Attachment B: Air Quality Planning and Transportation Conformity

Draft for Conformity Working Group Review
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Executive Summary

The San Diego Association of Governments (SANDAG), as the region's Metropolitan Planning Organization (MPO), must make a transportation air quality conformity determination for regional transportation plans (RTPs) and regional transportation improvement programs (RTIPs). The purpose of transportation conformity is to ensure that federally funded or approved activities are consistent with the State Implementation Plan (SIP). This ensures that no transportation activities will cause or contribute to new air quality violations, worsen existing violations, or delay the attainment of any relevant National Ambient Air Quality Standards (NAAQS). This report documents a demonstration of conformity for the 2008 and 2015 ozone NAAQS for the proposed amendment to the 2021 Regional Plan (2021 Regional Plan or approved Plan), which serves as the region's RTP.

Background

The federal Clean Air Act (CAA), last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set 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.[1] Areas with levels that violate the standard for specified pollutants are designated as Nonattainment Areas.

The U.S. EPA requires that each state containing nonattainment areas develop and adopt a SIP that meets the NAAQS by a specified attainment deadline. The San Diego County Air Pollution Control District (SDAPCD), in collaboration with the California Air Resources Board (CARB), prepares the San Diego section of the state's SIP. Once the standards are met, further plans—called Maintenance Plans—are required to demonstrate continued maintenance of the NAAQS.

SANDAG and the U.S. Department of Transportation (DOT) must determine that the proposed amendment conforms 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 NAAQS. Conformity determinations are guided by U.S. EPA's Transportation Conformity rule (40 CFR 93.100 et seq.). This document demonstrates regional transportation conformity to the 2020 San Diego Ozone SIP (2020 SIP) for the 2008 and 2015 ozone NAAQS. The year of the SIP corresponds to the year SDAPCD developed the document.

1 While most California air quality standards are more stringent than those developed by U.S. EPA, the 2015 Eight-Hour Ozone standards are the same.

On November 19, 2020, CARB adopted the proposed San Diego Eight-Hour Ozone Attainment Plan SIP submittal, which addresses the 2008 and 2015 ozone standards. Included in the 2020 SIP is a request for a voluntary reclassification from Serious to Severe Nonattainment for the 2008 ozone standard and a voluntary reclassification from Moderate to Severe Nonattainment for the 2015 ozone standards as permitted under Section 181(b)(3). The reclassification extends the timeline to meet the standards and aligns with air quality modeling. The reclassification was approved by U.S. EPA on July 2, 2021.

On June 4, 2021, U.S. EPA posted on the Office of Transportation and Air Quality website the adequacy review and public comment on the 2008 and 2015 Eight-Hour Ozone Attainment Plan budgets. On October 4, 2021, U.S. EPA published in the Federal Register the adequacy finding for the on-road transportation air quality budgets in the 2020 SIP with an effective date of October 19, 2021.

On July 12, 2021, the 2020 SIP was found complete by U.S. EPA by operation of law six months after the submittal date. Under the CAA, U.S. EPA has 12 months from the completeness date to take a final action on the 2020 SIP.

2008 Ozone Standard

On May 21, 2012, the U.S. EPA designated the San Diego air basin as a Nonattainment Area for the 2008 Eight-Hour Ozone standard and classified it as a Marginal Area with an attainment date of July 20, 2015. This designation became effective on July 20, 2012.

SANDAG demonstrated conformity of the 2011 Regional Plan and 2012 RTIP to the 2008 ozone standard on May 24, 2013, using the applicable model approved by the U.S. EPA to forecast regional emissions (EMFAC2011). The U.S. DOT, in consultation with the U.S. EPA, made its conformity determination on June 28, 2013.

On June 3, 2016, the U.S. EPA determined that 11 areas, including the San Diego air basin, failed to attain the 2008 ozone NAAQS by the applicable attainment date of July 20, 2015, and thus were reclassified by operation of law as Moderate for the 2008 ozone NAAQS (81 FR 26697). States containing these new Moderate Areas were required to submit SIP revisions that met the statutory and regulatory requirements that apply to 2008 ozone nonattainment areas classified as Moderate by January 1, 2017. The 2016 SIP addressed the required revisions.

On August 23, 2019, U.S. EPA published a final rule in the Federal Register reclassifying the San Diego air basin by operation of law from a Moderate Nonattainment Area for the 2008 ozone NAAQS to Serious, effective September 23, 2019 (84 FR 44238). This rulemaking changed the 2008 ozone NAAQS attainment deadline to July 20, 2021, with an attainment year of 2020.

Effective July 2, 2021, U.S. EPA approved the request from the State of California to reclassify San Diego County ozone Nonattainment Area from Serious to Severe for the 2008 Eight-Hour Ozone Standard. The reclassification of the 2008 Eight-Hour Ozone Standard from Serious to Severe changed the attainment date from July 20, 2021, (as a Serious area) to July 20, 2027, (as a Severe area) and the attainment demonstration year from 2020 to 2026.

2015 Ozone Standard

On October 26, 2015, the U.S. EPA announced a revised ozone standard, referred to as the 2015 Ozone standard (80 FR 65292). The new standard revised the allowable ozone level to 0.070 parts per million (ppm). The 2015 ozone standard became effective on December 28, 2015. On June 4, 2018, U.S. EPA published a final rule that designated the San Diego air basin as nonattainment, with a classification of Moderate, for the 2015 ozone NAAQS with an attainment deadline of August 3, 2024, and an attainment year of 2023 (83 FR 25776, effective August 3, 2018).

On May 24, 2019, the SANDAG Board of Directors adopted the 2015 Ozone National Ambient Air Quality Standard Conformity Demonstration for San Diego Forward: The Regional Plan (2015 Regional Plan) and the 2018 RTIP. The conformity demonstration found the 2015 Regional Plan and 2018 RTIP, as amended, in conformity with the requirements of the federal Clean Air Act and applicable SIP. The U.S. DOT, in consultation with U.S. EPA, made its conformity determination on June 21, 2019, indicating that all air quality conformity requirements have been met, including those for the 2015 ozone standard.

Effective July 2, 2021, U.S. EPA approved the request from the State of California to reclassify San Diego County ozone Nonattainment Area from Moderate to Severe for the 2015 Eight-Hour Ozone Standard. The reclassification of the 2015 Eight-Hour Ozone Standard from Moderate to Severe changed the attainment date from August 3, 2024, (as a Moderate area) to August 3, 2033, (as a Severe area) and the attainment demonstration year from 2023 to 2032.

Carbon Monoxide Standard

The San Diego region had 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, which extended the maintenance plan demonstration to 2018. Effective January 30, 2006, the U.S. EPA approved this maintenance plan as a SIP revision. On March 21, 2018, the U.S. EPA documented in a letter that transportation conformity requirements for CO would cease to apply after June 1, 2018. Therefore, this attachment does not include a CO conformity analysis.

Conformity Determinations for 2021 Regional Plan, the 2021 RTIP Amendment No. 06, and the 2023 RTIP

On December 10, 2021, the Board approved the 2021 Regional Plan and 2021 RTIP Amendment No. 06 and found the 2021 Regional Plan and 2021 RTIP, as amended, in conformity with the requirements of the CAA and applicable SIP. U.S. DOT, in consultation with U.S. EPA, made its conformity determination on January 28, 2022. At its September 23, 2022, meeting, the Board approved the 2023 RTIP, found the 2023 RTIP in conformity with the requirements of the CAA and applicable SIP, and redetermined that the approved Plan conformed with the requirements of the CAA and applicable SIP. U.S. DOT, in consultation with U.S. EPA, made its conformity determination on December 16, 2022.

Transportation Conformity: Modeling Procedures

The proposed amendment provides information on updated revenue assumptions. In addition, this conformity determination fulfills the requirement of California Senate Bill 375 (Steinberg, 2008), which requires a Sustainable Communities Strategy (SCS) to allow for compliance with Section 176 of the CAA. (California Government Code Section 65080[b][2][B][viii])

The following sections provide an overview of models, modeling inputs, and processes used in transportation conformity.

Growth Forecasts

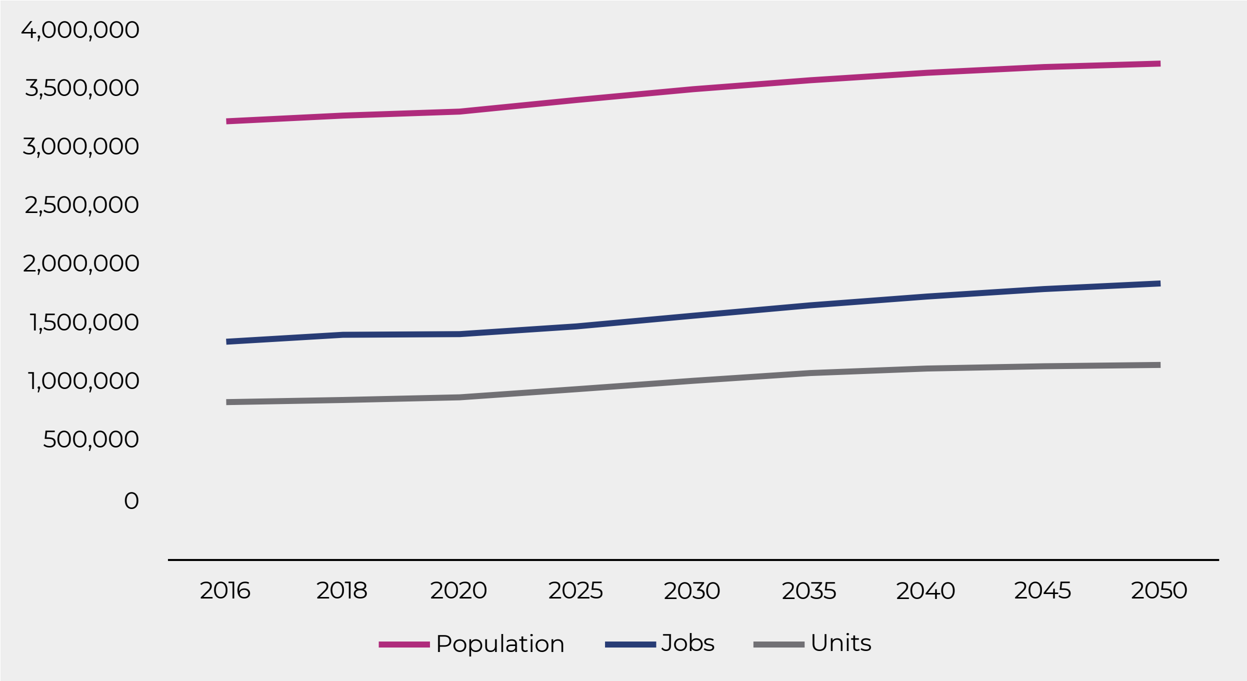
Every three to five years, SANDAG produces a long-range forecast of population, housing, and employment growth for the San Diego region. The process relies upon an integrated forecasting model. The first element is the San Diego Demographic and Economic model, which provides a detailed socioeconomic forecast for the region. Next, the regionwide data are allocated to the parcel level based upon the forecasted development pattern for the 2021 Regional Plan SCS land use pattern, which must use the most recent planning assumptions considering local general plans and other factors. This includes current plans and policies of the jurisdictions and increasing density near transit and job centers, consistent with regional goals for sustainability, mobility, housing affordability, and economic prosperity. The parcel-level forecast data can be aggregated up to larger subregional areas of interest. The Series 14 Regional Growth Forecast assumptions were presented to the Board on May 25, 2018. At its July 10, 2020, meeting, the Board adopted the 6th Cycle Regional Housing Needs Assessment Plan, which allocated the regional housing needs at the subregional level.

In 2022, anomalous traffic counts and employment at some large employment location sites and Traffic Analysis Zones (TAZs) were identified and corrected, and the Series 14 Regional Growth Forecast was updated to incorporate these corrections. The corrected inputs resulted in slight changes to regional employment figures and more concentrated employment across a handful of sectors at a limited number of employment locations; previously employment had been more dispersed across the region. These corrections resulted in a regional vehicle miles traveled (VMT) increase. Total regional numbers for population and housing units in the Series 14 Regional Growth Forecast were not changed by the corrected inputs.

On January 6, 2021, SANDAG consulted with the San Diego Region Conformity Working Group (CWG) on the use of the Series 14 Regional Growth Forecast, SCS land use pattern, for the air quality conformity analysis of the 2021 Regional Plan. On March 1, 2023, SANDAG consulted with the CWG on the use of the Series 14 Regional Growth Forecast, SCS land use pattern, as corrected, for the transportation conformity analysis of the proposed amendment. 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 B.1 and Table B.1 show the regional population, jobs, and housing growth forecast for the San Diego region through 2050.

Figure B.1

San Diego Regional Population, Jobs, and Housing Forecast



Source: Series 14 Regional Growth Forecast SCS land use pattern, SANDAG

Table B.1

San Diego Regional Population and Employment Forecast

San Diego Regional Population and Employment Forecast		
Year	**Population**	**Employment**
2016	3,309,509	1,646,419
2025	3,470,849	1,762,701
2035	3,620,349	1,922,412
2050	3,746,077	2,087,208

Source: Series 14 Regional Growth Forecast SCS land use pattern, SANDAG

The Series 14 Regional Growth Forecast, SCS land use pattern, uses planning assumptions from the adopted general plans and community plans and policies of the 18 cities and the County. Because many of the local general plans have horizon years of 2030—20 years before the Series 14 Regional 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.

The Series 14 Regional Growth Forecast SCS land use pattern thus represents in compliance with 40 CFR 93.110(a), the “latest planning assumptions” in force at the time this conformity analysis began.

Travel Modeling

The following sections provide an overview of the SANDAG travel model and the travel model flow, spatial and temporal resolution, residents travel model, special market models, trip assignment, model inputs, data sources, and emissions modeling.

