Appendix C: Air Quality Planning and Transportation Conformity

Contents

Figures

Tables

Air Quality Planning and Transportation Conformity

Executive Summary

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 appendix documents a demonstration of conformity for the 2008 and 2015 ozone NAAQS for the 2025 Regional Plan (2025 Regional Plan) and air quality consistency analysis for the 2025 Regional Transportation Improvement Program (2025 RTIP) Amendment No. 11. The 2025 Regional Plan 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.

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— demonstrate continued maintenance of the NAAQS.

SANDAG and the U.S. Department of Transportation (DOT) must determine that the 2025 Regional Plan 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 the 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.

- 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 EPA on July 2, 2021.

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

- On June 4, 2021, EPA posted on the Office of Transportation and Air Quality website the adequacy review for public comment on the 2008 and 2015 Eight-Hour Ozone Attainment Plan budgets. On October 4, 2021, 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 EPA by operation of law six months after the submittal date. On December 19, 2023, EPA published in the Federal Register the proposed rulemaking approving the 2020 SIP. On March 4, 2024, EPA published in the Federal Register the final rulemaking, effective April 1, 2024, approving certain elements of the 2020 SIP, including the budgets (89 FR 15035).

On June 12, 2025, three resolutions under the Congressional Review Act were signed into law, rescinding three of California's waivers from EPA and impacting emissions : (1) H.J. Res. 87, Joint Resolution Providing congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Environmental Protection Agency relating to 'California State Motor Vehicle and Engine Pollution Control Standards; Heavy-Duty Vehicle and Engine Emission Warranty and Maintenance Provisions; Advanced Clean Trucks; Zero Emission Airport Shuttle; Zero-Emission Power Train Certification; Waiver of Preemption; Notice of Decision'; (2) H.J. Res. 88, Joint Resolution providing congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Environmental Protection Agency relating to 'California State Motor Vehicle and Engine Pollution Control Standards; Advanced Clean Cars II; Waiver of Preemption; Notice of Decision'; and (3) H.J. Res. 89, Joint Resolution providing congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Environmental Protection Agency relating to 'California State Motor Vehicle and Engine and Nonroad Engine Pollution Control Standards; The 'Omnibus' Low NOx Regulation; Waiver of Preemption; Notice of Decision'. Prior to June 12, 2025, federal action, EMFAC2017 v1.0.2 had allowed for use of an adjustment factor applied to EMFAC2017 outputs reducing projected emissions consistent with the Omnibus Low NOx Regulation.

2008 Ozone Standard

On May 21, 2012, 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 EPA to forecast regional emissions (EMFAC2011). DOT, in consultation with EPA, made its conformity determination on June 28, 2013.

On June 3, 2016, 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, 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 demonstration year of 2020.

Effective July 2, 2021, 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, 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, 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 demonstration 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. DOT, in consultation with 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, 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 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 EPA, which extended the maintenance plan demonstration to 2018. Effective January 30, 2006, EPA approved this maintenance plan as a SIP revision. On March 21, 2018, 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 the Amended 2021 Regional Plan and the 2025 RTIP

On December 12, 2021, the SANDAG Board approved the 2021 Regional Plan. DOT, in consultation with EPA, made its conformity determination on January 28, 2022.

On October 13, 2023, the Board approved the amendment to the 2021 Regional Plan and found it to be in conformity with the requirements of the CAA and applicable SIP. DOT in consultation with EPA, made its conformity determination on August 30, 2024.

At its September 27, 2024, meeting, the Board approved the 2025 RTIP, found the 2025 RTIP in conformity with the requirements of the CAA and applicable SIP, and redetermined that the Amended 2021 Plan conformed with the requirements of the CAA and applicable SIP. DOT, in consultation with EPA, made its conformity determination on December 16, 2024.

Transportation Conformity: Modeling Procedures

Conformity determination of the 2025 Regional Plan and conformity analysis of the 2025 RTIP Amendment No. 11 have been conducted simultaneously for consistency purposes. Table C.10 includes the conformity analysis for the 2025 Regional Plan and air quality consistency analysis for the 2025 RTIP Amendment No. 11. The financially constrained 2025 Regional Plan provides information on revenue assumptions in Chapter 3 and Appendix I: Funding and Revenues. 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 federal 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. Additional details on population, employment, and land use are provided in Appendix F: Regional Growth Forecast and Sustainable Communities Strategy Land Use Pattern of the 2025 Regional Plan. Additional modeling documentation is provided in Appendix M: Travel Demand Modeling Tools of the 2025 Regional Plan.

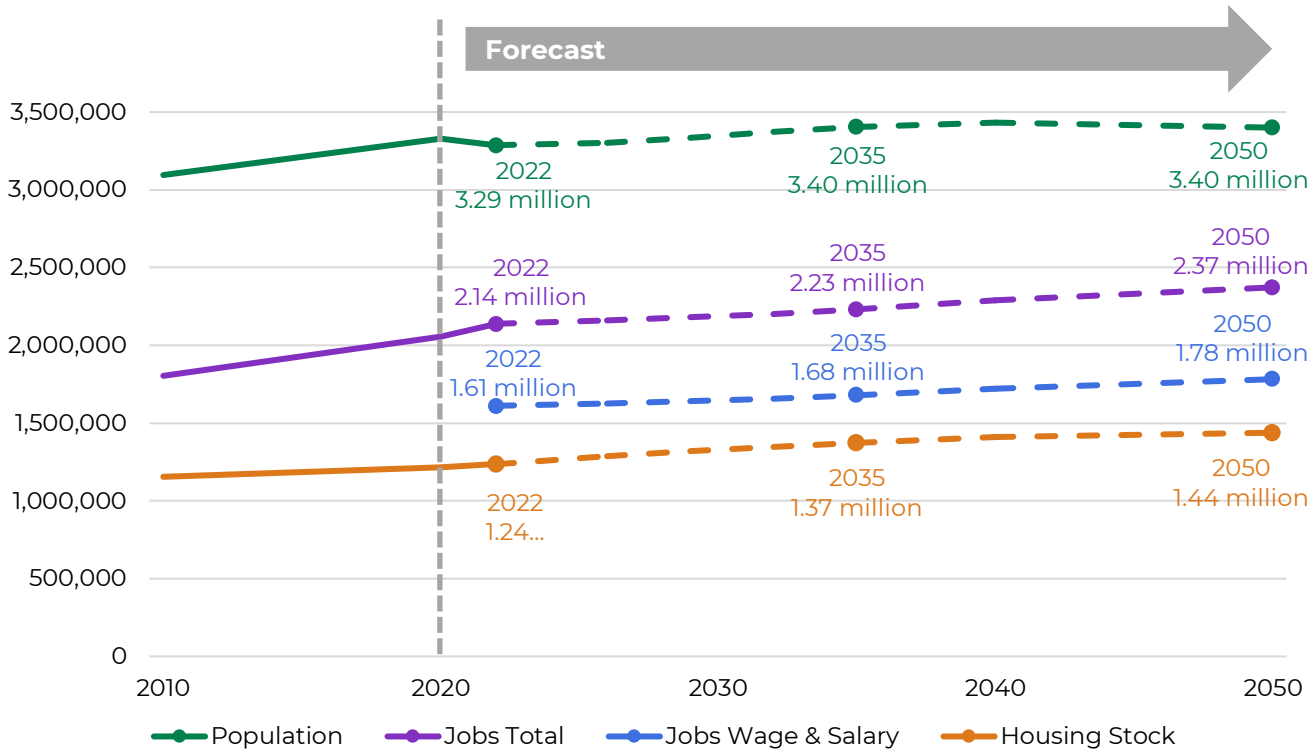
The following sections provide an overview of models, modeling inputs, and processes used in transportation conformity.

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 2025 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 15 Regional Growth Forecast assumptions were approved by the Board on April 26, 2024. The Series 15 Regional Growth Forecast is consistent with the 6th Cycle Regional Housing Needs Assessment Plan (RHNA), which allocated the regional housing needs at the subregional level. The 6th Cycle RHNA was adopted by the Board at its July 10, 2020 meeting.

On October 4, 2023, SANDAG consulted with the San Diego Region Conformity Working Group (CWG) on the use of the Series 15 Regional Growth Forecast, SCS land use pattern, for the air quality conformity analysis of the 2025 Regional Plan. Figure C.1 and Table C.1 show the regional population, jobs, and housing growth forecast for the San Diego region through 2050.

Figure C.1: Series 15 Regional Population, Jobs, and Housing Forecast



Source: Series 15 Regional Growth Forecast SCS land use pattern, SANDAG

Table C.1: San Diego Regional Population and Employment Forecast

Year	Population	Employment
2022	3,287,306	1,611,632
2035	3,404,362	1,678,929
2050	3,400,250	1,782,389

Source: Series 15 Regional Growth Forecast SCS land use pattern, SANDAG

The Series 15 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 15 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 15 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 a disaggregate third-generation activity-based model (ABM3) 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 ABM3 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.

The ABM3 outputs are used as inputs for regional emissions forecasts. The estimates of regional transportation-related emissions analyses conducted for the plan 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 ABM3 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 C.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 C.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 C.2: SANDAG ABM3 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 the county	Disaggregate activity-based	30-minute	MGRA2
Mexican resident crossborder travel (external–internal and internal–internal)	Average weekday travel by Mexican residents into, out of, and within the county	Disaggregate tour- based	30-minute	Internal MGRA – External cordon TAZ[3]
Overnight visitor	Average weekday travel made by overnight visitors in the 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 the county	Aggregate Trip- based	Five 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	Five 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	Five time periods	TAZ
External heavy-duty truck model	Average weekday vehicle trips for three weight classes for external truck travel	Aggregate trip- based	Five time periods	External cordon TAZ – External cordon TAZ; External cordon TAZ – Internal TAZ

[2] MGRA = Master Geographic Reference Area; 24,321 MGRAs in the Region

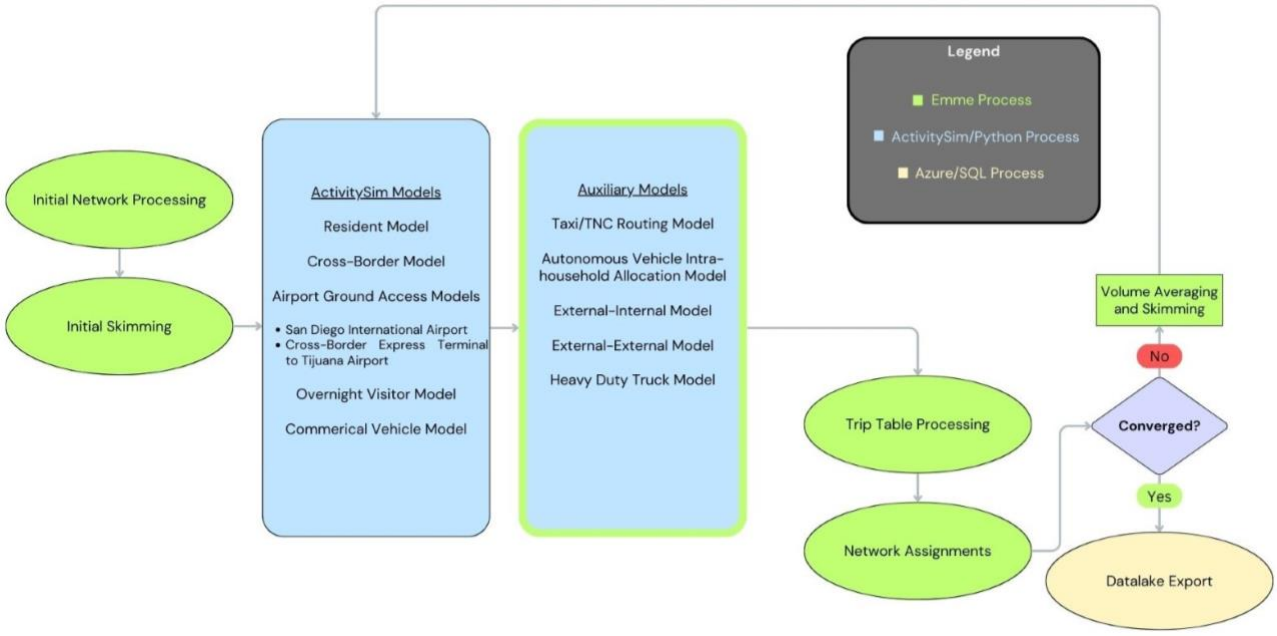
[3] TAZ = Transportation Analysis Zone; 4,947 TAZs in the Region

ABM3 Model Flow

To simulate how San Diego residents, non-residents, and freight travel in the region, the SANDAG ABM3 includes several models and steps. Figure C.2 outlines the overall flow of the SANDAG ABM3. It starts with building an all-street-based active transportation network and creating Master Geographic Reference Area (MGRA) to MGRA and MGRA to transit stop walk, micromobility, or microtransit equivalent accessibility files; highway and transit network building and importing into Emme (traffic modeling software licensed from Bentley); 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 conclude the ABM3 modeling procedure. The outputs from the final step are used to generate input for Emission Factors (EMFAC) emissions modeling.

Figure C.2: SANDAG ABM3 Flow Chart



Source: SANDAG

Spatial and Temporal Resolution

As indicated in Table C.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 ABM3.

SANDAG ABM3 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 ABM3 consists of 24,321 zones, which are roughly equivalent to Census blocks. To avoid computational burden, SANDAG relies on a 4,947 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 at 3 a.m. and end at 3 a.m. the next day.

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.

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 C.3 lists the definition of time periods for level-of-service matrices.

Table C.3: Time Periods 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 uses the ActivitySim platform for demand generation. 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-Making 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 ABM3 includes a total of eight person types (shown in Table C.4). The person types are mutually exclusive with respect to age, work status, and school status.

Table C.4: Person Types

Number	Person Type	Age	Work Status	School Status
1.	Full-time worker	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

Notes: Full-time employment is defined in the SANDAG 2022 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 C.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.

The SANDAG ABM3 assigns one of the activity types to each out-of-home location that a person travels to in the simulation (shown in Table C.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 C.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.	Health
7.	Military

Table C.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 children at school by parents • Pick-up/drop-off passengers (auto trips only)	Maintenance	Age 16+
6.	Shopping	Shopping away from home	Maintenance	5+ (if joint travel, all persons)
7.	Other Maintenance	Personal business/services and medical appointments	Maintenance	5+ (if joint travel, all persons)
8.	Social/Recreational	Recreation, visiting friends/family	Discretionary	5+ (if joint travel, all persons)
9.	Dining Out	Eating outside of home	Discretionary	5+ (if joint travel, all persons)
10.	Other Discretionary	Volunteer work, religious activities	Discretionary	5+ (if joint travel, all persons)

The ABM3 includes 25 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 C.7 lists the trip modes defined in the resident travel model.

