Mission Valley Viaduct	SR 52	8F/10F	8F/10F+4ML	\$637
2035	I-5	Palomar Airport Rd	SR 78	8F+2HOV*	8F+4ML	\$750
2035	I-5	SR 78	Vandegrift Blvd	8F	8F+4ML	\$420
2035	I-5/SR 78	South to East and West to North (HOV Connectors)				\$120
2035	I-5/SR 78	North to East and West to South (HOV Connectors)				\$120
2035	I-5/SR 78	South to East (Freeway Connector)				\$60
2035	I-5/SR 78	West to South (Freeway Connector)				\$46
2035	SR 15	SR 94	I-805	8F	8F+2ML	\$20
2035	SR 15/ SR 94	South to West & East to North (HOV Connectors)				\$80
2035	SR 52	I-805	I-15	6F	6F+2ML	\$223
2040	I-8	I-15	SR 125	8F/10F	8F/10F+Operational	\$125
2040	I-8	SR 125	2nd Street	6F/8F	6F/8F+Operational	\$125
2040	SR 52	I-15	SR 125	4F	6F+2ML(R)	\$325
2040	SR 56	I-5	I-15	4F	6F	\$135
2040	SR 76	I-15	Couser Canyon	2C	4C/6C+Operational	\$130
2040	SR 94	I-805	College Ave	8F	8F+2ML	\$220
2040	SR 94	College Ave	SR 125	8F	8F+2ML	\$230
2040	SR 125	SR 94	I-8	10F	10F+2ML	\$70

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Table A-6.6 (continued)
 Phased Highway Projects – Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	Freeway	From	To	Existing	Improvements	(\$ Millions - 2010 Dollars) Cost
2040	I-805	Mission Valley Viaduct		8F	8F+4ML	\$610
2040	I-805/ SR 52	West to North & South to East (HOV Connectors)				\$90
2050	I-5	SR 905	Palomar St	8F	8F+2ML	\$95
2050	I-5	SR 54	I-15	8F	10F+2ML	\$165
2050	I-5	I-15	I-8	8F	8F+Operational	\$1,130
2050	I-5	I-8	La Jolla Village Dr	8F/10F	8F/10F+2ML	\$530
2050	I-5	Vandegrift Blvd	Orange County	8F	8F+4T	\$754
2050	I-8	I-5	I-15	8F	8F+Operational	\$440
2050	I-8	2nd Street	Los Coches	4F/6F	6F	\$54
2050	SR 15	I-5	SR 94	6F	8F+2ML	\$90
2050	I-15	Viaduct		8F	8F+2ML	\$720
2050	I-15	SR 78	Riverside County	8F	8F+4T	\$1,005
2050	I-15/SR 52	West to North and South to East (HOV Connectors)				\$140
2050	I-15/SR 56	North to West (Freeway Connector)				\$100
2050	SR 52	I-5	I-805	4F	6F	\$110
2050	SR 54	I-5	SR 125	6F	6F+2ML	\$100
2050	SR 94	SR 125	Avocado Blvd	4F	6F	\$90
2050	SR 94	Avocado Blvd	Jamacha Rd	4C	6C	\$30
2050	SR 94	Jamacha Rd	Steele Canyon Rd	2C/4C	4C	\$20
2050	SR 125	SR 905	San Miguel Rd	4T	8F	\$110
2050	SR 125	San Miguel Rd	SR 54	4F	8F	\$60
2050	SR 125	SR 54	SR 94	6F	6F+2ML	\$100

KEY

- C = Conventional Highway Lanes
- F = Freeway Lanes
- HOV = High Occupancy Vehicle Lanes
- MB = Movable barrier
- ML = Managed lanes (HOV & Value Pricing)
- ML(R) = Managed lanes (Reversible)
- T = Toll Lanes
- TL = Transit Lanes

