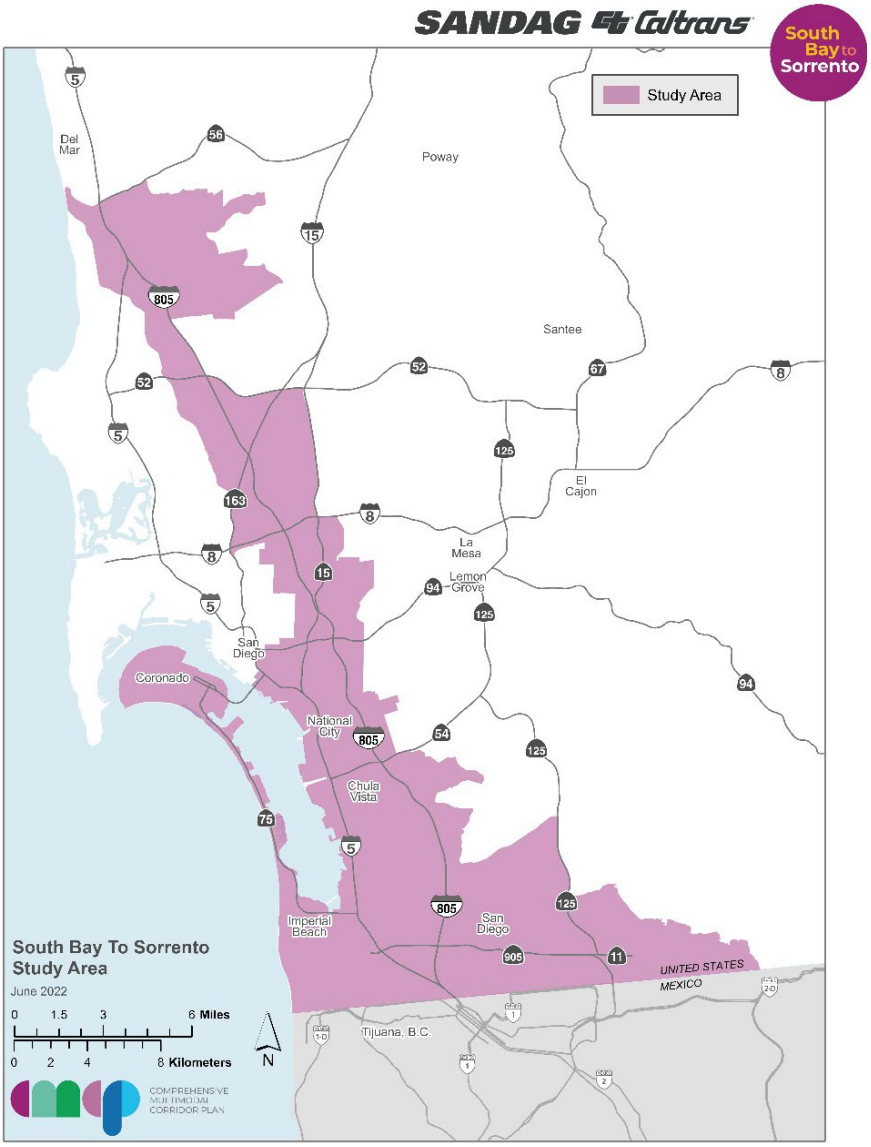
Attachment B

Planning Review and Corridor Performance Technical Memo

South Bay to Sorrento

Comprehensive Multimodal Corridor Plan

Planning Review and Corridor Performance Technical Memo v2



Prepared by HNTB

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SANDAG Caltrans

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ACRONYM/ ABBREVIATION	DEFINITION
AADT	Average Annual Daily Traffic
ABM	Activity based model
ABM2+	ABM2+ version 14.2.2
AGOL	ArcGIS Online
AM	Ante meridiem (before noon)
AOI	Area of Influence
AT	Active Transportation
BNSF	Burlington Northern Santa Fe
BRT	Bus Rapid Transit
Caltrans	California Department of Transportation
CMCP	Comprehensive Multimodal Corridor Plan
CoC	Community of Concern
DS	Data Series
GHG	Greenhouse Gas
GIS	Geographic Information System
HHD	Heavy-Heavy-Duty (33,001-60,000 pounds)
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle
HOV/ML	High-Occupancy Vehicle/Managed Lanes
I-	Interstate
ITC	Intermodal Transit Center
ITS	Intelligent Transportation Systems
LHD	Light-Heavy-Duty (8,501-14,000 lbs)
LOSSAN	Los Angeles–San Diego–San Luis Obispo
LRT	Light Rail Transit
MCAS	Marine Corps Air Station
MHD	Medium-Heavy-Duty (14,001-33,000 lbs)
MMAS	Military Multimodal Access
mph	Mile Per Hour
MTS	Metropolitan Transit System
NASNI	Naval Air Station North Island
NBC	Naval Base Coronado
NBSD	Naval Base San Diego
NCMT	National City Marine Terminal
NCTD	North County Transit District
PDT	Project Development Team
PeMS	Performance Management System

ACRONYM/ ABBREVIATION	DEFINITION
PM	post meridiem (post midday)
RAD-IT	Regional Architecture Development for Intelligent Transportation
RP	Regional Plan
SANDAG	San Diego Association of Government
SanGIS	San Diego Geographic Information Source
SB2S	South Bay to Sorrento
SCS	Sustainable Communities Strategy
SDAE	San Diego and Eastern Arizona Railway Company
SDCCU	San Diego County Credit Union
SDIA	San Diego International Airport
SDIV	San Diego and Imperial Valley Railroad
SE	Southeast
SEALS	Sea, Air, and Land Forces
SHS	State Highway System
SOV	Single-occupancy Vehicle
SR	State Route
SSTC	Silver Strand Training Center
STRAHNET	Strategic Highway Network
TAMT	Tenth Avenue Marine Terminal
TAZ	Traffic Analysis Zones
TIMS	Transportation Injury Mapping System
TPA	Transit Priority Area
TSM	Transportation System Management
TSM&O	Transportation Systems Management and Operational
UCSD	University of California, San Diego
U.S.	United States
UTC	University Towne Centre
V/C	Volume to Capacity
VMT	Vehicle Miles Traveled

1 INTRODUCTION

1.1 Project Description

The goal of a Comprehensive Multimodal Corridor Plan (CMCP) is to identify transportation projects that will reduce congestion; reduce greenhouse gas (GHG) emissions; and improve livability, equity, and sustainable transportation solutions through operational improvements, technological advancements, and increased multimodal options along a transportation corridor. The San Diego Association of Governments (SANDAG) and California Department of Transportation (Caltrans) are developing a CMCP to address the current and future multimodal needs of the South Bay to Sorrento (SB2S) corridor (the corridor).

The CMCP evaluates existing and proposed transit services, commuter and intercity rail, goods movement, local roadway connections of regional significance, highway connections, managed lane priorities, mobility hubs, active transportation (AT) connections and the resilience of the transportation network. The information and tools developed in the CMCP will help local agencies understand how projects within each jurisdiction contribute to the development of the regional multimodal transportation network. A CMCP also makes it easier for Caltrans, SANDAG, and local partners to pursue funding and programming opportunities and successfully advance projects towards implementation.

Figure 1 illustrates the length and breadth of the corridor. The corridor presents an opportunity for SANDAG, Caltrans, local municipalities, and other stakeholders in the region to reduce vehicle miles traveled (VMT) and GHG emissions, address mobility challenges and lack of connectivity, improve equity and resilience in the transportation network, and progress the vision of a technologically advanced, balanced, and integrated multimodal transportation system.

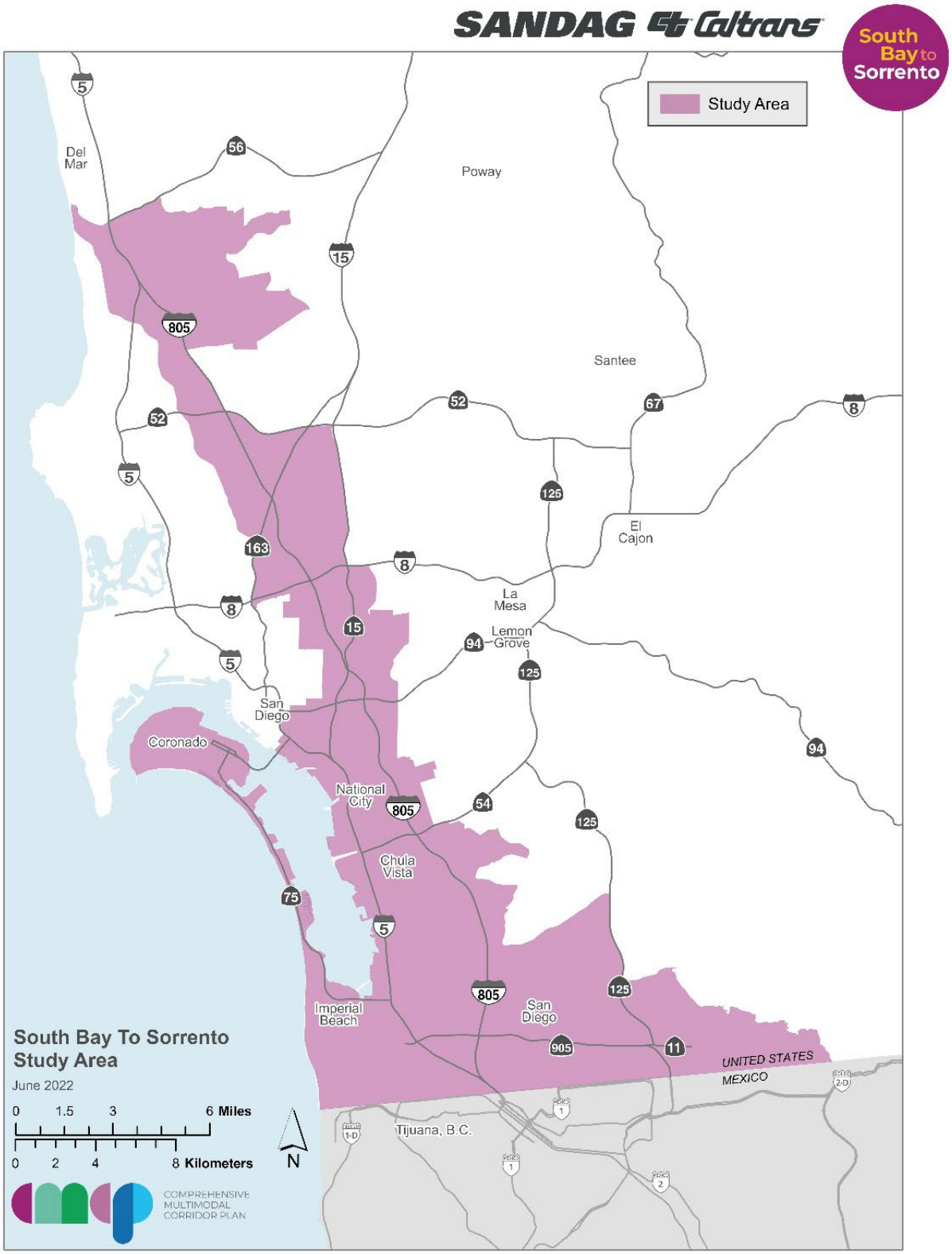
1.2 Purpose of this Technical Memorandum

This technical memorandum (memo) reviews prior planning studies, existing data, and resources provided by SANDAG, Caltrans, and the Project Development Team (PDT). The memo also reviews corridor performance through demographic, travel pattern, transit ridership, commute patterns, goods movement, and active transportation data. This memo summarizes corridor issues and opportunities as the foundation for the development of CMCP strategies documented in the Transportation Solution Strategy Technical Memo (HNTB, 2022).

The remainder of this memo is organized into the following sections:

- **Section 2:** Overview of the corridor, its division into seven subareas and areas of influence (AOI), and a brief description of each subarea
- **Section 3:** Summary of the goals and objectives that were developed by the PDT
- **Section 4:** Review of planning documents from various jurisdictions within the corridor and the datasets received
- **Section 5:** Summary of 2016 existing and 2035 No Build conditions corridor characteristics, including demographics (population, jobs, housing, and social equity focus populations); mobility analysis (commute and general travel patterns, transit ridership, roadway performance); and active transportation and goods movement
- **Section 6:** Summary of key findings and identification of corridor issues, and opportunities

Figure 1. SB2S Study Area



2 STUDY AREA

The corridor study area straddles Interstate 5 (I-5) and Interstate 805 (I-805) corridors in the southern portion of the study area and primarily includes the I-805 corridor east and north of downtown San Diego. North of downtown San Diego, I-5 is mostly outside of the study area. The northern and southern limits of the study area are State Route 56 (SR-56) and the United States (U.S).-Mexico border, respectively. The east-west extents of the study area were established based on the boundaries of surrounding communities dependent on the I-5 and I-805 north-south connections and set to align with census tract boundaries (to simplify data analysis). The study area includes unincorporated portions of San Diego County as well as portions, or the entirety, of the cities of Chula Vista, Coronado, Imperial Beach, National City, and San Diego.[1]

I-5 provides a major north-south connection between Sorrento Valley, the greater San Diego area, and the South Bay serving local, regional, interregional, and international traffic carrying people and goods. I-805 provides a second, roughly parallel, connection to the east and serves as the dominant north-south connection through the center of the region. The I-5 and I-805 corridors serve as key freight corridors facilitating the movement of goods between the U.S. and Mexico, and northward to Los Angeles area ports and beyond. Goods movement activities also occur along study area rail corridors and at the Tenth Avenue Marine Terminal (TAMT) and National City Marine Terminal (NCMT) cargo facilities.

The study area includes many popular bicycle and pedestrian accommodations such as the Bayshore Bikeway. Existing transit services include all three Trolley lines, multiple Bus Rapid lines, and more than 25 local bus lines.

2.1 Subareas

For the purpose of this CMCP, the study area was divided into seven subareas determined by identifying areas with similar land use and transportation characteristics. The study area was first divided utilizing major east-west roadways (SR-52, SR-54, SR-94, SR-905, and Friars Road). The Coronado area was reviewed independently with consideration of Coronado stakeholder feedback. The east-west boundary was defined to include all areas west of I-5 (to include Port and Naval activities), and the north-south boundary was set to include the majority of Imperial Beach, which is the gateway for mainland access to Coronado from I-5. The initial division of the subareas was confirmed through a review of demographics, land use, and travel patterns. The purpose of segmenting the study area into subareas is to perform smaller scale analyses at the community level to better understand strengths, challenges, and needs related to the transportation network and community characteristics.

The subareas and corresponding east-west corridors providing the boundaries to each subarea include the following:

Sorrento Valley: The Sorrento Valley subarea is bounded by SR-56 to the north and SR-52 to the south, and it is located within the City of San Diego with a minor portion within the City of Del Mar. The subarea is bounded by North Torrey Pines Road and Genesee Avenue to the west, excluding the University of California, San Diego (UCSD). The subarea's eastern

[1] Although the study area overlaps with a very small southern section of the City of Del Mar, due to the nature of census tract geographies, the city is not generally considered within the study area.

boundary abuts the Mira Mesa neighborhood and Marine Corps Air Station (MCAS) Miramar. Land use within the Sorrento Valley subarea is primarily commercial, industrial, residential, and open space. Major north-south travel corridors within the Sorrento Valley subarea include portions of I-5 and I-805, including the northern junction and terminus of I-805. Carmel Mountain Road, Sorrento Valley Boulevard, Mira Mesa Boulevard, and La Jolla Village Drive/Miramar Road serve as the major east-west travel corridors. Transit service in the Sorrento Valley subarea is provided by both the San Diego Metropolitan Transit System (MTS) and North County Transit District (NCTD). MTS provides bus rapid transit (BRT), local bus, and COASTER Connection services, while NCTD provides COASTER commuter rail and local bus service.

Kearny Mesa: The Kearny Mesa subarea is bounded by SR-52 to the north and Friars Road to the south. It is bounded to the west by Genesee Avenue and SR-163 and by I-15 to the east. The subarea is wholly located within the City of San Diego. Land use within the Kearny Mesa subarea is primarily industrial, commercial, and residential. The Montgomery-Gibbs Executive Airport is located within the subarea. Major north-south travel corridors within the Kearny Mesa subarea include portions of I-805, I-15, SR-163, and Genesee Avenue. Clairemont Mesa Boulevard, Balboa Avenue, and Aero Drive serve as the major east-west travel corridors. The Kearny Mesa subarea is served by MTS BRT and local bus routes.

Mission Valley/Mid-City: The Mission Valley/Mid-City subarea is bounded by Friars Road to the north and SR-94 to the south, and it is wholly located within the City of San Diego. The subarea is bounded by SR-163 and the Balboa Park area to the west and roughly by Fairmount Avenue and Chollas Valley to the east. Land use within the Mission Valley/Mid-City subarea is primarily residential, commercial, and open space. The subarea includes the former Qualcomm/ San Diego County Credit Union (SDCCU) Stadium site and the Mission Valley commercial district, which features the largest concentration of retail use in the region. Major north-south travel corridors within the Mission Valley/Mid-City subarea include portions of I-805 and SR-15, including the major interchange of those freeways. I-8, Friars Road, and El Cajon Boulevard serve as major east-west travel corridors. The Mission Valley/Mid-City subarea is served by MTS trolley, BRT, and local bus routes.