SANDAG uses an updated second-generation activity-based model (ABM2+) that incorporates the latest planning assumptions at the time the conformity analysis began per 40 CFR 93.110 to support the development of the RTP and its conformity demonstration.

An ABM simulates individual and household transportation decisions that comprise their daily travel itinerary. It predicts whether, where, when, and how people travel outside their home for activities such as work, school, shopping, healthcare, and recreation.

The SANDAG ABM2+ includes a number of methodological strengths. It predicts the travel decisions of San Diego residents at a detailed level, taking into account the way people schedule their day, their behavioral patterns, and the need to cooperate with other household members. When simulating a person's travel patterns, the ABM takes into consideration a multitude of personal and household attributes like age, income, gender, and employment status. The model's fine temporal and spatial resolution ensures that it is able to capture subtle aspects of travel behavior.

To support the 2021 Regional Plan, SANDAG enhanced the ABM2+ functionality for application to the 5 Big Moves planning efforts. These enhancements included functions to address new trends in teleworking, use of micromobility modes and transportation network companies (TNC), and new mobility options for flexible fleets and microtransit within mobility hubs.

The ABM2+ outputs are used as inputs for regional emissions forecasts. The estimates of regional transportation-related emissions analyses conducted for the proposed amendment conformity analysis meet the requirements established in the Transportation Conformity Regulation (40 CFR §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 VMT.

The ABM2+ accounts for a variety of different weekday travel markets in the region, including San Diego region resident travel, travel by Mexican residents and other travelers crossing San Diego County's borders, visitor travel, airport passengers at both the San Diego International Airport and the Cross Border Xpress (CBX) bridge to the Tijuana International Airport, and commercial travel. Many of the models used to represent demand are simulation-based models, such as activity-based or tour-based approaches, while others use an aggregate three- or four-step representations of travel. Table B.2 lists the SANDAG travel markets along several key dimensions.

There are two broad types of models and three specific types of models identified in Table B.2. Disaggregate models refer to models whose demand is generated via a stochastic simulation paradigm. Both activity-based and tour-based models are simulation-based. They rely upon a synthetic population to generate travel and stochastic processes to choose alternatives. The models output disaggregate demand in the form of tour and trip lists.

The resident travel model is an ABM, in which all tours and activities are scheduled into available time windows across the entire day. The approach recognizes that a person can be in only one place at one time, and their entire day is accounted for in the model. A tour-based treatment is used for other special travel markets, such as Mexican resident crossborder travel, visitor travel, airport passenger travel, and commercial vehicle travel. Tour-based models do not attempt to model all travel throughout the day for each person; rather, once tours are generated, they are modeled independently of each other.

A tour-based model does not attempt to schedule all travel into available time windows. Aggregate models rely upon probability accumulation processes to produce travel demand and output trip tables. The external heavy-duty truck model and certain external travel models are aggregate.

Table B.2

SANDAG ABM2+ Travel Markets

SANDAG ABM2+ Travel Markets				
Travel Market	**Description**	**Model Type**	**Temporal Resolution**	**Spatial Resolution**
San Diego resident travel (internal)	Average weekday travel made by San Diego residents within San Diego County	Disaggregate activity-based	30-minute	MGRA[2]
San Diego resident travel (internal–external)	Average weekday travel by San Diego residents between San Diego County and another county (Mexico)	Disaggregate tour-based	30-minute	Internal MGRA – external cordon TAZ[3]
Mexican resident crossborder travel (external– internal and internal–internal)	Average weekday travel by Mexican residents into, out of, and within San Diego County	Disaggregate tour-based	30-minute	Internal MGRA – External cordon TAZ
Overnight visitor	Average weekday travel made by overnight visitors in San Diego County	Disaggregate tour-based	30-minute	MGRA
Airport passenger (San Diego Airport and CBX)	Average weekday travel made by air passengers and related trips such as taxis to/from airport	Disaggregate Trip-based	30-minute	MGRA
External–External	Average weekday travel with neither origin nor destination in San Diego County	Aggregate Trip-based	5 time periods	External cordon TAZ
Other U.S.–Internal travel	Average weekday external–internal trips made by non–San Diego and non-Mexican residents	Aggregate Trip-based	5 time periods	External cordon TAZ – Internal TAZ
Commercial vehicle model	Average weekday vehicle trips made for commercial purposes (in addition to heavy trucks, includes light truck goods movements and service vehicles)	Disaggregate tour-based	5 time periods	TAZ
External heavy-duty truck model	Average weekday vehicle trips for 3 weight classes for External truck travel	Aggregate Trip-based	5 time periods	External cordon TAZ – External cordon TAZ; External cordon TAZ – Internal TAZ

[2] MGRA = Master Geographic Reference Area; 23,002 MGRAs in the Region

[3] TAZ = Transportation Analysis Zone; 4,996 TAZs in the Region

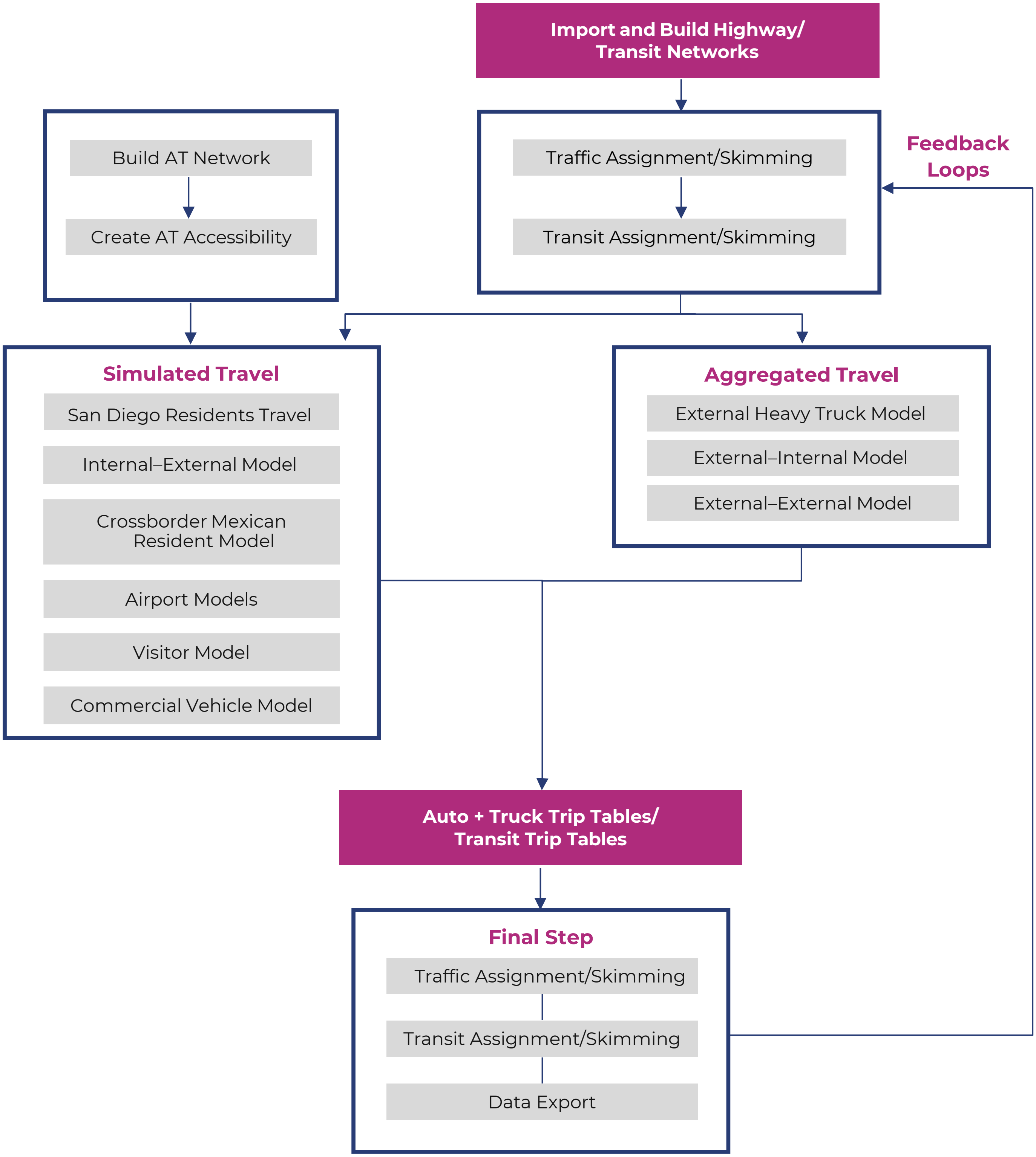
ABM2+ Model Flow

To simulate how San Diego residents, non-residents, and freight travel in the region, the SANDAG ABM2+ includes several models and steps. Figure B.2 outlines the overall flow of the SANDAG ABM2+. It starts with building an all-street-based active transportation network and creating Master Geographic Reference Area (MGRA) to MGRA and MGRA to transit access point (TAP) walk, micromobility, or microtransit equivalent accessibility files; highway and transit network building and importing into Emme (traffic modeling software licensed from INRO); then traffic and transit assignment with warm start trip tables to get the congested highway and transit skims.

After the network skims and walk access files are created, the resident travel model is executed, followed by the other disaggregate models (visitor, San Diego International Airport, CBX terminal, crossborder, and commercial vehicle) and aggregate models (external heavy truck, external–external, and external–internal). The trip tables from all the models are summed up by vehicle classes, time of day (TOD) and value of time (VOT) and are used by traffic assignment. The skims after the traffic assignment are used for the subsequent iteration in a three-feedback-loop model run. The final traffic and transit assignment and data export concludes the ABM2+ modeling procedure. The outputs from the final step are used to generate input for Emission Factors (EMFAC) emissions modeling.

Figure B.2

SANDAG ABM2+ Flow Chart



Spatial and Temporal Resolution

As indicated in Table B.2, different travel markets are operated in different model types with different spatial and temporal resolutions. The following section describes the treatment of space and time in the SANDAG ABM2+.

SANDAG ABM2+ utilizes the SANDAG MGRA zone system, which is the one of the most disaggregate zonal systems used in travel demand models in the United States. The SANDAG MGRA system used in ABM2+ consists of 23,002 zones, which are roughly equivalent to Census blocks. To avoid computational burden, SANDAG relies on a 4,996 TAZ system for roadway skims and assignment but performs transit calculations at the more detailed MGRA level, where all activity locations are tracked. The MGRA geography offers both the advantage of fine spatial resolution and consistency with network levels of service that make it ideal for tracking activity locations.

The disaggregated models function at a temporal resolution of one-half hour. These one-half hour increments begin with 3 a.m. and end with 3 a.m. the next day, though the hours between 1 a.m. and 5 a.m. are aggregated to reduce computational burden.

Temporal integrity is ensured so that no activities are scheduled with conflicting time windows except for short activities/tours that are completed within a one-half hour increment. For example, a person may have a very short tour that begins and ends within the 8 a.m. to 8:30 a.m. period as well as a second, longer tour that begins within this time period but ends later in the day.

Time periods are typically defined by their midpoint in the scheduling software. For example, in a model system using one-half hour temporal resolution, the 9 a.m. time period would capture activities of travel between 8:45 a.m. and 9:15 a.m. If there is a desire to break time periods at "round" half-hourly intervals, either the estimation data must be processed to reflect the aggregation of activity and travel data into these discrete half-hourly bins or a more detailed temporal resolution must be used, such as half-hours (which could then potentially be aggregated to "round" half-hours).

A critical aspect of the model system is the relationship between the temporal resolution used for scheduling activities and the temporal resolution of the network simulation periods. Although each activity generated by the model system is identified with a start time and end time in one-half hour increments, level-of-service matrices are only created for five aggregate time periods: (1) early a.m.; (2) a.m.; (3) midday; (4) p.m.; and (5) evening. The trips occurring in each time period reference the appropriate transport network depending on their trip mode and the midpoint trip time. All aggregated models operate on five aggregated time periods. Table B.3 lists the definition of time periods for level-of-service matrices.

Table B.3

Time Periods for Level-of-Service Skims and Assignment

Time Period for Level-of-Service Skims and Assignment			
Number	**Description**	**Begin Time**	**End Time**
1	Early	3 a.m.	5:59 a.m.
2	a.m. Peak	6 a.m.	8:59 a.m.
3	Midday	9 a.m.	3:29 p.m.
4	p.m. Peak	3:30 p.m.	6:59 p.m.
5	Evening	7 p.m.	2:59 a.m.

Resident Travel Model

The resident travel model is based on the Coordinated Travel Regional Activity-Based Modeling Platform family of ABMs. This model system is an advanced, but operational, ABM that fits the needs and planning processes of SANDAG.

The resident travel model has its roots in a wide array of analytical developments. They include discrete choice forms (multinomial and nested logit), activity duration models, time-use models, models of individual microsimulation with constraints, entropy-maximization models, etc. These advanced modeling tools are combined to ensure maximum behavioral realism, replication of the observed activity-travel patterns, and model sensitivity to key projects and policies. The model is implemented in a microsimulation framework. Microsimulation methods capture aggregate behavior through the representation of the behavior of individual decision-makers. In travel demand modeling, these decision-makers are typically households and persons.

Decision Modeling Units

Decision-makers in the model system include both persons and households. These decision-makers are created (synthesized) for each simulation year based on tables of households and persons from Census data and forecasted TAZ-level distributions of households and persons by key socioeconomic categories. These decision-makers are used in the subsequent discrete-choice models to select a single alternative from a list of available alternatives according to a probability distribution. The probability distribution is generated from a logit model that takes into account the attributes of the decision-maker and various alternatives. The decision-making unit is an important element of model estimation and implementation and is explicitly identified for each model specified in the following sections.

To simulate trips and tours made by individuals and households, the SANDAG ABM2+ includes a total of eight person types (shown in Table B.4). The person types are mutually exclusive with respect to age, work status, and school status.