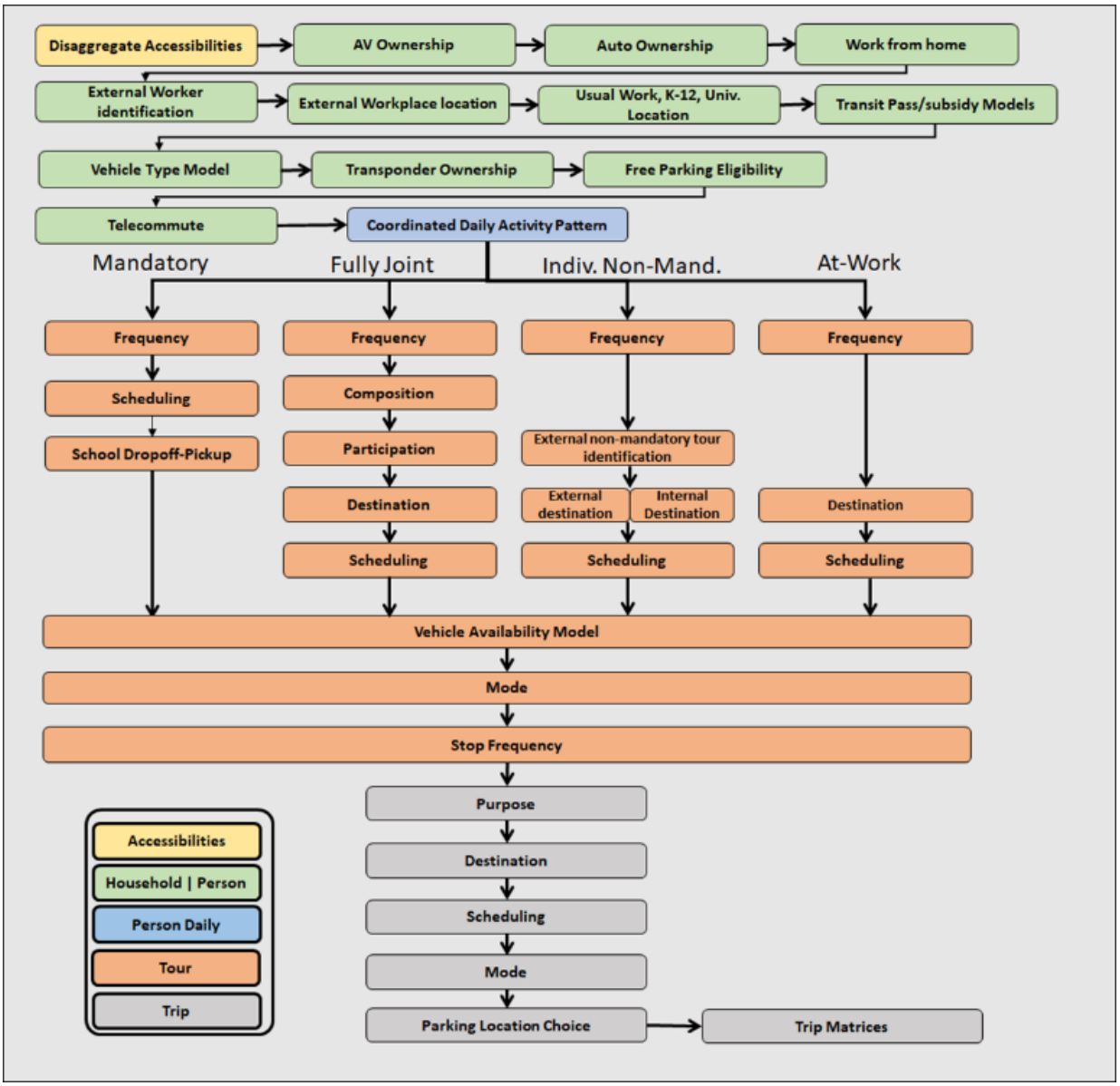
Table C.7: Trip Modes for Mode Choice

Number	Description
1.	Drive-Alone
2.	Share Ride 2 Person
3.	Share Ride 3+ Person
4.	Walk
5.	Bike
6.	Shared E-bike (Micromobility)
7.	Shared E-scooter (Micromobility)
8.	Walk to Transit – Local Bus Only
9.	Walk to Transit – Premium Transit Only
10.	Walk to Transit – Local and Premium Transit
11.	Park & Ride to Transit – Local Bus Only
12.	Park & Ride to Transit – Premium Transit Only
13.	Park & Ride to Transit – Local and Premium Transit
14.	Kiss & Ride to Transit – Local Bus Only
15.	Kiss & Ride to Transit – Premium Transit Only
16.	Kiss & Ride to Transit – Local and Premium Transit
17.	TNC to Transit – Local Bus Only
18.	TNC to Transit – Premium Transit Only
19.	TNC to Transit – Local and Premium Transit
20.	Taxi
21.	TNC Single
22.	TNC Pooled
23.	Microtransit
24.	Neighborhood Electric Vehicle (NEV)
25.	School Bus (only available for school purpose)

To model transit flow, the ABM3 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, and Kiss & Ride (including TNC) to transit, resulting in total of nine transit trip matrices. The premium modes include any non-local bus modes: 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 "sub-models." Figure C.3 illustrates the basic structure and flow. The model requires what is called a "synthetic population" for the San Diego region. 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.

Figure C.3: Resident Travel Model Design and Linkage Between Sub-Models



Source: SANDAG

The first model in the sequence is disaggregate accessibilities. This is a recent addition to ActivitySim and the derived variables are used in downstream models such as auto ownership, coordinated daily activity patterns, tour frequency, and mandatory location choice. This model is run for all workers and students regardless of whether they attend work or school on the simulated day.

Next, a set of long-term and mobility models are run. The first model in the sequence predicts whether an autonomous vehicle is owned by the household. This model conditions the next model, which predicts the number of autos owned. If an autonomous vehicle is owned, multiple cars are less likely. Next, the mandatory (work and school) location choice models are run. The work location choice models include a model to predict whether the worker has a usual out-of-home work location or exclusively works from home. If the worker chooses to work from home, they will not generate a work tour. An external worker identification model determines whether each worker with an out-of-home workplace location works within the region or external to the region. If they work external to the region, the external station is identified. Any primary destination of any work tours generated by the worker will be the external station chosen by this model. A work location choice model predicts the internal work location of each internal worker, and a school location choice model predicts the school location of each student.

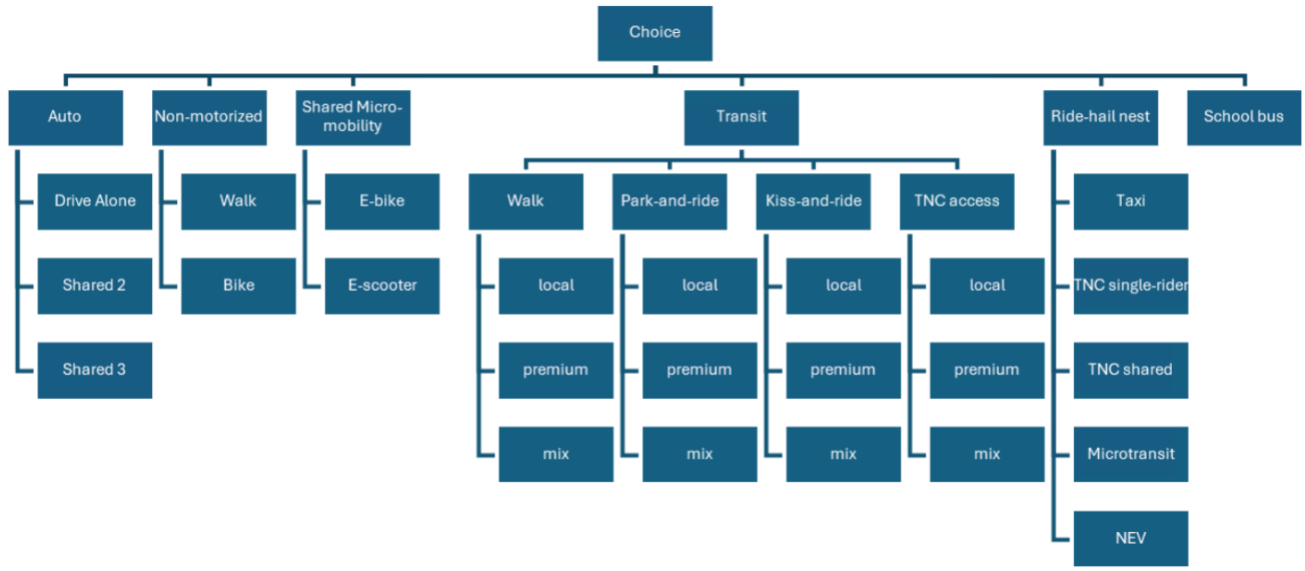
Next, a set of models predicts whether workers and students have subsidized transit fares and if so, the percent of transit fare that is subsidized, and whether each person in the household owns a transit pass. A vehicle type choice model then runs, which predicts the body type, fuel type, and age of each vehicle owned by the household; this model was extended to predict whether each vehicle is autonomous, conditioned by the autonomous vehicle ownership model. Next, a prediction is made whether each household has access to a vehicle transponder which can be used for managed lane use. The assumption is that all vehicles built after a certain year (configurable by the user) are equipped with transponders. Next, a prediction is made whether each worker has subsidized parking available at work. Finally, a prediction is made about the telecommute frequency of each worker, which affects downstream models including the daily activity pattern model, the non-mandatory tour frequency model, and stop frequency models.

Next, the daily and tour level models are run. The first daily model is the daily activity pattern model, which predicts the general activity pattern type for every household member. This model classifies daily patterns by three types: (1) mandatory (that includes at least one out-of-home mandatory activity), (2) non-mandatory (that includes at least one out-of-home non-mandatory activity but does not include out-of-home mandatory activities), and (3) home (that does not include any out-of-home activity and travel). The pattern-type model also predicts whether any joint tours will be undertaken by two or more household members on the simulated day. Because household members often travel together and to prevent situations such as young children being left alone, the pattern that one household member has can influence the patterns of other household members.

Then, mandatory tours are generated for workers and students, the tours are scheduled (their location is already predicted by the work/school location choice model), a vehicle availability model is run that predicts which household vehicle would be used for the tour, and the tour mode is chosen. After mandatory tours are generated, a school pickup/drop-off model forms half-tours where children are dropped off and/or picked up at school. The model assigns chaperones to drive or ride with children, groups children together into "bundles" for ride-sharing, and assigns the chaperone task to either a generated work tour or generates a new tour for the purpose of ridesharing. Fully joint tours – tours where two or more household members travel together for the entire tour - are generated at a household level, their composition is predicted (adults, children or both), the participants are determined, the vehicle availability model is run, and a tour mode is chosen. The primary destination of fully joint tours is predicted, the tours are scheduled, the vehicle availability model is run, and a tour mode is chosen. Next, non-mandatory tours are generated, their primary destination is chosen, they are scheduled, the vehicle availability model is run, and a tour mode is chosen for each. At-work subtours are tours that start and end at the workplace. These are generated, scheduled (with constraints that the start and end times must nest within the start and end time of the parent work tour), a primary destination is selected, the vehicle availability model is run, and a tour mode is chosen. Figure B.4 shows the available modes and mode hierarchy for both tours and trips.

At this point, all tours are generated, scheduled, have a primary destination, and a selected tour mode. The next set of models fills in details about the tours - number of intermediate stops, location of each stop, the departure time of each stop, and the mode of each trip on the tour. Finally, the parking location of each auto trip to the central business district (CBD) is determined.

Figure C.4: Tour and Trip Modes



Source: SANDAG

Special Market Models

Besides the resident travel model, ABM3 includes a few special market models: crossborder; San Diego International Airport ground access; Cross Border Xpress terminal; visitor; external; commercial vehicle; and external heavy truck.

Crossborder Model

This model simulates travel of Mexico residents (both US and Non-US Citizens) on the San Diego transportation network. In other words, the model accounts for Mexico 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 2019 SANDAG Cross Border Survey, Mexico resident border crossings into the United States, and their travel patterns within the United States. Data were collected at the three border crossing stations: San Ysidro, Otay Mesa, and Tecate.

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 prices 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.

The model structure is borrowed from the SDIA ground access model. The model is calibrated based on a passenger survey conducted beginning of April 2016 at Tijuana International Airport. The survey collected information from departing passengers who either used the CBX facility or could have used the facility but chose to cross at one of the other border crossings instead.

The model segments travelers according to travel purpose, which is a combination of residence status (resident/visitor), the reported purpose of travel (business/personal) and whether the traveler's origin before departing the airport was in San Diego County or not (internal/external).

Visitor Model

San Diego is a major vacation destination, and these travelers use the county's transportation infrastructure when traveling to and from San Diego's various attractions. The visitor model captures the demand of this travel on transport facilities in San Diego County. A synthetic population of visitors is created with their lodging location as their home location, and a day of travel within San Diego County is simulated. The model is estimated based on the 2011 SANDAG Visitor Survey of airport passengers and hotel guests in which data was collected on their travel while visiting San Diego.

The visitor model has the following features:

- A disaggregate microsimulation treatment of visitors by person type, with explicit representation of party attributes
- Special consideration of unique visitor travel patterns, including rental car usage and visits to San Diego attractions like Sea World
- The full set of modes within San Diego County, including auto trips by occupancy, transit trips, non-motorized trips, and toll/HOT/HOV lanes modes

External Model

The external travel models predict characteristics of all vehicle trips crossing the San Diego County border. This includes both trips that travel through the region without stopping and trips that are destined for locations within the region. See Figure M.12 in 2025 Regional Plan Appendix M for current crossing locations, also known as cordons. Future crossing locations that can also be modeled depending on scenarios include Otay Mesa East, and Jacumba. Components modeling internal-external travel were added to the resident model (external worker identification, external workplace location, external tour identification, external tour location). External to internal San Diego travel from Mexico is covered by the Cross Border Model.

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

- **US–US:** External–external trips whose production and attraction are both in the United States, but not in San Diego County.
- **US–MX:** External–external trips with one trip end in the United States and the other in Mexico.
- **US–SD:** External–internal trips with a production elsewhere in the United States and an attraction in San Diego County.

Commercial Vehicle Model

The SANDAG Commercial Vehicle Model (CVM) simulates the weekday demand patterns of commercial vehicle movements throughout the San Diego region. The CVM is an important part of the complete travel demand modeling system for the region, representing a market of travel that dominates the middle part of most weekdays and has been steadily growing as consumer demands for home deliveries and personal services have increased.

The primary sources of data for developing the CVM were the 2022 SANDAG Commercial Vehicle Establishment and TNC-driver surveys, which focused on goods, services, and maintenance trips, and obtained travel diaries from employees of these establishments whose jobs involve routine travel for either goods pickup and delivery or for service provision. The TNC driver survey used an identical travel diary format to the Establishment survey, the difference being that individual TNC drivers were surveyed as their own establishments who worked on behalf of an online pickup and delivery service. The Establishment and TNC surveys provided detailed travel pattern data for individual drivers and vehicles, which formed the basis for estimating and calibrating model components. The categorical definitions of attribute variables in the two surveys set the possibilities for segmentation of the model system, such as establishment industry sectors; trip origin and destination purposes, land uses, and place types; and vehicle types.

The geographic scope of the CVM are internal-to-internal trip movements. The market scope of the model includes commercial goods movements (pickup and deliveries) as well as trips made for commercial and public services. Trips made for other purposes, namely maintenance and personal, are also included in the CVM if these trips are made in the context of a commercial vehicle tour pattern. The CVM explicitly distinguishes between residential and non-residential customer types, and between three vehicle types—light, medium, and heavy—consistent with the definitions used in the Establishment Survey.

The CVM does not cover the types of work-related travel that would be expected to be covered in the ABM3 Resident model, namely workers traveling for meetings, sales calls, out-of-town travel, and similar activities. The CVM also does not model long-distance freight truck movements that enter and exit the region, which are covered by the Heavy Truck Model (HTM).

Heavy Truck Model

The HTM covers long-distance freight movements into and out of San Diego County. The source of the demand in the HTM are commodity flows between shippers and receivers throughout North America, focusing on those with either a trip end (shipper or receiver) in San Diego County or which pass through San Diego County, for example, between Mexico and Los Angeles. Commodity flows are derived from the Federal Highway Administration (FHWA) Freight Analysis Framework version 5 (FAF5), which was important to represent commodity trading and supply chain trends after the COVD-19 pandemic. The model design assumes that freight truck trips between establishments within San Diego County are covered by the CVM, which has been designed to explicitly account for truck movements involving warehouse and distribution centers and port facilities.

The key input demand source driving the HTM is the set of commodity flows between shippers and receivers throughout North America that focus on:

- Flows with one trip end (shipper or receiver) in San Diego County which are also referred to as internal-to-external or external-to-internal flows such as flows between Chicago and San Diego; and
- Flows which pass through San Diego County which are also referred to as “through trips.” An example of such flows would be freight flows between Mexico and Los Angeles.

Trip Assignment

The final steps of the SANDAG ABM3 are to assign the trip demand onto the roadway and transit networks. Assignments are run for the five time periods identified in Table M.2.

Traffic Assignment

The traffic assignment for the ABM3 is a 15-class assignment with generalized cost by five time periods. Auto vehicle classes are broken out by VOT bins for $8.81 and $18 per hour representing the 33rd and 66th percentiles for the low-income and medium-income groups, respectively. The 15 classes are drive-alone non-transponder, drive-alone transponder, shared-ride 2, and shared-ride 3+ by three VOT bins and heavy truck by three weight classes: light-heavy (8,500-14,000 lbs), medium-heavy (14,000-33,000 lbs), and heavy- heavy (33,000+ lbs).

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, boarding, and alighting stops, which produces 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.

Highway Networks

The regional highway networks in the 2025 Regional Plan include all roads classified by local jurisdictions in their general plan circulation elements and Caltrans state facilities. SANDAG uses geographic information system (GIS) software to maintain feature classes of segments and nodes in an enterprise geodatabase. The highway segment feature class includes existing and planned freeways, toll lanes, high-occupancy vehicle (HOV) lanes, Managed Lanes, ramps, surface streets classified on general plan circulation elements, and some local roads needed for network connectivity. Traffic control devices are included on segments for traffic signals, stop signs, ramp meters, and rail crossings. The zone connectors are used to schematically represent how traffic from zones accesses the street system.

The route improvements and additions in the 2025 Regional Plan and 2025 RTIP Amendment No. 11 are developed to provide adequate travel service that is compatible with adopted regional policies for land use and population growth. All regionally significant projects are included in the quantitative emissions analysis. These include all state highways, all proposed national highway system routes, all regionally significant arterials, and all “other principal arterials” functionally classified by the Federal Highway Administration. These include both 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 of these facilities.