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Table A-6.7
 Phased Transit Services³ - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	Service	Route	Description	Peak Headway (Minutes)	Off-Peak Headway (Minutes)
2015	COASTER	398	Double tracking/Increased Frequency between Oceanside and downtown San Diego with extension to Convention Center/Petco Park	20	Current
2015	Trolley	530	Green Line Extend to downtown – Bayside	15	15
2015	BRT	607	Rancho Bernardo – downtown Express	10	-
2015	BRT	608	Escondido – downtown Express	10	-
2015	BRT	610	Temecula (Peak Only)/Escondido – downtown	10	10
2015	Rapid	15	Mid-City Rapid (SDSU – downtown) via Mid-City, El Cajon and Park Blvds	10	10
2015	Rapid	201/202	UTC Area Super Loop	10	15
2025	BRT	628	South Bay BRT (Otay Mesa – downtown) via Otay Ranch/Millenia	15	-
2025	Trolley	510	Mid-Coast LRT Extension (peak frequencies 7.5 to downtown/15 to UTC)	7.5/15	15
2025	BRT	470	Escondido – UTC/UCSD via Mira Mesa Blvd	10	-
2025	BRT	680	Otay Mesa to Sorrento Mesa via I-805 Corridor, Otay Ranch/Millenia, National City, Southeastern San Diego, Kearny Mesa	15	15
2025	BRT	688	San Ysidro to Sorrento Mesa Express	15	-
2025	BRT	689	Millenia/Otay Ranch to UTC/Torrey Pines Express	15	-
2025	Rapid	350	Escondido to Del Lago via Escondido Blvd & Bear Valley	10	10
2025	Streetcar	554	Hillcrest/Balboa Park/downtown San Diego Loop	10	10
2025	BRT	90	Santee/El Cajon Transit Centers to downtown via SR 94	15	-
2025	BRT	640	I-5 - San Ysidro to downtown & Kearny Mesa via I-5 shoulder lanes/HOV lanes, downtown, Hillcrest, Mission Valley	15	15
2025	BRT	870	El Cajon to UTC via Santee, SR 52, I-805 (Peak only)	10	-
2025	Rapid	10	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town	10	10
2025	Shuttle	448/449	San Marcos Shuttle	15	15

³ Projects listed are included in the 2050 Regional Transportation Plan and Sustainable Communities Strategy

Table A-6.7 (continued)
 Phased Transit Services - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	Service	Route	Description	Peak Headway (Minutes)	Off-Peak Headway (Minutes)
2025	Airport Express		I-5 from McClellan-Palomar Airport to San Diego International Airport	30	30
2025	Airport Express		I-15 from Escondido Transit Center to San Diego International Airport	30	30
2025	Airport Express		I-15 from Escondido Transit Center to Cross Border Facility	30	30
2025			Local Bus Routes - 15 minutes in key corridors	15	15
2025	SPRINTER	399	Double tracking (Oceanside-Escondido) Increased Frequencies	10	10
2025	SPRINTER	588	SPRINTER Express	10	15
2025	Rapid	2	North Park to downtown San Diego via North Park, Golden Hill	10	10
2025	Rapid	709	H Street Trolley to Otay Ranch/Millenia via H Street Corridor, Southwestern College	10	10
2025	Rapid	910	Coronado to downtown via Coronado Bridge	10	10
2035	COASTER	398	Additional Double tracking/Increased Frequency	20	60
2035	Trolley	561	UTC to Mira Mesa via Sorrento Mesa/Carroll Canyon (extension of route 510)	7.5	7.5
2035	Trolley	520	Orange Line - Increased Frequency (existing 15/15)	7.5	15
2035	Streetcar	553	Downtown San Diego: Little Italy to East Village	10	10
2035	BRT	890	El Cajon to Sorrento Mesa via SR 52, Kearny Mesa	10	-
2035	Rapid	28	Point Loma to Kearny Mesa via Old Town, Linda Vista	10	10
2035	Rapid	30	Old Town to Sorrento Mesa via Pacific Beach, La Jolla, UTC	10	10
2035	Rapid	120	Kearny Mesa to downtown via Mission Valley	10	10
2035	Rapid	473	Oceanside to UTC via Hwy 101 Coastal Communities, Carmel Valley	10	10
2035	Trolley	520	Orange Line - Extend to Airport Intermodal Transit Center	7.5	15
2035	Streetcar	555	30 th St to downtown San Diego via North Park/Golden Hill	10	10
2035	Trolley	560	Mid-City to downtown (Phase 1) via El Cajon and Park Blvds	7.5	7.5
2035	Trolley	563	Pacific Beach to El Cajon via Clairemont, Kearny Mesa, Mission Valley, SDSU	7.5	10