Southeast (SE) San Diego/National City: The SE San Diego/National City subarea is bounded by SR-94 to the north, SR-54 to the south, I-5 to the west, and Euclid Avenue and the National City limits to the east. The subarea includes portions of the cities of San Diego and National City with a small portion in the City of Chula Vista. Land use within the SE San Diego/National City subarea is primarily residential, commercial, and recreational. Major north-south travel corridors within the SE San Diego/National City subarea include portions of I-805, SR-15, and I-5. Major east-west travel corridors include Market Street, National Avenue, Division Street, and East Plaza Boulevard. The SE San Diego/National City subarea is served by MTS trolley, BRT, and local bus routes.

Coronado/Imperial Beach: The Coronado area was reviewed independently and in consideration of Coronado stakeholder's feedback. The east-west boundary was defined to include all areas west of I-5 (to include port and Naval activities), and the north-south boundary was set to include the majority of Imperial Beach, which is the gateway for mainland access to Coronado from I-5. The subarea includes portions of the cities of San Diego, Coronado, National City, Chula Vista, and Imperial Beach. Land use within the Coronado/Imperial Beach subarea primarily includes residential, industrial, and military land uses. Major north-south travel corridors within the Coronado/Imperial Beach subarea include portions of I-5 and SR-75 along

the Silver Strand. Due to the natural barrier created by the San Diego Bay, major east-west travel corridors are limited to a few local arterials, including 3rd and 4th streets in Coronado and Palm Avenue in Imperial Beach. The Coronado/Imperial Beach subarea is served by MTS trolley and local bus routes. The area known as the working waterfront, which includes major ports and industrial activities west of I-5, is part of this subarea.

Chula Vista/Otay: The Chula Vista/Otay subarea is bounded by SR-54 to the north, SR-905 to the south, and I-5 to the west. The eastern boundary roughly extends to the Rancho Del Rey neighborhood, along with SR-125 and the Otay Open Space Preserve. The subarea includes portions of the cities of Chula Vista, National City, and portions of the City of San Diego communities of Otay Mesa-Nestor and Otay Mesa. Land use within the Chula Vista/Otay subarea is primarily residential, commercial, industrial, and open space. The subarea also includes Brown Field Municipal Airport. Major north-south travel corridors within the Chula Vista/Otay subarea include portions of SR-125, I-805, and I-5. SR-905, East L Street/Telegraph Canyon Road, East H Street, and Olympic Parkway serve as major east-west travel corridors. The Chula Vista/Otay subarea is served by MTS trolley, BRT, and local bus routes.

U.S.-Mexico Border: The U.S.-Mexico Border subarea is bounded by SR-905 to the north and the U.S.-Mexico Border to the south. The western boundary is the Pacific Ocean and it extends to the east close to the Otay Open Space Preserve. It includes portions of the City of San Diego communities of Tijuana River Valley, San Ysidro, and Otay Mesa, along with minor portions of the City of Imperial Beach and unincorporated San Diego County. Land use within the U.S.-Mexico Border subarea is primarily industrial, residential, commercial, agricultural, and open space. It includes the major U.S. port of entry at San Ysidro, which primarily serves international passengers and the port of entry at Otay Mesa, which primarily serves international freight movements. Both ports of entry serve tens of thousands of cars and pedestrians daily, with many commuting for work each day. It also includes the Cross-Border Express (CBX) passenger footbridge port of entry that connects U.S.-based passengers directly to Tijuana International Airport. Major north-south travel corridors within the U.S.-Mexico Border subarea include portions of I-805 and I-5, including the southern junction of those two highways at San Ysidro just north of the port of entry. SR-905 serves as the major east-west travel corridor in this subarea. The U.S.-Mexico Border subarea is served by the MTS trolley, BRT, and local bus routes.

Based on this segmentation of the study area into subareas, analyses of existing travel patterns, transit service, traffic, and travel time data, and forecasted growth within each subarea was performed. The data analyzed within each subarea will be used to evaluate corridor performance and provide a data-driven approach to determining future multimodal transportation needs. Tables summarizing the subarea data analyses are included in Table 1 and Table 2.

2.2 Areas of Influence

AOI are areas that are not part of the study area but were determined to have characteristics (e.g., major activity centers, travel patterns, land use) that impact the study area. AOIs include the following:

Otay: The Otay AOI is located in the City of Chula Vista, north and east of the Chula Vista/Otay subarea. It is roughly bounded by H Street/Proctor Valley Road to the north, Medical Center Drive and SR-125 to the west, and Olympic Parkway and Otay Valley to the south. SR-125 is

the major north-south travel corridor. East H Street/Proctor Valley Road, Telegraph Canyon Road, and Olympic Parkway serve as the major east-west travel corridors. Transit service is provided by MTS.

Urban Core: The Urban Core AOI is located in the City of San Diego, west of the Mission Valley/Mid-City subarea. It includes portions of Downtown San Diego and of the communities of Golden Hill, North Park, and University Heights. It is roughly bounded by San Diego Bay (south of Ash Street) and 6th Avenue (north of Date Street) to the west; San Diego Bay, Market Street, Broadway, and A Street to the south; Park Boulevard, Arizona Street, and 32nd Street to the east; and Adams Avenue, El Cajon Boulevard, and Upas Street to the north. SR-163, Park Boulevard, Pershing Drive, and Florida Street are the major north-south travel corridors. El Cajon Boulevard, University Avenue, Upas Street, Ash Street, Broadway, and Market Street serve as major east-west travel corridors. Transit service is provided by MTS.

Del Mar: The Del Mar AOI is located within the City of Del Mar, northwest of the Sorrento Valley subarea. It is bounded by the Pacific Ocean to the west, I-5 to the east, Via de La Valle to the north, and Carmel Valley Road to the south. Camino Del Mar (Pacific Coast Highway) and Jimmy Durante Boulevard are the major north-south travel corridors. Via de La Valle, Del Mar Heights Road, and Carmel Valley Road serve as major east-west travel corridors. Transit service is provided by NCTD.

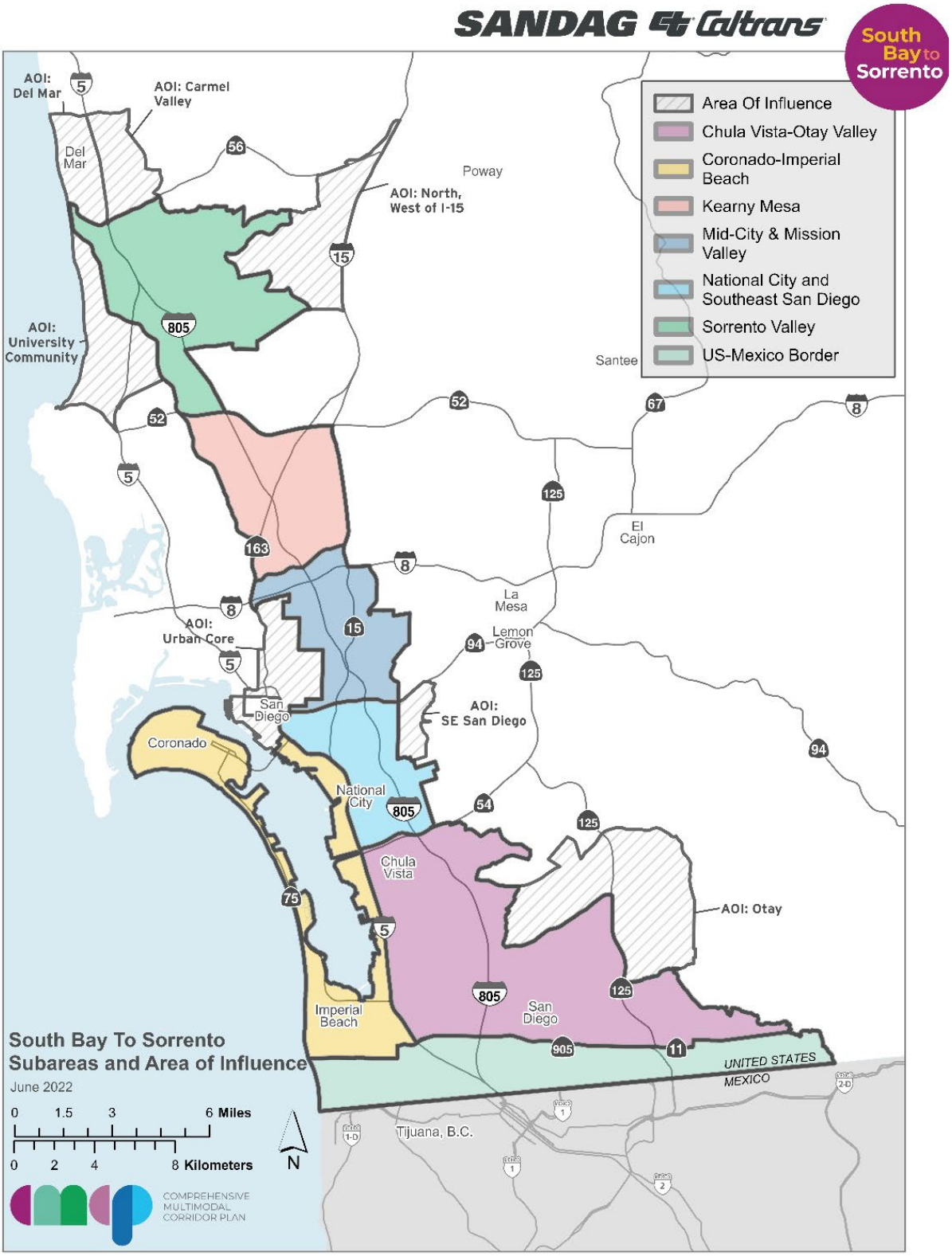
Carmel Valley: The Carmel Valley AOI is located within the City of San Diego, north of the Sorrento Valley subarea. It is bounded by I-5 to the west, El Camino Real/Carmel Valley Open Space/Carmel Canyon Road to the east, Via de La Valle to the north, and SR-56 to the south. El Camino Real and Carmel Country Road are the major north-south travel corridors. Via de La Valle, Del Mar Heights Road, and SR-56 serve as major east-west travel corridors. Transit service is provided by NCTD.

University Community: The University Community AOI is located within the City of San Diego, west of the Sorrento Valley subarea. It is bounded by the Pacific Ocean to the west, North Torrey Pines Road/Genesee Avenue to the east/north, and La Jolla Parkway/Rose Canyon to the south. La Jolla Shores Drive, North Torrey Pines Road/Torrey Pines Road, Gilman Drive, Regents Road, and Genesee Avenue are the major north-south travel corridors. La Jolla Village Drive, Nobel Drive, and La Jolla Parkway serve as major east-west travel corridors. Transit service is provided by MTS and NCTD.

SE San Diego: The SE San Diego AOI is located within the City of San Diego, east of the SE San Diego/National City subarea. It is bounded by Euclid Avenue to the west, 60th Street and Valencia Parkway to the east, SR-94 to the north, and Division Street to the south. Euclid Avenue, 60th Street, and Valencia Parkway are the major north-south travel corridors. SR-94, Market Street, Imperial Avenue, and Division Street serve as major east-west travel corridors. Transit service is provided by MTS.

North, West of I-15: The North, West of I-15 AOI is located within the City of San Diego, east of the Sorrento Valley subarea. It is bounded by portions of Black Mountain Road, Camino Santa Fe, Parkdale Avenue, and Camino Ruiz to the west; I-15 to the east; portions of Calle Cristobal, SR-56, and Carmel Mountain Road to the north; and portions of Mira Mesa Boulevard, Jade Coast Road, and Miramar Road to the south. Camino Santa Fe, Camino Ruiz, Black Mountain Road, and I-15 are the major north-south travel corridors. SR-56, Carmel Mountain Road, Mira Mesa Boulevard, and Miramar Road serve as major east-west travel corridors. Transit service is provided by MTS. Figure 2 illustrates the seven subareas and AOI.

Figure 2. SB2S Corridor Subareas and Areas of Influence



3 PLANNING REVIEW

Planning documents and data were provided by SANDAG and Caltrans to help identify key planning considerations for the SB2S CMCP. Appendix A provides the list of the planning documents that were reviewed. This section is divided into two subsections: 1) a review of the existing studies and planning documents by subarea, and 2) an inventory of the datasets currently available for analysis.

3.1 Existing Studies and Other Planning Documents

Key strengths, challenges, solutions, and priorities within each subarea are summarized in the following subsections. The review of documents led to the identification of strengths and challenges for multimodal transportation within each subarea, with some aspects being both a strength and a challenge depending on the mode and objective. The review also identified the community's priorities and potential solutions to its challenges.

3.1.1 *Sorrento Valley*

The Sorrento Valley subarea encompasses seven community planning areas in the City of San Diego: Carmel Valley, Del Mar Mesa, Los Peñasquitos Canyon, Mira Mesa, Torrey Hills, Torrey Pines, and University. The *Carmel Valley Community Plan*, *Del Mar Mesa Specific Plan, Torrey Hills Community Plan*, *Torrey Pines Community Plan*, *University Community Plan*, *Mira Mesa Community Plan*, and *Purple Line Conceptual Planning Study* were reviewed for this subarea. Refer to Appendix A for the lead agency and published date for each plan. No plan was available for Los Peñasquitos Canyon.

The *Carmel Valley Community Plan* was adopted in 1988 and the community has changed substantially since then. All recommendations have been implemented and, in some cases, exceeded (e.g., El Camino Real widened to six lanes). As such, no information from the Plan is included.

Strengths and Challenges

The *University Community Plan* identified the following strengths and challenges:

- The presence of regional trip generators, such as UCSD, University Town Center (UTC), hospitals, and major medical-science-research centers, has caused notable peak-hour congestion. The community is highly dependent on private automobiles. Convenient transit connections from both the future Mid-Coast trolley to the Sorrento Valley/Sorrento Mesa employment center and from the existing COASTER service to Sorrento Mesa and UTC area are challenging given the topography separating these areas from one another.
- The University community includes over 14,000 feet of shoreline, cliffs, and undisturbed coastal canyons. There is high biodiversity in mesas, coastal cliffs, and bluffs. Over 50 archaeological sites have been identified.
- There are noise impacts within the University community primarily caused by transportation functions: aircraft from MCAS Miramar, vehicles on major roadways, and trains along the Los Angeles–San Diego–San Luis Obispo (LOSSAN) Corridor.

The *Mira Mesa Community Plan* identified the following strengths and challenges:

- The Los Peñasquitos Canyon Preserve and Lopez Canyon present mobility barriers in the Mira Mesa community. Black Mountain Road is the only paved crossing through Los Peñasquitos Canyon Preserve, and there are no paved crossings over Lopez Canyon.
- I-805/I-5 also present a barrier to active transportation connectivity in the Mira Mesa community.

Solutions and Priorities

All recommendations in the *Torrey Pines Community Plan* identified prior to the 2014 update have been implemented. The Torrey Pines and Torrey Hills community plans were both updated in 2014 to include projects identified in the I-5 North Coast Corridor Transportation and Resource Enhancement Program. Relevant solutions and priorities include the following:

- I-5 North Coast Bike Trail, an enhanced trail connection from Carmel Mountain Road to Carmel Valley Road
- Carmel Valley Creek Sorrento Valley Road Bridge (new)
- I-5/I-805 Interchange Improvements
- I-5/Roselle Street Interchange Improvements
- I-5/SR-56 Interchange Improvements

The *University Community Plan* identified the following:

- The *University Community Plan* includes goals to widen certain streets, strengthen and integrate the transit system, encourage alternative modes of transportation, develop a bikeway/pedestrian linkage system, and provide linkages to and to preserve natural resources. Some specific measures include:
    - Requiring developer participation in transit facility improvements, the Intra-Community Shuttle Loop, and the light rail transit (LRT) line
    - Implementing Traffic System Management strategies, such as ride sharing, work hour shifting, parking management, design, and publicity to encourage the use of transit, and installing facilities for bicyclists
    - Emphasizing separated bike paths that are interconnected and installing bicycle parking facilities at major activity centers
    - Preserving the Torrey Pines State Reserve
    - Minimizing and avoiding noise impacts by planning for the appropriate placement and intensity of land uses relative to noise sources.

Notably, in 2016 the City Council adopted an amendment to the Transportation Element to remove the widening of Genesee Avenue from Nobel Drive to SR 52, and the connection of Regents Road over Rose Canyon from the Plan.

The *Mira Mesa Community Plan* identified the following:

- The draft mobility concepts for the *Mira Mesa Community Plan Update* include several complete streets upgrades. Some specific improvements include:

- Flexible lanes on Camino Ruiz, Westview Parkway, Mira Mesa Boulevard, and Miramar Road
- Separated bikeways (Class I or Class IV) on Camino Ruiz, Westview Parkway, Mira Mesa Boulevard, Miramar Road, Black Mountain Road, Camino Santa Fe, and Carroll Canyon Road
- Center-running BRT on Carroll Canyon Road, which will also be extended to span from I-805 to I-15

In its proposed 2050 regional rail network, the *Purple Line Conceptual Planning Study* includes an extension of the Purple Line trolley from its planned terminus in Kearny Mesa to Carmel Valley with service likely provided in Sorrento Valley.

3.1.2 *Kearny Mesa*

The Kearny Mesa subarea encompasses five community planning areas in the City of San Diego: Clairemont Mesa, Kearny Mesa, Linda Vista, Mission Valley, and Serra Mesa. The Clairemont Mesa, Kearny Mesa, and Linda Vista community plans, and the *Purple Line Conceptual Planning Study* were reviewed.