Table B.4

Person Types

Person Types				
Number	**Person-Type**	**Age**	**Work Status**	**School Status**
1	Full-time worker[4]	18+	Full-time	None
2	Part-time worker	18+	Part-time	None
3	College student	18+	Any	College+
4	Non-working adult	18–64	Unemployed	None
5	Non-working senior	65+	Unemployed	None
6	Driving-age student	16–17	Any	Pre-college
7	Non-driving student	6–15	None	Pre-college
8	Preschooler	0–5	None	None

[4] Full-time employment is defined in the SANDAG 2016 household survey as at least 30 hours/week. Part-time is less than 30 hours/week on a regular basis.

Further, workers are stratified by their occupation to take full advantage of information provided by the land use and demographic models. Table B.5 outlines the worker categories. These models are used to segment destination choice attractiveness for work location choice based on the occupation of the worker.

Table B.5

Occupation Types

Number	Description
1	Management, Business, Science, and Arts
2	Services
3	Sales and Office
4	Natural Resources, Construction, and Maintenance
5	Production, Transportation, and Material Moving
6	Military

The SANDAG ABM2+ assigns one of the activity types to each out-of-home location that a person travels to in the simulation (shown in Table B.6). The activity types are grouped according to whether the activity is mandatory, maintenance, or discretionary. The classification scheme of activities into the three categories helps differentiate the importance of the activities. "Mandatory" includes work and school activities. "Maintenance" includes household-related activities, such as drop-off and pick-up of children, shopping, and medical appointments. "Discretionary" includes social and recreational activities. To determine which person types can be used for generating each activity type, the model assigns eligibility requirements. For example, a full-time worker will generate mandatory work activities, while a non-working adult or senior is eligible for non-mandatory activities. The classification scheme of each activity type reflects the relative importance or natural hierarchy of the activity, where work and school activities are typically the most inflexible in the person's daily travel itinerary.

Table B.6

Activity Types

Type	Purpose	Description	Classification	Eligibility
1	Work	Working at regular workplace or work-related activities outside the home	Mandatory	Workers and students
2	University	College+	Mandatory	Age 18+
3	High School	Grades 9–12	Mandatory	Age 14–17
4	Grade School	Grades K–8	Mandatory	Age 5–13
5	Escorting	Pick-up/drop-off passengers	Maintenance	Age 16+
6	Shopping	Auto trips only	Maintenance	5+ (if joint travel, all persons)
7	Other Maintenance	Shopping away from home	Maintenance	5+ (if joint travel, all persons)
8	Social/Recreational	Personal business/services and medical appointments	Discretionary	5+ (if joint travel, all persons)
9	Eat Out	Recreation, visiting friends/family	Discretionary	5+ (if joint travel, all persons)
10	Other Discretionary	Eating outside of home	Discretionary	5+ (if joint travel, all persons)

The ABM2+ includes 22 modes available to residents, including auto by occupancy by VOT, walk, micromobility and bike modes, and walk and drive access to local, premium, or local and premium transit modes. All auto modes are included in traffic assignment, with Kiss & Ride to transit and TNC and taxi as shared ride modes and Park & Ride to transit as drive-alone mode. All transit modes are included in transit assignment, with TNC to transit as Kiss & Ride to transit. Table B.7 lists the trip modes defined in the resident travel model.

Table B.7

Trip Modes

Trip Modes	
Number	**Mode**
1	Drive-Alone Non-Transponder
2	Drive-Alone Transponder
3	Shared Ride 2 Person
4	Shared Ride 3+ Person (Non-Toll)
5	Walk – Local Bus Only
6	Walk – Premium Transit Only
7	Walk – Local Bus and Premium Transit
8	Park & Ride – Local Bus Only
9	Park & Ride – Premium Transit Only
10	Park & Ride – Local Bus and Premium Transit
11	Kiss & Ride – Local Bus Only
12	Kiss & Ride – Premium Transit Only
13	Kiss & Ride – Local Bus and Premium Transit
14	TNC to Transit – Local Bus Only
15	TNC to Transit – Premium Transit Only
16	TNC to Transit – Local and Premium Transit
17	Walk (walk, micromobility, and microtransit modes)
18	Bike
19	Taxi
20	TNC Single
21	TNC Pooled
22	School Bus (only available for school purpose)

To model transit flow, the ABM2+ uses three transit modes: (1) local bus only; (2) premium mode only; and (3) local bus plus premium. Each mode is by three access modes of walk, Park & Ride, Kiss & Ride (including TNC) to transit, resulting in total of nine transit trip TAP–TAP matrices. The premium modes include any non-local bus modes: Tier 1 heavy rail; Commuter Rail (COASTER); Light Rail Transit (LRT) (including Trolley, SPRINTER, and Streetcar); Bus Rapid Transit (Rapid)/Rapid Bus and Express Bus. The local bus plus premium mode includes transfer between local bus and premium modes.

The resident travel model comprises numerous interacting components, called "submodules." It starts with generating a representative population for the San Diego region. Once a representative population is created, the model predicts long-term and medium-term decisions such as a choice of work or school location and a household's choice of number of cars to own. Next, each person's day is scheduled, taking into account the priority of various activities and interaction among the household members. Once all journeys to and from home have been scheduled, the model predicts specific travel details such as mode, the number of stops to make, where to stop, and when to depart from each stop to continue the tour. The results of resident travel model are a list of trips and tours by person by household by time of day.

The following section discusses the submodules in the order that each submodule is taken within the resident travel model.

Step 1: Population synthesis (build a representative population that looks like San Diego)

The first step is to create a "synthetic" population of San Diego County. A synthetic population is a table that has a record for every individual and household with the individual's and the household's characteristics. For example, if there are 41,000 18-year-old males in the region in 2050, there would be approximately 41,000 records in the table for males age 18, with each record also having other characteristics, such as school enrollment and labor force participation status. Taken as a whole, this synthetic population represents the decision-makers whose travel choices the model will simulate in later steps. For each simulation year, a full population is synthesized to match the forecasted socioeconomic and housing characteristics of each part of the region at the zonal level. These forecasts, a key ABM2+ input, come from the land use model. Synthesis works by replicating a sample of Census records (each containing complete household and individual characteristics) and placing them around the region in such a way that the forecasted characteristics of each zone are matched.

Step 2: Work and school location (assign a work location to workers and a school location to students)

The second step predicts where each individual will go to work or school, if applicable. The work and school location submodule simulates each worker's choice of work location, taking into account many factors, including ease of travel and the number of employees by occupation type in each location. The submodule also simulates each student's choice of school, considering factors that include the distance from home to school, school enrollment, and district boundaries. The results from this step affect later travel choices significantly because of the prominent role that workplace and school usually play in the itinerary of workers and students.

Step 3: Determine certain mobility characteristics of individuals and households

This step predicts the number of automobiles each household owns, whether each household owns a toll transponder, and whether worker parking costs are employer-reimbursed. The submodule assigns each household zero, one, two, three, or four or more cars, taking into account a number of criteria, including household size, income, number of drivers, and how easy it is to reach destinations from the household's place of residence. This step sets certain mobility characteristics that influence how people travel.

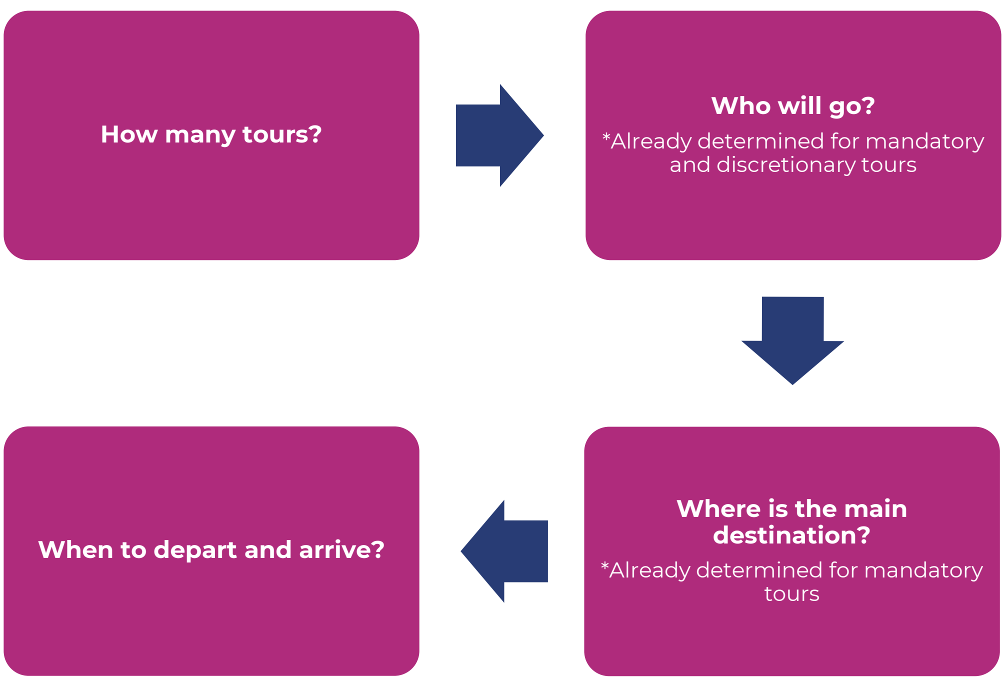
Step 4: Schedule the day

The fourth step begins by predicting a “daily activity” pattern for each individual. This pattern is a theme that dictates an individual’s schedule. A “mandatory” pattern means that an individual travels to work and/or school, then schedules other activities around work/school. An “at-home” pattern means that an individual’s daily schedule involves no travel in the region. A “non-mandatory” pattern means that an individual’s daily schedule involves traveling, but only to destinations other than work or school. The pattern type of other household members influences an individual’s daily pattern type. For example, if a child stays home from school, a working parent might be more likely to stay home from work as well.

Once the submodule selects an individual’s daily activity pattern, it schedules the tours that he or she will take. Recall that a tour is a journey that begins and ends at home, and it can include stops at other destinations on the way to or from the primary destination. The ABM2+ deals with three main categories of tours: (1) mandatory; (2) joint; and (3) non-mandatory. Mandatory tours have work or school as the primary destination. Joint tours involve out-of-home activities that multiple members of a household partake in together. Non-mandatory tours involve purposes other than work or school that an individual undertakes independent of other members of his or her household. The submodule schedules each tour type by predicting how many tours of that type there are, who will participate in the tour, where the main destination is, and when to depart and arrive (see Figure B.3).

Figure B.3

Predicting Tour Type Scheduling Details

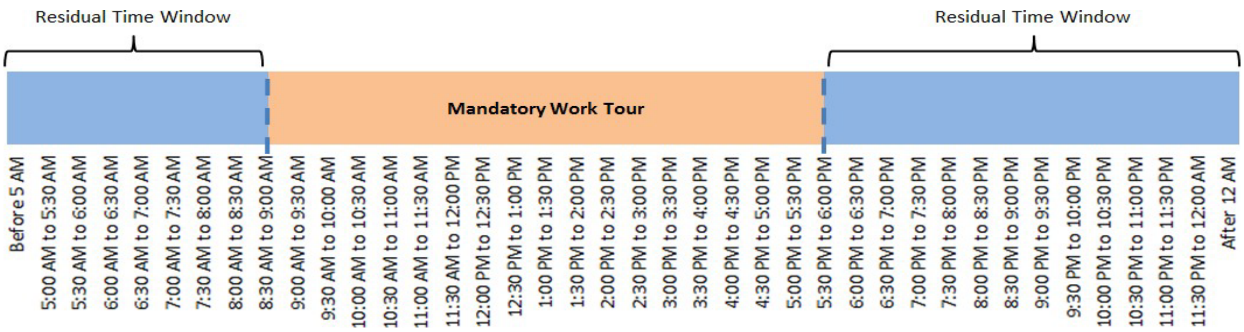


For individuals assigned a “mandatory” activity pattern, the submodule first assigns the number of work tours and/or school tours they will make. After the number of these mandatory tours has been determined, the submodule selects the time of departure from and arrival back home for each tour.

After scheduling the mandatory tours, the submodule calculates time remaining for other tours. Remaining intervals of time are called “residual time windows,” and other tours can only be scheduled in these open slots (see Figure B.4 for an example) to guarantee temporal consistency.

Figure B.4

Tour Scheduling Windows



In time remaining after mandatory tours are scheduled, the submodule determines the number of joint tours to be made for each household. It only schedules joint tours in the time windows that overlap between individuals after it accounts for mandatory activities. After the number and purpose of these joint tours has been determined, the submodule decides which household members will participate in each joint tour and whether it must involve a combination of children and adults. The submodule then chooses a specific destination for the tour and the specific times when participants will depart from and arrive back home together. Next, “non-mandatory” tours are scheduled. For each household, the submodule decides what other tours need to be made for the purpose of household “maintenance” activities such as shopping. These tours are assigned to specific household members to carry out individually. For the person who is assigned each maintenance tour, the model selects a specific destination and schedules the tour to take place in a time window that mandatory and joint tours have left open. Finally, in what time remains, the model decides whether each individual will take non-mandatory “discretionary” tours. These low-priority tours involve activities related to recreation, eating out, and social functions, and can only take place in time windows that remain after all other tours have been scheduled.

The submodule chooses a specific destination and departure/arrival combination for each discretionary tour a person makes.