Table A-6.7 (continued)
 Phased Transit Services - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	Service	Route	Description	Peak Headway (Minutes)	Off-Peak Headway (Minutes)
2035	BRT	653	Mid-City to Palomar Airport Road via Kearny Mesa/I-805/I-5	15	-
2035	Rapid	11	Spring Valley to SDSU via Southeastern San Diego, Downtown, Hillcrest, Mid-City	10	10
2035	Rapid	201/202	UTC Area Super Loop - Increase Frequencies	10	10
2035	Rapid	471	Downtown Escondido to East Escondido	10	10
2035	Rapid	474	Oceanside to Vista via Mission Ave/Santa Fe Road Corridor	10	10
2035	Rapid	635	Eastlake/EUC to Palomar Trolley via Main Street Corridor	10	10
2035	Rapid	636	SDSU to Spring Valley via East San Diego, Lemon Grove, Skyline	10	10
2035	Rapid	637	North Park to 32nd Street Trolley via Golden Hill	10	10
2035	Rapid	638	San Ysidro to Otay Mesa via Otay, SR 905 Corridor	10	10
2035	Shuttle	448/449	San Marcos - Increase Frequencies	10	10
2035			Local Bus Routes - 10 minutes in key corridors	10	10
2040	Trolley	520	Orange Line - Increased Frequencies	7.5	7.5
2040	Trolley	522	Orange Line Express - El Cajon to downtown San Diego	10	10
2040	Trolley	530	Green Line Extend to downtown - Bayside	7.5	7.5
2040	Trolley	540	Blue Line Express - UTC to San Ysidro via downtown	10	10
2050	Trolley	560	SDSU to downtown (Phase 2) via Mid-City, El Cajon and Park Blvds	7.5	7.5
2050	Trolley	562	UTC to San Ysidro via Kearny Mesa, Mission Valley, Mid-City, Southeastern San Diego, National City/Chula Vista via Highland Ave/4th Ave	7.5	10

Table A-6.8
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2015	CB04A	Carlsbad	El Camino Real Widening - Tamarack Avenue to Chestnut Avenue	In Carlsbad, widen El Camino Real to prime arterial standards with three travel lanes, bike lanes and sidewalks in each direction including intersection improvements at Tamarack Avenue and Chestnut Avenue
2015	CB12	Carlsbad	College Boulevard Reach A - Badger Lane to Cannon Road	In Carlsbad, from Badger Lane to Cannon Road, construct a new segment of College Blvd. to provide 4-lane roadway with raised median, bike lanes and sidewalks/trails in accordance with Major Arterial standards
2015	CB24	Carlsbad	College Boulevard and Palomar Airport Road - Intersection Improvements	In Carlsbad, at the intersection of College Blvd. and Palomar Airport Road, roadway widening along southbound College Blvd. to provide dual left turns, one thru lane, one shared thru/right turn lane and one right turn lane and to lengthen right turn lanes on the other approaches to the intersection
2015	CB26	Carlsbad	Melrose and Palomar Airport Road	In Carlsbad, at the intersection of Palomar Airport Road and Melrose Drive, roadway widening along southbound Melrose to provide an additional right turn lane to westbound Palomar Airport Road
2015	CB30	Carlsbad	El Camino Real – El Camino Real to Tamarack Avenue	In Carlsbad, at the intersection of El Camino Real and Tamarack Avenue construct a second left turn lane from El Camino Real to westbound Tamarack
2015	CB34	Carlsbad	Palomar Airport Road - Palomar Airport Road to Paseo Del Norte	In Carlsbad widening along eastbound Palomar Airport Road to provide a dedicated right turn lane to southbound Paseo Del Norte
2015	CB35	Carlsbad	Palomar Airport Road - Palomar Airport Road to Paseo Del Norte	In Carlsbad lengthen the left turn pocket along eastbound Palomar Airport Road to northbound Paseo Del Norte
2015	CHV08	Chula Vista	Willow Street Bridge Project - Bonita Road to Sweetwater Road	Replace two lane bridge with four lane bridge
2015	CHV20	Chula Vista	North Fourth Avenue and Brisbane Street	Add additional lane on east side of Fourth Avenue
2015	CNTY14	San Diego County	South Santa Fe Avenue North - Montgomery Drive to South of Woodland Drive	Vista City limits to 700 feet south of Woodland - reconstruct and widen from 2 to 4 lanes including bicycle lane