SANDAG maintains a master transportation network from which a specific year network, between the years 2010 and 2050, can be built. For air quality conformity analyses of the 2025 Regional Plan and 2025 RTIP Amendment No. 11 using emissions budgets from the 2020 SIP, SANDAG built and verified five highway networks (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 C.11 and C.12. 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 persons, students):

- Buses collect a flat fare between $2.50 and $5 depending on the type of service (COASTER Connection buses are free)
- Trolleys and SPRINTER charge a flat fare of $2.50
- Commuter rail (COASTER) has a zone-based fare of between $5 and $6.50

Transit fares reflect ridership costs at the time the transportation model was developed. Fares are expressed in 2022 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 2025 Regional Plan and other transit corridor studies remain unchanged. In addition to federal-and state-funded projects, locally funded transit projects that are regionally significant are included in the 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, 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 ABM3 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 ABM3 is run for the applicable scenarios: 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 is household travel. The latest household travel survey conducted for SANDAG was the 2022 Household Travel Behavior Survey (HTS2022) 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. HTS2022 surveyed 2,800 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,[4] 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.

Additional data were used from the 2016 household travel survey to estimate statistical models when sample size from HTS2022 alone was not high enough. The 2015 Transit On-Board Survey (OBS2015) numbers were scaled up to match 2022 ridership counts to derive calibration targets for ABM3. 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.

[4] 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.

Table C.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 C.8: SANDAG Surveys and Data

Survey Name	Year
Household Travel Behavior Survey	2016–2017 & 2022
Transit On-Board Survey	2015
Remote Work Survey	2023
Parking Inventory Survey	2022
Parking Behavior Survey	2022
Border Crossing Survey	2019
Commercial Establishment & Vehicles Diary Survey	2022
Household Travel Behavior Survey	2016–2017 & 2022

Table C.9: Outside Data Sources

Survey Name	Year
SDIA Passenger Forecasts – Airport Development Plan: San Diego International Airport	2019
FAF 5	2017
Transit Ridership Counts	2022
Jurisdiction annual traffic counts	2022
Caltrans PeMS	2022
Caltrans Highway Performance Monitoring System (HPMS) – California Public Road Data	2022
Caltrans Traffic Census Program – Annual Average Daily Traffic	2022
Replica Origin – Destination Location-Based Services Data	2022

Motor Vehicle Emissions Modeling

Emissions Model

On August 15, 2019, 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). The grace period for regional emissions analyses began on November 15, 2022, and continued through November 15, 2024. Modeling for the 2025 Regional Plan began during the grace period and, consistent with 40 CFR 93.111, EMFAC2017 v1.0.2 was used to project the regional emissions for the 2025 Regional Plan conformity determination and air quality consistency analysis for the 2025 RTIP Amendment No. 11 conformity.

On June 12, 2025, three Congressional Review Act resolutions were signed into law rescinding three of California's waivers from EPA: (1) H.J. Res. 87, Joint Resolution providing congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Environmental Protection Agency relating to 'California State Motor Vehicle and Engine Pollution Control Standards; Heavy-Duty Vehicle and Engine Emission Warranty and Maintenance Provisions; Advanced Clean Trucks; Zero Emission Airport Shuttle; Zero-Emission Power Train Certification; Waiver of Preemption; Notice of Decision'; (2) H.J. Res. 88, Joint Resolution providing congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Environmental Protection Agency relating to 'California State Motor Vehicle and Engine Pollution Control Standards; Advanced Clean Cars II; Waiver of Preemption; Notice of Decision'; and (3) H.J. Res. 89, Joint Resolution providing congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Environmental Protection Agency relating to 'California State Motor Vehicle and Engine and Nonroad Engine Pollution Control Standards; The 'Omnibus' Low NOx Regulation; Waiver of Preemption; Notice of Decision'. Prior to the June 12, 2025 federal action, EMFAC2017 v1.0.2 had allowed for use of an adjustment factor applied to EMFAC2017 outputs reducing projected emissions consistent with The Omnibus Low NOx Regulation.

In September 2025, consistent with 40 CFR 93.111 and the June 12, 2025 federal action rescinding California's waivers, EMFAC2017 v1.0.2 was used without the application of the adjustment factor associated with the rescinded California State Motor Vehicle and Engine and Nonroad Engine Pollution Control Standards; The 'Omnibus' Low NOx Regulation to project the regional emissions for the 2025 Regional Plan conformity determination and air quality consistency analysis for the 2025 RTIP Amendment No. 11.

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 May 2024. Output from the ABM3 was then summarized to create EMFAC2017 inputs for emissions modeling.

Beginning in August 2024, SANDAG prepared countywide forecasts of average weekday ROG and NOx emissions for 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.

In September 2025, SANDAG prepared countywide forecasts of average weekday ROG and NOx emissions for 2026, 2029, 2032, 2040, and 2050 for the 2020 SIP using the EMFAC2017 v1.0.2 model without the application of the adjustment factor provided under the rescinded Omnibus Low NOx Regulation.

2008 Eight-Hour Ozone Standard

On October 19, 2021, EPA found the motor vehicle emissions budgets from the 2020 SIP adequate for transportation conformity purposes for the 2008 ozone NAAQS (86 FR 54692). On March 1, 2024, the U.S EPA approved these budgets into the SIP (89 FR 15035), effective April 1, 2024.

Severe nonattainment area classification established 2026 as the attainment demonstration year for the 2008 Eight-Hour Ozone Standard. Consistent with 40 CFR 93.106(a)(1) and 93.118(a), conformity analysis years must include the attainment demonstration year (2026), the horizon year of the plan's forecast period (2050), and no more than ten years between analysis years (2032, 2040).

2015 Eight-Hour Ozone Standard

On October 19, 2021, EPA found the motor vehicle emissions budgets from the 2020 SIP adequate for transportation conformity purposes for the 2015 ozone NAAQS (86 FR 54692). On March 1, 2024, the U.S EPA approved these budgets into the SIP (89 FR 15035), effective April 1, 2024.

Severe Nonattainment Area classification established 2032 as the attainment demonstration 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 demonstration year and 2026, and 2029 as reasonable further progress demonstration years. Consistent with 40 CFR 93.106(a)(1) and 93.118(a), analysis years must include reasonable further progress demonstration years (2026, 2029), attainment demonstration 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 (2026) must be within ten years from the base year used to validate the regional transportation model (2022).

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 2025 Regional Plan, the emission analysis described in the Regional Emissions Forecast section was used.

Table C.10 shows that the projected ROG and NOx emissions from the 2025 Regional Plan and 2025 RTIP Amendment No. 11 are below the ROG and NOx budgets from the 2020 SIP for both the 2008 and 2015 ozone standards.

Table C.10: 2025 Regional Plan 2020 and 2025 RTIP Amendment No. 11: SIP Conformity Analysis for the 2008 and 2015 Eight-Hour Ozone Standards (EMFAC2017)

Year	Average Weekday Vehicle Starts (1,000s)	Average Weekday Vehicle Miles (1,000s)	ROG SIP Emissions Budget Tons/Day	ROG Emissions Tons/Day	NOx SIP Emissions Budget Tons/Day	NOx Emissions Tons/Day
2026	11,027	79,755	12.1	10.8	17.3	17.2
2029	11,431	80,893	11.0	9.7	15.9	15.4
2032	11,649	80,774	10.0	8.5	15.1	14.1
2040	12,321	82,005	10.0	6.7	15.1	13.2
2050	12,813	81,949	10.0	6.1	15.1	13.7

Note: Emissions budgets from the 2020 SIP were found adequate for transportation conformity purposes by EPA, effective October 19, 202.1 On March 4, 2024, EPA published in the Federal Register the final rulemaking, effective April 1, 2024, approving certain elements of the 2020 SIP, including the emissions budgets.

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).

The exempt projects included in the 2025 Regional Plan are listed below. This list 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.

Bikeway, Rail, Trail, and Pedestrian Projects

- Ash Street Bikeway
- Balboa Transit Center Connector Bikeway
- Bay to Ranch Bikeway
- Bayshore Bikeway Connector
- Bayshore Bikeway
- Bear Valley Bikeway
- Black Mountain Bikeway
- Border Access Corridor
- Camp Pendleton Trail
- Cannon Road Bikeway
- Carlsbad - San Marcos Corridor
- Carlsbad to San Marcos Bikeway

- Carlsbad Village Drive Bikeway
- Carmel Valley Bikeway
- Central Coast Corridor
- Centre City to Bear Valley Bikeway
- Chollas Creek Bikeway to Otay
- Chollas Valley Bikeway
- Chula Vista Oleander Connector
- Chula Vista Regional Connector
- City Heights/Fairmount Corridor
- Clairemont Mesa to Linda Vista Bikeway
- Clairemont Mesa to Tierrasanta Bikeway
- Coast Highway Vision & Strategic Plan
- Coastal Rail Trail
- Coastal Rail Trail Connections
- College Avenue Bikeway
- College Boulevard Bikeway
- Collwood to Euclid Bikeway
- CSUSM Bikeway
- Downtown to Southeast
- Eastlake Bikeway
- El Cajon Boulevard Bus-Bike Lane
- El Norte Bikeway
- El Prado: Cross-Park
- Encanto to Barrio Logan Bikeway
- Encinitas Community Connector
- Encinitas to San Marcos Corridor
- Escondido Boulevard Bikeway
- Genesee Bikeway
- Gilman Connector
- Golden Hill to Bayshore Bikeway
- Golden Hill to Fairmount Park
- Golden Hill to Logan Heights
- Harbor Drive
- Hillcrest - El Cajon Corridor
- Hillcrest to Balboa Park
- Hotel Circle Connection
- I-15 Bikeway
- I-805 Connector
- I-805 Multi-Use Path Bridge Main Street to Palm Avenue
- Imperial Beach Bikeways
- Imperial Beach Connector
- Inland Rail Trail
- J Street Bikeway
- Kearny Mesa to Beaches Corridor
- Kearny Mesa to Mission Valley Bikeway
- La Costa Bikeway
- La Jolla to Scripps Ranch
- La Mesa Bikeway
- Lemon Grove to Imperial Bikeway
- Linda Vista Road to Clairemont Mesa Boulevard
- Logan Bikeway
- Main Street to Bayshore
- Market Street Bikeway
- Melrose Drive Bikeway
- Mid-County Bikeway
- Midway to Pacific Beach Bikeway
- Midway to Sunset Cliffs
- Mira Mesa Corridor
- Mira Mesa Neighborhood Bikeway
- Mira Mesa to Miramar
- Mission Boulevard Bikeway
- Mission Gorge to Clairemont Mesa Bikeway
- Montezuma Mesa Bikeway
- Morena Bikeway\
- National City - Chula Vista - San Ysidro Bikeway
- North Coast Bike Trail
- North County Inland Bikeway: El Camino Real

- North Mission Bay Drive to Rose Creek Bike Path
- North Park | Mid-City: Monroe Bikeway
- Ocean Beach to Mission Bay
- Pacific Beach Bikeway
- Pacific Beach to East Mission Bay
- Pacific Highway Coastal Rail Trail Airport Connections (PACTAC)
- Palm Avenue to Otay Mesa
- Palomar Street Bikeway
- Pomerado Bikeway
- Poway Loop
- Rancho Bernardo - Via De La Valle Bikeway
- Robinson Central Hillcrest Connector
- Rolando to Grossmont/La Mesa
- Rosecrans Bikeway
- San Carlos to College and Grantville Bikeway
- San Ysidro to Otay Mesa Connector
- San Diego River Bikeway
- San Diego River Bikeway Connections
- San Diego River Trail
- San Luis Rey River to Coast
- San Luis Rey River Trail
- San Marcos Bikeway
- San Ysidro Park to School Connector
- Saturn Boulevard Bikeway
- South Bay to Southeastern San Diego
- South Park to Downtown
- Spring Valley to Bayshore Bikeway
- Spring Valley to Sweetwater Bikeway
- SR 52 Bikeway
- SR 67 Bikeway
- SR 78 Bikeway
- SR 125 Connector
- SR 125 Corridor
- SR 905 Corridor
- Sweetwater Bikeway Ramp
- Sweetwater to Chula Vista Bayshore
- Sweetwater to National City
- Sweetwater to Skyline Bikeway
- Ted Williams Bikeway
- University Central Hillcrest Connector
- University Town Centre Bikeway
- Uptown to Kensington-Talmadge Connector
- Uptown: Mission Hills and Old Town Bikeways
- Uptown: Park Boulevard Bikeway
- Valencia Bikeway
- Vista to Buena Creek Station Connector
- Vista Transit Center Connector
- Washington Avenue Bikeway

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

Transportation System Management

- Active Traffic and Demand Management
- Commuter Services and Bike Program
- Electronic Payment Systems and Universal Transportation Account
- Employer Services and Outreach
- FasTrak®
- Flexible Fleet Pilots
- Freeway Service Patrol
- ITS for Transit
- ITS Operations
- Joint Transportation Operation Center
- Multimodal Integration and Performance-Based Management
- Pronto Card
- Regional Rideshare Program
- Shared Mobility Services
- Transit Infrastructure Electrification
- Traveler Information System
- Trolley Fiber Communication Network
- Various Traffic Signal Optimization/Prioritization
- Vehicle Automation

Transit Terminals

- San Ysidro 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 required under the 1982 SIP have been fully implemented.[5] Although the level of TCM implementation established in the SIP has been surpassed, ridesharing, transit, bicycling, and traffic flow improvements continue to be funded.

Interagency Consultation Process and Public Input

The consultation process followed to prepare the Air Quality Planning and Transportation Conformity Analysis for the 2025 Regional Plan and air quality consistency analysis for the 2025 RTIP Amendment 10 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), SDAPCD, Caltrans, CARB, DOT, and 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.

[5] 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 2025 Regional Plan and air quality consistency analysis for the 2025 RTIP Amendment No. 11 at CWG meetings as follows:

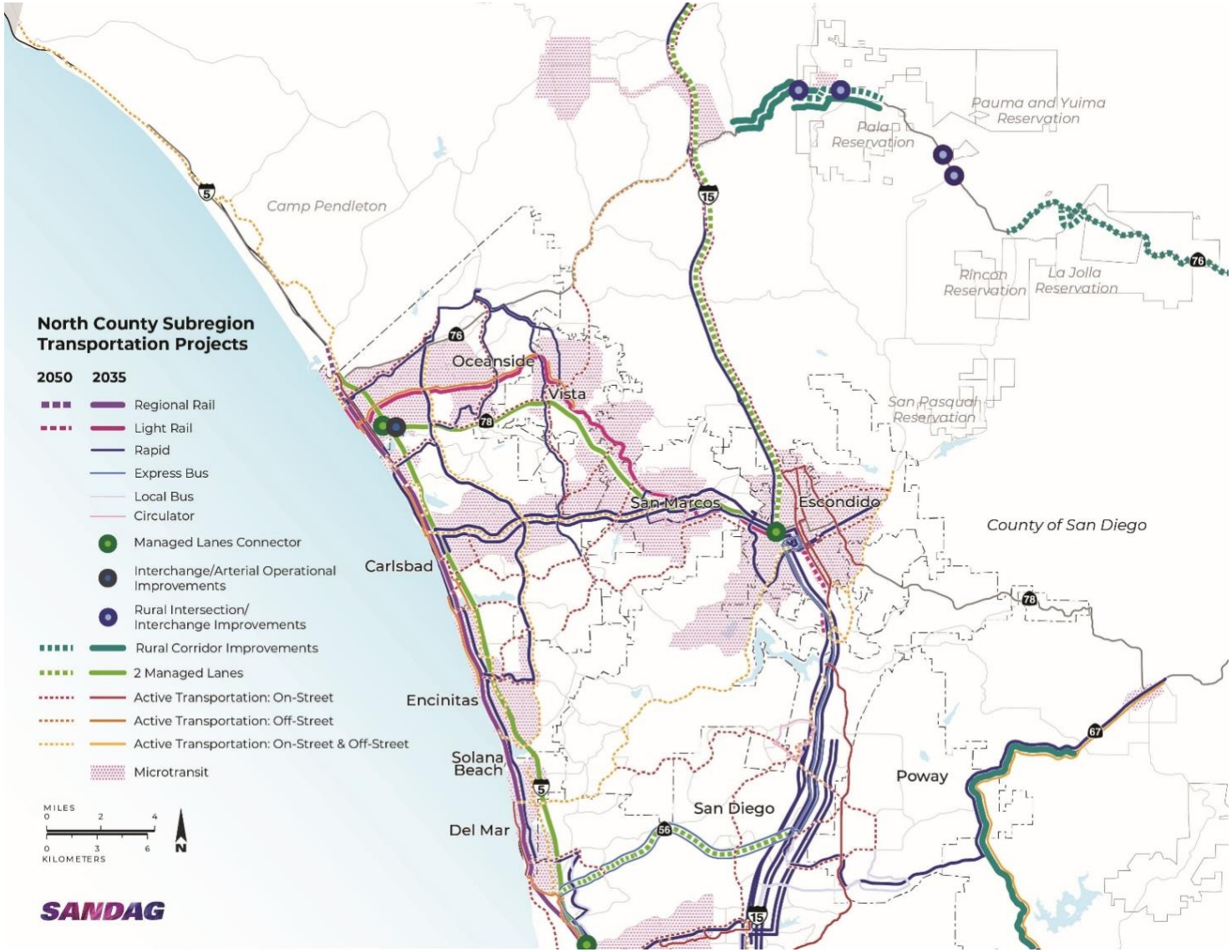
- At the March 1, 2023: CWG meeting, SANDAG staff presented information on the 2025 Regional Plan schedule and information about the criteria and procedures to be followed, including: emission model; emission budgets; and the public involvement plan.
- At the October 4, 2023 CWG meeting, SANDAG staff presented additional information about the criteria and procedures to be followed, including: the regional growth forecast
- At the February 5, 2025 CWG meeting, SANDAG staff presented additional information about the criteria and procedures to be followed, including: the activity based model.
- At the April 2, 2025, CWG meeting, SANDAG staff presented additional information about the criteria and procedures to be followed, including: the list of transportation projects; the list of exempt projects; transportation control measures; and revenue constrained financial assumptions.
- On April 11, 2025, SANDAG distributed the draft air quality planning and transportation conformity analysis for the 2025 Regional Plan for interagency consultation and review. The CWG review period ended on May 11, 2025.
- At the May 7, 2025 CWG meeting, the CWG discussed the conformity analysis and conformity determination for the draft 2025 Regional Plan.
- On May 23, 2025, the draft 2025 Regional Plan, including the draft air quality conformity analysis and the SCS, was released for public review and comments. The comment period on the draft 2025 Regional Plan concluded on July 18, 2025.
- A public hearing was held on the draft 2025 Regional Plan and its conformity determination on July 18, 2025.
- Based on comments received from the public and member agencies, refinements were made to the final 2025 Regional Plan network.
- At the July 2, 2025 CWG meeting, the CWG discussed the conformity implications of the June 12, 2025 federal action rescinding California's waivers for: (1) California State Motor Vehicle and Engine Pollution Control Standards; Heavy-Duty Vehicle and Engine Emission Warranty and Maintenance Provisions; Advanced Clean Trucks; Zero Emission Airport Shuttle; Zero-Emission Power Train Certification; (2) California State Motor Vehicle and Engine Pollution Control Standards; Advanced Clean Cars II; and (3) California State Motor Vehicle and Engine and Nonroad Engine Pollution Control Standards; The 'Omnibus' Low NOx Regulation.
- At the October 1, 2025 CWG meeting, SANDAG staff presented additional updated information about the criteria and procedures to be followed, including: the activity based model; the list of transportation projects; the list of exempt projects; revenue constrained financial assumptions; and emissions model and emissions budgets. The CWG discussed the conformity analysis for the 2025 Regional Plan and the air quality consistency analysis for the 2025 RTIP Amendment No. 11.