Step 5: Make tour- and trip-level decisions

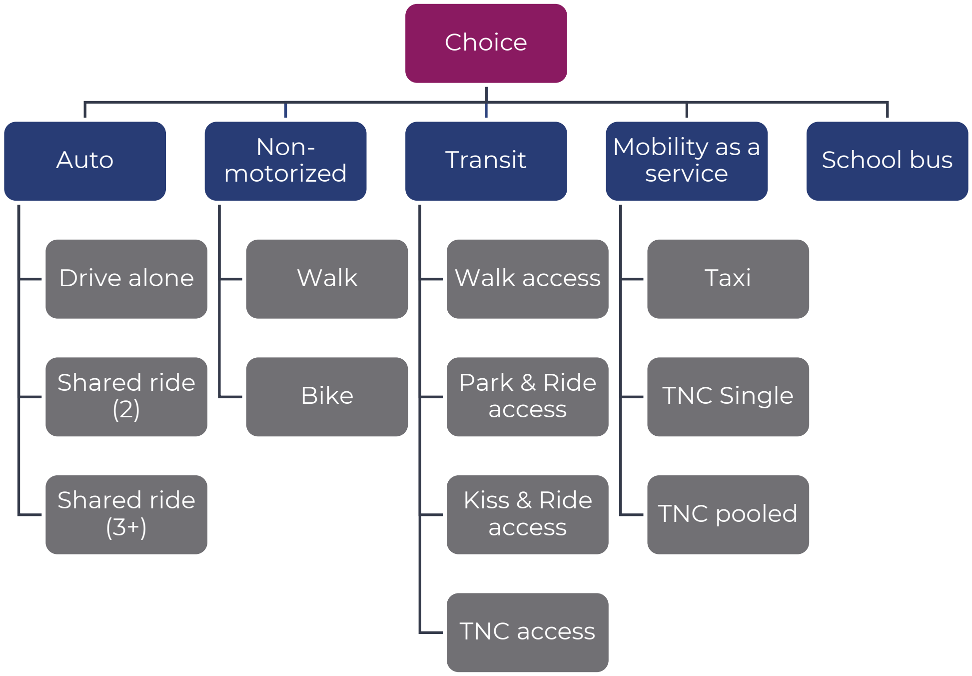
The ABM2+ then selects more detailed characteristics of each tour for every traveler. This step fills in travel details after the major aspects of the day have been scheduled. Tour characteristics that need to be determined include: primary mode of the tour, how many times to stop, where to stop, and when to depart from each stop to continue the tour.

Figure B.5 includes the available modes and mode hierarchy. After tour characteristics are set, the submodule determines the mode of each trip (conditional upon tour mode).

Recall that trips are segments of tours that have a given origin and destination. If the trip mode involves an automobile and the destination is a parking-constrained area, then the model chooses a parking location for the traveler at the trip destination.

Figure B.5

Tour and Trip Modes



The ABM2+ has three access modes to transit (walk, Park & Ride, and Kiss & Ride including TNC to transit) and three transit sets (local bus only, premium transit only, and local bus and premium transit sets), for nine total demand classes by five TOD. These classes are assigned in slices, one at a time, to produce the total transit passenger flows on the network and total transit ridership forecasts.

Special Market Models

Besides the resident travel model, ABM2+ includes a few special market models: crossborder; San Diego International Airport ground access; CBX terminal; visitor; external; commercial vehicle; and external heavy truck.

Crossborder Model

The model measures the impact of Mexican resident travel on the San Diego transport network. The model accounts for Mexican resident demand (such as auto volume, transit boarding, and toll usage) for transportation infrastructure in San Diego County. It also forecasts border crossings at each current and potential future border-crossing station. The model is based on the 2010 SANDAG Cross-Border Survey, Mexican resident border crossings and their travel patterns into and within the United States. Data were collected at the San Ysidro, Otay Mesa, and Tecate border crossing stations. In 2022, a software bug was discovered in the crossborder model that affected the number of crossings via Otay Mesa East and resulting traffic volumes on SR 11. The software bug was fixed, improving the accuracy of traffic volumes on SR 11. The fix had minor impacts on regional VMT.

San Diego International Airport Ground Access Model

This model captures airport travel demand on transportation facilities in San Diego County, modeling travel to and from the airport for arriving and departing passengers. It allows SANDAG to test the impacts of various parking price and supply scenarios at the airport. The model is based on the 2008 San Diego International Airport Survey of airport passengers in which data were collected on their travel to the airport prior to their departure.

Cross Border Xpress Terminal Model

The CBX terminal is a unique facility that provides access to Tijuana International Airport from the United States via a pedestrian bridge. The terminal provides a much faster border crossing than is available at either San Ysidro or Otay Mesa, especially for returning passengers. In order to use the facility, each traveler must have a Tijuana International Airport boarding pass and pay a fee to cross each direction. The terminal offers parking, rental car services, airline check-in services, duty-free shopping, and dining. It opened in December 2015.

Visitor Model

The visitor model captures the demand of visitor travel on transportation facilities in San Diego County. The model is estimated based on the 2011 SANDAG Visitor Survey of airport passengers and hotel guests in which data were collected while visiting San Diego.

External Models

The external travel models predict characteristics of all vehicle trips and selected transit trips crossing the San Diego County border. This includes trips that travel through the region without stopping and trips that are destined for locations within the region.

The external–external, external–internal, and internal–external trips in San Diego County were segmented into the following trip types:

- **U.S.–U.S.: External–external** trips whose production and attraction are both in the United States, but not in San Diego County.
- **US–M.X.: External–external** trips with one trip end in the United States and the other in Mexico.
- **US–S.D.: External–internal** trips with a production elsewhere in the United States and an attraction in San Diego County.
- **MX–S.D.: External–internal** trips with a production in Mexico and an attraction in San Diego County (covered by the Mexican resident crossborder model).
- **SD–U.S.: Internal–external trips** with a production in San Diego and an attraction elsewhere in the United States.
- **SD–MX: Internal**–external trips with a production in San Diego County and an attraction in Mexico.

External heavy truck model

The external heavy truck model predicts truck flows into, out of, and through San Diego County. The model is based upon a dataset created by Bureau of Transportation Statistics and the Federal Highway Administration (FHA) known as the Freight Analysis Framework (FAF). The FAF integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. The model utilizes FAF4 data, which is based on the 2012 Commodify Flow Survey, and provides forecasts through 2045.

Commercial vehicle model

The commercial vehicle model is a disaggregated tour-based model developed in 2014. This model was based upon a local commercial vehicle survey and replaces the aggregate intraregional Heavy-Duty Truck Model (HDTM) and nonfreight commercial vehicle components of the original aggregate commercial vehicle model. The internal/external component of the HDTM was retained in the new model system but was updated to FAF4 data.

Trip Assignment

The final steps of the SANDAG ABM2+ are to assign the trip demand onto the roadway and transit networks. Assignments are run for the five time periods identified in Table B.3.

Traffic Assignment

The traffic assignment for the ABM2+ is a 15-class assignment with generalized cost by five times of day. Auto vehicle classes are broken out by VOT for low-, medium-, and high- income groups, respectively. The 15 classes are drive-alone non-transponder, drive-alone transponder, shared ride 2, and shared ride 3+ by VOT and heavy truck by weight class (light-heavy, medium-heavy, and heavy-heavy).

The traffic 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 five time periods (as defined in the Key Modeling Units section). 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. Customized programs process outputs from traffic assignment and generate total VMTs by vehicle class, and percentage of VMTs by speed bin and by vehicle class. This information is input to the EMFAC program to generate emissions summaries.

Transit Assignment

The transit assignment uses a headway-based approach, where the average headway between vehicle arrivals for each transit line is known, but exact schedules are not. Passengers and vehicles arrive at stops randomly and passengers choose their travel itineraries considering the expected average waiting time.

The Emme extended transit assignment is based on the concept of optimal strategy but extended to support a number of behavioral variants. The optimal strategy is a set of rules that define sequence(s) of walking links and boarding and alighting stops, producing the minimum expected travel time (generalized cost) to a destination. At each boarding point, the strategy may include multiple possible attractive transit lines with different itineraries. A transit strategy will often be a tree of options, not just a single path. A line is considered attractive if it reduces the total expected travel time by its inclusion. The demand is assigned to the attractive lines in proportion to their relative frequencies.

Model Inputs

The SANDAG ABM2+ utilizes a variety of data as inputs. Besides the Series 14 Regional Growth Forecast, SCS land use pattern, inputs (used to provide existing and planned land use and demographic characteristics), there are three major inputs: highway networks used to describe existing and planned roadway facilities, transit networks used to describe existing and planned public transit service, and an active transportation network used to describe non-motorized bicycle and pedestrian facilities.

The regionally significant projects and the years they are expected to open to traffic for each analysis year are documented in Tables B.11 through B.13. The design concept and scope of projects allow adequate model representation to determine intersections with regionally significant facilities, route options, travel times, transit ridership, and land use. The VMT for federal projects that are not regionally significant are also accounted for in the regional emissions analysis.

Highway Networks

The regional highway networks in the proposed amendment are identical to the regional highway networks in the 2021 Regional Plan, and include all roads classified by local jurisdictions in their general plan circulation elements. These roads include freeways, expressways, and the Regional Arterial System (RAS), which 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 TAZs.

The route improvements and additions in the proposed amendment are identical to those in the 2021 Regional Plan, which were 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 for the amendment. These include all state highways, proposed national highway system routes, regionally significant arterials, and "other principal arterials" functionally classified by the FHA. These include federal and non-federal regionally significant projects.

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.

In addition, the Managed/HOV lanes that were included in the 2021 Regional Plan are identical to those included in the amendment (Tables B.11a–B.14b, located at the end of this attachment). Managed Lanes offer priority access to people using transit, carpooling, motorcycles, or vanpooling along with emergency vehicles and some low-emission vehicles with appropriate decals. Additionally, one-lane HOV facilities that operate as two-person carpool lanes in earlier years 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 LOS D or better.

SANDAG maintains a master transportation network from which a specific year network, between 2010 and 2050, can be built.

For the proposed amendment air quality conformity analysis, using emissions budgets from the 2020 SIP, SANDAG built and verified six highway networks (2023, 2026, 2029, 2032, 2040, and 2050) from the master transportation network.

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, are included in Tables B.11a and B.14b. Locally funded, regionally significant projects have also been or are included in the air quality conformity analysis. These projects are funded with 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. The only additional facilities that are added to the master transportation network for transit modeling purposes are as follows:

- Rail lines used by commuter rail, Trolleys, and streetcars
- Streets used by buses that are not part of local general plan circulation elements

Rapid service has stop spacing similar to commuter (Freeway Rapid) or light rail (Arterial Rapid) rail stations and operating characteristics midway between rail and bus service. Rapid service is provided by advanced design buses operating on HOV lanes or Managed Lanes, some at-grade transit ways, and surface streets with priority transit systems.

Bus speeds assumed in the transit networks are derived from modeled highway speeds and reflect the effects of congestion. Higher bus speeds may result in 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. A customized procedure using the traffic assignment software replicates the San Diego region's fare policies for riders (seniors, disabled, students):

- Local buses collect a flat fare of $2.50 (COASTER Connection buses are free, some future shuttle routes charge $1)
- Trolleys and SPRINTER charge $2.50 for all trips
- Commuter rail (COASTER), has a zone-based fare of between $5 and $6.50 currently and an assumed flat fare (along with a future Tier 1 high-speed commuter rail mode) of $6
- Express Freeway Rapid routes are assumed to charge $5
- Rapid Bus routes are assumed to charge $2.50

Transit fares reflect ridership costs at the time the transportation model was developed. Fares are expressed in 2010 dollars and are held 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 included in the 2021 Regional Plan and other transit corridor studies remain unchanged by this proposed amendment. In addition to federal- and state-funded projects, locally funded transit projects that are regionally significant are included in the proposed amendment air quality conformity analysis.

Active Transportation Networks

SANDAG maintains an all-street active transportation network including existing and planned bike projects to support bike project evaluation and impact analysis. Based on the proposed bike projects in the regional bikeway system developed through Riding to 2050: San Diego Regional Bike Plan, SANDAG generates year-specific active transportation networks and uses these networks to create accessibility measures from MGRA to MGRA for walking and biking and from TAZ to TAZ for biking modes. These active transportation accessibility measures are inputs to the SANDAG ABM2+ to simulate people's choice of travel mode and choice of bike routes.

The active transportation network has unique characteristics that account for facility type, bike treatments, and elevation change. The active transportation networks include five classification types for bike facilities in the regional bikeway system: Class I: bike paths; Class II: bike lanes; Class III: bike routes; Class IV: cycle tracks; and Class "V": bike boulevards. Class V is an internal designation and not a California vehicle code facility type. Once network coding is completed, the ABM2+ is run for the applicable scenarios: 2023, 2026, 2029, 2032, 2040, and 2050 for the 2020 SIP.

Data Sources

Aside from network inputs, SANDAG relies on several survey datasets to estimate and calibrate the model parameters. The most important survey data are household travel. The latest household travel survey conducted for SANDAG was the 2016–2017 Household Travel Behavior Survey (HTS2016) with smartphone-based travel diaries as the primary means of travel data collection. Since 1966, consistent with the state of the practice for the California Household Travel Survey and National Household Travel Survey, SANDAG and Caltrans conduct a comprehensive travel survey of San Diego County every ten years. HTS2016 surveyed 6,139 households in San Diego County. The survey asked all households with smartphones to participate using the smartphone-based GPS travel diary and survey app (rMove) for one week and accommodated participating households without smartphones by allowing them to complete their one-day travel diary online or by calling the study call center.

As part of a joint survey effort with the Metropolitan Transportation Commission and the Southern California Association of Governments funded by California Senate Bill 1 (Beall, 2017) (SB 1), SANDAG conducted a TNC survey in 2019 to better understand TNC usage in the San Diego region. The TNC survey includes 2,800 complete persons,[5] 17,340 completed person-days, and 1,578 TNC trips. SANDAG used the 2019 TNC survey data to estimate TNC single and pooled in the mode choice model.

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[5] A complete person is when a person completes all trip surveys and the daily survey for a given travel day. A person is considered complete if they have at least one complete person-day.

Additional data needed for the mode choice components of the ABM2+ come from a transit on-board survey. The most recent SANDAG survey of this kind is the 2015 Transit On-Board Survey (OBS2015). OBS2015 collected data on transit trip purpose, origin and destination address, access and egress mode to and from transit stops, the on/off stop for surveyed transit routes, number of transit routes used, and demographic information.