Table A-6.8 (continued)
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2015	CNTY76	San Diego County	Jamacha Blvd (Phase 1 and 2) - Omega Street to Sweetwater Spring Boulevard	In unincorporated Spring Valley, the current funds programmed are for Phase 1 - between Omega Street and Spring Valley Glen, widen from 2-lane to 4-lane roadway with bicycle and pedestrian improvements
2015	ESC02	Escondido	Bear Valley/East Valley/Valley Center - Citrus Avenue to Beven Drive	Realignment and widening from 2 to 4 lanes
2015	ESC06	Escondido	El Norte Parkway Bridge at Escondido Creek - Kaile Lane to Key Lime Way	Construct missing 2-lane bridge at Escondido Creek
2015	ESC25	Escondido	Citracado/Nordahl - Country Club Lane to SR 78	Widen from 4 lanes to 6 lanes with double left turn lanes and exclusive right turn lanes
2015	LG13	Lemon Grove	Street Improvements (Congestion Relief)	Lemon Grove Avenue Realignment Project: A key project in the redevelopment of the city's downtown Village Specific Plan, this project improves access to and from SR 94, reducing motorist delays and emissions, while greatly enhancing the visual appeal of the block adjacent to the trolley station.
2015	SD34	San Diego	El Camino Real	In San Diego on El Camino Real from San Dieguito Road to Via de la Valle - reconstruct and widen from 2 to 4 lanes and extend transition lane and additional grading to avoid biological impacts (CIP 52-479.0)
2015	SD70	San Diego	West Mission Bay Drive Bridge	In San Diego, replace bridge and increase from 4- to 6-lane bridge including Class II bike lane (52-643)
2015	SD90	San Diego	SR 163/Clairemont Mesa Boulevard Interchange	In San Diego, widen from 4- to 6-lane prime arterial; Phase II of the project - west ramps (CIP 52-745.0)
2015	SD102A	San Diego	Otay Truck Route Widening	On Otay Truck Route in San Diego from Drucker Lane to La Media, add one lane (total 3 lanes) for trucks; from Britannia to La Media, add one lane for trucks and one lane for emergency vehicles (Border Patrol/fire department access); along Britannia from Britannia Court to the Otay Truck Route - add one lane for trucks

Table A-6.8 (continued)
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2015	SD133	San Diego	Mira Sorrento Place	Mira Sorrento Place from Scranton Road to Vista Sorrento Parkway in San Diego widen the existing 2-lane 560-foot portion of Mira Sorrento Place (40-foot road width, 55-foot right of way) to a 4-lane collector (72-foot road width, 92-foot right of way), and extend the road to intersect with Vista Sorrento Parkway at the existing on/off ramps to I-805
2015	SM25	San Marcos	Borden Road Street Improvements and Bridge Construction - Twin Oaks to Woodward Street	Construction of approximately 700 lineal feet of a new 4-lane secondary arterial including a bridge
2015	SM44	San Marcos	Eastbound SR 78 Auxiliary lane - Woodland Parkway to Nordahl Road	Construct auxiliary lanes along eastbound SR 78 between Woodland Parkway Interchange and Nordahl Road Interchange; includes widening of Mission Road undercrossing
2015	VISTA08A	Vista	W. Vista Way - Emerald Drive to Grapevine Road	The scope of this project is to provide right of way acquisition and construction for the widening of W. Vista Way a distance of 1,500 feet from the intersection with Emerald Drive to the intersection with Grapevine Road
2025	CB04B	Carlsbad	El Camino Real and Cannon Road	In Carlsbad, along the eastside of El Camino Real just south of Cannon Road widen to prime arterial standards with three through lanes, a right turn lane and a sidewalk approaching the intersection
2025	CB04C	Carlsbad	El Camino Real - Lisa Street to Crestview Drive	In Carlsbad, along the west side of El Camino Real, roadway widening to provide three southbound through lanes, curb, gutter and sidewalk per Prime Arterial standards
2025	CB13	Carlsbad	Poinsettia Lane Reach E - Cassia Drive to Skimmer Court	In Carlsbad, from Cassia Drive to Skimmer Court, construct a new 4-lane roadway with median, bike lanes, and sidewalks/trails to major arterial standards
2025	CB22	Carlsbad	Avenida Encinas - Widen from Palomar Airport Road to EWPCF	In Carlsbad, Avenida Encinas from Palomar Airport Road southerly to existing improvements adjacent to the EWPCF, roadway widening to Secondary Arterial standards