Strengths and Challenges

The following key strengths and challenges were identified:

- Kearny Mesa is one of the City's largest, highly developed employments centers and experiences traffic congestion. On-street parking demand near commercial land use is a problem due in large part to the lack of off-street parking by automobile-intensive development.
- Superblocks make the existing network unfriendly to pedestrians in Kearny Mesa but providing a denser network of pedestrian access relies on private development providing new connections.
- The *Purple Line Conceptual Planning Study* identified the following challenges:
    - Existing highway-centric development patterns along freeway corridors provide challenges to enhancing local station access via walking, bicycling, and potential bus feeder services. Expansion along freeways must consider park-and-ride and future high-occupancy vehicle (HOV)/managed lanes (ML) facilities.
    - At-grade median alignments along Daley Center Drive, Ruffin Road, and Clairemont Mesa Boulevard could negatively impact traffic operations by constraining left-turn movements and by reducing traffic lane widths.

Solutions and Priorities

The following key solutions and priorities were identified:

- Add flex lanes (lanes reserved for transit at specific times)
- Upgrade to smart infrastructure along Clairemont Mesa Boulevard and Balboa Avenue
- Add transit signal priority treatments along Clairemont Mesa Boulevard, Balboa Avenue, Aero Drive, Convoy Street, and Ruffin Road

- Implement community circulator connecting neighborhoods, Convoy District, and employment centers
- Implement a Class I shared use facility (for people who walk and bike) on the south side of SR-52 and along Aero Drive and Kearny Villa Road adjacent to Montgomery-Gibbs Executive Airport
- Construct physically separated bicycle facilities with bicycle signals and remove existing on-street parking along portions of Aero Drive, Balboa Avenue, Clairemont Mesa Boulevard, Convoy Street, Kearny Villa Road, Murphy Canyon Road, Ruffner Street, and Ruffin Road to accommodate the active transportation improvements
- Support Purple Line trolley implementation with preferred alignment along Ruffin Road and Clairemont Mesa Boulevard
- The *Purple Line Conceptual Planning Study* identified the following priorities and solutions:
    - Providing an opportunity for passengers to transfer with the future Red Line in Kearny Mesa (potential Red Line station locations to be determined).
    - Operating in the median or elevated viaduct along Clairemont Mesa Boulevard creates an opportunity to create a transit-supportive, complete streets environment.
    - Grade-separated (aerial) segments at the major cross-street intersections of Aero Drive and Balboa Avenue may reduce traffic impacts.

3.1.3 *Mission Valley/Mid-City*

The Mission Valley/Mid-City subarea encompasses four community planning areas in the City of San Diego: Greater Golden Hill, North Park, Mid-City, and Mission Valley. The *City Heights/Mid-City Community Plan, Mission Valley Community Plan,* and *Purple Line Conceptual Planning Study* were reviewed.

Strengths and Challenges

The *City Heights/Mid-City Community Plan* identified the following strengths and challenges:

- Bus service to many areas outside of Mid-City, including most employment areas, is poor and is recommended for improvement. The high demand for public transit in City Heights exceeds the available service.
- Speeding and cut-through traffic disrupts residential neighborhoods and commercial parking is inadequate with parking overflowing into the neighborhoods.
- Many recreational and open space resources exist within the subarea. Biological resources, air, and water quality are threatened by development and motorized vehicle emissions.

The *Mission Valley Community Plan* identified the following strengths and challenges:

- Topography and existing development patterns in Mission Valley limit some of the potential for road widening and creating new roads.

The *Purple Line Conceptual Planning Study* identified the following challenges and risks:

- The significant elevation difference between Mid-City and Mission Valley would pose an operating challenge for light rail. This may result in the need for retained fills and aerial structures to minimize grade impacts.
- Existing and planned aerial structures at freeway interchanges would require tall viaduct structures to attain minimum vertical clearances.
- The planned convergence of three trolley lines at the Qualcomm/SDCCU Stadium Station would require added investments to accommodate future operations and the transfer and circulation of a significantly higher number of passengers.

Solutions and Priorities

The *City Heights/Mid-City Community Plan* identified the following solutions and priorities:

- Evaluate trolley service on SR-15 and El Cajon Boulevard. Study a trolley-shuttle system along University Avenue
- Develop a trail adjacent to Chollas Parkway that further connects the open space system. Provide a pedestrian and bicycle linkage from Chollas Park to the Mid-City athletic area and other parks via Chollas Creek Canyon
- Reorient streets for diagonal parking
- Plan active transportation and transit connections from Greater Golden Hill, North Park, and City Heights to Naval Base Coronado (NBC) and Naval Base San Diego (NBSD)
- Restore the historic trolley from downtown San Diego to the Euclid Tower

The *Mission Valley Community Plan* identified the following solutions and priorities:

- Roadway network modifications should benefit vehicles, pedestrians, and bicyclists and strengthen access and connectivity to reduce out-of-direction travel.
- Planning for and implementing measures that support active transportation and transit mode choices are critical.
- Enhance pedestrian mobility by removing barriers, adding pedestrian bridges and other connections, enhancing existing pedestrian connections near highway interchanges, adding streetscape improvements, and improving pedestrian crossings at signalized intersections.
- Enhance bicycle mobility by completing the San Diego River Pathway; creating a continuous network of Class I, II, III, and IV facilities; installing several bicycle bridges; improving existing north-south connections across I-8; and providing secure bicycle parking at all trolley stations, major commercial areas, and major employment centers.
- Enhance transit mobility by improving access to key trolley stations, adding mobility hubs at all trolley stations, ensuring transit stops are Americans with Disabilities Act compliant, enhancing wayfinding near trolley stations, implementing transit priority measures, enhancing transit infrastructure and service, exploring the feasibility of an aerial tram to improve connections to communities north and south of Mission Valley, and enhancing amenities at transit stops.

- Improve vehicular operations and connectivity by upgrading key roadway classifications; extending several roadways to improve connectivity across the San Diego River, I-8, and other locations; enhancing safety and operations at freeway interchanges; implementing the Riverwalk Street J interchange and other modifications near Hotel Circle; and ensuring the efficient movement and delivery of goods is maintained.
- Implement Intelligent Transportation Systems (ITS) and Transportation Demand Management (TDM) by encouraging the use of emerging technologies (e.g., ridesharing), improving signal coordination at freeway interchanges, evaluating the feasibility of connected and autonomous vehicles, and developing guidelines for shared vehicle operations.

The *Purple Line Conceptual Planning Study* identified the following priorities and solutions:

- Provide high-quality transfer stations between the Purple Line and the high density of regional and local transit services on University Avenue and El Cajon Boulevard
- Provide a high-quality, high-volume transfer station within the existing Qualcomm/SDCCU Stadium site between the Purple Line, Green Line, and future Red Line
- Evaluate further a regional transit station or significant pedestrian connections for the three regional rail corridors at the Qualcomm/SDCCU Stadium site

3.1.4 *SE San Diego/National City*

The SE San Diego/National City subarea encompasses National City and one community planning area in the City of San Diego: SE San Diego. The *National City General Plan, Westside Specific Plan,* and *Purple Line Conceptual Planning Study* were reviewed.

Strengths and Challenges

The *National City General Plan* and *Westside Specific Plan* identified the following strengths and challenges:

- National City's residents rely less on driving alone and more on public transit/other means than commuters throughout San Diego County. It is one of the lowest income communities in the county.
- Walkability is limited due to poor sidewalk and street crossing conditions. There is difficulty providing safe, midblock pedestrian street crossings between major controlled intersections.
- Auto services, manufacturing, and warehouse uses are interspersed throughout residential neighborhoods.

The *Purple Line Conceptual Planning Study* identified the following challenges and risks:

- Potential conflict with HOV/ML could increase the alignment elevation and lengthen the viaduct.
- Potential operating challenges with the Orange Line.

Solutions and Priorities

The *National City General Plan* and *Westside Specific Plan* identified the following solutions and priorities:

- Provide for housing near jobs, transit routes, schools, shopping areas, and recreation to discourage long commutes, promote public transit, walking, and bicycling; and lessen traffic congestion
- Prohibit the construction of new residential and other sensitive land uses near industrial land uses (unless proposed as part of a mixed-use development adjacent to the 8th Street Trolley stop) and buffer sensitive land uses
- Improve the pedestrian and bicycle connection along Paradise Creek
- Adapt to projected sea level rise along Blue Line Trolley route

The *Purple Line Conceptual Planning Study* identified the following priorities and solutions:

- Develop a mobility hub at Plaza Bonita Station
- Provide a high-quality passenger transfer station between the Orange and Purple lines at the existing 47th Street Station with the opportunity for creating a regional mobility hub

3.1.5 *Coronado/Imperial Beach*

The Coronado/Imperial Beach subarea encompasses the cities of Coronado and Imperial Beach, the Barrio Logan community of San Diego, and the western portions of the cities of National City and Chula Vista. The following documents were reviewed for this subarea:

- *City of Imperial Beach: City of Imperial Beach General Plan/Local Coastal Program Land Use Plan*
- *Barrio Logan: Barrio Logan Community Plan and Preliminary Community Plan Update*
- *City of Coronado: Coronado General Plan, Orange Avenue Corridor Specific Plan, Coronado Comprehensive Active Transportation Plan and Complete Streets Strategy*

Strengths and Challenges

City of Imperial Beach General Plan/Local Coastal Program Land Use Plan identified the following key features:

- Includes goals, policies and a Street Typology System for “Complete Streets” where the needs of pedestrians, cyclists and transit users as well as vehicles are addressed, and greenhouse gas emissions are reduced.
- Includes strategies to addresses sea level rise access impacts and improve resiliency.
- Recognizes and supports the growing role of innovative technology in meeting current and future mobility needs.
- Supports continued collaboration with San Diego Association of Governments (SANDAG) and other agencies to help plan for, operate and monitor the performance of Imperial Beach’s mobility network.
- Provides policy support for preparation and monitoring of the City’s Climate Action Plan, and guidance on securing greenhouse gas emissions reductions.

The *Barrio Logan Community Plan and Preliminary Community Plan Update* identified the following strengths and challenges:

- Three freeways and a rail corridor running through Barrio Logan provide regional access, but they also interrupt connectivity within the community.
- Barrio Logan is well served by both local and regional transit: 100% of the community is located within 0.25 mile of a transit station or stop.
- Barrio Logan's flat topography makes it well suited for bicycling.
- Deficiencies in the Barrio Logan pedestrian environment include large land parcels and industrial uses interspersed throughout the neighborhood.

The *Coronado General Plan* noted that traffic congestion along Orange Avenue and the 3rd Street and 4th Street couplet creates mobility issues for auto users and potential safety issues for pedestrians and cyclists.

The *Coronado Comprehensive Active Transportation Plan and Complete Streets Strategy* identified the following strengths and challenges:

- Due to the comprehensive grid network, small geographic area, and traditional commercial main street, people tend to walk more in Coronado than elsewhere.
- Coronado already has an extensive sidewalk network, landscaping, crosswalks, and other high-quality amenities; however, several upgrades to existing facilities are needed.
- Many people use bicycles to make trips around the island. The majority of bicycle trips on the island are not commuter trips, but rather utilitarian in nature: shorter "lifestyle" trips that occur on a daily basis, such as bicycle rides to and from school, the store, and the beach.
- Though many people walk and bicycle throughout Coronado, the lack of or aging pedestrian and/or bicycle infrastructure, combined with relatively high vehicular traffic volumes on key roadways, creates safety issues for pedestrians and cyclists.

The *Orange Avenue Corridor Specific Plan* noted that traffic congestion occurs in the blocks surrounding the intersection of the 3rd and 4th streets couplets and Orange Avenue during all times of the day.

Solutions and Priorities

Imperial Beach: The Big Picture identified the following solutions and priorities:

- Imperial Beach has goals and policies and a street typology system for "complete streets" where the needs of pedestrians, cyclists, transit users, and vehicles are addressed and GHG emissions are reduced.
- Decrease traffic on SR-75.
- Continue collaboration with SANDAG, Caltrans, and other agencies to help plan for, operate, and monitor the performance of Imperial Beach's mobility network.

The *Barrio Logan Community Plan and Preliminary Community Plan Update* identified the following solutions and priorities:

- The adopted Barrio Logan community plan has goals to improve vehicle circulation and encourage the development of other modes of transportation. The preliminary *Community Plan Update* included goals of a pedestrian-oriented vision and enhanced transit nodes.
- Promote and expand the Bayshore Bikeway and other key bike corridors in Barrio Logan.

- Provide opportunities for transit-served, mixed-use, infill development through sustainable development.
- The preliminary *Community Plan Update* included a policy to implement the Boston Avenue Linear Passive Park Trail and enhance the pedestrian connection through this area.
- The preliminary *Community Plan Update* included a policy to work with SANDAG to incorporate transit infrastructure and service enhancements, including roadway-rail grade separations at Cesar E. Chavez Parkway, 28th Street, and 32nd Street.
- The preliminary *Community Plan Update* includes a policy to coordinate with the Navy to reduce congestion on 32nd Street through the construction of the Vesta Street overcrossing at Harbor Drive and improvements at the intersection of 32nd Street, Normal Scott Road, and Wabash Street.

The *Coronado General Plan* identified the following solutions and priorities:

- Accommodate present and future traffic in a manner consistent with the higher priority of the *Coronado General Plan* concept to preserve the community's residential character
- Provide circulation service that is safe for pedestrian, bicycle, and motor vehicle traffic, efficient for all users, and direct in accordance with movement desires
- Minimize pedestrian/bicycle/motor vehicle conflict points within the system
- Provide adequate pedestrian, bicycle, and motor vehicle access to all parcels
- Minimize through traffic movement on local residential streets

The *Coronado Comprehensive Active Transportation Plan and Complete Streets Strategy* identified the following solutions and priorities:

- Add Class II bike lanes on 10th Street, Pomona Avenue, and Alameda Boulevard
- Implement Class III bike routes with shared-lane facilities to provide gap closures, as well as connect parks and schools along D and C avenues, Ocean Boulevard, and several small connections between Ocean Boulevard and Orange Avenue
- Improve pedestrian and bicycle infrastructure at existing intersections within 500 feet of parks and schools
- Implement pedestrian corridor improvements for Olive Avenue, Palm Avenue, and other locations identified by residents and City Council

The *Orange Avenue Corridor Specific Plan* identified the following solutions and priorities:

- Improve the parking supply along/adjacent to Orange Avenue
- Improve transit services along Orange Avenue to reduce the number of vehicles traveling along the corridor

3.1.6 *Chula Vista/Otay*

The Chula Vista/Otay subarea encompasses the City of Chula Vista and the City of San Diego communities of Otay Mesa-Nestor and Otay Mesa. The *Chula Vista General Plan*, *Chula Vista Green Belt Master Plan*, *Otay Mesa Community Plan,* and *Purple Line Conceptual Planning Study* were reviewed.

Strengths and Challenges

The *Chula Vista General Plan*, *Chula Vista Green Belt Master Plan*, and *Otay Mesa Community Plan, identified the following strengths and challenges:*

- Chula Vista recognizes that in certain corridors and centers served by transit, it is acceptable to reduce the vehicle level of service standards that are applied to suburban parts of the City under certain circumstances.
- Currently, many Chula Vista residents commute out of the City for employment, contributing to local and regional traffic congestion and air pollution.
- Jobs in Otay Mesa are expected to increase 500% between years 2000 to 2030.

The *Purple Line Conceptual Planning Study* identified the following challenges and risks:

- Alignment must run on either side of I-805 in order to preserve the freeway median for planned managed lanes. The Purple Line may need to be benched alongside the freeway to stay within the existing Caltrans right-of-way.
- Realignment of the northbound I-805 exit ramp closer to I-805 could be required to better accommodate the station and provide more effective transfer opportunities to critical transit services along the H Street corridor.

Solutions and Priorities

The following solutions and priorities were identified:

- The *Chula Vista General Plan* cites BRT as replacing the previously planned LRT system envisioned for eastern Chula Vista.
- Study, design, expansion, and construction of a regional freeway system that will have the capacity to carry forecasted regional traffic demand in and through the City of Chula Vista.
- Incorporate transit- and pedestrian-friendly elements into roadway design standards, such as signal priority for transit and adequate sidewalk widths for pedestrians.

The *Purple Line Conceptual Planning Study* identified the following priorities and solutions:

- Provide an inline, transfer-only Purple Line station with a direct connection to the proposed Rapid 905, providing access to the Otay Mesa Port of Entry
- Expand the newly constructed South Bay Rapid Station at Palomar Street into a full mobility hub to accommodate increased community access and Purple Line transfers

3.1.7 *U.S.-Mexico Border*

The U.S.-Mexico Border subarea encompasses three community planning areas: Tijuana River Valley, Otay Mesa, and San Ysidro. The Otay Mesa and San Ysidro community plans, two specific plans within Otay Mesa, and the *Purple Line Conceptual Planning Study* were reviewed.

Review of the plans led to the identification of subarea strengths and challenges for multimodal transportation in the subarea with some aspects being both a strength and a challenge depending on the mode and objective. The review also identified potential solutions to challenges and the community's priorities.

Strengths and Challenges

The following strengths and challenges were identified:

- San Ysidro Port of Entry is one of the busiest international border crossings in the world and continues to function as a significant international commuter and tourist terminal.
- Current plans exist for Class I and Class II bikeways and bicycle parking infrastructure throughout Otay Mesa community streets.
- Major transportation facilities divide the community into four areas with a limited number of existing pedestrian crossings across each interstate and rail line. Existing pedestrian crossings are inconvenient.