- On October 17, 2025, SANDAG distributed the final draft conformity analysis for the 2025 Regional Plan and air quality consistency analysis for the 2025 RTIP Amendment No. 11 to the CWG.
- At the November 5, 2025 CWG meeting the CWG discussed the conformity analysis and determination for the 2025 Regional Plan and the 2025 RTIP Amendment No. 11.
- A public hearing will be held on the 2025 Regional Plan and its conformity determination on December 12, 2025.
- On December 12, 2025, the SANDAG Board will be asked to adopt a resolution adopting the air quality conformity determination, finding that the Revenue Constrained Plan is in conformance with the SIP for air quality, and adopting the 2025 Regional Plan and its supporting analyses.

2025 Regional Plan Projects

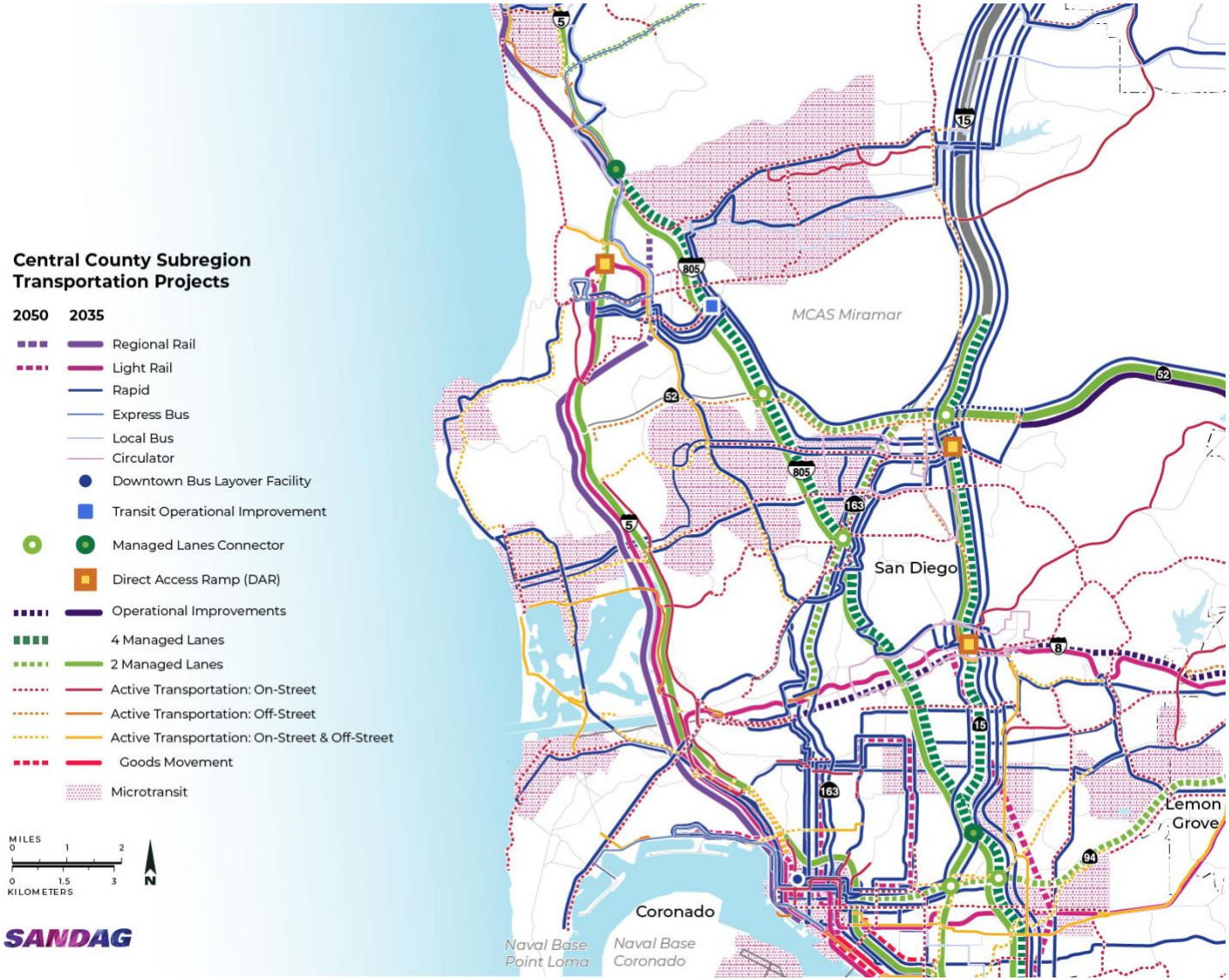
This section contains the capacity-increasing projects included in the 2025 Regional Plan. Figures C.5 through C.8 show the capacity-increasing projects in the 2025 Regional Plan by each subregion in San Diego County. Tables C.11 through C.13 list the projects for the 2025 Regional Plan by 2020 SIP Air Quality Phasing, including the conformity analysis year, project details, and estimated cost (2024 dollars). Table C.11 has the complete corridor, transit, and flexible fleet projects by each sub-region. This table uses descriptions of managed lanes (MLs) projects that indicate the number of MLs in addition to the freeway lanes included in the total configuration for that phase. For example, a freeway segment labeled “8F+2ML” would represent eight freeway lanes plus two MLs on that segment. Other abbreviations used are "2TL" on SR 15 that refers to the existing transit-only lanes, and “4T” on SR 125 that refers to the toll lanes. Table C.12 includes capacity-increasing arterial projects. Table C.13 lists additional systemwide costs associated with the Local Streets and Roads Program, Highway Maintenance and Operations, and Debt Service that are incurred by the region and included in the 2025 Regional Plan.

Figure C.5: North County Subregion Transportation Projects



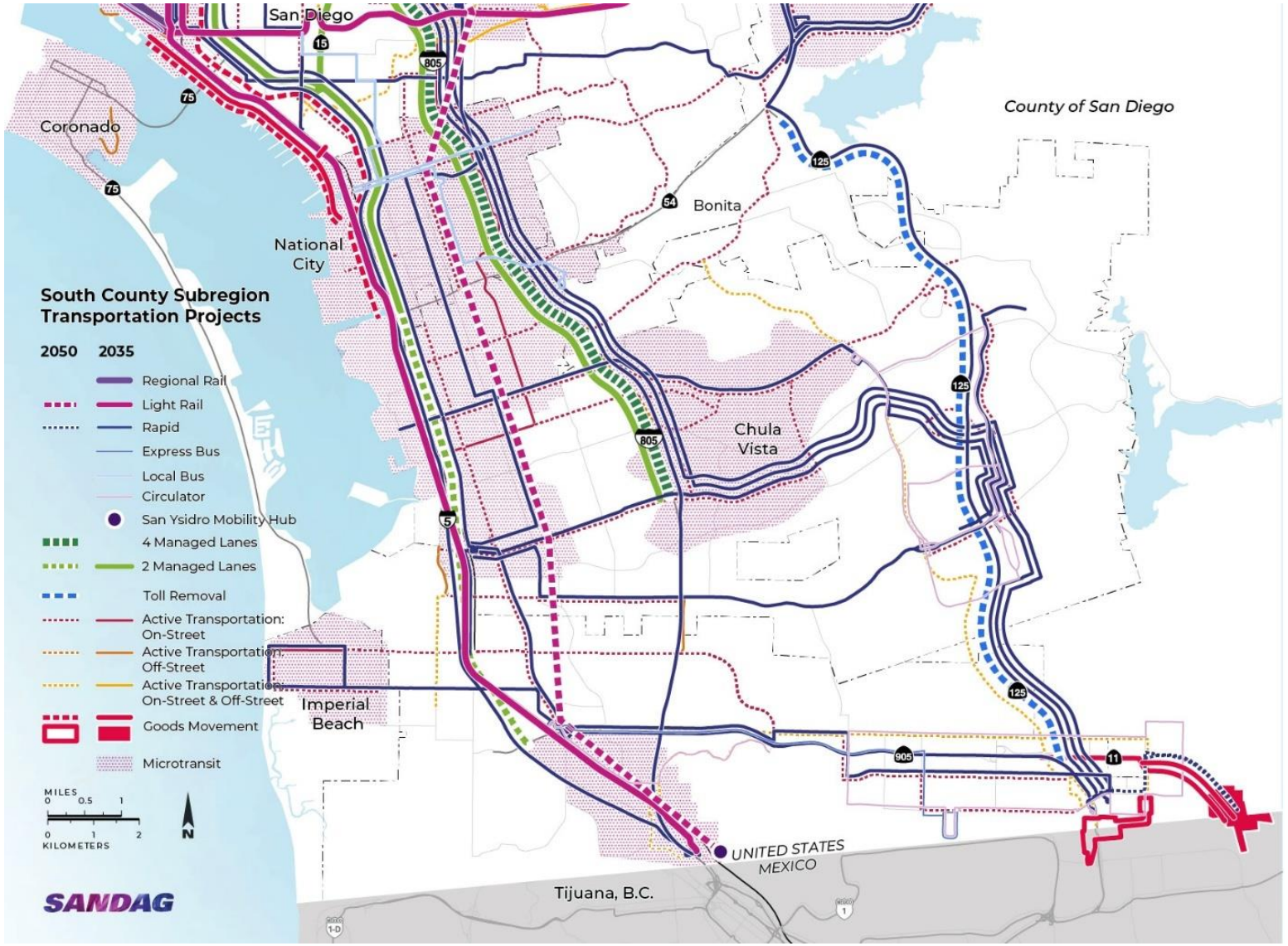
Source: SANDAG

Figure C.6: Central County Subregion Transportation Projects



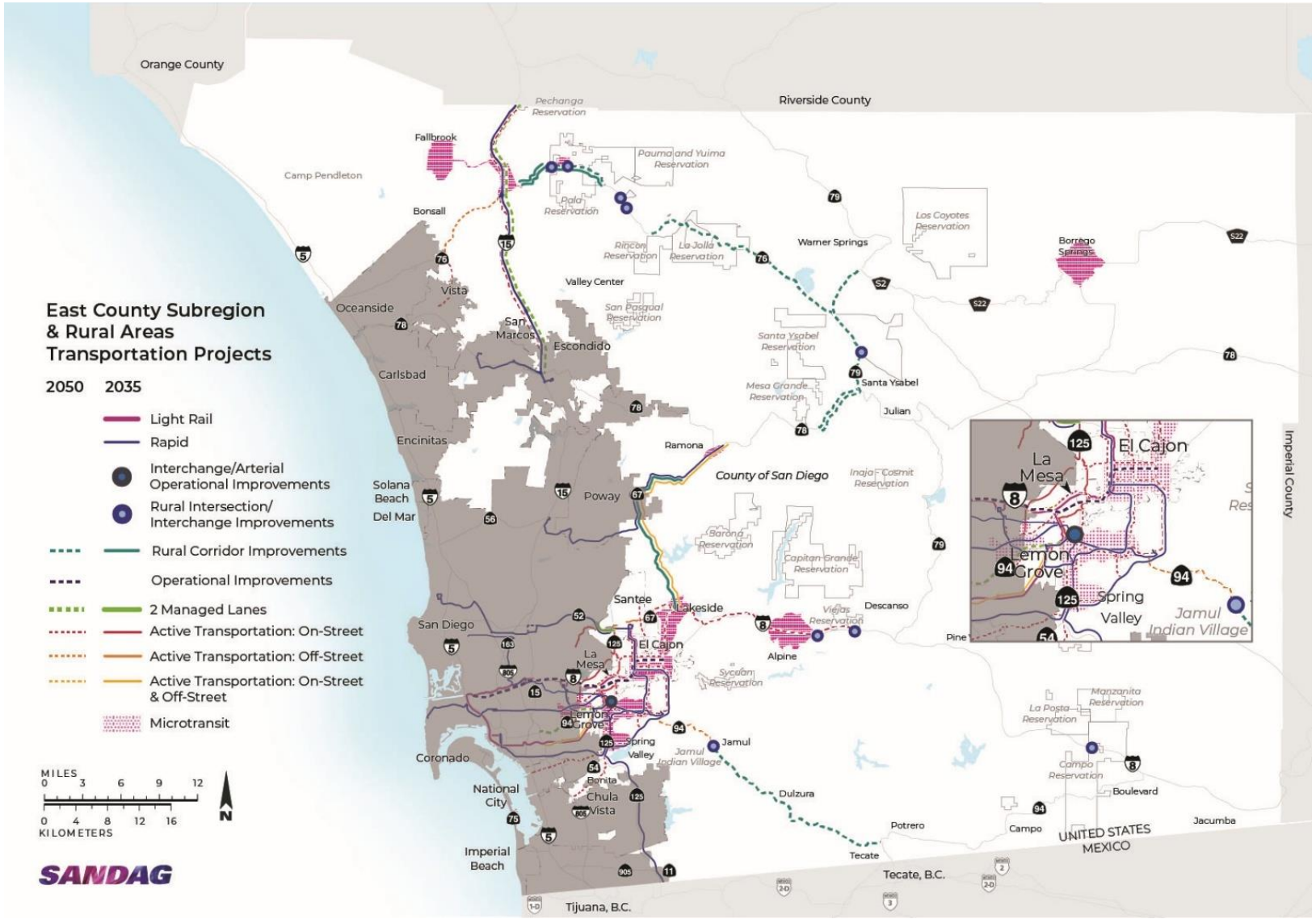
Source: SANDAG

Figure C.7: South County Subregion Transportation Projects



Source: SANDAG

Figure C.8: East County Subregion & Rural Areas Transportation Projects



Source: SANDAG

Table C.11: Major Projects List by Subregion

North County Subregion Projects

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL074	2026	Flexible Fleets: Microtransit Areas	Carlsbad Poinsettia	Microtransit operations	$40
TL076	2026	Flexible Fleets: Microtransit Areas	San Marcos	Microtransit operations	$40
TL078	2026	Flexible Fleets: Microtransit Areas	Vista	Microtransit operations	$40
FF10	2026	Flexible Fleets: Microtransit Areas	Oceanside	Microtransit operations	$17
TL077	2026	Flexible Fleets: Microtransit Areas	Oceanside Eastern Core	Microtransit operations	$38
TL080	2026	Flexible Fleets: Microtransit Areas	Fallbrook-Pala	Microtransit operations	$29
CC006	2029	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	I-805 to SR 78, 8F+2HOV to 8F+2ML	$271
TL047	2029	Transit: Rapid	Mixed Rapid Route 484	Commuter Express: Carlsbad to Kearny Mesa via I-15; Palomar Airport Road, SR 78, I-15 Rancho Bernardo Transit Center	$144
TL092	2029	Transit: Rapid	Mixed Rapid Route 277	Ramona to Sabre Springs Transit Station	$186
TL040	2032	Transit: Rapid	Arterial Rapid Route 440	Carlsbad to Escondido Transit Center via Palomar Airport Road	$79