Population synthesis requires two types of data: individual household and person Census records from San Diego County and aggregate data pertaining to the sociodemographic characteristics of each zone in the region. The first type of data is available from the Public Use Microdata Sample (PUMS), a representative sample of complete household and person records that is released with the Census and American Communities Survey. The second type of data is from the Census for the base year and from land use forecasts for future years.

Table B.8 lists data sources mentioned above along with other necessary sources of data. Modeling parking location choice and employer reimbursement of parking cost depends on parking survey data collected from 2010 into early 2011 as well as a parking supply inventory. The transponder-ownership sub-model requires data on transponder users. Data needed for model validation and calibration includes traffic counts, transit-boarding data, Census Transportation Planning Package (CTPP), Caltrans Performance Measurement System (PeMS), and Highway Performance Monitoring System (HPMS).

Table B.8

ABM2+ Input Data

ABM2+ Input Data	
SANDAG Surveys	**Outside Data Sources**
• Household Travel Behavior Survey (2016) • Transit On-Board Survey (2015) • SB 1 TNC Survey (2019) • Commute Behavior Survey (2018) • Taxi Passenger Survey (2009) • Parking Inventory Survey (2010) • Parking Behavior Survey (2010) • Border Crossing Survey (2011) • Visitor Survey (2011) • Establishment Survey (2012) • Tijuana Airport Passenger Survey (2017) • Commercial Vehicles Survey (2011) • Vehicle Classification & Occupancy (2006) • Beach Intercept Survey (2017)	• San Diego International Airport Air Passenger Survey (2009) • San Diego International Airport Passenger Forecasts – Airport Development Plan: San Diego International Airport (2013) • Decennial Census Summary File-1 tabulation (2010) • CTPP • PUMS • American Community Survey (2015, 2016, 2017) • Bicycle counts (2011) • Jurisdiction annual traffic counts (2016) • Transponder ownership data (2012) • Caltrans PeMS (2016) • Caltrans HPMS (2016) • FAF 4 (2012)

Motor Vehicle Emissions Modeling

Emissions Model

On August 15, 2019, the U.S. EPA approved EMFAC2017 v1.0.2 for use in conformity determinations and allowed for a two-year grace period for transition from the previous emission model (EMFAC2014) (84 FR 41717). Consistent with 40 CFR 93.111, EMFAC2017 v1.0.2, as the latest emissions model, was used to project the regional emissions for the proposed amendment.

Projections of daily regional emissions were prepared for reactive organic gases (ROG) and nitrogen oxides (NOx).

The following process emissions are generated for each pollutant:

- **All pollutants:** Running exhaust, idling exhaust, starting exhaust, total exhaust
- **ROG and total organic gases:** Diurnal losses, hot-soak losses, running losses, resting losses, total losses

EMFAC2017 models multiple vehicle categories, including the following:

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

EMFAC2017 includes updated motor vehicle fleet information from the California Department of Motor Vehicles for 2013–2016 and a new module that improves the characterization of activity and emissions from transit buses. Additionally, it allows users to estimate emissions of natural gas–powered vehicles in addition to gasoline- and diesel-powered vehicles.

Regional Emissions Forecasts

Regional travel demand forecasts were initiated in September 2022. Output from the ABM2+ was then summarized to create EFMAC2017 inputs for emissions modeling.

Beginning in September 2022, SANDAG prepared countywide forecasts of average weekday ROG and NOx emissions for 2023, 2026, 2029, 2032, 2040, and 2050 for the 2020 SIP using the EMFAC2017 v1.0.2 model. ROG and NOx emissions are based upon the summer season.

2008 Eight-Hour Ozone Standard

On October 19, 2021, the U.S. EPA found the motor vehicle emissions budgets from the 2020 SIP adequate for transportation conformity purposes for the 2008 ozone NAAQS (86 FR 54692).

Severe Nonattainment Area classification established 2026 as the attainment year and 2023 as a reasonable further progress demonstration year for the 2008 Eight-Hour Ozone Standard. The analysis years were selected to comply with 40 CFR 93.106(a)(1) and 93.118(a). According to these sections of the Conformity Rule, analysis years must include reasonable further progress demonstration years (2023), attainment year (2026), the horizon year of the plan's forecast period (2050), and no more than ten years between analysis years (2032, 2040). Additionally, the first horizon year (2023) must be within ten years from the base year used to validate the regional transportation model (2016).

2015 Eight-Hour Ozone Standard

On October 19, 2021, the U.S. EPA found the motor vehicle emissions budgets from the 2020 SIP adequate for transportation conformity purposes for the 2015 ozone NAAQS (86 FR 54692).

Severe Nonattainment Area classification established 2032 as the attainment year for the 2015 Eight-Hour Ozone Standard. The 2020 SIP established air quality budgets for the 2015 ozone standard. The 2020 SIP included a voluntary Nonattainment Area classification change from Moderate to Severe Nonattainment Area for the 2015 Eight-Hour Ozone Standard. The new classification established 2032 as the attainment year and 2023, 2026, and 2029 as reasonable further progress demonstration years. The analysis years were selected to comply with 40 CFR 93.106(a)(1) and 93.118(a). According to these sections of the Conformity Rule, analysis years must include reasonable further progress demonstration years (2023, 2026, 2029), attainment year (2032), the horizon year of the plan's forecast period (2050), and no more than ten years between analysis years (2040). Additionally, the first horizon year (2023) must be within ten years from the base year used to validate the regional transportation model (2016).

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 proposed amendment, the emission analysis described in the Regional Emissions Forecast section was used.

Table B.9 shows that the projected ROG and NOx emissions from the proposed amendment are below the applicable ROG and NOx budgets from the 2020 SIP for the 2008 and 2015 ozone standards.

Table B.9

Proposed Amendment 2020 SIP Conformity Analysis for the 2008 and 2015 Eight-Hour Ozone Standards (EMFAC2017)

Proposed Amendment Conformity Analysis for the 2008 and 2015 Eight-Hour Ozone Standards (EMFAC2017)						
			ROG		NOx	
Year	Average Weekday Vehicle Starts (1,000s)	Average Weekday Vehicle Miles (1,000s)	SIP Emissions Budget Tons/Day	ROG Emissions Tons/Day	SIP Emissions Budget Tons/Day	NOx Emissions Tons/Day
2023	11,258	85,451	13.6	13.4	19.3	17.3
2026	11,558	85,661	12.1	11.6	17.3	15.0
2029	11,892	86,285	11.0	10.3	15.9	13.5
2032	12,278	87,358	10.0	9.2	15.1	12.6
2040	12,986	88,730	10.0	7.3	15.1	11.6
2050	13,719	90,083	10.0	6.7	15.1	11.9

Note: Emissions budgets from the 2020 SIP were found adequate for transportation conformity purposes by U.S. EPA, effective October 19, 2021.

Exempt Projects

40 CFR Section 93.126 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 B.10 illustrates the exempt projects considered in the proposed amendment, which are identical to the exempt projects considered in the 2021 Regional Plan. 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 B.10

Exempt Projects

Exempt Projects	
Project/Program Description	
Bikeway, Rail, Trail, and Pedestrian Projects	
• Bayshore Bikeway • Bay-to-Ranch Bikeway • Border to Bayshore Bikeway • Camp Pendleton Trail • Carlsbad – San Marcos Bicycle Corridor • Central Avenue Bikeway • Central Coast Bicycle Corridor • Central Mobility Bikeway (Coastal Rail Trail: Pacific Highway) • Chula Vista Greenbelt • Downtown to Imperial Avenue Bikeway • North Park/Mid-City Bikeway: Howard–Orange Bikeway • Clairemont – Centre City Bicycle Corridor • Coastal Rail Trail • East County Northern Bicycle Loop • East County Southern Bicycle Loop • El Camino Real Bicycle Corridor • El Portal Pedestrian and Bicycle Underpass • Encinitas – San Marcos Bicycle Corridor • Escondido Creek Bike Path Bridge and Bikeway • Coastal Rail Trail: Rose Creek • North Park/Mid-City Bikeways: University Bikeway • Inland Rail Trail	• San Diego River Trail: Stadium Segment • Interstate 805 Bicycle Corridor • Kearny Mesa – Beaches Bicycle Corridor • Mid-County Bikeway • Mira Mesa Bicycle Corridor • Uptown Bikeways: Washington Street and Mission Valley Bikeways • National City – Highland Avenue Community Corridor • North Park/Mid-City Bikeways • Oceanside – Bicycle Master Plan • Otay Mesa Port of Entry Pedestrian/Bicycle Facilities • Park Boulevard–Downtown Mobility Plan • Pershing Bikeway • San Diego Regional Bicycle Plan • San Diego River Trail • San Luis Rey River Trail • Santee – El Cajon Bicycle Corridor • SR 15 Bikeway • SR 52 Bikeway • SR 125 Bicycle Corridor • SR 905 Bicycle Corridor • Tecate International Border Crossing Pedestrian Facilities • Vista Way Bicycle Connector
Safety Improvement Program	
• Bridge Rehabilitation/ Preservation/Retrofit • Collision Reduction • Emergency Response • Hazard Elimination/Safe Routes to School • Highway Maintenance	• Safety Improvement Program • Roadway/Roadside Preservation • Smart Growth Incentive Program • Safe Routes to Transit • Safe Routes to School

Exempt Projects	
Project/Program Description	
Transportation Systems and Demand Management	
• Traveler Information System • Compass Card • FasTrak® • Freeway Service Patrol • Vehicle Automation • Regional Rideshare Program • Multimodal Integration and Performance-Based Management • Intelligent Transportation System for Transit • ITS Operations • Joint Transportation Operations Center • Trolley Fiber Communication Network	• Electronic Payment Systems and Universal Transportation Account • Various Traffic Signal Optimization/Prioritization • Transit Infrastructure Electrification • Employer Services and Outreach • Flexible Fleet Pilots • Regional Electric Vehicle Charging Incentive Program • Commuter Services and Bike Program • Mobility Hubs • Active Traffic and Demand Management • Shared Mobility Services
Transit Terminals	
• Central Mobility Hub/Airport Intermodal Transit Center/Terminal	• San Ysidro Intermodal Transit Center/Terminal

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.[6] 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 Planning and Transportation Conformity Analysis for the proposed Amendment complies with the San Diego Transportation Conformity Procedures adopted in July 1998. In turn, these procedures comply with federal requirements under 40 CFR Part 93. Interagency consultation involves SANDAG (as the MPO for San Diego County), the SDAPCD, 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.

[6] 2020 SIP

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 proposed amendment at CWG meetings as follows:

- November 2, 2022: Staff presented information on the proposed amendment schedule and initial conformity criteria and procedures, including: latest emission model; emission budgets; list of transportation projects; and the list of exempt projects.
- March 1, 2023: Staff presented additional information about the criteria and procedures to be followed, including: the regional growth forecast, SCS land use pattern; transportation control measures; revenue constrained financial assumptions, revenue strategies; public involvement and outreach.
- April 25, 2023: SANDAG distributed the draft air quality planning and transportation conformity analysis for the proposed amendment for interagency consultation.
- At its May 3, 2023, meeting, the CWG is scheduled to discuss the conformity analysis for the draft proposed amendment conformity determination.

Members of the public were welcome to provide comments at CWG and Board meetings.

Proposed Amendment to the 2021 Regional Plan Projects

This section contains the capacity-increasing projects included in the proposed amendment, which are identical to the capacity-increasing projects included in the 2021 Regional Plan. The tables include the conformity analysis year, project details, and estimated cost ($2020). Tables B.11 through B.14 include the projects for the amendment by 2020 SIP Air Quality Phasing. Table B.11 has the major goods movement, complete corridor, and transit leap projects by each regional corridor. Figure B.6 shows the location of each corridor within the region. Table B.12 lists the significant rural projects. Table B.13 includes the arterial capacity-increasing projects, and Table B.14 lists additional transit projects that did not apply to the prior tables.