The *Purple Line Conceptual Planning Study* identified the following challenges and risks:

- Tracks/platform expansion at the San Ysidro Intermodal Transit Center (ITC) could be required to accommodate the increased service and boarding activity associated with the Purple Line.
- Combination of increased passenger activity with additional at-grade tracks will likely require an increase in safety improvements to minimize or eliminate grade-crossing conflicts.

Solutions and Priorities

The following solutions and priorities were identified:

- Retrofit pedestrian bridges and construct a new pedestrian bridge crossing over the Blue Line Trolley at Del Sur Boulevard to improve connections between residential areas north and south of the trolley tracks.
- Implement a Class I bicycle facility along MTS right-of-way from the ITC to the northwestern side of the San Ysidro community.
- Implement a new trolley stop to serve the Hillside development.
- Connect San Ysidro to downtown San Diego and subregional employment centers with high-quality transit service, including the Purple Line and Rapid Bus.
- Improve freeway interchanges by providing a direct freeway connection from the Camino de la Plaza Bridge to I-805, reconfigure the I-5 southbound off-ramp at Via de San Ysidro to connect directly to Calle Primera, make improvements along Dairy Mart Road, and reconfigure the I-805 northbound off-ramp at East San Ysidro Boulevard.
- Upgrade the existing port of entry to facilitate goods movement while relieving impacts to the community. Britannia Boulevard, La Media Road, and Border Road are proposed as the truck routes to promote the efficient cross-border movement of goods with minimal impact to the community.

The *Purple Line Conceptual Planning Study* recommended upgrades to wayside signaling and train control along this segment to accommodate both the Blue and the Purple lines allowing the two lines to operate at high frequencies and safely share the tracks.

3.2 Data Review

A series of geographic information system (GIS) based datasets have been provided by SANDAG. Other data sources are available to the consultant team from work performed in the 2021 Regional Vision.

3.3 References for Future Environmental Analyses

The SB2S CMCP will identify several multimodal strategies. All identified strategies will undergo a more in-depth environmental review to determine potential impacts in subsequent phases of study. The following documents should be referenced when conducting more in-depth environmental analyses:

- San Diego Multiple Species Conservation Program (MSCP)[2]
- City of San Diego Multi-Habitat Planning Area (MHPA)[3]
- City of San Diego Vernal Pool Habitat Conservation Plan[4]
- Marine Corps Air Station Miramar Integrated Natural Resources Management Plan[5]
- Los Penasquitos Lagoon Enhancement Plan[6]
- City of San Diego Biodiverse SD[7]

[2] City of San Diego. 2018. Multiple Species Conservation Program. https://www.sandiegocounty.gov/content/sdc/pds/mscp/. August 16.
[3] City of San Diego. 2022. Multi-Habitat Planning Areas. https://data.sandiego.gov/datasets/mhpa-areas/. August 16.
[4] City of San Diego. 2018. *Vernal Pool Habitat Conservation Plan*. August 16.
[5] U.S. Marine Corps. 2018. *Air Station Miramar Integrated Natural Resources Management Plan.*
[6] Los Peñasquitos Lagoon Foundation. 2018. *Los Penasquitos Lagoon Enhancement Plan.*
[7] https://www.sandiego.gov/planning/work/biodiversity

4 CORRIDOR CONDITIONS AND PERFORMANCE

The information in the following subsections reflects the existing and potential future conditions, as well as the current and potential future performance of the transportation system for the SB2S Corridor. The information in this section supports refinement and validation of study goals, objectives, issues, and opportunities. The scenarios evaluated in this memorandum are described below.

Existing Conditions

Existing conditions were evaluated using the various sources cited throughout this document in alignment with the 2016 Base Year identified in the *2021 Regional Transportation Plan*[8]. More recent data is not available for use in the activity based model (ABM) at this time. Further analysis on the SB2S corridor projects and policies will be considered during development of the 4th cycle Regional Plan (RP)/Sustainable Communities Strategy (SCS), which SANDAG will begin early 2023, scheduled for completion in 2025. The 4th cycle RP/SCS will also use ABM3, which will consider some aspects of pandemic-related travel behavior.

2025 No Build

The *2025 No* Build scenario is evaluated in the context of 2025 corridor demographic characteristics provided by SANDAG for the CMCP analysis (Data Series 38 [DS38]). The corridor transportation facilities are consistent with the 2021 RP 2025 No Build scenario that assumes no substantial changes from the 2016 transportation network. Information from the 2025 No Build scenario are only presented where substantial changes to corridor demographics, land use, or mobility elements are anticipated between 2016 and 2025.

2035 No Build

The 2035 No Build scenario is evaluated in the context of 2035 corridor demographic characteristics provided by SANDAG for the CMCP analysis (DS38). The corridor transportation facilities are consistent with the 2021 RP 2035 No Build scenario that assumes no substantial changes from the 2016 transportation network. Conditions and performance under the 2035 No Build scenario are presented for all corridor characteristics (i.e., demographics, land use) and mobility elements.

4.1 Demographics

This section summarizes 2016 and 2035 No Build population, employment, and housing units[9] for each subarea per the SANDAG Traffic Analysis Zones (TAZ) geography.

[8] San Diego Association of Governments (SANDAG). 2021. SANDAG 2021 Regional Plan. 2022. https://sdforward.com/mobility-planning/2021-regional-plan . 2022.

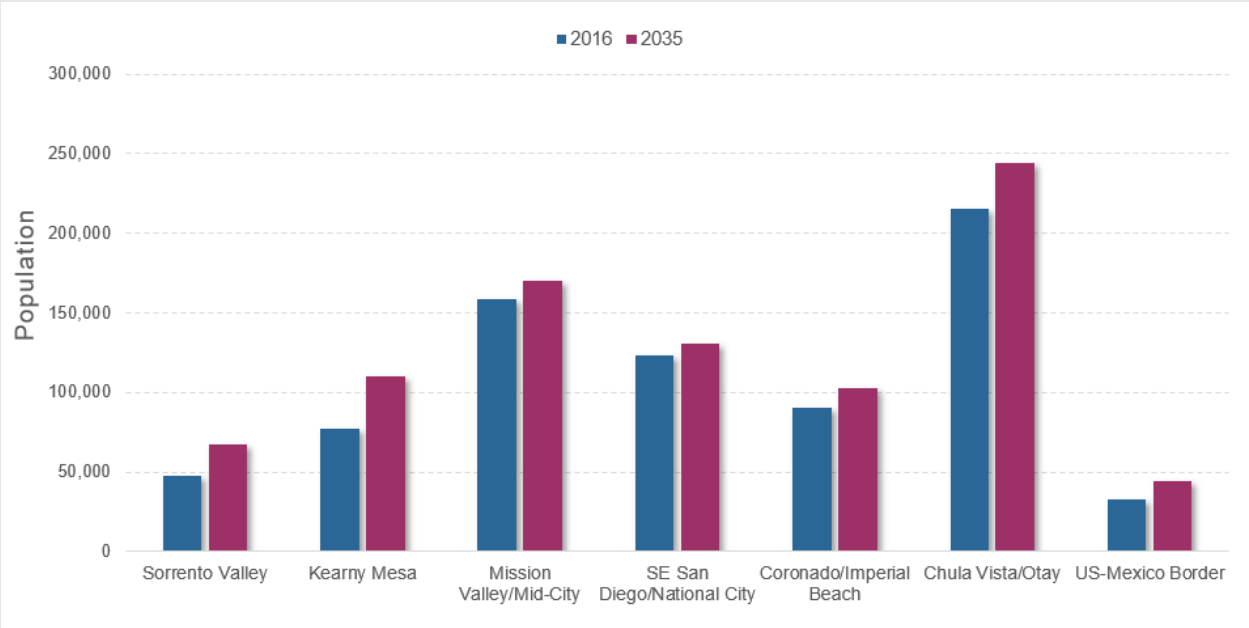
[9] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

Also included is an analysis of social equity focus communities which are defined by SANDAG as low-income[10], minority[11], and senior[12] populations per the SANDAG TAZ geography.

A more detailed summary of 2016 and 2035 No Build demographic data by subarea and AOI is included in Appendix B.

Figure 3 and Figure 4 show population distribution for Existing and 2035 No Build conditions. Between 2016 and 2035, corridor population is expected to increase by over 125,000 people. Most of the population growth is anticipated in the U.S.-Mexico Border, Chula Vista/Otay Valley, Sorrento Valley, and Kearny Mesa subareas. Substantial growth is also anticipated in the Urban Core and University Community AOIs.

Figure 3. Existing and Forecasted Population[13] by Subarea



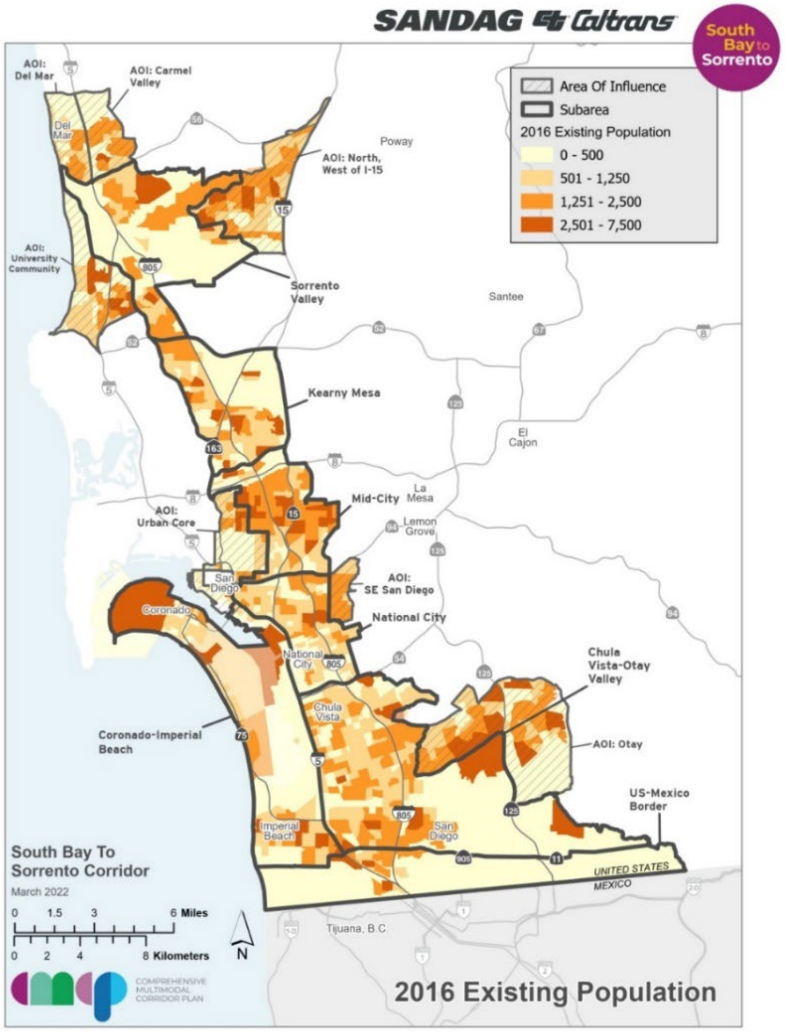
[10] Low-income households are those households which have incomes of $44,999 or less. The Federal Poverty Level for a family of 4 is $22,050. (Twice this amount is $44,100).

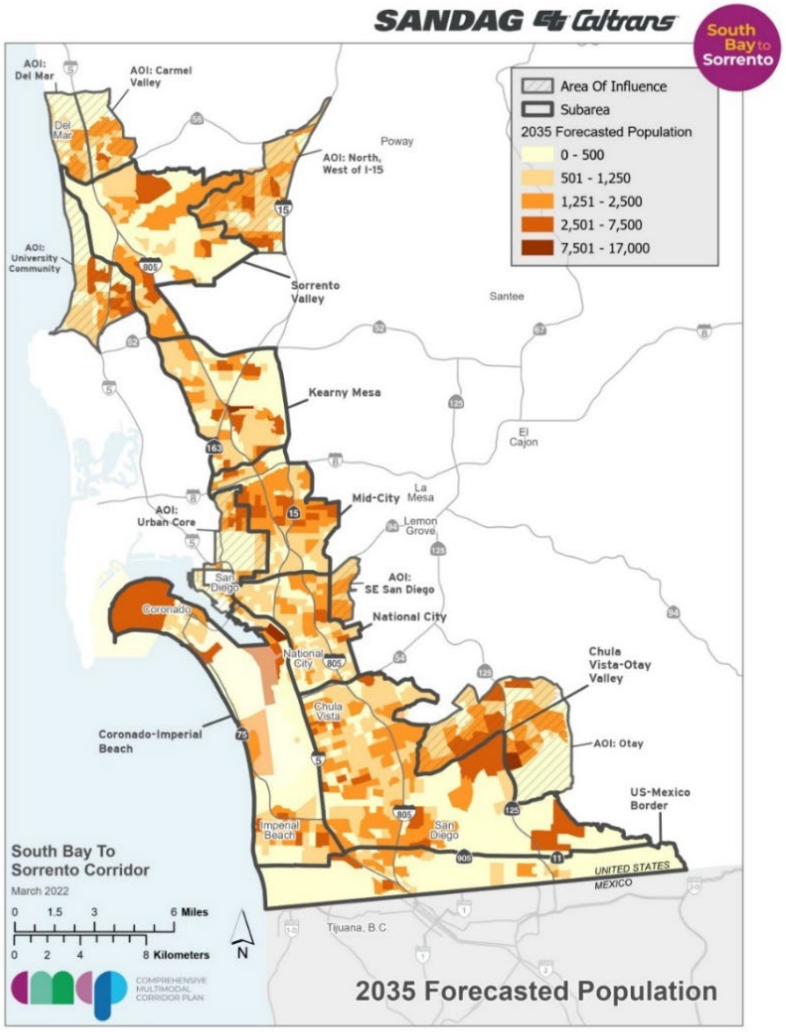
[11] Minority includes people who identify as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian, or Other Pacific Islander, or those who are two or more races. This also includes those that identify as Hispanic or Latino regardless of their race.

[12] Senior populations are those older than 75 years of age.

[13] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

Figure 4. Forecasted Population Growth[14]

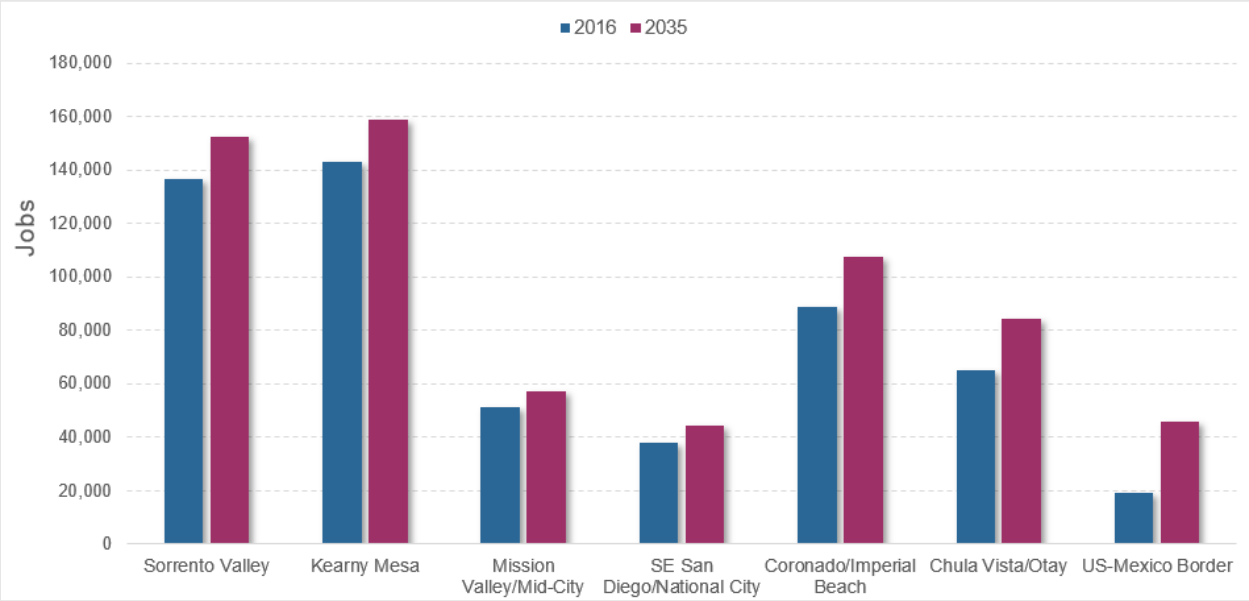




[14] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

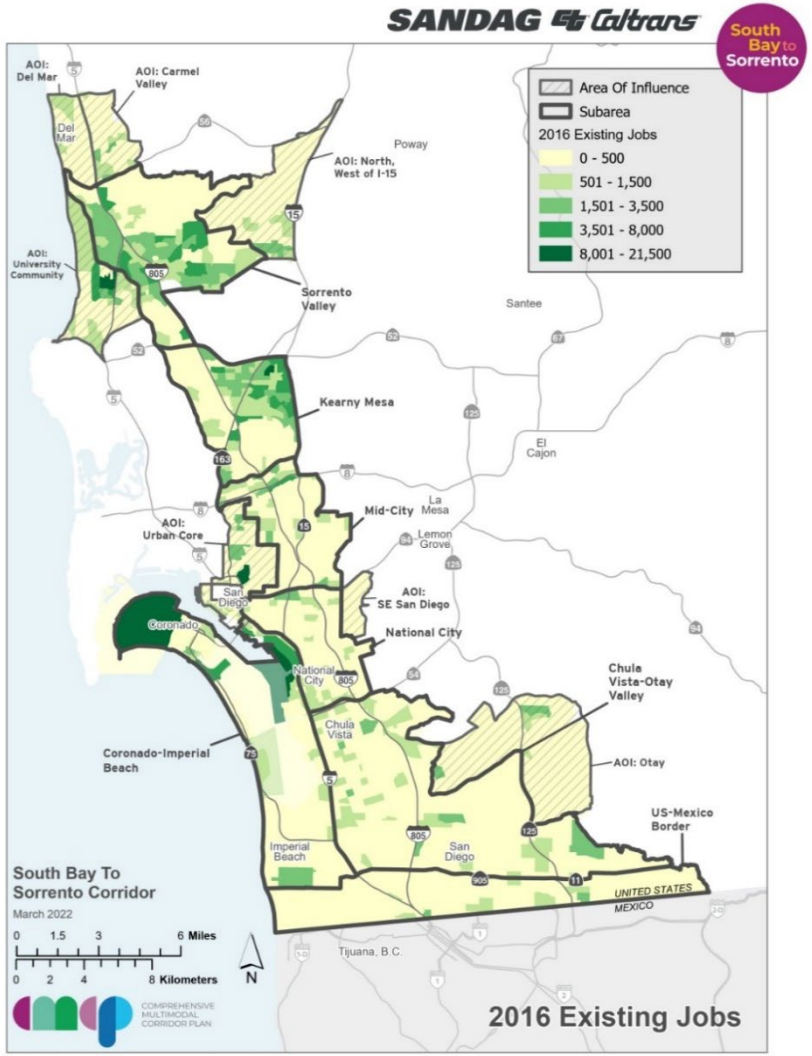
Figure 5 and Figure 6 show the distribution of jobs for Existing and 2035 No Build conditions. Between 2016 and 2035, corridor employment is expected to grow by nearly 108,000 jobs. The highest rate of job growth is in the southern portion of the corridor; however, most jobs will continue to be in Sorrento Valley, Kearny Mesa, and Coronado/Imperial Beach. Substantial job growth is also anticipated in the Urban Core and University Community AOIs.