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL042	2032	Transit: Rapid	Arterial Rapid Route 491	Nordahl Marketplace to East Escondido via Downtown Escondido	$107
TL046	2032	Transit: Rapid	Mixed Rapid Route 483	Commuter Express: Riverside (Temecula) to Palomar College via I-15, SR 78, CSUSM	$61
CC007	2040	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	SR 78 to Vandegrift Boulevard/ Harbor Drive, 8F to 8F+2ML	$160
CC030	2040	Complete Corridors: 2 Managed Lanes	SR 78 Managed Lanes	I-5 to College Boulevard, 6F to 6F+2ML	$162
CC031	2040	Complete Corridors: 2 Managed Lanes	SR 78 Managed Lanes	College Boulevard to Twin Oaks, 6F to 6F+2ML	$460
CC032	2040	Complete Corridors: 2 Managed Lanes	SR 78 Managed Lanes	Twin Oaks to I-15, 6F to 6F+2ML	$174
CC069	2040	Complete Corridors: Managed Lane Connector	I-5/I-805 ML Connector	North to north and south to south	$290
CC070	2040	Complete Corridors: Managed Lane Connector	I-5/SR 78 ML Connector	South to east and west to north, north to east and west to south	$300
CC071	2040	Complete Corridors: Managed Lane Connector	I-15/SR 78 ML Connector	East to south and north to west	$415
CC081	2040	Complete Corridors: Interchange and Arterial Operational Improvements	I-5/SR 78 Interchange/ Arterial Improvements	South to east and west to south	$444

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC050	2040	Complete Corridors: Rural Corridor Improvements	SR 67	Rural: Mapleview to Dye Road, multimodal operational improvements with shoulder widening for enhanced emergency access	$1,200
CC051	2040	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Rice Canyon Road to Pala Reservation, straightening	$76
CC061	2040	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Pala Casino to Rice Canyon Road, facility improvements	$2
CC064	2040	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Pala Reservation western boundary to Pala Reservation eastern boundary, Safety - widen shoulders along SR 76 to enhance safety for emergency response vehicles	$6
CC057	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 at Pala Mission Rd, intersection improvements	$1
CC058	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 at Cole Grade Rd, intersection improvements	$1
CC060	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 at Pauma Reservation Rd, intersection improvements	$2

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC068	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 near I-15, Safety - Add dynamic message sign on SR 76 near I-15 to improve emergency response and evacuation routes	$6
CC087	2040	Complete Corridors: Transportation Technology	I-5	Transportation technology	$482
CC091	2040	Complete Corridors: Transportation Technology	I-15	Transportation technology	$362
CC111	2040	Complete Corridors: Transportation Technology	SR 67	Transportation technology	$92
CC088	2040	Complete Corridors: Smart Intersection System (SIS)	I-5	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$87
CC092	2040	Complete Corridors: SIS	I-15	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$69
CC112	2040	Complete Corridors: SIS	SR 67	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$32
TL003	2040	Transit: Regional Rail	Regional Rail 398	Oceanside to Downtown San Diego (Double tracking, bridge replacements, realignment in Del Mar, new platform at fairgrounds)	$4,324

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL098	2040	Transit: Regional Rail	Regional Rail 598	Pacific Surfliner Rail2Rail (LOSSAN)	N/A**
TL005	2040	Transit: Light Rail	SPRINTER (Oceanside to Escondido)	Double-tracking and grade separations	$796
TL026	2040	Transit: Rapid	Mixed Rapid Route 235	Escondido to Downtown San Diego via I-15	$9
TL027	2040	Transit: Rapid	Arterial Rapid Route 237	UC San Diego to Rancho Bernardo via Sorrento Valley and Mira Mesa	$77
TL028	2040	Transit: Rapid	Arterial Rapid Route 238	UC San Diego to Rancho Bernardo via Sorrento Valley and Carroll Canyon	$88
TL035	2040	Transit: Rapid	Freeway Rapid Route 280	Downtown San Diego to Escondido	$12
TL036	2040	Transit: Rapid	Freeway Rapid Route 290	Downtown San Diego to Rancho Bernardo Transit Station	$13
TL043	2040	Transit: Rapid	Arterial Rapid Route 493	Oceanside to Solana Beach to UTC/UC San Diego via Highway 101 Coastal Communities, Carmel Valley	$367
TL044	2040	Transit: Rapid	Arterial Rapid Route 494	Oceanside to Vista via Mission Avenue/Santa Fe Road Corridor	$155
TL045	2040	Transit: Rapid	Arterial Rapid Route 497	Carlsbad Village to San Luis Rey Transit Center via College Boulevard, Plaza Camino Real	$127

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL048	2040	Transit: Rapid	Arterial Rapid Route 485	Oceanside to Encinitas via El Camino Real	$225
TL049	2040	Transit: Rapid	Arterial Rapid Route 486	San Luis Rey Transit Center to Carlsbad/San Marcos via Melrose Drive	$146
TL111	2040	Transit: Express Bus	Express Bus 246	Rancho Bernardo to UC San Diego via SR 56 (Rancho Bernardo and Sabre Springs to UTC/UC San Diego)	N/A*
TL112	2040	Transit: Express Bus	Express Bus 247	Escondido to UC San Diego via SR 56 (Escondido Transit Center and Del Lago to UTC/UC San Diego)	N/A*
TL181	2040	Transit: Circulator	Circulator 449	Palomar College to new development via Twin Oaks Valley Rd and West Barham Dr	N/A*
TL187	2040	Transit: Circulator	Circulator 675	Rancho Bernardo Business Park Loop	N/A*
TL142	2040	Transit: Local Bus	Local Bus 89	Solana Beach to UTC (via Del Mar Heights Rd)	N/A*
TL202	2040	Transit: Local Bus	Local Bus 842	Poway Business Route (Mira Mesa Transit Center to Poway Business to Sabre Springs Transit Center)	N/A*
TL248	2040	Transit: Local Bus	Local Bus 984	Miramar College Transit Station to Sorrento Valley via Carroll Canyon/Miramar Rd Business Parks	N/A*

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL072	2040	Flexible Fleets: Microtransit Areas	Sorrento Valley/Mira Mesa	Microtransit operations	$25
TL075	2040	Flexible Fleets: Microtransit Areas	Buena Creek	Microtransit operations	$25
TL079	2040	Flexible Fleets: Microtransit Areas	Ramona	Microtransit operations	$18
TL084	2040	Flexible Fleets: Microtransit Areas	Encinitas	Microtransit operations	$25
TL085	2040	Flexible Fleets: Microtransit Areas	Oceanside El Corazon	Microtransit operations	$25
TL086	2040	Flexible Fleets: Microtransit Areas	Escondido	Microtransit operations	$25
FF01	2040	Flexible Fleets: Microtransit Areas	Carlsbad Village	Microtransit operations	$10
FF03	2040	Flexible Fleets: Microtransit Areas	Del Mar	Microtransit operations	$10
FF13	2040	Flexible Fleets: Microtransit Areas	Solana Beach	Microtransit operations	$10
CC012	2050	Complete Corridors: 2 Managed2MLs	I-15 Managed Lanes	SR 78 to SR 76, 8F to 6F+2ML	$194
CC013	2050	Complete Corridors: 2 Managed2MLs	I-15 Managed Lanes	SR 76 to County line, 8F to 6F+2ML	$103
CC095	2050	Complete Corridors: Transportation Technology	SR 78	Transportation technology	$483

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC096	2050	Complete Corridors: SIS	SR 78	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$140
CC028	2050	Complete Corridors: 2 Managed2MLs	SR 56 Managed Lanes	I-5 to Carmel Valley Rd, 4F/6F+2HOV to 4F/6F+2ML	$41
CC029	2050	Complete Corridors: 2 Managed2MLs	SR 56 Managed Lanes	Carmel Valley Rd to I-15, 4F to 4F+2ML	$240
CC053	2050	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: West reservation boundary to east reservation boundary, shoulder widening for adding bike lanes	$50
CC054	2050	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: SR 79 to Valley Center Rd, facility improvements	$874
CC055	2050	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Harolds Rd to Pauma Rancho, straightening	$27
CC097	2050	Complete Corridors: Transportation Technology	SR 56	Transportation technology	$68
CC113	2050	Complete Corridors: Transportation Technology	SR 76	Transportation technology	$198
CC098	2050	Complete Corridors: SIS	SR 56	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$20
CC114	2050	Complete Corridors: SIS	SR 76	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$69

North County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL004	2050	Transit: Regional Rail	Regional Rail 398	Camp Pendleton to Downtown San Diego (grade separations, curve straightening, Miramar Tunnel, new station at Camp Pendleton and UTC)	$9,144
TL099	2050	Transit: Regional Rail	Regional Rail 598	Pacific Surfliner Rail2Rail (LOSSAN)	N/A**
TL006	2050	Transit: Light Rail	SPRINTER (Oceanside to Escondido)	Double tracking and grade separations; extension to North County Mall	$1,950
TL091	2050	Transit: Rapid	Mixed Rapid Route 235	Escondido to Downtown San Diego via I-15 (Inline station at SR 94 and 28th Street)	$23

*Notes: *New local, express, and circulator transit routes are assumed to operate on existing roads with minimal capital costs. The Copper Line is assumed to continue to operate on existing tracks with minimal capital costs. Vehicle and operations costs for new and existing routes are reflected in TL300 through TL311 as Systemwide Investments in Table C.13.*
***Pacific Surfliner Rail2Rail is a program that allows passengers with certain passes to ride either COASTER or Pacific Surfliner trains. Pacific Surfliner Rail2Rail service will benefit from planned LOSSAN upgrades reflected in projects TL003 and TL004.*

Central County Subregion Projects

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL067	2026	Flexible Fleets: Microtransit Areas	Southeastern San Diego	Microtransit operations	$45
FF02	2026	Flexible Fleets: Microtransit Areas	Coronado	Microtransit operations	$17
FF11	2026	Flexible Fleets: Microtransit Areas	Pacific Beach	Microtransit operations	$17
FF14	2026	Flexible Fleets: Microtransit Areas	Downtown/Little Italy	Microtransit operations	$17
FF15	2026	Flexible Fleets: Microtransit Areas	North Park/City Heights	Microtransit operations	$17
TL073	2026	Flexible Fleets: Microtransit Areas	Kearny Mesa Convoy	Microtransit operations	$38
CC006	2029	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	I-805 to SR 78, 8F+2HOV to 8F+2ML	$271
TL019	2029	Transit: Rapid	Arterial Rapid Route 212	Spring Valley to Downtown via Southeast San Diego	$137
TL047	2029	Transit: Rapid	Mixed Rapid Route 484	Commuter Express: Carlsbad to Kearny Mesa via I-15; Palomar Airport Road, SR 78, I-15 Rancho Bernardo Transit Center	$144
TL050	2029	Transit: Rapid	Arterial Rapid Route 625	SDSU to Palomar Station via East San Diego, Southeast San Diego, National City	$199
TL053	2029	Transit: Rapid	Arterial Rapid Route 637	North Park to 32nd Street Trolley Station via Golden Hill	$80

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL055	2029	Transit: Rapid	Freeway Rapid Route 640	San Ysidro to Santa Fe Depot via I-5 and City College	$18
TL056	2029	Transit: Rapid	Freeway Rapid Route 688	San Ysidro to UTC via I-805, Kearny Mesa, UTC (stops at Palomar Street, H Street, Plaza Boulevard, 47th Street, El Cajon Boulevard, University Avenue, SDSU Mission Valley, Clairemont Mesa Boulevard, UTC)	$57
TL057	2029	Transit: Rapid	Freeway Rapid Route 880	El Cajon to UC San Diego via Santee, SR 52, Kearny Mesa, I-805, UTC	$143
TL092	2029	Transit: Rapid	Mixed Rapid Route 277	Ramona to Sabre Springs Transit Station	$186
TL068	2029	Flexible Fleets: Microtransit Areas	Eastern San Diego	Microtransit operations	$38
GM06	2032	Complete Corridors: Goods Movement	Harbor Drive 2.0	Designated Freight Route: Dedicated lanes (where feasible) and intelligent transportation systems for truck freight along Harbor Drive between TAMT/Cesar Chavez Parkway, NCMT and connections to I-5 and SR 15. Includes freight signal prioritization, queue jumps, delineators, signage, zero-emission commercial vehicle infrastructure, striping, landscaping, drainage, and modifications to existing Naval Base San Diego gates	$177

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC041	2032	Complete Corridors: Operational Improvements	SR 52 Operational Improvements	Westbound Mast to Santo Road truck climbing lane	$78
TL017	2032	Transit: Rapid	Arterial Rapid Route 210	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town	$179
CC004	2040	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	Pacific Highway to SR 52, 8F to 6F+2ML	$110
CC005	2040	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	SR 52 to I-805, 8F to 6F+2ML	$61
CC003	2040	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	SR 15 to Pacific Highway, 8F to 6F+2ML	$61
CC008	2040	Complete Corridors: 2 Managed Lanes	SR 15 Managed Lanes	I-5 to I-805, 6F to 6F+2ML	$130
CC010	2040	Complete Corridors: 2 Managed Lanes	I-15 Managed Lanes	I-8 to SR 163, 8F to 8F+2ML	$297
CC014	2040	Complete Corridors: 2 Managed Lanes	I-805 Managed Lanes	Palomar Street to SR 94, 8F+2HOV to 8F+2ML	$110
CC016	2040	Complete Corridors: 2 Managed Lanes	I-805 Managed Lanes	SR 94 to SR 15, 8F to 8F+2ML	$55
CC018	2040	Complete Corridors: 2 Managed Lanes	I-805 Managed Lanes	SR 15 to SR 52, 8F/10F to 8F/10F+2ML	$432
CC020	2040	Complete Corridors: 2 Managed Lanes	I-805 Managed Lanes	SR 52 to I-5, 8F+2HOV to 8F+2ML	$62
CC023	2040	Complete Corridors: 2 Managed Lanes	SR 52 Managed Lanes	I-15 to Mast Boulevard, 6F to 4F+2ML+1 reversible transit lane	$131
CC069	2040	Complete Corridors: Managed Lane Connector	I-5/I-805 ML Connector	North to north and south to south	$290

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC076	2040	Complete Corridors: Managed Lane Connector	I-15/I-805 ML Connector	North to north and south to south	$290
CC083	2040	Complete Corridors: Direct Access Ramp	I-15 at Clairemont Mesa Boulevard DAR	North and south	$85
CC084	2040	Complete Corridors: Direct Access Ramp	I-5 a Voigt DAR	North and south	$85
CC085	2040	Complete Corridors: Direct Access Ramp	I-15 a SDSU Mission Valley DAR	North and south	$85
CC086	2040	Complete Corridors: Transit Operational Improvement	I-805/Nobel Drive Transit Operational Improvement	North and south	$85
CC087	2040	Complete Corridors: Transportation Technology	I-5	Transportation technology	$482
CC089	2040	Complete Corridors: Transportation Technology	I-805	Transportation technology	$284
CC091	2040	Complete Corridors: Transportation Technology	I-15	Transportation technology	$362
CC099	2040	Complete Corridors: Transportation Technology	SR 52	Transportation technology	$193
CC088	2040	Complete Corridors: SIS	I-5	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$87
CC090	2040	Complete Corridors: SIS	I-805	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$47

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC092	2040	Complete Corridors: SIS	I-15	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$69
CC100	2040	Complete Corridors: SIS	SR 52	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$37
TL003	2040	Transit: Regional Rail	Regional Rail 398	Oceanside to Downtown San Diego (Double tracking, bridge replacements, realignment in Del Mar, new platform at Fairgrounds)	$4,324
TL098	2040	Transit: Regional Rail	Regional Rail 598	Pacific Surfliner Rail2Rail (LOSSAN)	N/A**
TL001	2040	Transit: Light Rail	Airport Transit Connection 577	San Diego International Airport to Downtown	$2,782
TL007	2040	Transit: Light Rail	Blue Line (San Ysidro to UTC)	Grade separations	$239
TL009	2040	Transit: Light Rail	Orange Line (El Cajon to Downtown)	Grade separations	$112
TL011	2040	Transit: Light Rail	Green Line (El Cajon to Downtown)	Grade separations	$113
TL253	2040	Transit: Light Rail	Copper Line (El Cajon to Santee)	Copper Line (El Cajon to Santee)	N/A*
TL014	2040	Transit: Rapid	Arterial Rapid Route 120	Kearny Mesa to Downtown via Mission Valley	$106
TL015	2040	Transit: Rapid	Arterial Rapid Route 207	Balboa Avenue Trolley to Kearny Mesa via Balboa Avenue	$52