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Table A-6.8 (continued)
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2025	CB31	Carlsbad	El Camino Real – La Costa Avenue to Arenal Road	In Carlsbad along El Camino Real from 700 feet north of La Costa Avenue to Arenal Road, widening along the southbound side of the roadway to provide three travel lanes and a bike lane in accordance with Prime Arterial Standards
2025	CB32	Carlsbad	El Camino Real Widening - Cassia to Camino Vida Roble	In Carlsbad, widen El Camino Real from 900 feet north of Cassia Road to Camino Vida Roble, along the northbound side of the roadway to provide three travel lanes and a bike lane in accordance with Prime Arterial standards
2025	CNTY21	San Diego County	Bradley Avenue Overpass at SR 67 - Magnolia Avenue to Mollison Avenue	Widen Bradley Avenue including the SR 67 overpass from 2 to 4 lanes plus sidewalks
2025	ESC24	Escondido	Centre City Parkway - Mission Road to SR 78	Widen 4 lanes to 6 lanes with intersection improvements
2025	CNTY14A	San Diego County	South Santa Fe Avenue South - South of Woodland Drive to Smilax Road	Widening of South Santa Fe Avenue to a 5-lane major road with a center left turn lane, curb, gutter, sidewalk, bike lanes, and drainage improvements from 700 ft. south of Woodland Dr to Smilax Road
2025	CNTY24	San Diego County	Cole Grade Road - North of Horse Creek Trail to South of Pauma Heights Road	Widen to accommodate 14-ft traffic lane in both direction, 12-ft center 2-way left turn, 6-ft bike lane & 10-ft pathway
2025	CNTY34	San Diego County	Dye Road Extension - Dye Road to San Vicente Road	In Ramona, study, design and construct a 2-lane community collector road with intermittent turn lanes, bike lanes, curb, gutter, and pathway/walkway
2025	CNTY39	San Diego County	Bear Valley Parkway North - San Pasqual Valley Road to Boyle Avenue	Widen from 2 to 4 lanes, with a center median, a bike lane and shoulder in each direction of travel
2025	ESC02A	Escondido	East Valley/Valley Center	Widen roadway from 4 to 6 lanes with raised medians and left turn pockets; modify signal at Lake Wohlford and Valley Center Road; widen bridge over Escondido Creek

Table A-6.8 (continued)
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2025	ESC08	Escondido	Felicita Avenue/ Juniper Street - from Escondido Boulevard to Juniper Street and from Juniper Street to Chestnut Street	Widen from 2 to 4 lanes with left turn pockets, raised medians on Felicita; new traffic signals at Juniper and Chestnut, Juniper and 13th Avenue, Juniper and 15th Avenue; modify traffic signal at Juniper and Felicita
2025	ESC09	Escondido	Ninth Avenue – La Terraza Boulevard to Spruce Street	Widen from 2 to 4 lanes with raised median and modify traffic signals at Ninth Avenue and Tulip Street - design phase
2025	NC01	National City	Plaza Boulevard Widening	Widen from 2 to 3 lanes including a new traffic lane in each direction, new sidewalks, sidewalk widening, traffic signal upgrades and interconnection
2025	O06	Oceanside	Melrose Drive	Extension in Oceanside, future construction of 4-lane arterial highway with medians, sidewalks and bike lanes
2025	O27	Oceanside	Coast Highway and SR-76 Roundabout	In Oceanside, construction of a traffic circle at the intersection of North Coast Highway and State Route 76; the traffic circle will be unsignalized; free traffic flow at all approaches
2025	SD83	San Diego	SR 163/Friars Road Interchange Modification	Friars Road from Avenida de las Tiendas to Mission Center Road widen and improve Friars Road and overcrossing; reconstruct interchange including improvements to ramp intersections (Phase 1). Construct new connector roadways and structures (Phase 2). Construct auxiliary lanes along northbound and southbound SR 163 (Phase 3)
2025	SM19	San Marcos	Grand Avenue Bridge	In San Marcos, construct 4-lane arterial; between Bent Avenue to Discovery Street construct 6-lane arterial
2025	SM22	San Marcos	South Santa Fe - Bosstick to Smilax	Widen and realign existing road to 4-lane secondary arterial standards
2025	SM32	San Marcos	Via Vera Cruz Bridge and Street Improvements - San Marcos Boulevard to Discovery Street	Widen to 4-lane secondary arterial and construct a bridge at San Marcos Creek