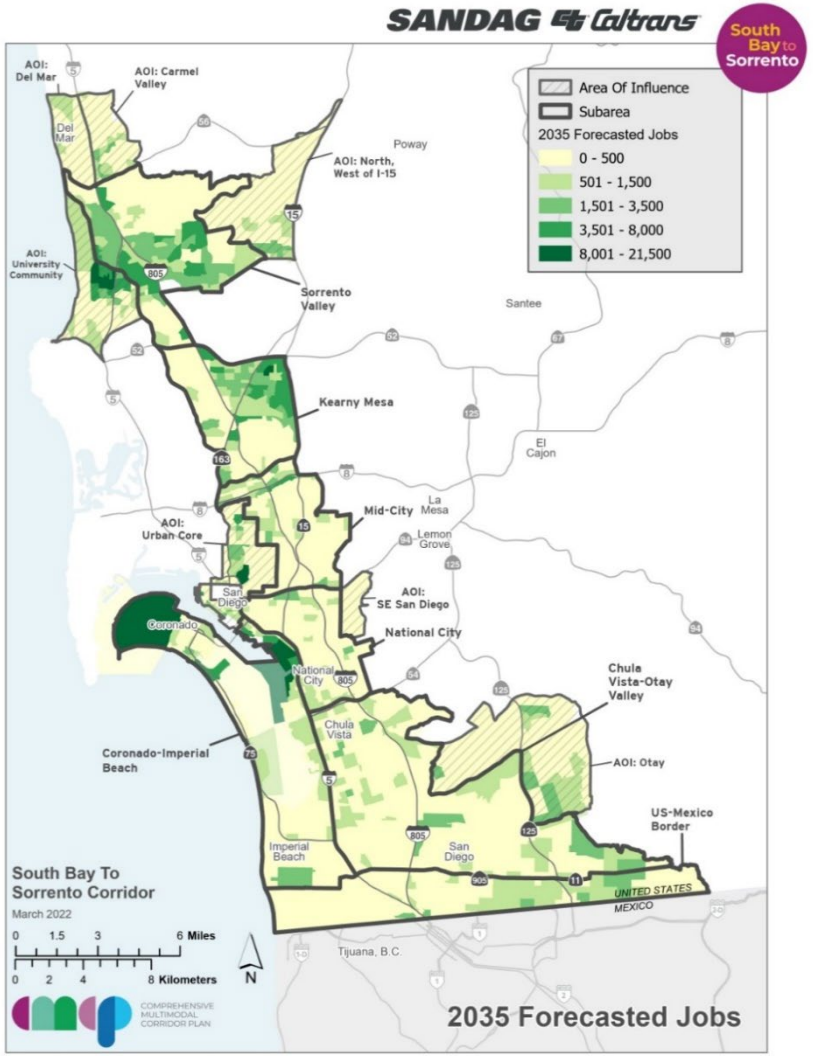
Figure 5. Existing and Forecasted Jobs[15] by Subarea



[15] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

Figure 6. Forecasted Job Growth[16]

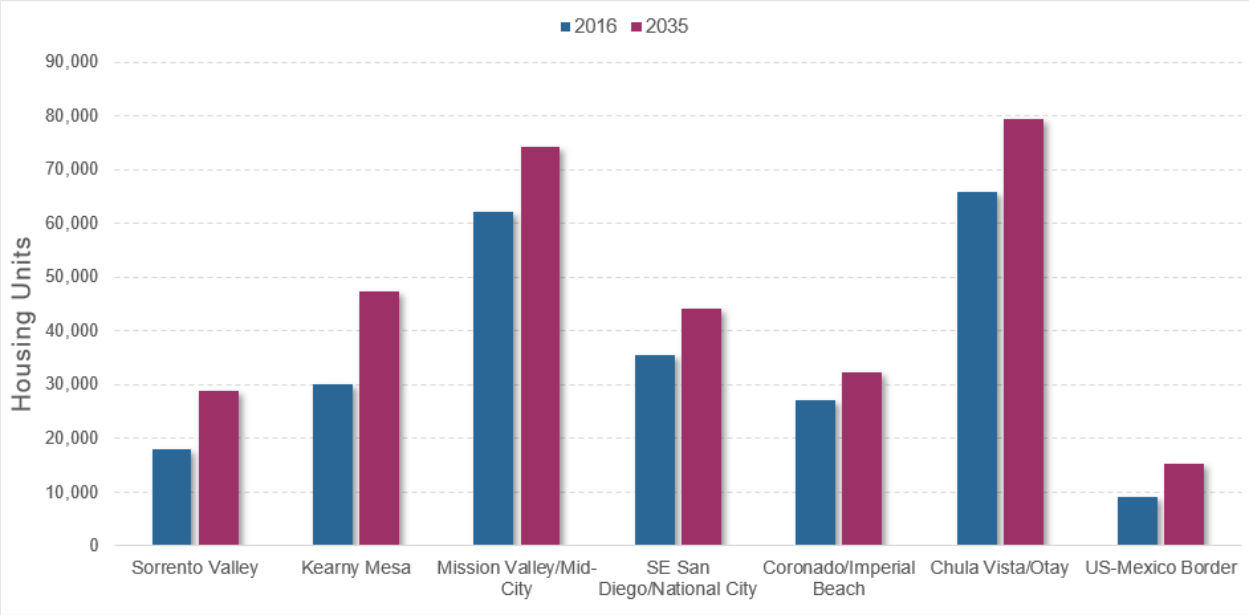




[16] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

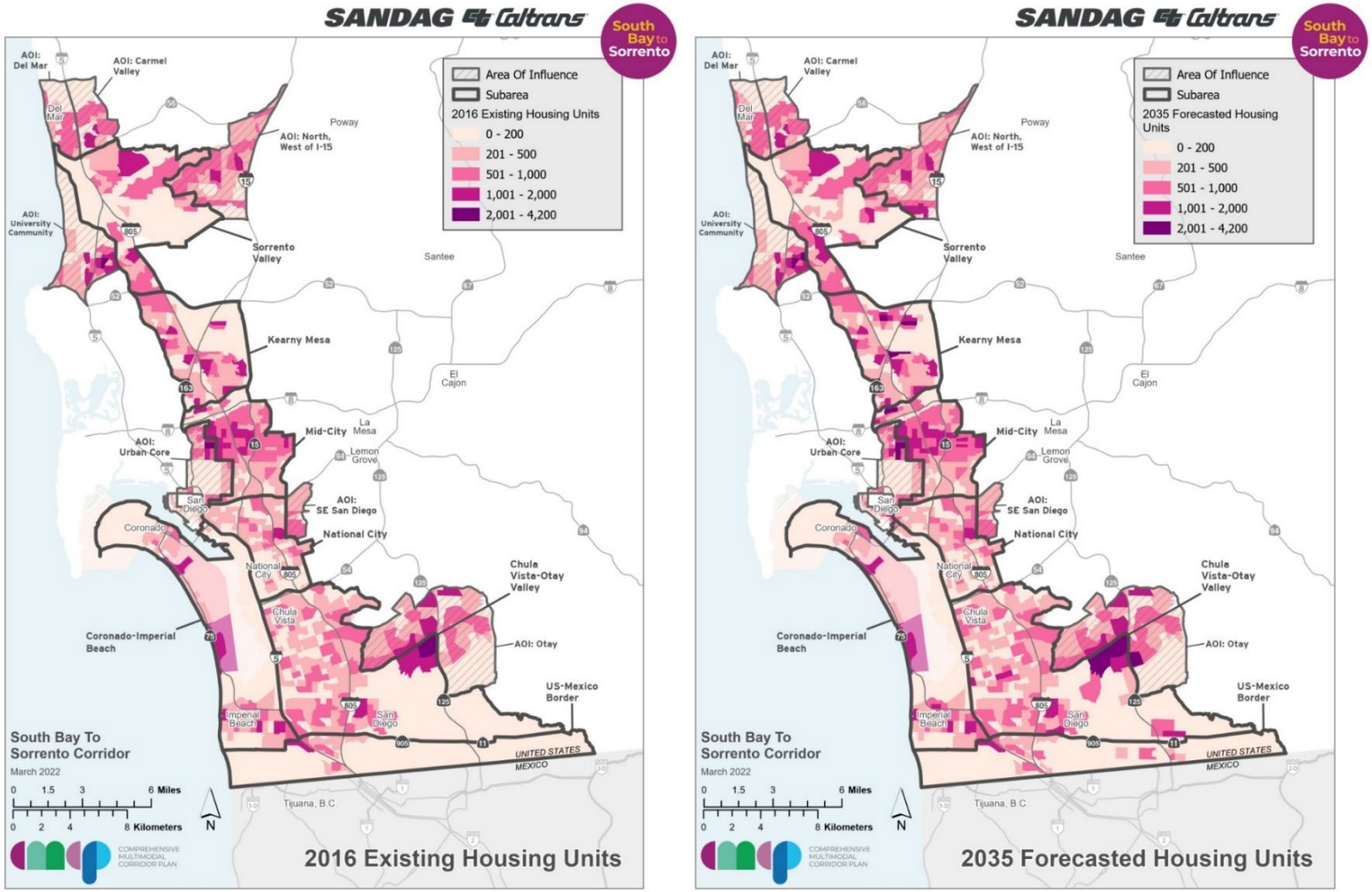
Figure 7 and Figure 8 show the distribution of housing units for Existing and 2035 No Build conditions. Between 2016 and 2035, the number of housing units is expected to increase by over 73,000. This includes increases of approximately 12,000 housing units in Mission Valley/Mid-City, over 17,000 in Kearny Mesa, and nearly 14,000 in Chula Vista/Otay.

Figure 7. Existing and Forecasted Housing[17] Units by Subarea



[17] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

Figure 8. Forecasted Housing Unit Growth[18]



[18] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

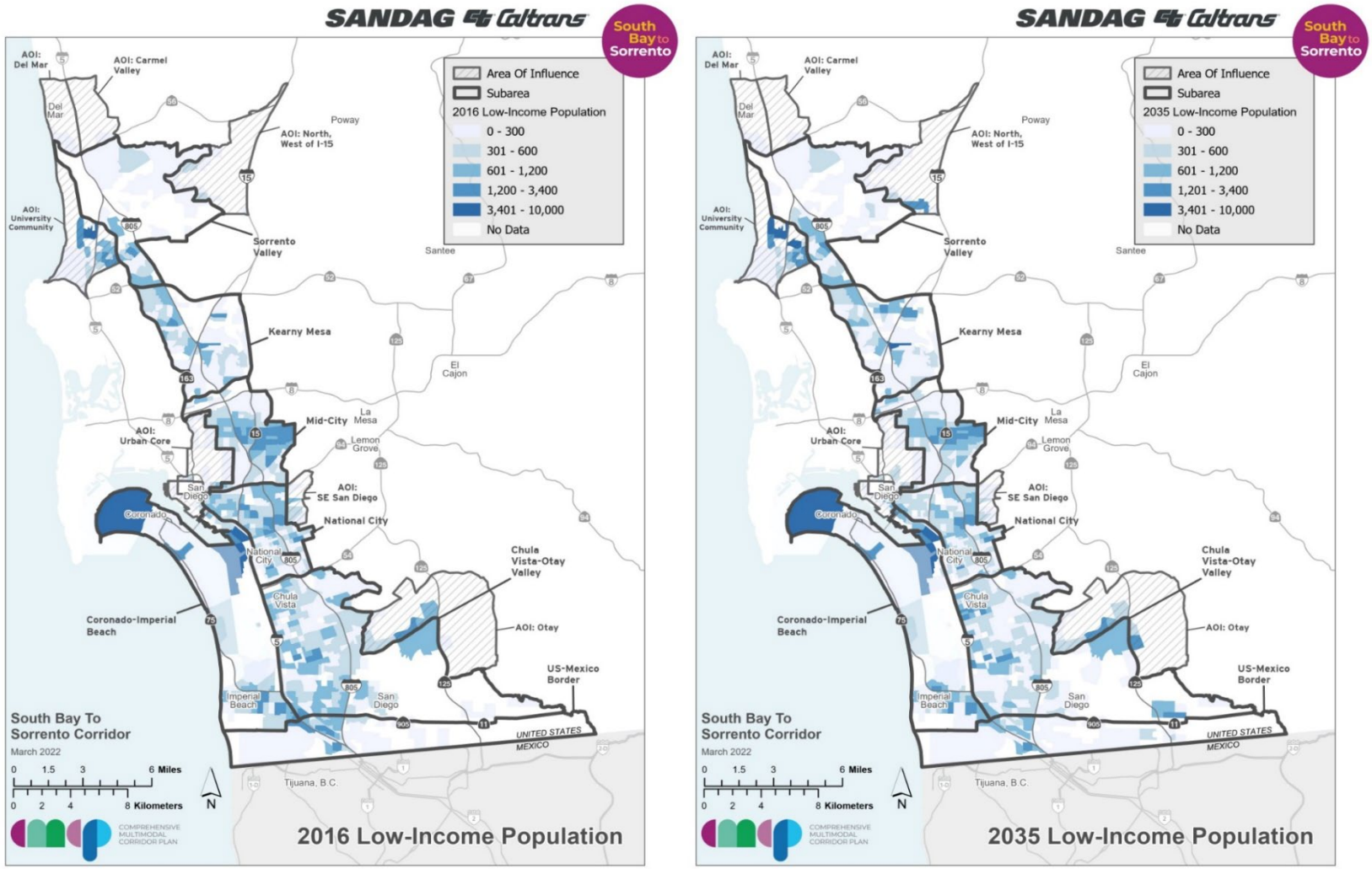
Figure 9 shows the geographical distribution of low-income residents for Existing and 2035 No Build scenarios. Between 2016 and 2035 the low-income population within the corridor is expected to decrease by approximately 200 people. High concentrations of low-income populations are forecasted in the Chula Vista/Otay, SE San Diego/National City, and Mission Valley/Mid-City subareas. The low-income population within AOIs is expected to increase by nearly 19,000 people with the largest low-income populations being in the University Community, Urban Core, and Otay AOIs. It should be noted that many of the people in the University Community AOI are UCSD students living on or adjacent to campus.

Figure 10 shows the geographical distribution of minority residents for Existing and 2035 No Build scenarios. Between 2016 and 2035 the minority population within the corridor is expected to increase by approximately 149,000 people with the largest minority populations in the Chula Vista/Otay, Mission Valley/Mid-City, SE San Diego/National City, and Kearny Mesa subareas. The minority population within AOIs is expected to increase by approximately 123,000 with the largest minority populations being in the Otay; Urban Core; North, West of I-15; and University Community AOIs.

Figure 11 shows the geographical distribution of senior residents for Existing and 2035 No Build scenarios. The senior population within the corridor is expected to nearly double from approximately 39,000 residents in 2016 to approximately 85,000 in 2035. Most are forecasted to live in the Chula Vista/Otay, Mission Valley/Mid-City, and Kearny Mesa subareas. The senior population within the AOIs is expected to more than double from approximately 6,000 to 18,000 with the largest senior populations living in the Urban Core; North, West of I-15; and Otay AOIs.