Figure B.6
Corridor Geographies

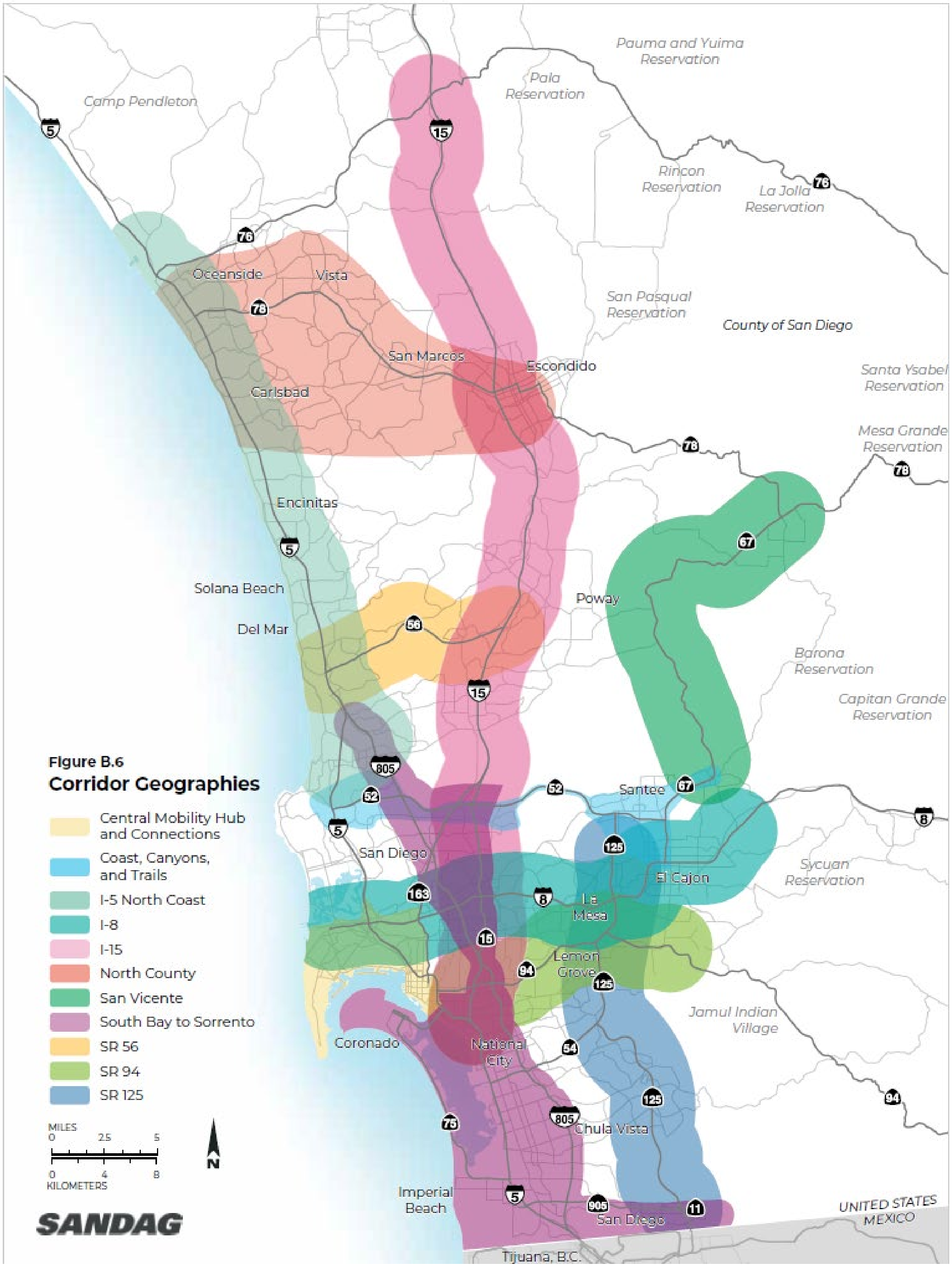

Table B.11

Major Projects by Corridor and Air Quality Phasing

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
South Bay to Sorrento (SB2S)						
2023	GM01	Goods Movement: Border	Otay Mesa Port of Entry (POE) Commercial Vehicle Enforcement Facility (CVEF) Modernization	Otay Mesa POE CVEF modernization: Improvements to the CVEF to reflect the U.S. General Services Administration's proposed Otay Mesa POE Modernization Project	N/A	$6
2026	CC045	Complete Corridor: Managed Lane (ML)/ Goods Movement	SR 11/Otay Mesa East (OME) POE (Enrico Fermi to Mexico)	-- to 4 toll lanes (T) + POE	SR 125	$482
2026	GM02	Goods Movement: Border	OME POE Pilot Programs	Pilot programs for streamlining commercial vehicle operations for reducing wait times at OME POE	N/A	$20
2026	GM03	Goods Movement: Border	Otay Mesa Southbound Truck Route	Improvements to the Otay Mesa POE southbound truck route, including Otay Truck Route and La Media Road	N/A	$49
2026	GM07	Goods Movement: Roadways	Regional Border Management System (RBMS) & Tolling Equipment	Border wait times – SR 11 tolling equipment and RBMS	N/A	$35
2026	TL21	Transit Leap	*Rapid* 12 Phase 1	Spring Valley to Downtown via Southeast San Diego (light version of Rapid)	I-15, SR 94, SR 125, Central Mobility Hub (CMH)	$18
2026	TL44	Transit Leap	*Rapid* 630	Iris Trolley/Palomar to Kearny Mesa via I-5/SR 163 and City College	I-8; I-15; SR 94; Coast, Canyons, and Trails (CCT); CMH	$36

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2026	TL48	Transit Leap	*Rapid* 640	San Ysidro to Central Mobility Hub via I-5 and City College	I-8, I-15, R 94, CMH	$28
2026	TL53	Transit Leap	*Rapid* 950 Phase 1	Otay Mesa POE to Imperial Beach via SR 905 (light version of Rapid)	SR 125	$6
2029	CC001	Complete Corridor: ML/ Goods Movement	I-5 (SR 905 to H Street)	8 freeway lanes (F) to 6F+2ML	N/A	$51
2029	CC002	Complete Corridor: ML/ Goods Movement	I-5 (H Street to Pacific Highway)	8F to 6F+4ML	I-8, I-15, SR 94, CMH	$378
2029	CC038	Complete Corridor: ML	SR 163 (I-8 to I-805)	8F to 6F+2ML	I-8, CMH	$36
2029	CC039	Complete Corridor: ML	SR 163 (I-805 to SR 52)	8F to 6F+2ML	I-15, CCT	$27
2029	GM06	Goods Movement: Roadways	Harbor Drive 2.0	Designated Freight Route: Dedicated lanes (where feasible) and signal priority for truck freight along Harbor Drive between the Tenth Avenue Marine Terminal/Cesar Chavez Parkway, National City Marine Terminal, and connections to I-5; includes freight signal prioritization, queue jumps, delineators, and signage; generally aligned in the #1 lanes and median	CMH	$32
2029	GM08	Goods Movement: Roadways	I-5 Working Waterfront Access	I-5 Working Waterfront Access Bottleneck Relief between SR 94 and SR 54	N/A	$50
2029	GM09	Goods Movement: Roadways	Vesta Bridge – Phase 1	Vesta Bridge Phase 1 and operational improvements SR 15, Main, Harbor, and 32nd Streets	N/A	$55

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2029	TL12	Transit Leap/ Goods Movement	LRT 510	Blue Line (San Ysidro to University Town Center [UTC], grade separations at 28th Street, 32nd Street, E Street, H Street, Palomar Street, and Blue/Orange track connections at 12th/Imperial)7F7F7F[7]	I-8, I-15, SR 94, CCT, CMH	$510
2029	TL22	Transit Leap	*Rapid* 12 Phase 2	Spring Valley to Downtown via Southeast San Diego (full version of Rapid)	I-15, SR 94, SR 125, CMH	$73
2029	TL25	Transit Leap	*Rapid* 41	Fashion Valley to UTC/UC San Diego via Linda Vista and Clairemont	I-8, CCT, CMH	$58
2029	TL28	Transit Leap	*Rapid* 120	Kearny Mesa to Downtown via Mission Valley	I-8, I-15, CCT, CMH	$109
2029	TL35	Transit Leap	*Rapid* 295	Spring Valley to Clairemont via La Mesa and Kearny Mesa	I-8, I-15, SR 94, SR 125, CCT	$91
2029	TL43	Transit Leap	*Rapid* 625	San Diego State University (SDSU) to Palomar Station via East San Diego, Southeast San Diego, National City	I-8, I-15, SR 94	$197
2029	TL46	Transit Leap	*Rapid* 637	North Park to 32nd Street Trolley Station via Golden Hill	I-8, I-15, SR 94	$103
2029	TL49	Transit Leap	*Rapid* 709	H Street Trolley Station to Millennia via H Street Corridor, Southwestern College	SR 125	$99

[7] SANDAG will conduct a Blue Line Express Feasibility and Conceptual Engineering Study as a Near-Term Implementation Action (included in Appendix B: Implementation Actions of the approved Plan).

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2029	TL59	Transit Leap	*Rapid* 950 Phase 2	Otay Mesa POE to Imperial Beach via SR 905 (full version of *Rapid*)	SR 125	$22
2032	CC005	Complete Corridor: ML/ Goods Movement	I-5 (I-805 to SR 56)	8F/14F+2HOV to 6F/12F+4ML	I-5 North Coast Corridor (NCC), SR 56	$25
2032	CC017	Complete Corridor: ML/ Goods Movement	I-805 (Palm Avenue to H Street)	8F/8F+2ML to 6F+4ML	N/A	$46
2032	CC018	Complete Corridor: ML/ Goods Movement	I-805 (H Street to I-15)	8F+2ML to 6F+4ML	I-15, SR 94	$163
2032	CC019	Complete Corridor: ML/ Goods Movement	I-805 (SR 15 to I-8)	8F to 6F+4ML	I-8, I-15, SR 94	$96
2032	CC020	Complete Corridor: ML/ Goods Movement	I-805 (I-8 to Mesa College Drive)	10F to 6F+4ML	I-8, I-15	$56
2032	CC021	Complete Corridor: ML/ Goods Movement	I-805 (Mesa College Drive to Balboa Avenue)	8F to 6F+4ML	CCT	$58
2032	CC022	Complete Corridor: ML/ Goods Movement	I-805 (Balboa Avenue. to Northbound Bypass Lane)	8F+2ML to 6F+4ML	CCT	$149
2032	CC063	Complete Corridor: Managed Lane Connector (MLC)	I-5 (I-805)	North to North and South to South	N/A	$84
2032	CC085	Complete Corridor: MLC	I-805 (SR 52)	West to North and South to East	CCT	$149
2032	CC114	Complete Corridor: Transit Operational Improvement	I-805 (Nobel Drive)	North and South	CCT	$49
2040	CC069	Complete Corridor: MLC	I-5 (SR 15)	North to North and South to South	I-15, SR 94	$274
2040	CC070	Complete Corridor: MLC	I-5 (SR 15)	South to North and South to North	I-15, SR 94	$274
2040	CC084	Complete Corridor: MLC	I-805 (SR 94)	North to West and East to South	I-15, SR 94	$140
2040	CC087	Complete Corridor: MLC	I-805 (SR 163)	North to North and South to South	N/A	$267

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2040	CC090	Complete Corridor: MLC	I-805 (I-8)	North to East and West to South	I-8, I-15	$202
2040	CC092	Complete Corridor: MLC	I-805 (I-8)	South to East and West to North	I-8, I-15	$202
2040	TL02	Transit Leap	Commuter Rail 582	Sorrento Mesa to National City via UTC, Kearny Mesa, and University Heights8F8F8F[8]	I-8, I-15, SR 94, CCT	$12,660
2040	TL34	Transit Leap	*Rapid* 293	Imperial Beach to Otay Ranch via Palomar Street	SR 125	$111
2040	TL45	Transit Leap	*Rapid* 635	Eastlake to Palomar Trolley via Main Street Corridor	SR 125	$116
2040	TL47	Transit Leap	*Rapid* 638	Iris Trolley to Otay Mesa via Otay, Airway Drive, SR 905 Corridor	SR 125	$91
2050	CC016	Complete Corridor: ML/ Goods Movement	I-805 (SR 905 to Palm Avenue)	8F to 6F+4ML	N/A	$60
2050	CC040	Complete Corridor: ML	SR 54 (I-805 to SR 125)	6F to 4F+2ML	SR 125	$48
2050	CC041	Complete Corridor: ML/ Goods Movement	SR 905 (I-5 to Border)	6F to 4F+2ML	SR 125	$193
2050	CC071	Complete Corridor: MLC	I-5 (SR 905)	South to East and West to North	N/A	$202
2050	CC086	Complete Corridor: MLC	I-805 (SR 52)	North to West and East to South	CCT	$126
2050	CC089	Complete Corridor: MLC	I-805 (I-8)	North to West and East to South	I-8, I-15	$202
2050	CC091	Complete Corridor: MLC	I-805 (I-8)	South to West and East to North	I-8, I-15	$202
2050	CC093	Complete Corridor: MLC	I-805 (SR 54)	South to East and West to North	N/A	$219

[8] The SB2S Comprehensive Multimodal Corridor Plan is completing a more detailed ridership analysis of the Purple Commuter Rail alignment (Route 582). The analysis is studying an alignment that would include stations in City Heights and at SDSU (west campus).

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2050	CC094	Complete Corridor: MLC	I-805 (SR 54)	North to East and West to South	N/A	$219
2050	CC095	Complete Corridor: MLC	I-805 (SR 905)	South to West and East to North	N/A	$202
2050	CC096	Complete Corridor: MLC	I-805 (SR 905)	South to East and West to North	N/A	$202
2050	CC115	Complete Corridor: Direct Access Ramp (DAR)	SR 905 (Beyer Boulevard)	East	N/A	$42
2050	CC116	Complete Corridor: DAR	SR 905 (Siempre Viva Road)	North	SR 125	$42
2050	GM04	Goods Movement: Border	Otay Mesa POE Truck Bridge to CVEF	Otay Mesa POE: Bridge between POE and CVEF to coincide with improvements at both facilities	N/A	$50
2050	GM05	Goods Movement: Roadways	Harbor Drive Multimodal Corridor Improvements	Harbor Drive Multimodal Corridor Improvements, including but not limited to: ITS systems expanding the Designated Freight Route, removing height and weight conflicts along the truck route, improvements at 28th Street and 32nd Street, pedestrian crossings and bridges, various truck improvements, bikeway accommodations, streetscape, safety, and parking improvements	CMH	$192
2050	TL03	Transit Leap	Commuter Rail 582	National City to U.S. Border9F9F9F[9]	I-15, SR 94	$2,977

[9] The SB2S Comprehensive Multimodal Corridor Plan is completing a more detailed ridership analysis of the Purple Commuter Rail alignment (Route 582). The analysis is studying an alignment that would include stations in City Heights and at SDSU (west campus).

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2050	TL04	Transit Leap	Commuter Rail 583	Central Mobility Hub to U.S. Border via Downtown San Diego	I-8, I-15, SR 94, CMH	$7,581
2050	TL13	Transit Leap	LRT 510	Blue Line (San Ysidro to UTC, grade separations at Taylor/Ash)10F10F10F[10]	I-8, I-15, SR 94, CCT, CMH	$510
Central Mobility Hub (CMH)						
2029	CC003	Complete Corridor: ML/ Goods Movement	I-5 (Pacific Highway to SR 52)	8F to 6F+4ML	I-8, CCT	$353
2029	TL23	Transit Leap	*Rapid* 28	Point Loma to Kearny Mesa via Central Mobility Hub, Linda Vista	I-8, I-15, CCT, SB2S	$105
2029	TL52	Transit Leap	*Rapid* 910	Coronado to Downtown via Coronado Bridge	I-15, SR 94, SB2S	$51
2029	TL56	Transit Leap	Airport Connection Automated People Mover	Central Mobility Hub to Airport via Car Rental Lot and Harbor Island East Basin	I-8	$1,398
2040	CC117	Complete Corridor: AIRC	Complete Corridor Elements	Airport connectivity including Laurel Street airport entrance, Laurel Street modifications (Pacific Highway to I-15), and new I-5 freeway ramps at Laurel Street and Redwood	N/A	$836
2040	MHLA1	Mobility Hubs	Central Mobility Hub	Transit station construction and site acquisition	N/A	$2,420

[10] SANDAG will conduct a Blue Line Express Feasibility and Conceptual Engineering Study as a Near-Term Implementation Action (included in Appendix B: Implementation Actions of the approved Plan).