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL018	2040	Transit: Rapid	Arterial Rapid Route 211	SDSU to Downtown via Adams Avenue	$101
TL020	2040	Transit: Rapid	Arterial Rapid Route 215	SDSU to Downtown via El Cajon Boulevard	$71
TL021	2040	Transit: Rapid	Mixed Rapid Route 225	Otay Mesa Transit Center to Downtown San Diego via Chula Vista, I-805	$3
TL023	2040	Transit: Rapid	Arterial Rapid Route 228	Point Loma to Kearny Mesa via Old Town, Linda Vista	$127
TL024	2040	Transit: Rapid	Arterial Rapid Route 229	Pacific Beach to Convention Center via Ingraham Street, Sports Arena Boulevard, Pacific Highway	$117
TL025	2040	Transit: Rapid	Arterial Rapid Route 230	Balboa Station to UTC via Pacific Beach, La Jolla, UTC	$132
TL026	2040	Transit: Rapid	Mixed Rapid Route 235	Escondido to Downtown San Diego via I-15	$9
TL027	2040	Transit: Rapid	Arterial Rapid Route 237	UC San Diego to Rancho Bernardo via Sorrento Valley and Mira Mesa	$77
TL028	2040	Transit: Rapid	Arterial Rapid Route 238	UC San Diego to Rancho Bernardo via Sorrento Valley and Carroll Canyon	$88
TL029	2040	Transit: Rapid	Arterial Rapid Route 241	UC San Diego Medical Center - Hillcrest to UTC/UC San Diego via Linda Vista and Clairemont	$132
TL030	2040	Transit: Rapid	Arterial Rapid Route 243	Pacific Beach to Tierrasanta via Clairemont Mesa	$71

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL031	2040	Transit: Rapid	Arterial Rapid Route 255	Downtown to Logan Heights, Golden Hill, South Park, North Park, University Heights, Hillcrest (precursor to Streetcar)	$72
TL032	2040	Transit: Rapid	Arterial Rapid Route 256	SDSU to Rancho San Diego/ Cuyamaca College via College Grove and Spring Valley	$67
TL033	2040	Transit: Rapid	Arterial Rapid Route 259	El Cajon Transit Center to Lemon Grove Depot via Washington Avenue, Avocado Avenue, Campo Road, Bancroft Drive	$122
TL034	2040	Transit: Rapid	Mixed Rapid Route 265	Otay Mesa POE to SDSU Mission Valley via SR 125, I-805, I-15	$34
TL035	2040	Transit: Rapid	Freeway Rapid Route 280	Downtown San Diego to Escondido	$12
TL036	2040	Transit: Rapid	Freeway Rapid Route 290	Downtown San Diego to Rancho Bernardo Transit Station	$13
TL039	2040	Transit: Rapid	Arterial Rapid Route 295	South Bay to Clairemont via La Mesa and Kearny Mesa	$149
TL043	2040	Transit: Rapid	Arterial Rapid Route 493	Oceanside to Solana Beach to UTC/UC San Diego via Highway 101 Coastal Communities, Carmel Valley	$367

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL051	2040	Transit: Rapid	Freeway Rapid Route 630	Iris Trolley/Palomar to Kearny Mesa via I-5/SR 163 and City College	$62
TL252	2040	Transit: Rapid	Arterial Rapid Route 992	Airport to Downtown	$44
TL255	2040	Transit: Rapid	Arterial Rapid Route 994	Airport flyer (Old Town to Airport)	$44
TL060	2040	Transit: Downtown Bus Layover	Bus Layover	Downtown Bus Layover	$70
TL111	2040	Transit: Express Bus	Express Bus 246	Rancho Bernardo to UC San Diego via SR 56 (Rancho Bernardo and Sabre Springs to UTC/UC San Diego)	N/A*
TL112	2040	Transit: Express Bus	Express Bus 247	Escondido to UC San Diego via SR 56 (Escondido Transit Center and Del Lago to UTC/UC San Diego)	N/A*
TL113	2040	Transit: Express Bus	Express Bus 993	Shelter Island to Convention Center	N/A*
TL182	2040	Transit: Circulator	Circulator 647	Mission Valley Loop via Friars Road, Fenton Parkway, and Camino Del Rio South	N/A*
TL183	2040	Transit: Circulator	Circulator 648	Mission Valley Loop via Grantville, Camino Del Rio South, and Fenton Parkway	N/A*
TL184	2040	Transit: Circulator	Circulator 649	Kearny Mesa Loop via Balboa Avenue, Ruffner Street, Copley Park Place, and Overland Avenue	N/A*

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL186	2040	Transit: Circulator	Circulator 668	Kearny Mesa Loop via Ruffin Road, Aero Drive, Murphy Canyon Road, and Chesapeake Drive	N/A*
TL142	2040	Transit: Local Bus	Local Bus 89	Solana Beach to UTC (via Del Mar Heights Road)	N/A*
TL149	2040	Transit: Local Bus	Local Bus 197	8th Street Trolley to 32nd Street Trolley via 40th Street/ 38th Street/32nd Street	N/A*
TL202	2040	Transit: Local Bus	Local Bus 842	Poway Business Route (Mira Mesa Transit Center to Poway Business to Sabre Springs Transit Center)	N/A*
TL248	2040	Transit: Local Bus	Local Bus 984	Miramar College Transit Station to Sorrento Valley via Carroll Canyon/Miramar Road Business Parks	N/A*
TL071	2040	Flexible Fleets: Microtransit Areas	Clairemont Mesa	Microtransit operations	$25
TL072	2040	Flexible Fleets: Microtransit Areas	Sorrento Valley/ Mira Mesa	Microtransit operations	$25
FF03	2040	Flexible Fleets: Microtransit Areas	Del Mar	Microtransit operations	$10
FF06	2040	Flexible Fleets: Microtransit Areas	La Jolla	Microtransit operations	$10
FF09	2040	Flexible Fleets: Microtransit Areas	Ocean Beach	Microtransit operations	$10

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
NO01	2040	Transportation System Management: Smart Infrastructure	Advancing Border Connectivity SIS	SIS Implementation at Harbor Drive, Chula Vista (National City Boulevard and H Street) and San Ysidro Border District to enhance safety, transit optimization, and smoother goods movement.	$3
CC022	2040	Complete Corridors: 2 Managed Lanes	SR 52 Managed Lanes	I-805 to I-15, 6F to 4F+2ML	$210
CC025	2040	Complete Corridors: 2 Managed Lanes	SR 94 Managed Lanes	I-5 to I-15, 6F/8F to 6F+2ML	$80
CC026	2040	Complete Corridors: 2 Managed Lanes	SR 94 Managed Lanes	I-15 to I-805, 8F to 6F+2ML+operational improvements	$41
CC009	2040	Complete Corridors: 4 Managed Lanes	SR 15 Managed Lanes	I-805 to I-8, 8F+2TL to 6F+2TL+2ML	$42
CC011	2040	Complete Corridors: 4 Managed Lanes	I-15 Managed Lanes	I-8 to SR 163, 8F+2ML to 6F+4ML	$80
CC015	2040	Complete Corridors: 4 Managed Lanes	I-805 Managed Lanes	Palomar Street to SR 94, 8F+2ML to 6F+4ML	$110
CC017	2040	Complete Corridors: 4 Managed Lanes	I-805 Managed Lanes	SR 94 to SR 15, 8F+2ML to 6F+4ML	$16
CC019	2040	Complete Corridors: 4 Managed Lanes	I-805 Managed Lanes	SR 15 to SR 52, 8F/10F+2ML to 6F/8F+4ML	$117
CC021	2040	Complete Corridors: 4 Managed Lanes	I-805 Managed Lanes	SR 52 to I-5, 8F+2ML to 6F+4ML	$62
CC027	2050	Complete Corridors: 2 Managed Lanes	SR 94 Managed Lanes	I-805 to SR 125, 8F to 6F+2ML	$75

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC033	2050	Complete Corridors: 2 Managed Lanes	SR 163 Managed Lanes	I-8 to I-805, 8F to 6F+2ML	$41
CC034	2050	Complete Corridors: 2 Managed Lanes	SR 163 Managed Lanes	I-805 to SR 52, 8F to 6F+2ML	$34
CC077	2050	Complete Corridors: Managed Lane Connector	SR 94/I-805 ML Connector	North to west, east to south	$300
CC078	2050	Complete Corridors: Managed Lane Connector	SR 52/I-805 ML Connector	West to north and south to east	$290
CC080	2050	Complete Corridors: Managed Lane Connector	I-15/SR 94 ML Connector	South to west, east to north	$800
CC093	2050	Complete Corridors: Transportation Technology	I-8	Transportation technology	$363
CC094	2050	Complete Corridors: SIS	I-8	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$119
CC028	2050	Complete Corridors: 2 Managed Lanes	SR 56 Managed Lanes	I-5 to Carmel Valley Road, 4F/6F+2HOV to 4F/6F+2ML	$41
CC039	2050	Complete Corridors: Operational Improvements	I-8 Operational Improvements	Street J/Hotel Circle N/Hotel Circle S to 2nd Street	$220
CC072	2050	Complete Corridors: Managed Lane Connector	I-15/SR 52 ML Connector	West to north and south to east	$290
CC073	2050	Complete Corridors: Managed Lane Connector	I-15/SR 52 ML Connector	North to west and east to south	$290
CC074	2050	Complete Corridors: Managed Lane Connector	I-15/SR 52 ML Connector	North to east and west to south	$290
CC075	2050	Complete Corridors: Managed Lane Connector	I-15/SR 52 ML Connector	South to west and east to north	$290

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC079	2050	Complete Corridors: Managed Lane Connector	I-805/SR 163 ML Connector	North to north and south to south	$290
CC097	2050	Complete Corridors: Transportation Technology	SR 56	Transportation technology	$68
CC101	2050	Complete Corridors: Transportation Technology	SR 94	Transportation technology	$305
CC105	2050	Complete Corridors: Transportation Technology	SR 163	Transportation technology	$113
CC098	2050	Complete Corridors: SIS	SR 56	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$20
CC102	2050	Complete Corridors: SIS	SR 94	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$92
CC106	2050	Complete Corridors: SIS	SR 163	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$24
GM01	2050	Complete Corridors: Goods Movement	I-5 Working Waterfront Access	I-5 working waterfront access bottleneck relief between SR 94 and SR 54	$120

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
GM05	2050	Complete Corridors: Goods Movement	Harbor Drive Multimodal Corridor Improvements	Harbor Drive multimodal corridor improvements, including but not limited to: pavement rehabilitation; complete streets improvements at intersections between TAMT and NCMT; pedestrian crossings; various truck improvements; bikeway and ADA accommodations; streetscape, safety, and parking improvements	$242
TL004	2050	Transit: Regional Rail	Regional Rail 398	Camp Pendleton to Downtown San Diego (grade separations, curve straightening, Miramar Tunnel, new station at Camp Pendleton and UTC)	$9,144
TL099	2050	Transit: Regional Rail	Regional Rail 598	Pacific Surfliner Rail2Rail (LOSSAN)	N/A**
TL002	2050	Transit: Light Rail	Light Rail 582 (Purple Line)	Mission Valley to U.S.–Mexico Border via City Heights, National City, Chula Vista	$11,314
TL008	2050	Transit: Light Rail	Blue Line (San Ysidro to UTC)	Grade separations	$957
TL010	2050	Transit: Light Rail	Orange Line (El Cajon to Downtown)	Grade separations	$530
TL012	2050	Transit: Light Rail	Green Line (El Cajon to Downtown)	Grade separations	$788
TL254	2050	Transit: Light Rail	Copper Line (El Cajon to Santee)	Copper Line (El Cajon to Santee)	N/A*

Central County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL013	2050	Transit: Light Rail	Streetcar	Downtown to Logan Heights, Golden Hill, South Park, North Park, University Heights, Hillcrest	$1,060
TL090	2050	Transit: Rapid	Mixed Rapid Route 225	Otay Mesa Transit Center to Downtown San Diego via Chula Vista, I-805 (Inline station at SR 94 and 28th Street)	$23
TL091	2050	Transit: Rapid	Mixed Rapid Route 235	Escondido to Downtown San Diego via I-15 (Inline station at SR 94 and 28th Street)	$23

*Notes: *New local, express, and circulator transit routes are assumed to operate on existing roads with minimal capital costs. The Copper Line is assumed to continue to operate on existing tracks with minimal capital costs. Vehicle and operations costs for new and existing routes are reflected in TL300 through TL311 as Systemwide Investments in Table C.13.*
***Pacific Surfliner Rail2Rail is a program that allows passengers with certain passes to ride either COASTER or Pacific Surfliner trains. Pacific Surfliner Rail2Rail service will benefit from planned LOSSAN upgrades reflected in projects TL003 and TL004.*

South County Subregion Projects

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL067	2026	Flexible Fleets: Microtransit Areas	Southeastern San Diego	Microtransit Operations	$45
FF02	2026	Flexible Fleets: Microtransit Areas	Coronado	Microtransit Operations	$17
FF08	2026	Flexible Fleets: Microtransit Areas	National City	Microtransit Operations	$17
FF12	2026	Flexible Fleets: Microtransit Areas	San Ysidro/U.S.–Mexico Border	Microtransit Operations	$17
FF14	2026	Flexible Fleets: Microtransit Areas	Downtown/Little Italy	Microtransit Operations	$17
GM08	2029	Complete Corridors: Goods Movement	SR 11/Otay Mesa East Port of Entry (Enrico Fermi Drive to Mexico)	Otay Mesa East POE and roadway connections	$386
TL019	2029	Transit: Rapid	Arterial Rapid Route 212	Spring Valley to Downtown via Southeast San Diego	$137
TL050	2029	Transit: Rapid	Arterial Rapid Route 625	SDSU to Palomar Station via East San Diego, Southeast San Diego, National City	$199
TL053	2029	Transit: Rapid	Arterial Rapid Route 637	North Park to 32nd Street Trolley Station via Golden Hill	$80
TL055	2029	Transit: Rapid	Freeway Rapid Route 640	San Ysidro to Santa Fe Depot via I-5 and City College	$18

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL056	2029	Transit: Rapid	Freeway Rapid Route 688	San Ysidro to UTC via I-805, Kearny Mesa, UTC (stops at Palomar Street, H Street, Plaza Boulevard, 47th Street, El Cajon Boulevard, University Avenue, SDSU Mission Valley, Clairemont Mesa Boulevard, UTC)	$57
TL066	2029	Flexible Fleets: Microtransit Areas	Central Chula Vista	Microtransit Operations	$34
GM02	2032	Complete Corridors: Goods Movement	Otay Mesa East Port of Entry Pilot Programs	Pilot programs for streamlining commercial vehicle operations for reducing wait times at Otay Mesa East Port of Entry, including commercial vehicle appointment system	$25
GM03	2032	Complete Corridors: Goods Movement	Vesta Bridge - Phase 1	Vesta Bridge Phase 1 and operational improvements: SR 15, Main Street, Harbor Drive, and 32nd Street	$105

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
GM06	2032	Complete Corridors: Goods Movement	Harbor Drive 2.0	Designated Freight Route: Dedicated lanes (where feasible) and intelligent transportation systems for truck freight along Harbor Drive between TAMT/Cesar Chavez Parkway, NCMT and connections to I-5 and SR 15. Includes freight signal prioritization, queue jumps, delineators, signage, zero-emission commercial vehicle infrastructure, striping, landscaping, drainage, and modifications to existing Naval Base San Diego gates	$177
GM07	2032	Complete Corridors: Goods Movement	Regional Border Management System & Tolling Equipment	Border Wait Times - SR 11 tolling equipment, and Regional Border Management System	$44
TL016	2032	Transit: Rapid	Arterial Rapid Route 209	Chula Vista Bayfront to Millennia via H Street Corridor, Southwestern College	$136
CC002	2040	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	SR 54 to SR 15, 8F/10F to 8F+2ML	$113
CC003	2040	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	SR 15 to Pacific Highway, 8F to 6F+2ML	$61

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC008	2040	Complete Corridors: 2 Managed Lanes	SR 15 Managed Lanes	I-5 to I-805, 6F to 6F+2ML	$130
CC014	2040	Complete Corridors: 2 Managed Lanes	I-805 Managed Lanes	Palomar Street to SR 94, 8F+2HOV to 8F+2ML	$110
CC016	2040	Complete Corridors: 2 Managed Lanes	I-805 Managed Lanes	SR 94 to SR 15, 8F to 8F+2ML	$55
CC087	2040	Complete Corridors: Transportation Technology	I-5	Transportation Technology	$482
CC089	2040	Complete Corridors: Transportation Technology	I-805	Transportation Technology	$284
CC091	2040	Complete Corridors: Transportation Technology	I-15	Transportation Technology	$362
CC107	2040	Complete Corridors: Transportation Technology	SR 125	Transportation Technology	$224
CC088	2040	Complete Corridors: SIS	I-5	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$87
CC090	2040	Complete Corridors: SIS	I-805	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$47