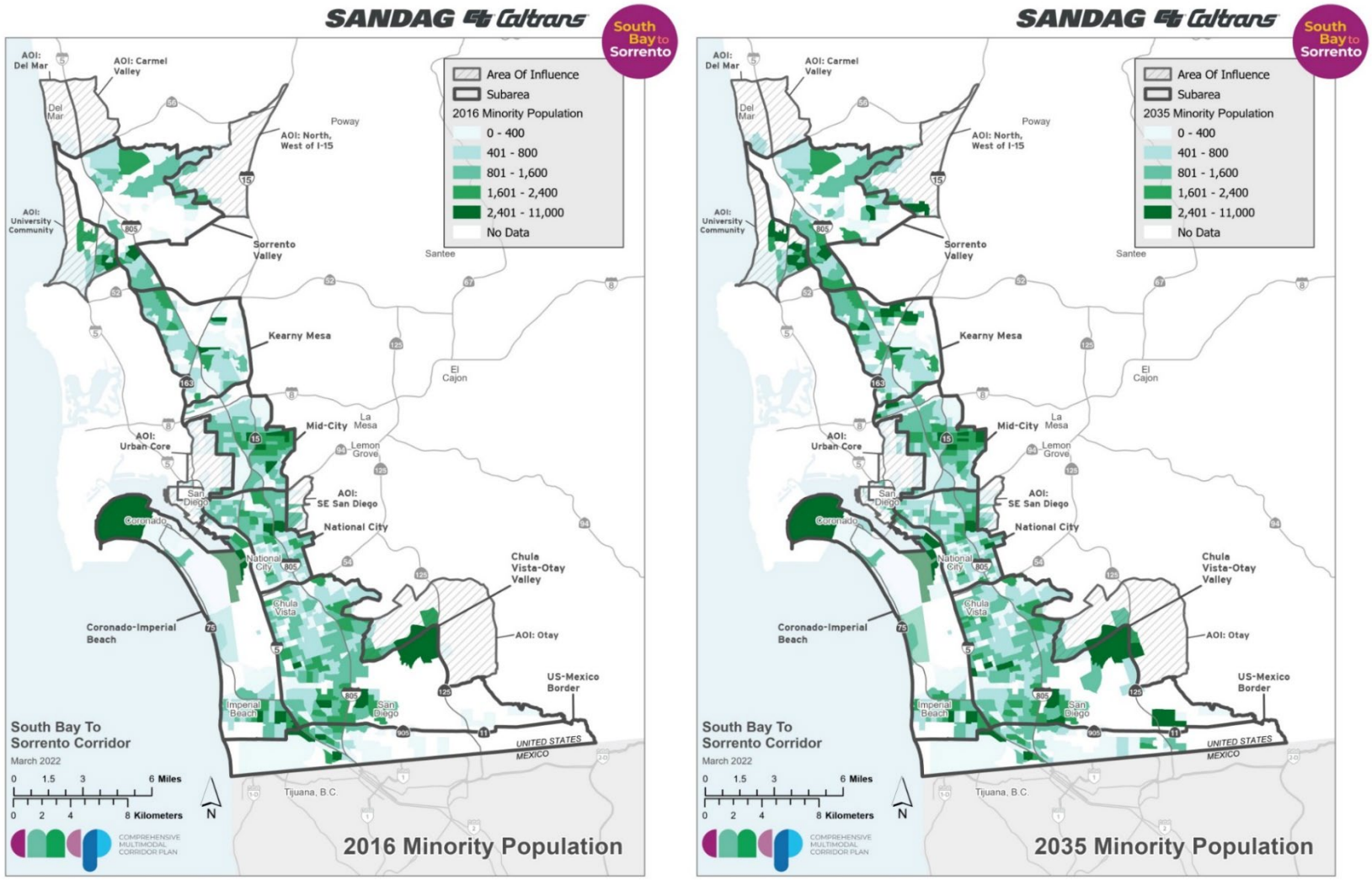
Transportation improvements serving social equity focus populations are particularly important given that they have been historically underserved in terms of infrastructure enhancements and economic opportunities.

Figure 9. Social Equity Focus – Low-income Population[19]



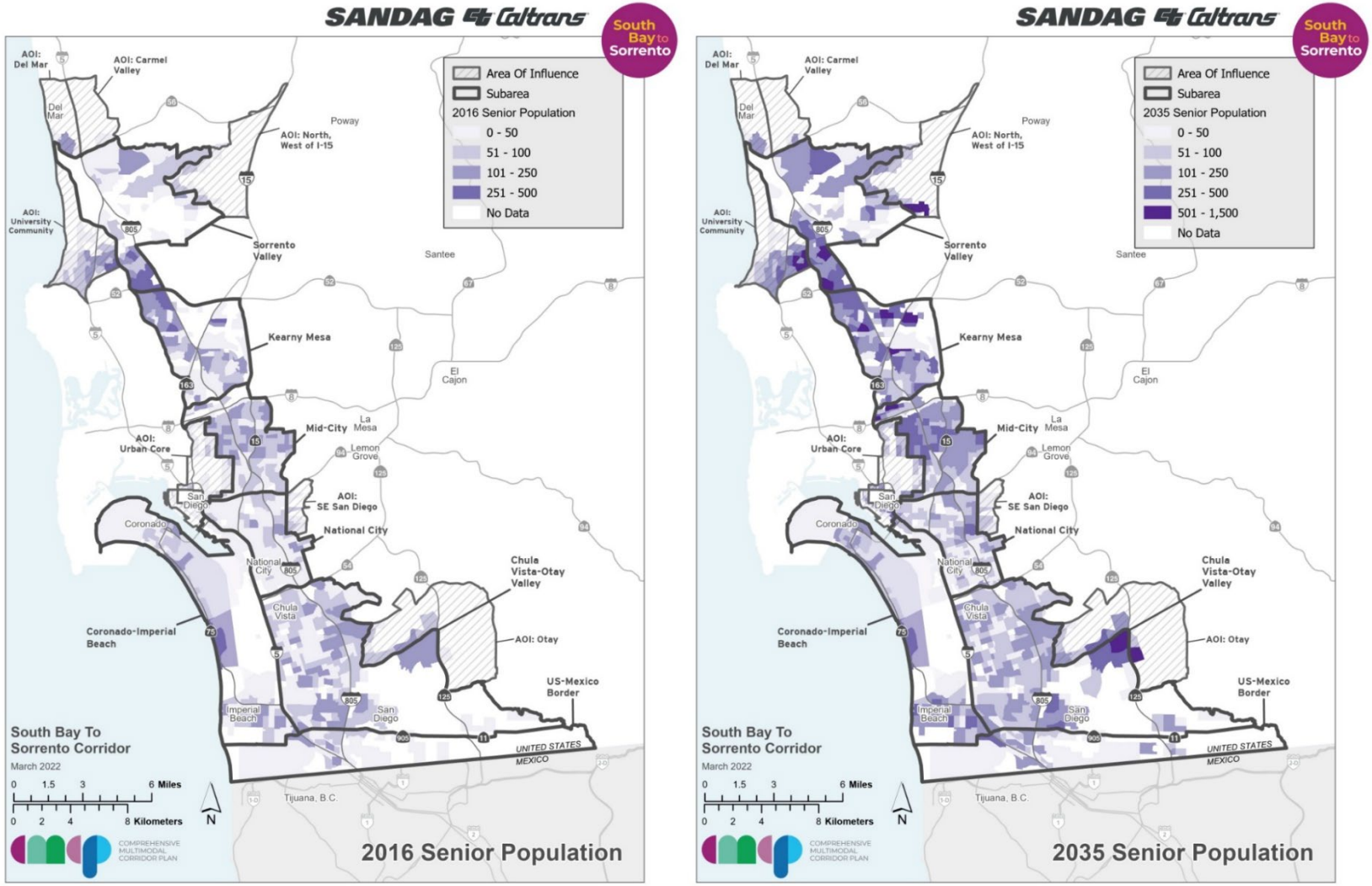
[19] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

Figure 10. Social Equity Focus – Minority Population[20]



[20] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

Figure 11. Social Equity Focus – Senior Population[21]



[21] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

4.2 Land Use

Land use in the study area includes a mix of residential, commercial, industrial, military, and open space, among others. The presence of specific uses and diversity of land use varies by subarea.

4.2.1 *2016 Land Use*

A high-level summary of existing land use by subarea is included herein. Figure 12, Figure 13, and Figure 14 show study area land use for 2016. Figure 15 shows employment centers by subareas.

Sorrento Valley: Land use in Sorrento Valley includes office, commercial, industrial, residential, and parks/open space, among others. Sorrento Valley includes one of the highest concentrations of employment in the study area, primarily within the University City and Sorrento Mesa employment areas. Commercial and residential land uses in the University City area are medium-to-high density, whereas densities decrease slightly in other areas within the subarea. The University Towne Centre shopping mall is one of the largest in the region.

Much of the western portion of Sorrento Valley is within a City of San Diego Transit Priority Area (TPA). Despite this, and even though land use diversity is considerable, natural and man-made features like significant changes in topography and large roadways make Sorrento Valley an auto-centric area.

Kearny Mesa: Land use in Kearny Mesa includes office, commercial, residential, and mixed-use land uses, among others. It also includes Montgomery Field, one of the region's executive airports. Along with Sorrento Valley, Kearny Mesa includes one of the highest concentrations of employment within the study area; however, it is more dispersed throughout the area as densities are considerably lower than in University City. Residential land uses include both single-family and multi-family residential and are primarily located south of Aero Drive within Kearny Mesa and west of I-805 within Clairemont. The recent Kearny Mesa Community Plan Update allows for increased residential densities and floor area ratio increases.

Much of the Kearny Mesa subarea is within a City of San Diego TPA. Despite this, and even though land use diversity is considerable within the subarea, relatively low densities make Kearny Mesa an auto-centric area.

Mission Valley/Mid-City: Land use in Mission Valley/Mid-City includes commercial, residential, mixed-use, and recreational land uses, among others. Nearly all the area north of the I-805/ SR-15 interchange is within a City of San Diego TPA.

The Mid-City area includes some of the highest land use diversity in the study area. The presence of a grid-like street pattern and absence of significant topographic features make Mid-City one of the most transit-, bicycle-, and pedestrian-friendly areas within the study area.

The Mission Valley area includes a large concentration of residential and commercial land uses within the study area. The recently adopted Mission Valley Community Plan seeks to create a more pedestrian- and transit-friendly environment and adds capacity for additional dwelling units. However, large blocks, high-speed arterial roadways, a relatively circuitous roadway network, and the presence of the San Diego River make Mission Valley an auto-centric area.

SE San Diego/National City: Land use in SE San Diego/National City includes a mix of residential, commercial, public services, and industrial land uses, among others. Most of the area within the City of San Diego is in a City of San Diego TPA. Though the City of National City does not define TPAs, the areas within a 0.5 mile of the MTS Blue Line Trolley stations would be by definition within a TPA, as would others along MTS transit routes that operate at peak period headways of 15-minutes or greater.

Residential land uses are primarily single-family residential, though some multi-family residential uses do exist. Commercial land uses primarily consist of neighborhood commercial uses, including commercial strip uses. In some areas residential land uses are located close to industrial land uses, which creates health problems for residents.

SE San Diego/National City includes some of the highest concentrations of social equity focus populations in the study area, including a large portion of transit-dependent travelers.

Coronado/Imperial Beach: Land use in the Coronado/Imperial Beach subarea primarily includes military, industrial, residential, and recreation land uses, among others. Within the publicly accessible portion of Coronado, the island is comprised primarily of residential and recreational uses with Coronado Beach and Silver Strand State Beach being two of the region's most popular coastal destinations. Also located on Coronado, NBC includes Naval Air Station North Island (NASNI) and is one of the region's three largest military facilities.

In Imperial Beach, land use is comprised primarily of residential, commercial, military (including the Naval Outlying Landing Field airport), and open space uses. The southeastern portion of the subarea is in a City of San Diego TPA.

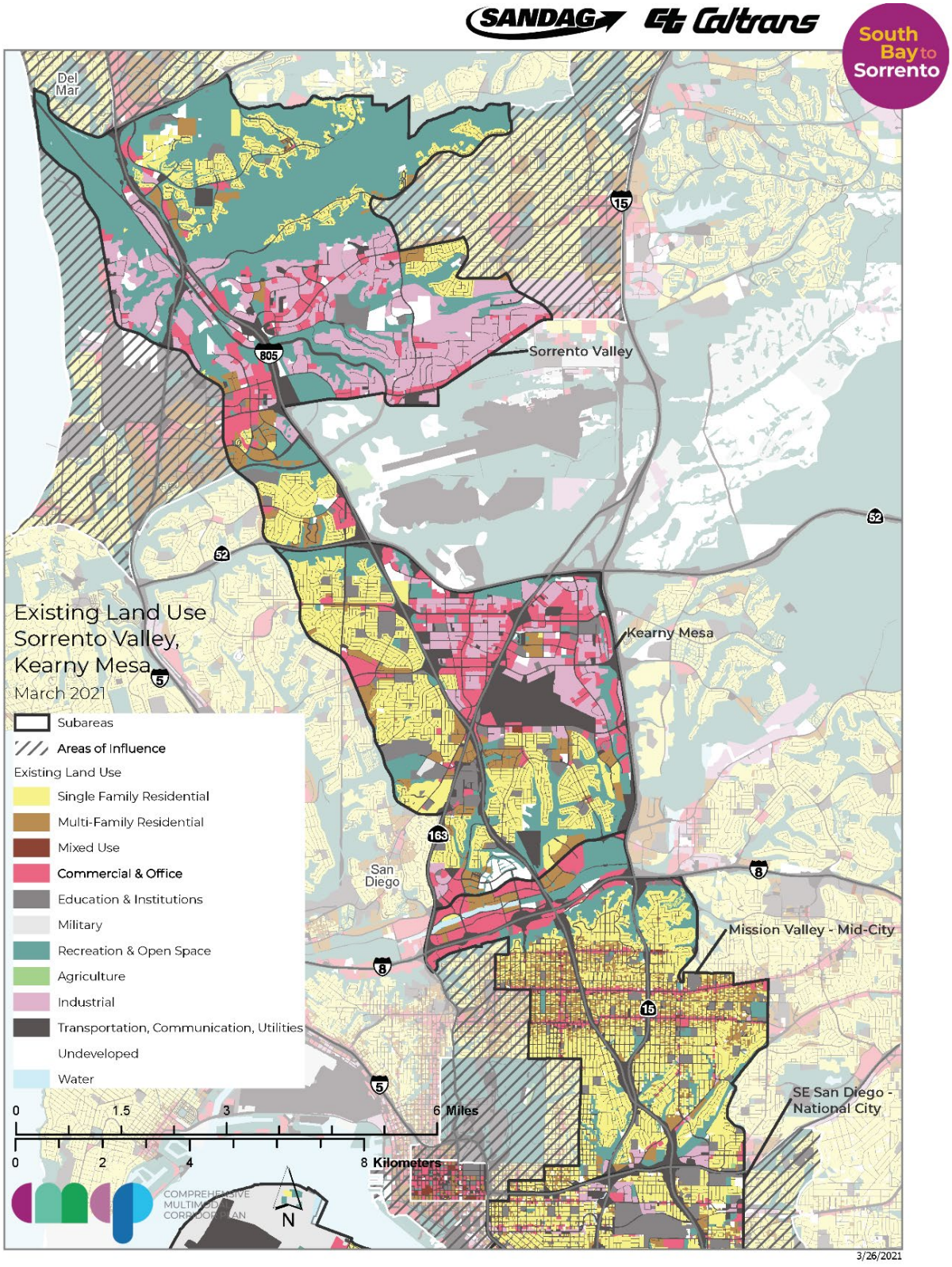
On the east side of San Diego Bay, land use is comprised primarily of industrial and military uses including the NBSD 32nd Street Facility and commercial and military shipyards. The northern portion of the subarea is within a City of San Diego TPA.

Chula Vista/Otay: Land use in the Chula Vista/Otay subarea primarily includes residential, parks, and commercial land uses, as well as a large portion of vacant/undeveloped land in the eastern portion of the subarea. The southern and southwestern portions of the subarea are within a City of San Diego TPA. Though the City of Chula Vista does not define TPAs, the areas within a 0.5 mile of the MTS Blue Line Trolley stations would be by definition within a TPA, as would others along MTS transit routes that operate at peak period headways of 15-minute or greater.

The western portion of Chula Vista has a higher land use diversity than the areas east of I-805, which primarily includes single-family homes and more suburban development patterns. As such, areas in western Chula Vista are more transit- and pedestrian-friendly, whereas the areas east of I-805 are more auto-centric. The Otay portion of the subarea consists of commercial and industrial land uses, Brown Field Municipal Airport, and large portions of vacant/undeveloped land. Numerous topographic features in Otay pose challenges to creating more dense, walkable areas.