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2040	TL18	Transit Leap	Tram 555	Tram: Downtown to Logan Heights, Golden Hill, South Park, North Park, University Heights, Hillcrest	I-8, I-15, SB2S	$1,175
State Route 125 (SR 125)						
2029	CC042	Complete Corridor: ML	SR 125 (SR 54 to Amaya Drive)	6F/8F to 4F/6F+2ML	I-8, SR 94	$59
2029	CC112	Complete Corridor: DAR	SR 125 (Spring Street/ SR 94)	South	I-8, SR 94	$42
2029	TL33	Transit Leap	*Rapid* 292 Phase 2	Pacific Beach to Otay Mesa via Kearny Mesa, El Cajon, Jamacha, and Otay Lakes (full version of *Rapid*)	I-8, I-15, SR 94, CCT, SB2S	$96
2040	CC097	Complete Corridor: MLC	SR 125 (I-8)	North to West and East to South	I-8, SR 94	$202
2040	CC098	Complete Corridor: MLC	SR 125 (I-8)	North to East and West to South	I-8, SR 94	$202
2040	CC099	Complete Corridor: MLC	SR 125 (SR 94)	North to West and East to South	SR 94	$203
2050	CC043	Complete Corridor: ML	SR 125 (Amaya Drive to Mission Gorge Road)	6F to 4F+2ML	I-8, CCT	$40
2050	CC044	Complete Corridor: ML	SR 125 (SR 905 to SR 54)	4T to 4F+2ML	SB2S	$227
2050	CC100	Complete Corridor: MLC	SR 125 (SR 52)	North to West and East to South	CCT	$202
2050	CC101	Complete Corridor: MLC	SR 125 (SR 54)	South to South and North to North	N/A	$202
2050	CC102	Complete Corridor: MLC	SR 125 (SR 54)	North to West and East to South	N/A	$202
2050	CC113	Complete Corridor: DAR	SR 125 (Jamacha Boulevard)	North and South	N/A	$49

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
Interstate-15 (I-15)						
2029	CC073	Complete Corridor: MLC	I-15 (SR 78)	East to South and North to West	North County Corridor	$147
2032	TL31	Transit Leap	Rapid 238	UC San Diego to Rancho Bernardo via Sorrento Valley and Carroll Canyon	SR 56, CCT, SB2S	$78
2040	CC011	Complete Corridor: ML/ Goods Movement	I-15 (I-5 to I-805)	6F to 6F+2ML	SR 94, SB2S	$103
2040	CC012	Complete Corridor: ML/ Goods Movement	I-15 (I-805 to I-8)	8F+2TL to 6F+2TL+2ML	I-8, SR 94, SB2S	$115
2040	CC013	Complete Corridor: ML/ Goods Movement	I-15 (I-8 to SR 163)	8F to 6F+4ML	I-8, CCT, SB2S	$241
2040	CC074	Complete Corridor: MLC	I-15 (SR 52)	West to North and South to East	CCT, SB2S	$181
2040	CC075	Complete Corridor: MLC	I-15 (SR 52)	North to West and East to South	CCT, SB2S	$196
2040	CC076	Complete Corridor: MLC	I-15 (SR 52)	North to East and West to South	CCT, SB2S	$196
2040	CC077	Complete Corridor: MLC	I-15 (SR 52)	South to West and East to North	CCT, SB2S	$196
2040	CC079	Complete Corridor: MLC	I-15 (I-8)	North to West and East to South	I-8, SB2S	$202
2040	CC080	Complete Corridor: MLC	I-15 (I-8)	North to East and West to South	I-8, SB2S	$202
2040	CC081	Complete Corridor: MLC	I-15 (I-8)	South to West and East to North	I-8, SB2S	$202
2040	CC082	Complete Corridor: MLC	I-15 (I-8)	South to East and West to North	I-8, SB2S	$202
2040	CC083	Complete Corridor: MLC	I-805 (SR 15)	North to North and South to South	SR 94, SB2S	$112
2040	CC110	Complete Corridor: DAR	I-15 (Clairemont Mesa Boulevard)	North and South	N/A	$49

Major Projects by Corridor and Air Quality Phasing

Conformity Analysis Year	Project ID	Category	Project Name	Description	Connecting Corridor(s)	Cost ($2020) Millions
2040	TL29	Transit Leap	*Rapid* 235	Escondido to Downtown San Diego via I-15 (DAR stations)	I-8, SR 56, SR 94, CCT, North County Corridor, SB2S	$34
2040	TL30	Transit Leap	*Rapid* 237	UC San Diego to Rancho Bernardo via Sorrento Valley and Mira Mesa	SR 56, CCT, SB2S	$54
2050	CC014	Complete Corridor: ML/ Goods Movement	I-15 (Valley Parkway to SR 76)	8F to 6F+3ML	N/A	$408
2050	CC015	Complete Corridor: ML/ Goods Movement	I-15 (SR 76 to County Line)	8F to 6F+3ML	North County Corridor	$199
2050	CC072	Complete Corridor: MLC	I-15 (SR 78)	South to West and East to North	North County Corridor	$147
2050	CC078	Complete Corridor: MLC	I-15 (SR 56)	South to West and East to North	SR 56	$239
Interstate 5 North Coast Corridor (I-5 NCC)						
2026	CC046	Complete Corridor: ML	I-5 (Manchester to Vandegrift)	8F to 8F+2HOV/high-occupancy toll (HOT)11F11F11F[11]	North County Corridor	$171
2026	TL05	Transit Leap/ Goods Movement	Commuter Rail 398	Oceanside to Downtown San Diego (includes upgrades to Pacific Surfliner/COASTER/Metrolink/ Freight LOSSAN services from Orange County to Downtown San Diego, wooden bridge replacements, add station at Downtown San Diego)	CMH	$1,203

[11] Project is consistent with the Caltrans North Coast Corridor (Build NCC) project.

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2029	TL40	Transit Leap	*Rapid* 473	Oceanside to Solana Beach to UTC/UC San Diego via Highway 101 Coastal Communities, Carmel Valley	SR 56, CCT, North County Corridor, SB2S	$156
2032	CC004	Complete Corridor: ML/ Goods Movement	I-5 (SR 52 to I-805)	8F to 6F+4ML	CCT, SB2S	$190
2032	CC111	Complete Corridor: DAR	I-5 (Voigt)	North and South	N/A	$49
2040	CC007	Complete Corridor: ML/ Goods Movement	I-5 (Via de La Valle to La Costa)	8F to 6F+4ML	N/A	$316
2040	CC008	Complete Corridor: ML/ Goods Movement	I-5 (La Costa to Cassidy Street)	8F to 6F+4ML	North County Corridor	$302
2040	CC009	Complete Corridor: ML/ Goods Movement	I-5 (Cassidy Street to Harbor Drive)	8F to 6F+4ML	North County Corridor	$121
2040	CC010	Complete Corridor: ML/ Goods Movement	I-5 (Harbor Drive to County Line)	8F to 6F+2ML	N/A	$197
2040	TL06	Transit Leap/ Goods Movement	Commuter Rail 398	Oceanside to Downtown San Diego (build Del Mar tunnel, add stations at Central Mobility Hub and Camp Pendleton, and grade separation at Leucadia Boulevard)	North County Corridor	$2,875
2050	CC104	Complete Corridor: Interchange and Arterial Operational Improvements	I-5 (SR 56)	West to North and South to East	SR 56	$379
2050	TL07	Transit Leap/ Goods Movement	Commuter Rail 398	Oceanside to Downtown San Diego (build Sorrento Mesa and UTC tunnels, add station at Balboa Avenue)	SR 56, CCT	$3,171

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
State Route 94 (SR 94)						
2026	CC108	Complete Corridor: Interchange and Arterial Operational Improvements	SR 94 (SR 125)	South to East, including auxiliary lane to Lemon Avenue	I-8, SR 125	$137
2040	CC032	Complete Corridor: ML	SR 94 (I-5 to I-15)	8F to 6F+3ML	I-15, SB2S	$39
2040	CC033	Complete Corridor: ML	SR 94 (I-15 to I-805)	8F to 6F+3ML	I-15, SB2S	$23
2040	CC034	Complete Corridor: ML	SR 94 (I-805 to SR 125)	8F to 6F+3ML	I-8, I-15, SR 125, SB2S	$162
2040	TL14	Transit Leap	LRT 520	Orange Line (El Cajon to Downtown, double/third-tracking and grade separations at Euclid Avenue, Broadway/Lemon Grove Avenue, Allison Avenue/ University Avenue, and Severin Drive)	I-8, I-15, SR 125, CMH, SB2S	$274
2050	TL15	Transit Leap	LRT 520	Orange Line (El Cajon to Downtown, double/third-tracking)	I-8, I-15, SR 125, CCT, CMH	$274
Interstate 8 (I-8)						
2023	TL19	Transit Leap	*Rapid* 10 Phase 1	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town (light version of *Rapid*)	I-15, SR 94, SR 125, CMH, SB2S	$36
2029	TL20	Transit Leap	*Rapid* 10 Phase 2	La Mesa to Ocean Beach via Mid-City, Hillcrest, Central Mobility Hub (full version of *Rapid*)	I-15, SR 94, SR 125, CMH, S2BS	$146
2040	CC024	Complete Corridor: ML/ Goods Movement	I-8 (I-805 to College Avenue)	8F to 6F+4ML	I-15, SB2S	$161
2040	CC025	Complete Corridor: ML/ Goods Movement	I-8 (College Avenue to Johnson Avenue)	8F to 6F+4ML	SR 94, SR 125	$281
2040	CC026	Complete Corridor: ML/ Goods Movement	I-8 (Johnson Avenue to Mollison Avenue)	6F to 4F+4ML	SR 125, CCT	$48

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2040	CC027	Complete Corridor: ML/ Goods Movement	I-8 (Mollison Avenue to Greenfield Drive)	4F/6F to 4F+4ML	N/A	$106
2040	TL16	Transit Leap	LRT 530	Green Line (Santee to Downtown, double/third-tracking and grade separations)	I-15, SR 94, SR 125, CCT, CMH, SB2S	$384
2050	CC023	Complete Corridor: ML/ Goods Movement	I-8 (I-5 to I-805)	8F to 6F+4ML	I-15, SB2S	$179
2050	CC067	Complete Corridor: MLC	I-5 (I-8)	South to East and West to North	CMH	$202
2050	CC068	Complete Corridor: MLC	I-5 (I-8)	North to East and West to South	CMH	$202
2050	TL01	Transit Leap	Commuter Rail 581	581: Downtown to El Cajon via SDSU and La Mesa 581B: Central Mobility Hub to El Cajon via SDSU and La Mesa	I-15, SR 94, SR 125, CMH, SB2S	$9,774
2050	TL17	Transit Leap	LRT 530	Green Line (Santee to Downtown, double/third-tracking and grade separations)	I-15, SR 94, SR 125, CCT, CMH, SB2S	$384
Coast, Canyons, and Trails (CCT)						
2023	TL32	Transit Leap	*Rapid* 292 Phase 1	Pacific Beach to Kearny Mesa (light version of Rapid)	I-15, SB2S	$7
2029	TL24	Transit Leap	*Rapid* 30	Balboa Station to Sorrento Mesa via Pacific Beach, La Jolla, UTC	SB2S	$189
2029	TL50	Transit Leap	*Rapid* 870	El Cajon to UTC via Santee, SR 52, I-805	I-8, I-15, SR 125, SB2S	$62
2029	TL51	Transit Leap	*Rapid* 890	El Cajon to Sorrento Mesa via Santee, SR 52, I-805	I-5 NCC, I-8, I-15, SR 125, SB2S	$107
2032	CC029	Complete Corridor: ML	SR 52 (I-805 to I-15)	6F to 4F+3ML	I-15	$92

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2032	CC030	Complete Corridor: ML	SR 52 (I-15 to Mast Boulevard)	6F to 4F+3ML	I-15	$153
2032	CC031	Complete Corridor: ML	SR 52 (Mast Boulevard to SR 125)	4F to 4F+3ML	N/A	$103
2050	CC028	Complete Corridor: ML	SR 52 (I-5 to I-805)	4F to 4F+3ML	SB2S	$214
2050	CC065	Complete Corridor: MLC	I-5 (SR 52)	South to East and West to North	N/A	$202
2050	CC066	Complete Corridor: MLC	I-5 (SR 52)	North to East and West to South	N/A	$202
State Route 56 (SR 56)						
2040	CC006	Complete Corridor: ML/ Goods Movement	I-5 (SR 56 to Via de La Valle)	8F/10F+2HOV to 6F/8F+4ML	I-5 NCC	$37
2040	TL26	Transit Leap	*Rapid* 103	Solana Beach to Sabre Springs via Del Mar Heights and SR 56	I-15	$53
2040	TL27	Transit Leap	*Rapid* 104	Sorrento Valley to Sabre Springs via SR 56	I-15, SB2S	$11
2050	CC035	Complete Corridor: ML	SR 56 (I-5 to I-15)	4F to 4F+3ML	I-15	$549
San Vicente						
2040	CC050	Complete Corridor: Rural	SR 67 (Mapleview to Dye Road)	Shoulder widening/straightening	N/A	$206
2050	CC061	Complete Corridor: Rural	SR 78 (Deer Canyon Drive to Santa Ysabel)	Intersection improvements	N/A	$4
North County Corridor						
2023	TL37	Transit Leap	*Rapid* 450 Phase 1	Oceanside to Escondido via Palomar Airport Road and SR 78 (light version of Rapid)	I-5 NCC, I-15	$8
2029	CC036	Complete Corridor: ML	SR 78 (I-5 to Twin Oaks)	6F to 4F+4ML+Connectors	N/A	$507
2029	CC037	Complete Corridor: ML	SR 78 (Twin Oaks to I-15)	6F to 4F+4ML	I-15	$145