Table A-6.8 (continued)
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2025	SM24	San Marcos	Woodland Parkway Interchange Improvements – La Moree Road to Rancheros Drive	Modify existing ramps at Woodland Parkway and Barham Drive; widen and realign Barham Drive to accommodate a new eastbound SR 78 on-ramp; widen and realign SR 78 undercrossing and associated work
2025	SM30	San Marcos	San Marcos Boulevard Street Improvements - Rancho Santa Fe to Bent Avenue	Widen road to a 6-lane prime arterial
2025	SM42	San Marcos	Street Improvements: Discovery Street - Craven Road to West of Twin Oaks Valley Road	In the City of San Marcos, on Discovery Street from Craven Road to west of Twin Oaks Valley Road, construct approximately 5,100 lineal feet of a new 6-lane roadway
2025	SM43	San Marcos	Barham Drive - Twin Oaks Valley Road to La Moree Road	In the City of San Marcos, on Barham Drive between Twin Oaks Valley Road and La Moree Road, widen and reconstruct the north side of Barham Drive to a 6-lane prime arterial and associated work
2025	O22	Oceanside	College Boulevard - Vista Way to Old Grove Road	In Oceanside, widen from the existing 4 lanes to 6 lanes with bike lanes and raised median
2025	O23	Oceanside	College Boulevard Bridge - San Luis Rey River	In Oceanside, widen from 4 to 6 lanes plus bike lanes and a striped-only median; widening includes the approach roadway and the bridge deck over the San Luis Rey River - Design Phase
2025	SD81	San Diego	Genesee Avenue - Nobel Drive to SR 52	In San Diego, future widening to 6-lane major street north of Decoro Street and to a 6-lane primary arterial south of Decoro Street and included Class II bicycle lanes (CIP 52-458.0)
2025	SD189	San Diego	Sea World Drive Widening and I- 5 Interchange Improvements	In San Diego, replace existing 4-lane bridge with an 8-lane bridge with new on/off ramps; widen approachways to add right turn lanes to improve access to I-5 (CIP 52-706.0)

Table A-6.8 (continued)
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2025	SD190	San Diego	Palm Avenue/I-805 Interchange	<p>In San Diego, future widening of Palm Avenue Bridge including providing for repairs to the bridge approaches and abutments, installing sidewalks, signals, and striping</p> <ul style="list-style-type: none"> ▪ Phase I was work pertaining to re-striping to reconfigure travel lanes; no actual modifications to the physical geometry of the bridge took place ▪ Phase II of the project will widen the bridge on the north side; in addition to this the scope of work will also contain restriping of the lanes and modifications to the on/off ramps ▪ Phase III of the project will widen the bridge on the south side; in addition to this the scope of work will also contain restriping of the lanes and modifications to the on/off ramps ▪ Both Phase II and III will have environmental documentation prepared and all technical studies performed before entering into full design signage modifications: also modify freeway on and off ramps (CIP 52-640.0)
2025	CNTY36	San Diego County	San Vicente Road Improvements - Warnock Drive to Wildcat Canyon Road	In Ramona, design and reconstruct road improvements, including 2-lane community collector road with intermittent turn lanes, bike lanes, asphalt concrete dike, and pathway/walkway
2025	SM48	San Marcos	Creekside Drive	Construct approximately 3,000 feet of a 2-lane collector road from Via Vera Cruz to Grand Avenue in the City of San Marcos. The road will include two 12-foot lanes, diagonal parking on the north side, and parallel parking on the south side. In addition, the project also will include a 10-foot bike trail meandering along the south side.

Table A-6.8 (continued)
 Phased Arterial Projects* - Draft 2014 Regional Transportation Improvement Program

Conformity Analysis Year	SANDAG ID	Lead Agency	Project Title	Project Description
2025	SD103	San Diego	I-5/Genesee Avenue Interchange	In San Diego, replace Genesee Avenue over crossing from 4-lane bridge with 6-lane bridge; construct auxiliary lanes and replace Voigt Drive bridge; add additional lane at on/off ramp to Sorrento Valley Rd.; add one carpool lane and one general purpose lane to on ramp from Sorrento Valley Road to southbound I-5; install ramp meters at on ramp and construct a southbound auxiliary lane between Sorrento Valley Road and Genesee Avenue
2025	SM31	San Marcos	Discovery Street Improvements - McMahr Rd to Bent Avenue/Craven Road	Widen roadway to 4-lane secondary arterial
2025	ESC04	Escondido	Citracado Parkway II - West Valley to Harmony Grove	Widen from 2 to 4 lanes with raised medians, construct bridge over Escondido Creek
2025	CNTY35	San Diego County	Ramona Street Extension - Boundary Avenue to Warnock Drive	In the community of Ramona, construct new road extension, 2 lanes with intermittent turn lanes, bike lanes and walkway/pathway
2035	SM10	San Marcos	SR 78/Smilax	Construct new interchange at Smilax Road interchange and SR 78 improvements

* The arterials listed in this table reflect locally initiated projects that were submitted by local jurisdictions in the 2014 Regional Transportation Improvement Program.