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC092	2040	Complete Corridors: Smart Intersection System (SIS)	I-15	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$69
CC108	2040	Complete Corridors: Smart Intersection System (SIS)	SR 125	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$43
TL001	2040	Transit: Light Rail	Airport Transit Connection 577	San Diego International Airport to Downtown	$2,782
TL003	2040	Transit: Regional Rail	Regional Rail 398	Oceanside to Downtown San Diego (Double tracking, bridge replacements, realignment in Del Mar, new platform at Fairgrounds)	$4,324
TL098	2040	Transit: Regional Rail	Regional Rail 598	Pacific Surfliner Rail2Rail (LOSSAN)	N/A**
TL007	2040	Transit: Light Rail	Blue Line (San Ysidro to UTC)	Grade separations	$239
TL009	2040	Transit: Light Rail	Orange Line (El Cajon to Downtown)	Grade separations	$112
TL011	2040	Transit: Light Rail	Green Line (El Cajon to Downtown)	Grade separations	$113
TL253	2040	Transit: Light Rail	Copper Line (El Cajon to Santee)	Copper Line (El Cajon to Santee)	N/A*

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL014	2040	Transit: Rapid	Arterial Rapid Route 120	Kearny Mesa to Downtown via Mission Valley	$106
TL018	2040	Transit: Rapid	Arterial Rapid Route 211	SDSU to Downtown via Adams Avenue	$101
TL020	2040	Transit: Rapid	Arterial Rapid Route 215	SDSU to Downtown via El Cajon Boulevard	$71
TL021	2040	Transit: Rapid	Mixed Rapid Route 225	Otay Mesa Transit Center to Downtown San Diego via Chula Vista, I-805	$3
TL022	2040	Transit: Rapid	Mixed Rapid Route 227	Otay Mesa to Imperial Beach via 905	$68
TL024	2040	Transit: Rapid	Arterial Rapid Route 229	Pacific Beach to Convention Center via Ingraham Street, Sports Arena Boulevard, Pacific Highway	$117
TL026	2040	Transit: Rapid	Mixed Rapid Route 235	Escondido to Downtown San Diego via I-15	$9
TL031	2040	Transit: Rapid	Arterial Rapid Route 255	Downtown to Logan Heights, Golden Hill, South Park, North Park, University Heights, Hillcrest (precursor to Streetcar)	$72

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL034	2040	Transit: Rapid	Mixed Rapid Route 265	Otay Mesa POE to SDSU Mission Valley via SR 125, I-805, I-15	$34
TL035	2040	Transit: Rapid	Freeway Rapid Route 280	Downtown San Diego to Escondido	$12
TL036	2040	Transit: Rapid	Freeway Rapid Route 290	Downtown San Diego to Rancho Bernardo Transit Station	$13
TL037	2040	Transit: Rapid	Mixed Rapid Route 292	El Cajon to Otay Mesa via El Cajon, Jamacha, and Otay Lakes	$124
TL038	2040	Transit: Rapid	Arterial Rapid Route 293	Palm Avenue Trolley to Otay Ranch via Palomar Street	$66
TL039	2040	Transit: Rapid	Arterial Rapid Route 295	South Bay to Clairemont via La Mesa and Kearny Mesa	$149
TL051	2040	Transit: Rapid	Freeway Rapid Route 630	Iris Trolley/Palomar to Kearny Mesa via I-5/SR 163 and City College	$62
TL052	2040	Transit: Rapid	Arterial Rapid Route 635	Eastlake to Palomar Trolley via Main Street Corridor	$127

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL054	2040	Transit: Rapid	Arterial Rapid Route 638	Iris Trolley to Otay Mesa via Otay, Airway Drive, SR 905 Corridor	$73
TL252	2040	Transit: Rapid	Arterial Rapid Route 992	Airport to Downtown	$44
TL255	2040	Transit: Rapid	Arterial Rapid Route 994	Airport Flyer (Old Town to Airport)	$44
TL060	2040	Transit: Downtown Bus Layover	Bus Layover	Downtown Bus Layover	$70
TL062	2040	Transit: San Ysidro Mobility Hub	U.S.–Mexico Border Transit Connection	San Ysidro Mobility Hub	$300
TL110	2040	Transit: Express Bus	Express Bus 121	CBX to Iris Transit Station Express	N/A*
TL113	2040	Transit: Express Bus	Express Bus 993	Shelter Island to Convention Center	N/A*
TL146	2040	Transit: Circulator	Circulator 193	Iris Transit Center to San Ysidro High School	N/A*
TL185	2040	Transit: Circulator	Circulator 661	Otay Mesa Loop via Otay Mesa Road, Heritage Road, Siempre Viva Road, and Alta Road	N/A*
TL194	2040	Transit: Circulator	Circulator 715	Otay Ranch Loop via Southwest College, La Media Road, Hunte Parkway, and Eastlake Parkway	N/A*

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL195	2040	Transit: Circulator	Circulator 716	Lower Otay Ranch Loop via Birch Road, Orion Avenue, Rock Mountain, and La Media Road	N/A*
TL147	2040	Transit: Local Bus	Local Bus 195	8th Street Trolley to Plaza Bonita via 8th Street, L Avenue, and 30th Street	N/A*
TL148	2040	Transit: Local Bus	Local Bus 196	8th Street Trolley to Plaza Boulevard via 8th Street	N/A*
TL149	2040	Transit: Local Bus	Local Bus 197	8th Street Trolley to 32nd Street Trolley via 40th Street/38th Street/32nd Street	N/A*
TL069	2040	Flexible Fleets: Microtransit Areas	Casa De Oro/Spring Valley	Microtransit Operations	$18
FF04	2040	Flexible Fleets: Microtransit Areas	Downtown/Southwest Chula Vista	Microtransit Operations	$10
FF05	2040	Flexible Fleets: Microtransit Areas	Imperial Beach	Microtransit Operations	$10
NO01	2040	Transportation System Management: Smart Infrastructure	Advancing Border Connectivity Smart Intersection System (SIS)	SIS Implementation at Harbor Drive, Chula Vista (National City Boulevard and H Street) and San Ysidro Border District to enhance safety, transit optimization, and smoother goods movement.	$3

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
NO02	2040	Transportation System Management: Smart Borders	Advancing Border Connectivity Regional Border Management System (RBMS)	Planned technologies for traffic management and crowd-sourced wait time calculations at the Otay Mesa East Port of Entry.	$5
NO03	2040	Transportation System Management: Smart Corridors	Advancing Border Connectivity NextGen Integrated Corridor Management (ICM)	Regional traveler information system along the SR 905, I-5, and I-805 that allow for real-time traffic management and emergency response.	$4
CC001	2040	Complete Corridors: 2 Managed Lanes	I-5 Managed Lanes	SR 905 to SR 54, 8F to 6F+2ML	$81
CC025	2040	Complete Corridors: 2 Managed Lanes	SR 94 Managed Lanes	I-5 to I-15, 6F/8F to 6F+2ML	$80
CC026	2040	Complete Corridors: 2 Managed Lanes	SR 94 Managed Lanes	I-15 to I-805, 8F to 6F+2ML+Operational Improvements	$41
CC015	2040	Complete Corridors: 4 Managed Lanes	I-805 Managed Lanes	Palomar Street to SR 94, 8F+2ML to 6F+4ML	$110
CC017	2040	Complete Corridors: 4 Managed Lanes	I-805 Managed Lanes	SR 94 to SR 15, 8F+2ML to 6F+4ML	$16
CC027	2050	Complete Corridors: 2 Managed Lanes	SR 94 Managed Lanes	I-805 to SR 125, 8F to 6F+2ML	$75
CC035	2050	Complete Corridors: Toll Removal	SR 125 Toll Removal	SR 905 to SR 54, 4T to 4F	N/A***
CC077	2050	Complete Corridors: Managed Lane Connector	SR 94/I-805 ML Connector	North to West, East to South	$300

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC080	2050	Complete Corridors: Managed Lane Connector	I-15/SR 94 ML Connector	South to West, East to North	$800
CC101	2050	Complete Corridors: Transportation Technology	SR 94	Transportation Technology	$305
CC103	2050	Complete Corridors: Transportation Technology	SR 54	Transportation Technology	$90
CC109	2050	Complete Corridors: Transportation Technology	SR 905	Transportation Technology	$195
CC102	2050	Complete Corridors: Smart Intersection System (SIS)	SR 94	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$92
CC104	2050	Complete Corridors: Smart Intersection System (SIS)	SR 54	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$20
CC110	2050	Complete Corridors: Smart Intersection System (SIS)	SR 905	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$38
GM01	2050	Complete Corridors: Goods Movement	I-5 Working Waterfront Access	I-5 Working Waterfront Access Bottleneck Relief between SR 94 and SR 54	$120

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
GM04	2050	Complete Corridors: Goods Movement	Otay Mesa Port of Entry Truck Bridge to Commercial Vehicle Enforcement Facility	Otay Mesa Port of Entry: Bridge widening between Port of Entry and Commercial Vehicle Enforcement Facility to coincide with improvements at both facilities	$63
GM05	2050	Complete Corridors: Goods Movement	Harbor Drive Multimodal Corridor Improvements	Harbor Drive Multimodal Corridor Improvements, including but not limited to: pavement rehabilitation; complete streets improvements at intersections between TAMT and NCMT; pedestrian crossings; various truck improvements; bikeway and ADA accommodations; streetscape, safety, and parking improvements	$242
GM09	2050	Complete Corridors: Goods Movement	Otay Mesa East Port of Entry Build-Out	Expand facility to accommodate additional passenger vehicle, commercial vehicle, and pedestrian lanes	$1,200
TL004	2050	Transit: Regional Rail	Regional Rail 398	Camp Pendleton to Downtown San Diego (Grade separations, curve straightening, Miramar Tunnel, new station at Camp Pendleton and UTC)	$9,144

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL099	2050	Transit: Regional Rail	Regional Rail 598	Pacific Surfliner Rail2Rail (LOSSAN)	N/A**
TL002	2050	Transit: Light Rail	Light Rail 582 (Purple Line)	Mission Valley to U.S.–Mexico Border via City Heights, National City, Chula Vista	$11,314
TL008	2050	Transit: Light Rail	Blue Line (San Ysidro to UTC)	Grade separations	$957
TL010	2050	Transit: Light Rail	Orange Line (El Cajon to Downtown)	Grade separations	$530
TL012	2050	Transit: Light Rail	Green Line (El Cajon to Downtown)	Grade separations	$788
TL254	2050	Transit: Light Rail	Copper Line (El Cajon to Santee)	Copper Line (El Cajon to Santee)	N/A*
TL013	2050	Transit: Light Rail	Streetcar	Downtown to Logan Heights, Golden Hill, South Park, North Park, University Heights, Hillcrest	$1,060
TL090	2050	Transit: Rapid	Mixed Rapid Route 225	Otay Mesa Transit Center to Downtown San Diego via Chula Vista, I-805 (Inline station at SR 94 and 28th Street)	$23

South County Subregion Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL091	2050	Transit: Rapid	Mixed Rapid Route 235	Escondido to Downtown San Diego via I-15 (Inline station at SR 94 and 28th Street)	$23
TL093	2050	Transit: Rapid	Mixed Rapid Route 227	Otay Mesa East POE to Imperial Beach via SR 905	$14
TL063	2050	Transit: San Ysidro Mobility Hub	U.S.–Mexico Border Transit Connection	San Ysidro Mobility Hub	$650

*Notes: *New local, express, and circulator transit routes are assumed to operate on existing roads with minimal capital costs. The Copper Line is assumed to continue to operate on existing tracks with minimal capital costs. Vehicle and operations costs for new and existing routes are reflected in TL300 through TL311 as Systemwide Investments in Table C.13.*

***Pacific Surfliner Rail2Rail is a program that allows passengers with certain passes to ride either COASTER or Pacific Surfliner trains. Pacific Surfliner Rail2Rail service will benefit from planned LOSSAN upgrades reflected in projects TL003 and TL004.*

****Costs associated with toll removal are reflected under HMO1 and HMO2 as Systemwide Investments in Table C.13.*

*****Costs listed for the SR 11/Otay Mesa East facility reflect the remaining funding needed to complete the project.*

East County Subregion and Rural Area Projects

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL080	2026	Flexible Fleets: Microtransit Areas	Fallbrook-Pala	Microtransit Operations	$29
TL019	2029	Transit: Rapid	Arterial Rapid Route 212	Spring Valley to Downtown via Southeast San Diego	$137
TL057	2029	Transit: Rapid	Freeway Rapid Route 880	El Cajon to UC San Diego via Santee, SR 52, Kearny Mesa, I-805, UTC	$143
TL092	2029	Transit: Rapid	Mixed Rapid Route 277	Ramona to Sabre Springs Transit Station	$186
TL068	2029	Flexible Fleets: Microtransit Areas	Eastern San Diego	Microtransit Operations	$38
TL017	2032	Transit: Rapid	Arterial Rapid Route 210	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town	$179
TL046	2032	Transit: Rapid	Mixed Rapid Route 483	Commuter Express: Riverside (Temecula) to Palomar College via I-15, SR 78, CSUSM	$61
CC024	2040	Complete Corridors: Two Managed Lanes	SR 52 Managed Lanes	Mast Boulevard to SR 125, 4F to 4F+2ML	$37
CC082	2040	Complete Corridors: Interchange and Arterial Operational Improvements	SR 94/SR 125 Interchange/Arterial Improvements	South to East connector	$134
CC050	2040	Complete Corridors: Rural Corridor Improvements	SR 67	Rural: Mapleview to Dye Road, Multimodal operational improvements with shoulder widening for enhanced emergency access	$1,200

East County Subregion and Rural Area Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC051	2040	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Rice Canyon Road to Pala Reservation, Straightening	$76
CC061	2040	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Pala Casino to Rice Canyon Road, Facility Improvements	$2
CC064	2040	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Pala Reservation Western Boundary to Pala Reservation Eastern Boundary, Safety - Widen shoulders along SR 76 to enhance safety for emergency response vehicles	$6
CC052	2040	Complete Corridors: Rural Intersection and Interchange Improvements	I-8	Rural: Interchange improvements at Crestwood Road/I-8 interchange, Interchange Improvements	$16
CC057	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 at Pala Mission Road, Intersection Improvements	$1
CC058	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 at Cole Grade Road, Intersection Improvements	$1
CC059	2040	Complete Corridors: Rural Intersection and Interchange Improvements	I-8	Rural: I-8 at East Willows Road, Interchange Improvements	$14
CC060	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 at Pauma Reservation Road, Intersection Improvements	$2

East County Subregion and Rural Area Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC063	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 79	Rural: SR 79 at Schoolhouse Canyon Road, Intersection Improvements	$1
CC066	2040	Complete Corridors: Rural Intersection and Interchange Improvements	I-8	Rural: I-8 at West Willows Road, Interchange Improvements	$14
CC067	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 94	Rural: SR 94 at Melody Road and Daisy Drive, Intersection Improvements	$10
CC068	2040	Complete Corridors: Rural Intersection and Interchange Improvements	SR 76	Rural: SR 76 near I-15, Safety - Add dynamic message sign on SR 76 near I-15 to improve emergency response and evacuation routes	$6
CC091	2040	Complete Corridors: Transportation Technology	I-15	Transportation Technology	$362
CC099	2040	Complete Corridors: Transportation Technology	SR 52	Transportation Technology	$193
CC107	2040	Complete Corridors: Transportation Technology	SR 125	Transportation Technology	$224
CC111	2040	Complete Corridors: Transportation Technology	SR 67	Transportation Technology	$92
CC092	2040	Complete Corridors: Smart Intersection System (SIS)	I-15	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$69

East County Subregion and Rural Area Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC100	2040	Complete Corridors: Smart Intersection System (SIS)	SR 52	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$37
CC108	2040	Complete Corridors: Smart Intersection System (SIS)	SR 125	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$43
CC112	2040	Complete Corridors: Smart Intersection System (SIS)	SR 67	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$32
TL009	2040	Transit: Light Rail	Orange Line (El Cajon to Downtown)	Grade separations	$112
TL011	2040	Transit: Light Rail	Green Line (El Cajon to Downtown)	Grade separations	$113
TL253	2040	Transit: Light Rail	Copper Line (El Cajon to Santee)	Copper Line (El Cajon to Santee)	N/A*
TL032	2040	Transit: Rapid	Arterial Rapid Route 256	SDSU to Rancho San Diego/Cuyamaca College via College Grove and Spring Valley	$67
TL033	2040	Transit: Rapid	Arterial Rapid Route 259	El Cajon Transit Center to Lemon Grove Depot via Washington Avenue, Avocado Avenue, Campo Road, Bancroft Drive	$122