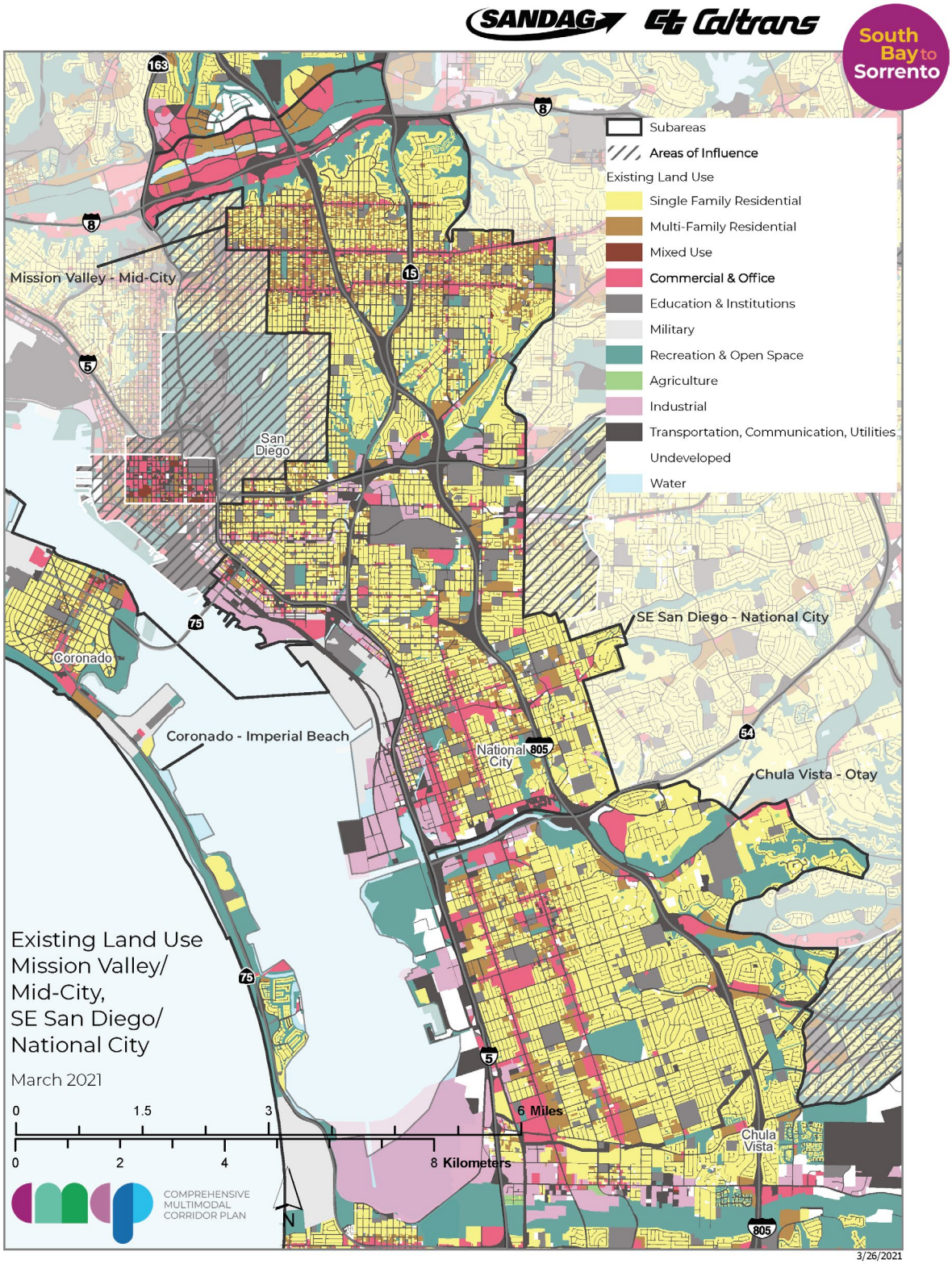
U.S.-Mexico Border: Land use in the U.S.-Mexico Border subarea includes residential, commercial, and industrial land uses, as well as large portions of open space and vacant/undeveloped land along the U.S.-Mexico border. Residential and commercial land uses are primarily located within San Ysidro with the Outlets at the Border being one of the region's largest commercial shopping destinations.

Figure 12. Existing (2016) Land Use [22]- North



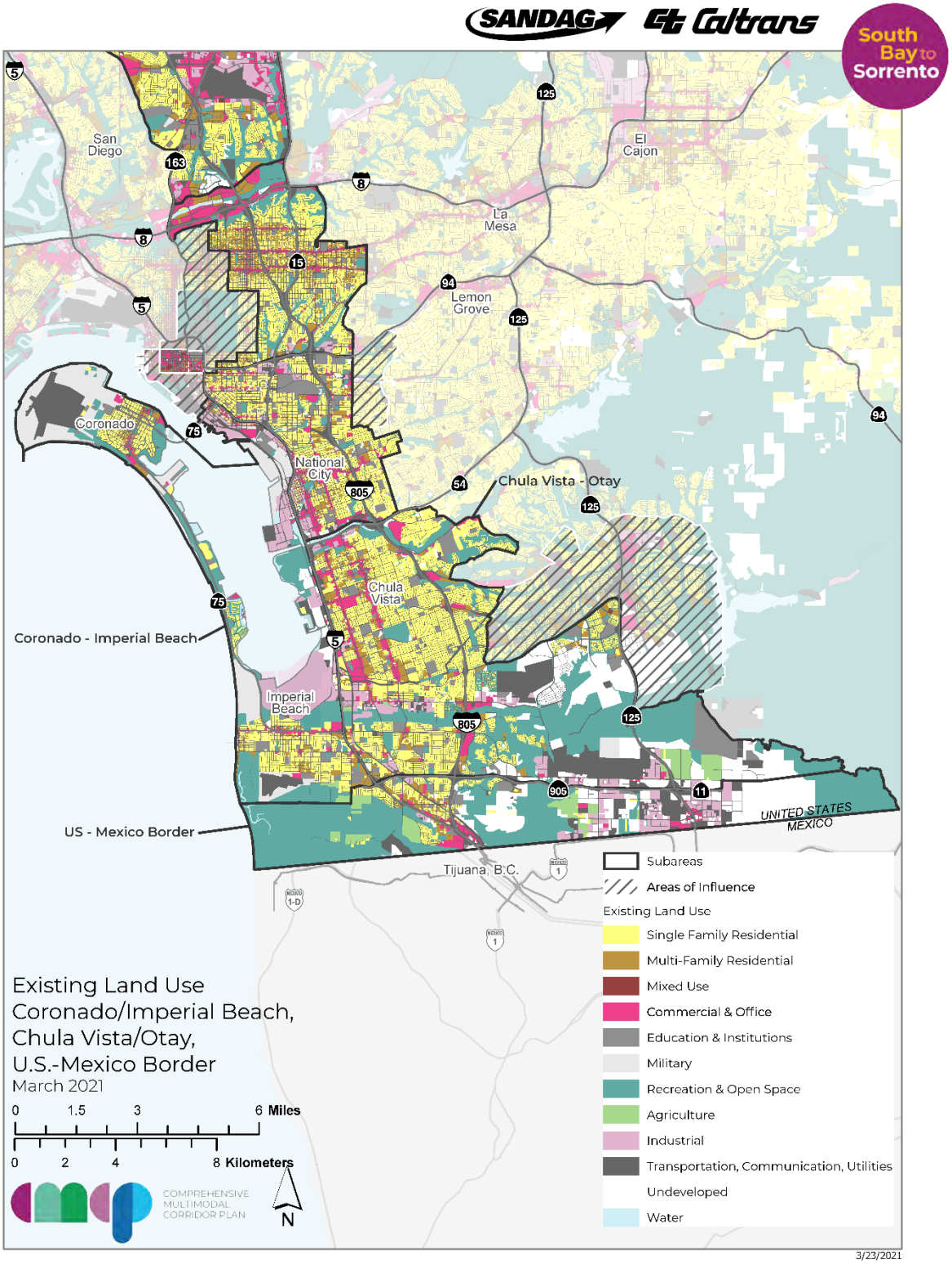
[22] SANDAG, Existing Land Use

Figure 13. Existing (2016) Land Use [23]- Central



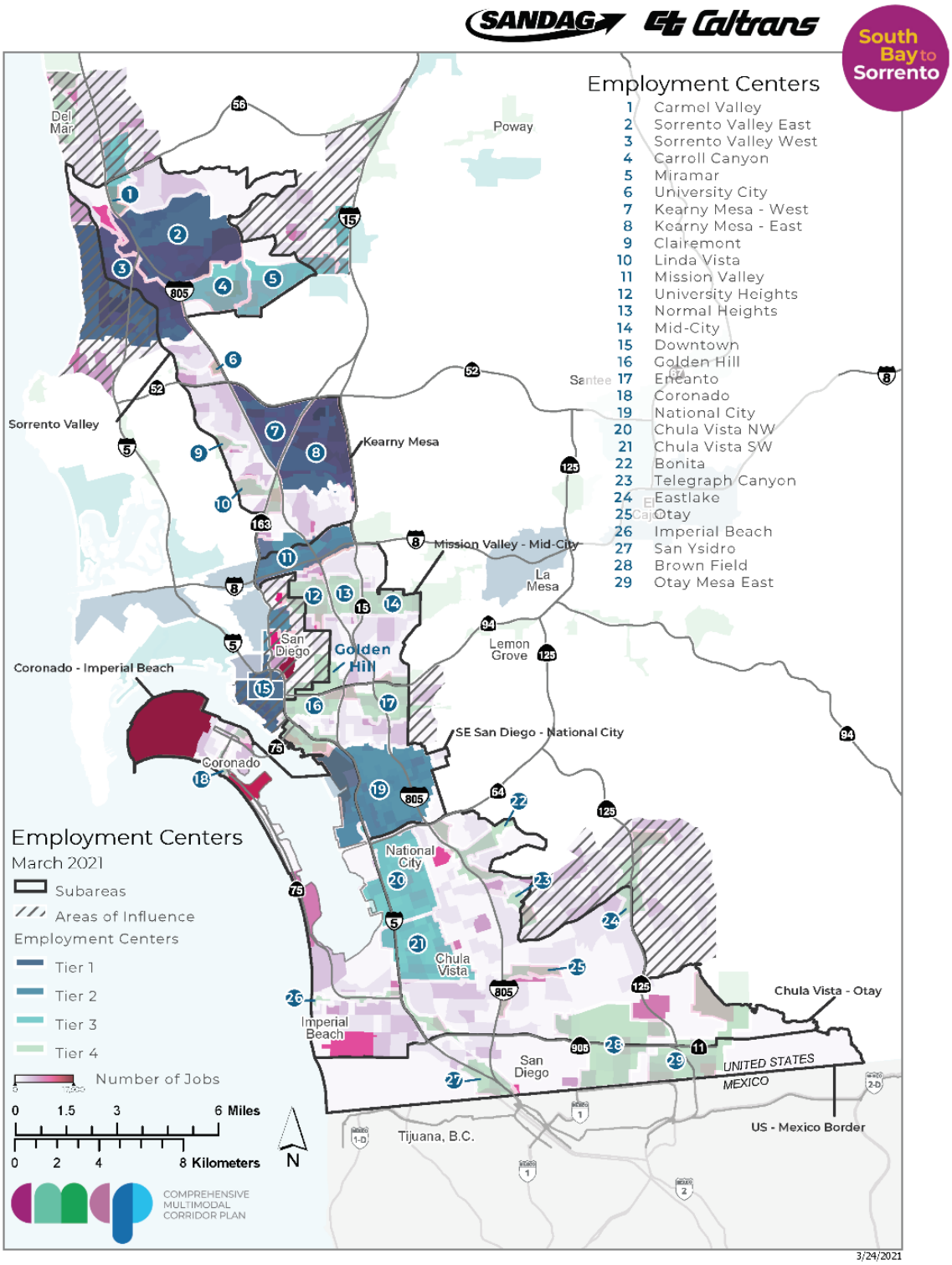
[23] SANDAG, Existing Land Use

Figure 14. Existing (2016) Land Use [24]- South



[24] SANDAG, Existing Land Use

Figure 15. Tier 1 through 4[25] Employment Centers by Subarea



[25] SANDAG employment centers are ranked by tier and are based on a total number of jobs: Tier 1: 50,000 or more jobs, Tier 2: 25,000 to 49,999 jobs, Tier 3: 15,000 to 24,999 jobs, and Tier 4: 2,500 to 14,999 jobs.

San Ysidro also includes the San Ysidro Port of Entry — one of the busiest land ports of entry in the world, averaging over 85,000 daily border crossings from Mexico into the U.S. (vehicle passengers, pedestrians, and bus passengers combined)[26]. Much of the San Ysidro community is within a City of San Diego TPA.

Industrial development within this southernmost subarea is located several miles east in Otay Mesa. Much of the Otay Mesa industrial area is within a City of San Diego TPA, but a relatively low diversity of land use, among other factors, makes this portion of the subarea auto-centric.

4.3 Future Housing Units and Jobs

Forecast data from SANDAG[27] was used to calculate the number of housing units and jobs within the study area in 2025 and 2035. A high-level summary of changes to residential and employment concentrations from 2016 to 2025 and 2035 is provided below.

4.3.1 *2025 Housing Units and Jobs*

Sorrento Valley: The number of housing units in the Sorrento Valley subarea is expected to increase by approximately 3,700 from 2016 to 2025. Nearly all of the new housing in Sorrento Valley is expected to be multi-family households, which is to be expected given the density in this area. The number of jobs in Sorrento Valley is expected to increase by approximately 5,900 between 2016 and 2025.

Kearny Mesa: The number of housing units in the Kearny Mesa subarea is expected to increase by approximately 5,700 from 2016 to 2025. Nearly all of the new housing in Kearny Mesa is expected to be multi-family households, which is to be expected given the planned increase in residential density in this area. The number of jobs in Kearny Mesa is expected to increase by approximately 5,800 between 2016 and 2025.

Mission Valley/Mid-City: The number of housing units in the Mission Valley/Mid-City subarea is expected to increase by approximately 4,000 from 2016 to 2025, most of which is expected to be multi-family homes. The number of jobs in Mission Valley/Mid-City is expected to increase by approximately 2,200 between 2016 and 2025.

SE San Diego/National City: The number of housing units in the SE San Diego/National City subarea is expected to increase by approximately 2,400 from 2016 to 2025, most of which is expected to be multi-family households. The number of jobs in SE San Diego/National City is expected to increase by approximately 2,500 between 2016 and 2025.

Coronado/Imperial Beach: The number of housing units in the Coronado/Imperial Beach subarea is expected to increase by approximately 2,700 from 2016 to 2025, most of which is expected to be multi-family households. The number of jobs in Coronado/Imperial Beach is expected to increase by approximately 12,900 between 2016 and 2025. Much of this is due to anticipated increases in employment along the Harbor Drive corridor and at military institutions.

Chula Vista/Otay: The number of housing units in the Chula Vista/Otay subarea is expected to increase by approximately 9,400 from 2016 to 2025. The new housing is anticipated to be a

[26] Daily average from January – April 2022. U.S. DOT Bureau of Transportation Statistics. https://explore.dot.gov/views/BorderCrossingData/Monthly.
[27] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

fairly balanced mix of single-family and multi-family units. The number of jobs in Chula Vista/ Otay is expected to increase by approximately 7,000 between 2016 and 2025.

U.S.-Mexico Border: The number of housing units in the U.S.-Mexico Border subarea is expected to increase by approximately 2,000 from 2016 to 2025, most of which is expected to be multi-family households. The number of jobs in the U.S.-Mexico Border subarea is expected to increase by approximately 10,000 between 2016 and 2025.

4.3.2 *2035 Housing Units and Jobs*

Sorrento Valley: The number of housing units in the Sorrento Valley subarea is expected to increase by approximately 10,800 from 2016 to 2035. Nearly all of the new housing in Sorrento Valley is expected to be multi-family households, which is to be expected given the density in this area. The number of jobs in Sorrento Valley is expected to increase by approximately 15,800 between 2016 and 2035.

Kearny Mesa: The number of housing units in the Kearny Mesa subarea is expected to increase by approximately 17,200 from 2016 to 2035. Nearly all of the new housing in Kearny Mesa is expected to be multi-family households, which is to be expected given the planned increase in residential density in this area. The number of jobs in Kearny Mesa is expected to increase by approximately 15,500 between 2016 and 2035.

Mission Valley/Mid-City: The number of housing units in the Mission Valley/Mid-City subarea is expected to increase by approximately 12,000 from 2016 to 2035, most of which is expected to be multi-family homes. The number of jobs in Mission Valley/Mid-City is expected to increase by approximately 5,800 between 2016 and 2035.

SE San Diego/National City: The number of housing units in the SE San Diego/National City subarea is expected to increase by approximately 8,600 from 2016 to 2035, most of which is expected to be multi-family households. The number of jobs in SE San Diego/National City is expected to increase by approximately 6,600 between 2016 and 2035.

Coronado/Imperial Beach: The number of housing units in the Coronado/Imperial Beach subarea is expected to increase by approximately 5,000 from 2016 to 2035, most of which is expected to be multi-family households. The number of jobs in Coronado/Imperial Beach is expected to increase by approximately 18,600 between 2016 and 2035. Much of this is due to anticipated increases in employment along the Harbor Drive corridor and at military institutions.

Chula Vista/Otay: The number of housing units in the Chula Vista/Otay subarea is expected to increase by approximately 13,700 from 2016 to 2035. The new housing is anticipated to be a fairly balanced mix of single-family and multi-family units. The number of jobs in Chula Vista/ Otay is expected to increase by approximately 19,000 between 2016 and 2035.

U.S.-Mexico Border: The number of housing units in the U.S.-Mexico Border subarea is expected to increase by approximately 6,000 from 2016 to 2035, most of which is expected to be multi-family households. The number of jobs in the U.S.-Mexico Border subarea is expected to increase by approximately 26,600 between 2016 and 2035.

4.4 Mobility Analysis

This section summarizes general travel patterns, transit ridership and trends, and roadway (highway and arterial) performance for existing and future No Build scenarios. Existing active transportation and goods movement facilities and modal characteristics are also summarized.

4.4.1 *Travel Patterns*

The corridor travel patterns analysis takes into consideration where people live and work (commute) using the ABM2+ model, and other (non-work) travel patterns observed through the Teralytics[28] data set.