Major Projects by Corridor and Air Quality Phasing						
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Connecting Corridor(s)**	**Cost ($2020) Millions**
2029	CC064	Complete Corridor: MLC	I-5 (SR 78)	South to East and West to North, North to East and West to South	N/A	$352
2029	TL36	Transit Leap	*Rapid* 440	Carlsbad to Escondido Transit Center via Palomar Airport Road	I-5 NCC, I-15	$71
2029	TL39	Transit Leap	*Rapid* 471	Downtown Escondido to East Escondido	I-15	$85
2029	TL41	Transit Leap	*Rapid* 474	Oceanside to Vista via Mission Avenue/ Santa Fe Road Corridor	I-5 NCC	$71
2029	TL42	Transit Leap	*Rapid* 477	Carlsbad Village to SR 76 via College Boulevard, Plaza Camino Real	I-5 NCC	$108
2040	CC105	Complete Corridor: Interchange and Arterial Operational Improvements	I-5 (SR 78)	South to East and West to South	I-5 NCC	$379
2040	TL10	Transit Leap	LRT 399	SPRINTER (Oceanside to Escondido, double-tracking and grade separations at El Camino Real, Melrose Drive, Vista Village Drive/Main Street, North Drive, Civic Center, Auto Parkway, and Mission Avenue)	I-15	$376
2040	TL38	Transit Leap	*Rapid* 450 Phase 2	Oceanside to Escondido via Palomar Airport Road and SR 78 (full version of *Rapid*)	I-5 NCC, I-15	$31
2050	TL11	Transit Leap	LRT 399	SPRINTER (Oceanside to Escondido, extension to North County Fair)	I-5 NCC, I-15	$376

Table B.12

Rural Corridor Projects Air Quality Phasing

Rural Corridor Projects Air Quality Phasing					
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Description**	**Cost ($2020) Millions**
2040	CC047	Complete Corridor: Rural	I-8 (I-8 to West Willows Road)	Interchange improvements	$11
2040	CC049	Complete Corridor: Rural	SR 94 (SR 94 to Melody Road/Daisy Drive)	Intersection improvements	$8
2040	CC052	Complete Corridor: Rural	SR 76 (Rice Canyon Road to Pala Reservation)	Straightening	$60
2040	CC055	Complete Corridor: Rural	SR 76 (SR 76 to Cole Grade Road)	Intersection improvements	$1
2040	CC057	Complete Corridor: Rural	SR 76 (SR 76 to Pauma Reservation Road)	Intersection improvements	$1
2040	CC058	Complete Corridor: Rural	SR 76 (Pala Casino to Rice Canyon Road)	Facility improvements	$1
2040	CC060	Complete Corridor: Rural	SR 79 (SR 79 to Schoolhouse Canyon Road)	Intersection improvements	$1
2050	CC048	Complete Corridor: Rural	I-8 (I-8 to East Willows Road)	Interchange improvements	$11
2050	CC051	Complete Corridor: Rural	SR 76 (SR 79 to Valley Center Road)	Facility improvements	$693
2050	CC053	Complete Corridor: Rural	SR 76 (Harolds Road to Pauma Rancho)	Straightening	$21
2050	CC054	Complete Corridor: Rural	SR 76 (SR 76 to Pala Mission Road)	Intersection improvements	$1
2050	CC056	Complete Corridor: Rural	SR 76 (West Reservation Boundary to East Reservation Boundary)	Shoulder widening	$40
2050	CC059	Complete Corridor: Rural	SR 79 (Deer Canyon Road to San Felipe Road)	Shoulder widening	$226
2050	CC062	Complete Corridor: Rural	SR 94 (Jamul Reservation to Tecate Road)	Shoulder widening/straightening	$252

Table B.13

Arterial Projects Air Quality Phasing

Arterial Projects Air Quality Phasing				
Conformity Analysis Year	**TIP ID**	**Lead Agency**	**Project Name**	**Description**
2023	CB04B	Carlsbad	El Camino Real and Cannon Road	In Carlsbad, along the east side 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.
2023	CB32	Carlsbad	El Camino Real Widening – Poinsettia 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.
2023	CB59	Carlsbad	El Camino Real Widening – Sunny Creek to Jackspar	In Carlsbad, on El Camino Real from Sunny Creek to Jackspar, widen along the northbound side of the El Camino Real to provide three travel lanes (currently two lanes northbound), sidewalk, and a bike lane.
2023	ESC04	Escondido	Citracado Parkway II	West Valley to Harmony Grove, widen from two to four lanes with raised medians; construct bridge over Escondido Creek.
2023	ESC08	Escondido	Felicita Avenue/Juniper Street	Widen from two to four 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.
2023	O22	Oceanside	College Boulevard Improvements from Avenida de la Plata to Waring Road	In Oceanside, widen from the existing four lanes to six lanes with bike lanes and raised median.
2023	SD70	San Diego	West Mission Bay Drive Bridge	In San Diego, replace bridge and increase from four- to six-lane bridge including Class II bike lane (52-643/S00871).
2023	SM19	San Marcos	Grand Avenue Bridge and Street Improvements	From Discovery Street to San Marcos Boulevard, construct four-lane arterial bridge and a six-lane arterial street from Craven to Grand Avenue.
2023	SM31	San Marcos	San Marcos Creek Specific Plan – Discovery Street Widening and Flood Control Improvements #88265	From Via Vera Cruz to Bent Avenue/Craven Road, widen roadway to four-lane secondary arterial.
2023	SM32	San Marcos	Via Vera Cruz Bridge and	From San Marcos Boulevard to Discovery Street, widen to four-lane

Arterial Projects Air Quality Phasing				
Conformity Analysis Year	**TIP ID**	**Lead Agency**	**Project Name**	**Description**
			Street Improvements #88264	secondary arterial and construct a bridge at San Marcos Creek.
2023	SM42	San Marcos	Discovery Street from Craven to Twin Oaks #ST007	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 six-lane roadway.
2023	SM48	San Marcos	San Marcos Creek Specific Plan: Creekside Drive and Pad Grading #88505	Construct approximately 3,000 feet of a two-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.
2023	SM69	San Marcos	Twin Oaks Valley Road & Barham Drive Improvements #ST008	This project involves surface improvements including asphalt, concrete, medians, sidewalks, signage, and traffic lights. Underground improvements include utility and drainage improvements, relocations and water treatment within the public right of way to accommodate the construction of additional lanes.
2026	CB22	Carlsbad	Avenida Encinas – Widen from Palomar Airport Road to Embarcadero Lane	In Carlsbad, Avenida Encinas from Palomar Airport Road southerly to existing improvements adjacent to Embarcadero Lane, roadway widening to secondary arterial standards.
2026	CB31	Carlsbad	El Camino Real Widening – 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.
2026	CHV69	Chula Vista	Heritage Road Bridge	Heritage Road from Main Street/Nirvana Avenue to Entertainment Circle, widen and lengthen bridge over Otay River from a four-lane to a six-lane bridge that accommodates shoulders, sidewalk, and median; project is on Heritage Road from the intersection of Main Street and Nirvana Avenue to Entertainment Circle.

Arterial Projects Air Quality Phasing				
Conformity Analysis Year	**TIP ID**	**Lead Agency**	**Project Name**	**Description**
2026	CHV87	Chula Vista	E Street Extension from Bay Boulevard to H Street	Extension of E Street and F Street west of Bay Boulevard, and the realignment of Gun Powder Point Drive for Chula Vista Bayfront redevelopment. Project includes construction of a roundabout at E Street, F Street, and Gunpowder Point Drive; Class I and II bike paths; and sidewalks.
2026	CNTY14A	San Diego County	South Santa Fe Avenue South	South Santa Fe from 700 feet south of Woodland Drive to Smilax Road, widening of South Santa Fe Avenue to a five-lane major road with a center left turn lane, curb, gutter, sidewalk, bike lanes, and drainage improvements from 700 feet south of Woodland Drive to Smilax Road.
2026	CNTY21	San Diego County	Bradley Avenue Widening and Overpass at SR 67	Widen Bradley Avenue from Magnolia Avenue to Mollison Avenue; widen from two lanes to four lanes plus sidewalks. Replace two-lane bridge over SR 67 with a six-lane bridge which accommodates turn pockets.
2026	CNTY34	San Diego County	Dye Road Extension	Dye Road to San Vicente Road – in Ramona, study, design, and construct a two-lane community collector road with intermittent turn lanes, bike lanes, curb, gutter, and pathway/walkway.
2026	CNTY98	San Diego County	Otay Lakes Road	Four-lane boulevard with raised median from the city/county boundary to Strada Piazza, and two-lane community collector with intermittent turn lanes to the east.
2026	ESC24	Escondido	Centre City Parkway	Mission Road to SR 78, widen four lanes to six lanes with intersection improvements.
2026	NC01	National City	Plaza Boulevard Widening	Phase II of Plaza Boulevard from Highland Avenue to N Avenue, widen from two to three lanes, including a new traffic lane in each direction, new sidewalks, sidewalk widening, traffic signal upgrades, and interconnection at Plaza Boulevard.
2026	NC01	National City	Plaza Boulevard Widening	Phase III of Plaza Boulevard from I-805 to Euclid Avenue, widen from two to three lanes, including a new traffic lane in each direction, new sidewalks, sidewalk widening, traffic signal upgrades, and interconnection at Plaza Boulevard.

Arterial Projects Air Quality Phasing				
Conformity Analysis Year	TIP ID	Lead Agency	Project Name	Description
2026	SD102A	San Diego	Otay Truck Route Widening (Phase 4)	Phase II (from Britannia to La Media Road) of Otay Truck Route in San Diego from Drucker Lane to La Media, add one lane (total three lanes) for trucks; from Britannia to La Media, add one lane for trucks and one lane for emergency vehicles (border patrol/fire department access); add one lane for trucks along Britannia from Britannia Court to the Otay Truck Route.
2026	SD190	San Diego	Palm Avenue/I-805 Interchange	Improvements to the Palm Avenue Bridge over I-805, including repairs to the bridge approaches; a new Project Study Report and Preliminary Environmental Assessment Report. Phase II of the project will include widening of the bridge, realignment of existing ramps, possible addition of northbound looping entrance ramp, restriping of traffic lanes, and signal modifications.
2026	SD250	San Diego	La Media Road Improvements	In San Diego, on La Media Road from SR 905 to Siempre Viva Road, widen La Media Road to a six-lane primary arterial from SR 905 to Airway Road, and to a five-lane major road between Airway Road and Siempre Viva Road with three southbound lanes and two northbound lanes. This project will also improve drainage at the intersection of La Media Road and Airway Road (S-15018).
2026	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 two to four lanes and extend transition lane and additional grading to avoid biological impacts (CIP 52-479.0).
2026	SM24	San Marcos	Woodland Parkway Interchange and Barham Drive Widening & Street Improvements #88005	From La Moree Road to Rancheros Drive, modify existing ramps at Woodland Parkway and Barham Drive; widen and realign SR 78 undercrossing and associated work.
2029	CB12	Carlsbad	College Boulevard Reach A	In Carlsbad, from Badger Lane to Cannon Road, construct a new segment of College Boulevard to provide a four-lane roadway with raised median, bike lanes, and sidewalks/trails in accordance with major arterial standards.

Arterial Projects Air Quality Phasing				
Conformity Analysis Year	**TIP ID**	**Lead Agency**	**Project Name**	**Description**
2029	CNTY35	San Diego County	Ramona Street Extension	From Boundary Avenue to Warnock Drive – in the community of Ramona, construct new road extension, two lanes with intermittent turn lanes, bike lanes, and walkway/pathway.
2032	SD190	San Diego	Palm Avenue/I-805 Interchange	Improvements to the Palm Avenue Bridge over I-805, including repairs to the bridge approaches; a new Project Study Report and Preliminary Environmental Assessment Report. Phase III will provide the ultimate build-out of the project which will incorporate improvements of Phase II plus the northbound and southbound entrance ramps (CIP 52-640.0).
2032	SM10	San Marcos	SR 78/Smilax Interchange Improvements	Construct new interchange at Smilax Road interchange and SR 78 improvements.

Table B.14

Other Transit Projects Air Quality Phasing

Other Transit Projects Air Quality Phasing				
Conformity Analysis Year	**Project ID**	**Category**	**Project Name**	**Cost ($2020) Millions**
2026	--	Transit Leap	Systemwide Operations Costs	$2,172
2026	TL60	Transit Leap	Vehicle Purchases and Replacements (including spares)	$395
2026	TL63	Transit Leap	Local Bus Route Enhanced Frequencies – Ten minutes in key corridors	Included with operations costs
2040	--	Transit Leap	Systemwide Operations Costs	$5,433
2040	TL61	Transit Leap	Vehicle Purchases and Replacements (including spares)	$1,033
2040	TL64	Transit Leap	Local Bus Route Enhanced Frequencies – Ten minutes in key corridors	Included with operations costs
2040	TL66	Transit Leap	Transit Fare Subsidies	$982
2050	--	Transit Leap	Systemwide Operations Costs	$12,021
2050	TL62	Transit Leap	Vehicle Purchases and Replacements (including spares)	$2,196
2050	TL65	Transit Leap	Local Bus Route Enhanced Frequencies – Ten minutes in key corridors	Included with operations costs
2050	TL67	Transit Leap	Transit Fare Subsidies	$4,041