East County Subregion and Rural Area Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
TL037	2040	Transit: Rapid	Mixed Rapid Route 292	El Cajon to Otay Mesa via El Cajon, Jamacha, and Otay Lakes	$124
TL039	2040	Transit: Rapid	Arterial Rapid Route 295	South Bay to Clairemont via La Mesa and Kearny Mesa	$149
TL069	2040	Flexible Fleets: Microtransit Areas	Casa De Oro/Spring Valley	Microtransit Operations	$18
TL070	2040	Flexible Fleets: Microtransit Areas	Lakeside	Microtransit Operations	$18
TL079	2040	Flexible Fleets: Microtransit Areas	Ramona	Microtransit Operations	$18
TL081	2040	Flexible Fleets: Microtransit Areas	El Cajon	Microtransit Operations	$18
TL082	2040	Flexible Fleets: Microtransit Areas	Alpine	Microtransit Operations	$18
TL083	2040	Flexible Fleets: Microtransit Areas	Borrego Springs	Microtransit Operations	$18
FF07	2040	Flexible Fleets: Microtransit Areas	La Mesa	Microtransit Operations	$10
CC012	2050	Complete Corridors: 2 Managed Lanes	I-15 Managed Lanes	SR 78 to SR 76, 8F to 6F+2ML	$194
CC013	2050	Complete Corridors: 2 Managed Lanes	I-15 Managed Lanes	SR 76 to County Line, 8F to 6F+2ML	$103
CC027	2050	Complete Corridors: 2 Managed Lanes	SR 94 Managed Lanes	I-805 to SR 125, 8F to 6F+2ML	$75

East County Subregion and Rural Area Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC093	2050	Complete Corridors: Transportation Technology	I-8	Transportation Technology	$363
CC095	2050	Complete Corridors: Transportation Technology	SR 78	Transportation Technology	$483
CC094	2050	Complete Corridors: Smart Intersection System (SIS)	I-8	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$119
CC096	2050	Complete Corridors: Smart Intersection System (SIS)	SR 78	Smart Intersection System (SIS) upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$140
CC039	2050	Complete Corridors: Operational Improvements	I-8 Operational Improvements	Street J/Hotel Circle N/Hotel Circle S to 2nd Street	$220
CC053	2050	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: West Reservation Boundary to East Reservation Boundary, Shoulder Widening for adding bike lanes	$50
CC054	2050	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: SR 79 to Valley Center Road, Facility Improvements	$874
CC055	2050	Complete Corridors: Rural Corridor Improvements	SR 76	Rural: Harolds Road to Pauma Rancho, Straightening	$27
CC056	2050	Complete Corridors: Rural Corridor Improvements	SR 78	Rural: SR 79 to Deer Canyon Drive, Intersection Improvements	$5

East County Subregion and Rural Area Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC062	2050	Complete Corridors: Rural Corridor Improvements	SR 79	Rural: Deer Canyon Drive to San Felipe Road, Shoulder Widening	$286
CC065	2050	Complete Corridors: Rural Corridor Improvements	SR 94	Rural: Jamul Reservation to Tecate Road, Shoulder Widening/Straightening	$318
CC101	2050	Complete Corridors: Transportation Technology	SR 94	Transportation Technology	$305
CC103	2050	Complete Corridors: Transportation Technology	SR 54	Transportation Technology	$90
CC113	2050	Complete Corridors: Transportation Technology	SR 76	Transportation Technology	$198
CC115	2050	Complete Corridors: Transportation Technology	SR 79	Transportation Technology	$50
CC102	2050	Complete Corridors: SIS	SR 94	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$92
CC104	2050	Complete Corridors: SIS	SR 54	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$20
CC114	2050	Complete Corridors: SIS	SR 76	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$69

East County Subregion and Rural Area Projects Continued

Project ID	Conformity Analysis Year	Project Category	Project Name	Project Description	Cost (2024$) Million
CC116	2050	Complete Corridors: SIS	SR 79	SIS upgrades to signalized ramps and intersections along the highway and parallel or connecting major arterials	$18
TL010	2050	Transit: Light Rail	Orange Line (El Cajon to Downtown)	Grade separations	$530
TL012	2050	Transit: Light Rail	Green Line (El Cajon to Downtown)	Grade separations	$788
TL254	2050	Transit: Light Rail	Copper Line (El Cajon to Santee)	Copper Line (El Cajon to Santee)	N/A*

*Note: *The Copper Line is assumed to operate on existing tracks with minimal capital costs.*

Table C.12: Arterials - Arterial Projects Air Quality Phasing

Conformity Analysis Year	TIP ID	Lead Agency	Project Name	Description
2026	CAL114	Caltrans	I-5/SR 56 Interchange	At I-5/SR 56 interchange - in San Diego, final environmental document for freeway-to-freeway interchange, associated operational improvements, and the relocation of the fiber optic cable line; connector phases are outside of TIP cycle but included in the long-range plan. Phase I: Final design and construction of HOV operational lanes in the east and westbound directions on SR-56 from El Camino Real to Carmel Valley Road.
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, sidewalk, and a bike lane in accordance with Prime Arterial Standards. Widen bridge to accommodate sidewalks on both sides of the bridge.
2026	CB32	Carlsbad	El Camino Real Widening – Poinsettia to Camino Vida Roble	El Camino Real from Cassia Road to Camino Vida Roble (.5 miles) – in Carlsbad, along El Camino Real from Poinsettia Lane to Camino Vida Roble, re-stripe from Poinsettia Lane to Cinnabar Way and widen El Camino Real from Cinnabar Way to Camino Vida Roble, along the northbound/east side of the roadway to provide three travel lanes, sidewalk, and a bike lane in accordance with arterial street standards..
2026	CB59	Carlsbad	El Camino Real Widening – Sunny Creek to Jackspar	El Camino Real from Sunny Creek to Jackspar (.3 miles) – 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.
2026	CHV69	Chula Vista	Heritage Road Bridge	Bridge 57C0670 - widen and lengthen bridge over Otay River from four-lane to six-lane bridge that accommodates shoulders, sidewalk, and median; project is on Heritage Road from the intersection of Main Street to Entertainment Circle. Also includes Main Street widening to accommodate a third eastbound travel lane from the intersection of Nirvana Avenue to Heritage Road.

Arterials - Arterial Projects Air Quality Phasing Continued

Conformity Analysis Year	TIP ID	Lead Agency	Project Name	Description
2026	CHV87	Chula Vista	E Street Extension from Bay Boulevard to H Street	E Street from Bay Boulevard to H Street (1 miles) - Extension of E Street and F Street west of Bay Boulevard to H Street, and the realignment of Gun Powder Point Drive for the Chula Vista Bayfront redevelopment. Project also includes the construction of a roundabout (at the new intersection of E Street and Gunpowder Point Drive), Class I and II bike paths, and sidewalks. E Street between Bay Boulevard to the roundabout will be 4 travel lanes (2 per direction); all other segments will be 2 travel lanes (1 per direction). Phase 1: E Street from Bay Boulevard to Gunpowder Point Drive Roundabout. (now open to traffic) Phase 2: E Street from Gunpowder Point Drive Roundabout to H Street. The project is identified and included in the Chula Vista Bayfront Master Plan and the Bayfront Transportation Development Impact Fee Nexus Study as "BAY-13."
2026	CHV91	Chula Vista	H Street Construction from Marina Parkway to E Street and widening of Bay Boulevard to Street A	H Street from E Street to Bay Boulevard (.3 miles) - This project includes construction of a two to three lane road from E Street to Marina Parkway and a five lane major road from Street A to Bay Boulevard to integrate with the new segment of H Street that is currently under construction for redevelopment of the area as part of the Chula Vista Bayfront Master Plan. Street improvements will include streetscape enhancements such as street trees, lighting, furnishings, etc. The project is identified and included in the Chula Vista Bayfront Master Plan and the Bayfront Transportation Development Impact Fee Nexus Study as "BAY-17".
2026	CNTY14A	San Diego County	South Santa Fe Avenue South	South Santa Fe from Robelini Drive to Similax Road (1.19 miles) – This project will improve South Santa Fe to a four-lane divided road from west of Robelini Drive to Smilax Road, including improvements to Robelini Drive. The project will be in phases.
2026	CNTY21	San Diego County	Bradley Avenue Widening and Overpass at SR 67	Bridge 57-0552 - On Bradley Ave from Magnolia Ave to Mollison Ave, Phase 1 - Widen Bradley Avenue between Graves Ave and Mollison Ave from 2 lanes to 4 lanes including sidewalks and bicycle lanes; Phase 2 - replace 2-lane bridge over SR 67 with a 6- lane bridge including turn pockets. Construction funding shown only for Phase 1. Phase 2 construction will be funded by TransNet.
2026	ESC04	Escondido	Citracado Parkway II	Citracado Parkway from West Valley to Andreason (.5 miles) – widen from 2 to 4 lanes with raised medians, construct bridge over Escondido Creek.

Arterials - Arterial Projects Air Quality Phasing Continued

Conformity Analysis Year	TIP ID	Lead Agency	Project Name	Description
2026	O22	Oceanside	College Boulevard Improvements from Vista Way to Old Grove Road	College Boulevard from Vista Way to Old Grove Road (2.5 miles) - Traffic calming without additional lanes between Waring Road/ Barnard and Roselle Street (first phase). The second phase is widening from the existing four lanes to six lanes with bike lanes and raised median between Olive Avenue and Old Grove.
2026	SAN260	North County Transit District	COASTER Train Sets	In the San Diego Region along the COASTER Corridor - Two additional train sets to provide more frequent commuter rail service, including 30-minute peak period service. Toll Credits will be used to match federal funds for the CON phase.
2026	SD34	San Diego	El Camino Real	Bridge 57C0042 - In San Diego on El Camino Real from San Dieguito Road to Via de la Valle - reconstruct & widen from 2 to 4 lanes and extend transition lane and additional grading to avoid biological impacts (CIP 52-479.0/S-00856).
2026	SD102A	San Diego	Otay Truck Route Widening (Phase 4)	Otay truck route - In San Diego, from Drucker Lane to La Media Rd, add one lane, for a total of three lanes: two for trucks and one lane for emergency vehicles (Border Patrol/fire department access). From Britannia Blvd to La Media Rd, add one lane for trucks and one lane for emergency vehicles. Also, along Britannia Blvd from Britannia Court to the Otay truck route, add one lane for trucks and one lane for emergency vehicles. This project will be constructed in two phases; an eastern phase between La Media Rd and Drucker Ln, and a western phase from Britannia Blvd to La Media Rd. Current construction programming is for the eastern phase only. (CIP S-11060).
2026	SD250	San Diego	La Media Road Improvements	La Media Rd from SR 905 to Siempre Viva Rd (.75 miles): Widen La Media Rd to a six-lane primary arterial from SR 905 to Airway Rd, and a to a five-lane major between Airway Rd and Siempre Viva Rd with three southbound lanes and two northbound lanes. This project will also improve drainage at the intersection of La Media Rd and Airway Rd (CIP S-15018).
2026	SM19	San Marcos	Grand Avenue Bridge and Street Improvements	From Discovery St to San Marcos Blvd: Construct a four-lane secondary arterial bridge and a six-lane arterial street from Craven Rd to Grand Ave.

Arterials - Arterial Projects Air Quality Phasing Continued

Conformity Analysis Year	TIP ID	Lead Agency	Project Name	Description
2026	SM24	San Marcos	Woodland Parkway Interchange and Barham Drive Widening & Street Improvements #88005	SR 78 Bridge 57 0389: Reconstruction of the SR 78 overcrossing at Woodland Pkwy, reconfiguration of on/off ramps, widening and realigning portions of Woodland Pkwy, Barham Dr and Rancheros Dr. Improvements would also include continuation of new bike lanes and trails.
2026	SM31	San Marcos	San Marcos Creek Specific Plan – Discovery St. Widening and Flood Control Improvements #88265	From Via Vera Cruz Rd to Bent Ave/Craven Rd: Part of San Marcos Creek Specific Plan group of projects to widen Discovery St to four lanes secondary arterial between Via Vera Cruz and Bent Ave. Improvements include construction of roadway improvements, bike lanes, and trails.
2026	SM32	San Marcos	Via Vera Cruz Bridge and Street Improvements #88264	Bridge 57C0867: Part of San Marcos Creek Specific Plan group of projects to widen to four lanes secondary arterial and construct a bridge at San Marcos Creek.
2026	SM42	San Marcos	Discovery St. from Craven to Twin Oaks #ST007	Discovery Street from Craven Road to Twin Oaks Valley Road (.9 miles): Design and construction of all intersections, signals, utilities, drainage, and water quality components of Discovery St. as a four-lane arterial from Bent Ave. and Craven Dr and east to Twin Oaks Valley Rd. Improvements will also include bike lanes and trails along the road.
2026	SM48	San Marcos	San Marcos Creek Specific Plan: Creekside Drive and Pad Grading #88505	Creekside Drive from Via Vera Cruz to Grand Ave (.57 miles): construct approximately 3,000 feet of a two-lane collector road from Via Vera Cruz to Grand Avenue in the City of San Marcos; will include two 12' lanes, diagonal parking on the north side, and parallel parking on the south side; the project will also include a 10' bike trail meandering along the south side.
2026	SM69	San Marcos	Twin Oaks Valley Rd. & Barham Dr. Improvements #ST008	Barham Dr from Campus Dr to Twin Oaks Valley Rd (.1 miles): 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.
2029	CAL38	Caltrans	SR-905 New Freeway	SR 905 from I-805 to Otay Mesa Port of Entry Milepost begins at 6.4 ends at 15 (8.6 miles): Construct 6-lane freeway (Phase 1) Toll credits will be used to match federal funds for the PE and CON phase. Toll Credits will be used to match federal funds for the PE phase, Toll Credits will be used to match federal funds for the CON phase.

Arterials - Arterial Projects Air Quality Phasing Continued

Conformity Analysis Year	TIP ID	Lead Agency	Project Name	Description
2029	CAL68	Caltrans	SR 94 / 125 Interchange and Arterial Operational Improvements	SR 94 and SR 125 interchange, milepost begins at 1 ends at 2: In San Diego County in and near La Mesa on Route 94 from Spring Street undercrossing to Kenwood Drive undercrossing and on Route 125 from Spring Street undercrossing to 0.1 mile north of Murray Drive undercrossing. Design and right-of-way of southbound 125 to eastbound SR 94 direct connector.
2029	CAL277	Caltrans	I-15/SR 78 ML Connectors	SR-78 from Post Mile 15.49 to R16.6 and on I-15 from Post Mile R30.63 to R31.56: Preliminary engineering for northbound I-15 to westbound SR-78 and eastbound SR-78 to southbound I-15 HOV connectors and operational improvements.
2029	CAL536	Caltrans	SR 52 Operational Improvements	SR 52 from I-805 to SR 125 Milepost begins at 7.4 ends at 14.9 (7.5 miles): Operational improvements including a truck climbing lane WB from Mast Boulevard to Santo Road and EB auxiliary lane from I-15 to Santo Road.
2029	CHV93	Chula Vista	SR 125 at Main Street and Otay Valley Road Interchanges	Interchange on SR 125 at Main Street and Otay Valley Road - Construction of freeway interchanges/overpasses on SR 125 at Main Street and Otay Valley Road.
2029	CHV97	Chula Vista	Main Street from Heritage Road to Wolf Canyon Bridge	Main Street from Heritage Road to Wolf Canyon Bridge (.82 miles): Construction of a 6-lane prime arterial from Heritage Rd to Wolf Canyon Bridge including bike lanes and sidewalk facilities. (TDIF Facility 60A).
2029	SNT33	Santee	SR 52 Improvements between SR 125 and I-15	SR 52 from SR 125 to I-15 milepost begins at 7.4 ends at 14.6 (7.2 miles): Improve SR 52 between State Route 125 and Interstate 15 to alleviate congestion on the freeway and Santee streets. The project will add a westbound lane from Mast Boulevard to the summit, relocate the bike lane to the south side of the freeway, add an additional lane to the westbound on-ramp at Mast Boulevard, and restripe the section between Mast Boulevard and SR 125 to add an additional lane in each direction.
2032	CNTY34	San Diego County	Dye Road Extension	Ramona, Dye Road to San Vicente Road from 500 ft west of Ramona Street to intersection of Warnock Dr and San Vicente Rd (1.15 miles): Study, design and construct a 2-lane community collector road with intermittent turn lanes, bike lanes, curb, gutter, and pathway/walkway.
2032	CNTY35	San Diego County	Ramona Street Extension	Ramona, Ramona Street from Boundary Ave. to Warnock Dr. (.25 miles): Construct new road extension; 2 lanes with intermittent turn lanes, bike lanes and walkway/pathway.

Table C.13: Systemwide Investments

Project ID	Conformity Analysis Year	Project Name	Cost (2024$) Millions
TL310	2040	Transit Vehicles	$1,047
TL311	2050	Transit Vehicles	$3,240
TL300	2040	Transit Operations	$6,877
TL301	2050	Transit Operations	$17,102
TL320	2040	Transit Fare Subsidies	$348
TL321	2050	Transit Fare Subsidies	$2,078
TL401	2040	Transit Amenities	$247
TL402	2050	Transit Amenities	$617
TL058	2040	Transit Maintenance Facilities	$330
TL059	2050	Transit Maintenance Facilities	$907
NO04	2050	Regional Transportation System Management Program	$225
HMO1	2040	Highway Maintenance and Operations	$1,725
HMO2	2050	Highway Maintenance and Operations	$4,095
LSRP1	2040	Local Streets and Roads Program	$6,497
LSRP2	2050	Local Streets and Roads Program	$7,995
DS1	2040	Debt Service	$1,415
DS2	2050	Debt Service	$1,219
RC1	2050	Reconnecting Communities Program	$100