Commute travel patterns were analyzed from the ABM2+ DS38 model runs origin and destination data for each year of analysis (2016, 2025, 2035). Table 1 details the number of trips within the study area that either originate or end during the AM Peak in each subarea and area of influence. The highest number of home-to-work trips originate in the subareas of Chula Vista/Otay and Mission Valley/Mid-City, which is indicative of a high number of households. Sorrento Valley and Kearny Mesa contain the highest number of destinations, which is indicative of their importance as job centers. The AOI data shows the south to north AM Peak travel patterns (reversed in the PM peak) are even more relevant when considering Otay and University Community. It also highlights the importance of the Urban Core for both trip origins and destinations.

Table 1. Commute Travel Patterns (Person Trips) – Home to Work AM Peak

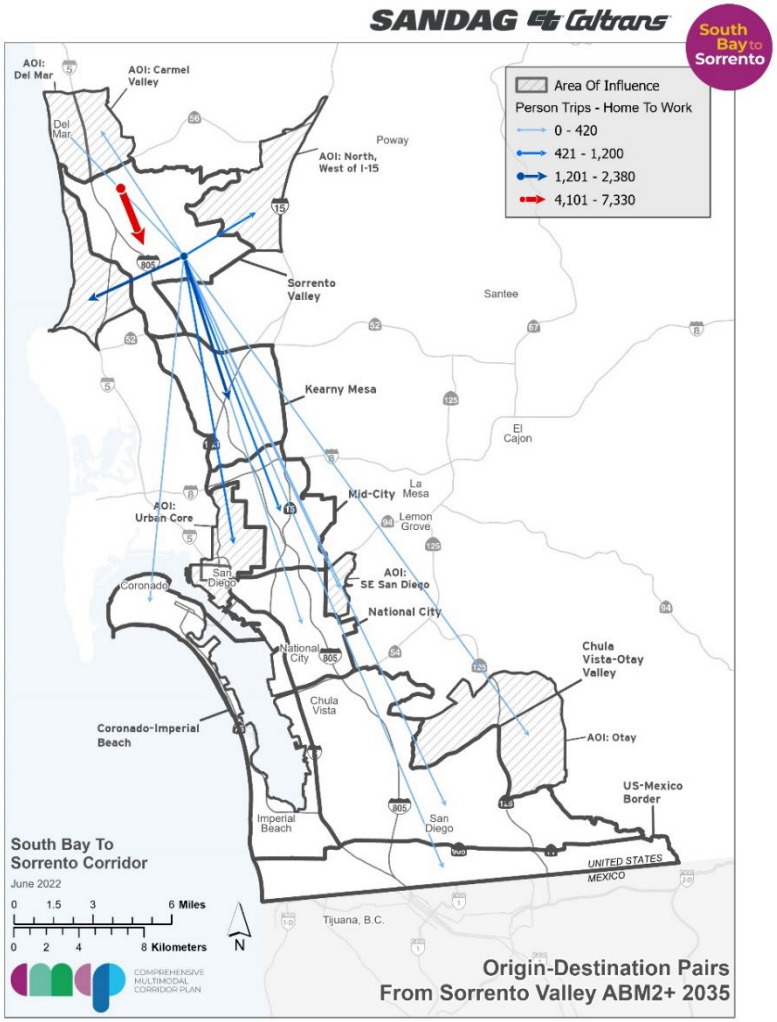
Areas	Home - 2016	Home - 2025	Home - 2035	Work - 2016	Work - 2025	Work - 2035
Subarea - Chula Vista/Otay	36,053	40,260	43,381	26,695	27,275	28,672
Subarea - Coronado/Imperial Beach	16,757	18,569	19,283	22,624	24,414	26,773
Subarea - Kearny Mesa	13,246	15,286	19,672	30,163	30,928	34,081
Subarea - Mission Valley/Mid-City	25,701	24,978	27,136	14,205	14,572	15,037
Subarea - SE San Diego/National City	18,303	18,875	21,595	13,067	13,326	14,130
Subarea - Sorrento Valley	8,536	10,051	12,737	26,199	27,230	29,424
Subarea - U.S.-Mexico Border	5,595	6,484	9,103	8,412	12,147	17,865
Area of Influence - Carmel Valley	2,500	2,536	2,592	1,259	1,253	1,256
Area of Influence - Del Mar	1,388	1,391	1,303	441	406	417
Area of Influence - North, West of I-15	10,114	10,485	10,525	2,051	2,171	2,250
Area of Influence - Otay	12,200	12,906	14,566	3,914	4,771	6,120
Area of Influence - SE San Diego	1,549	1,481	1,464	294	279	287
Area of Influence - University Community	6,146	6,741	6,998	6,343	8,573	11,623
Area of Influence - Urban Core	8,704	9,984	11,621	11,125	12,682	14,041

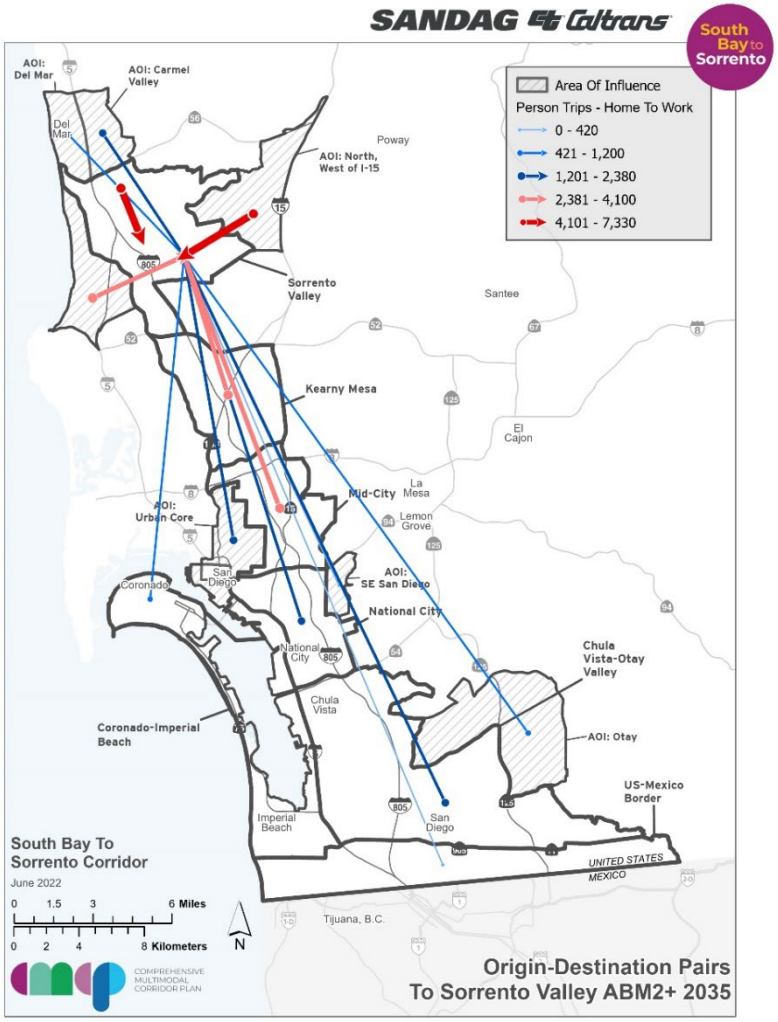
[28] Teralytics 2018

The following eight pairs of maps help visualize the relationship of Home-to-Work trips (representing morning commute) for 2035 (for 2016 relationships refer to Appendix C, Figure 43 through Figure 50). The evening commute (i.e., Work-to-Home) largely shows the same relationships but in the reverse direction and are not included in this memo. Each subarea pair of maps contains a “From” map (showing trips that originate in that subarea and end elsewhere in the corridor) and a “To” map (showing trips that originate in other subareas of the corridor). The symbology across all maps is the same, e.g., a thin blue arrow represents the lowest threshold of trips (1-420) and a thicker dark red arrow represents the highest threshold of trips (7,331-12,740). This consistent symbology helps illustrate the relative volume of trips across all subarea relationships. The complete set of figures also helps illustrate the overall direction of movement throughout the corridor.

For example, Figure 16 represents the Home-to-Work (morning commute) origins and destinations for the Sorrento Valley subarea. The “From” map on the right shows the magnitude of trips that originate in Sorrento Valley during the morning commute to each of the other six subareas within the corridor and the AOIs. The only relatively significant movement (red arrow) that can be observed in the “From” map is representative of internal movement within the Sorrento Valley subarea (which is expected for a geographic region this large). Trips originate in Sorrento Valley that end in every subarea and AOI in the corridor, but none of these relationships are in the highest thresholds (i.e., all arrows leading to other subareas are blue). The “To” map on the other hand shows how Sorrento Valley is a significant destination for the entire corridor with higher thresholds of trips originating in the Chula Vista/Otay, Mission Valley/Mid-City, and Kearny Mesa subareas as well as the areas of influence surrounding Sorrento Valley. During the morning commute, trips across the entire corridor are headed towards Sorrento Valley in significant numbers (and we can expect the reverse relationship in the evening). Figure 17 through Figure 22 show relationships for the remaining six subareas, and Figure 23 illustrates the cross-border movement from the two general ports of entry into the SB2S Corridor. Throughout the entire SB2S Corridor, there is a strong south to north movement during the morning commute. Therefore, increasing access from the southern subareas (including across the border) to easily reach the job centers of Kearny Mesa and Sorrento Valley is an evident need from these figures. Figure 21 shows the Coronado/Imperial Beach subarea, which includes the working waterfront. It is important to note the strong connection with the SE San Diego/National City and Chula Vista/Otay subareas, highlighting the need for working waterfront access improvements that include connectivity for communities divided by I-5.

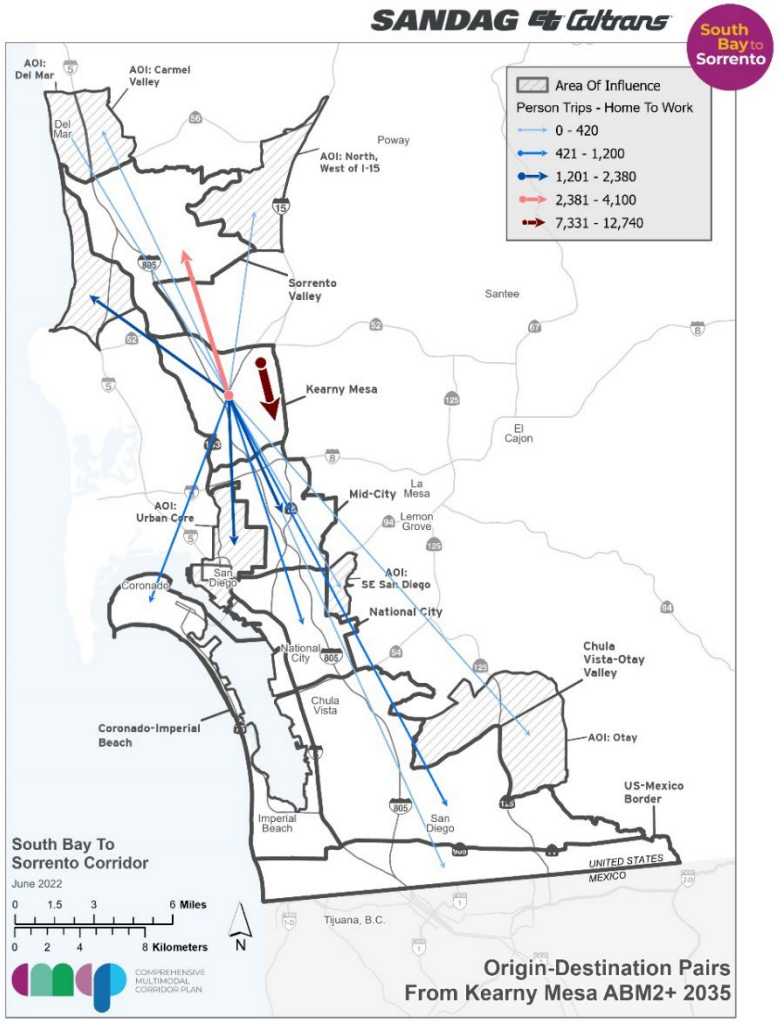
Figure 16. Sorrento Valley 2035 Home-to-Work Trips [29](AM Commute)

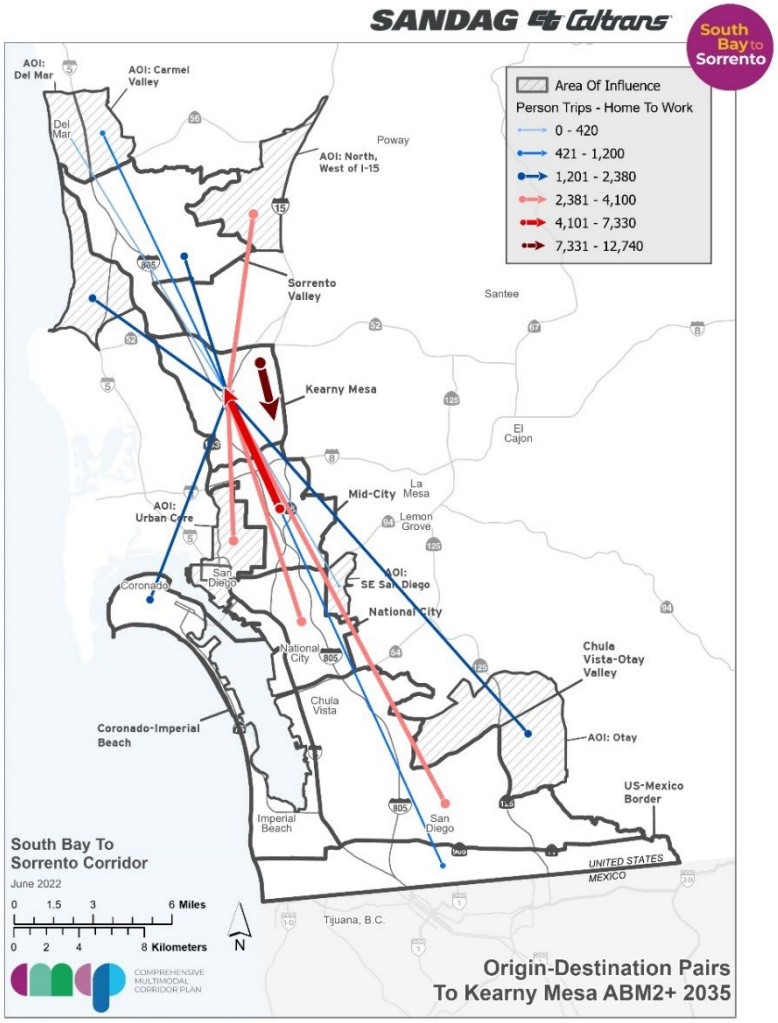




[29] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

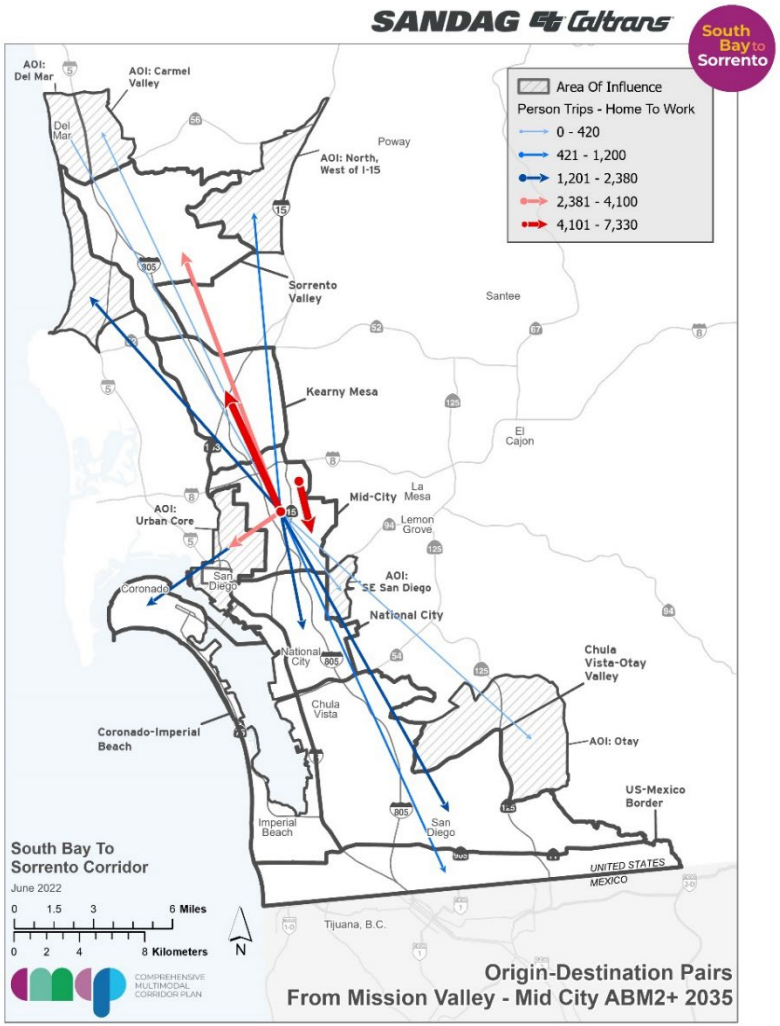
Figure 17. Kearny Mesa 2035 Home-to-Work Trips [30](AM Commute)

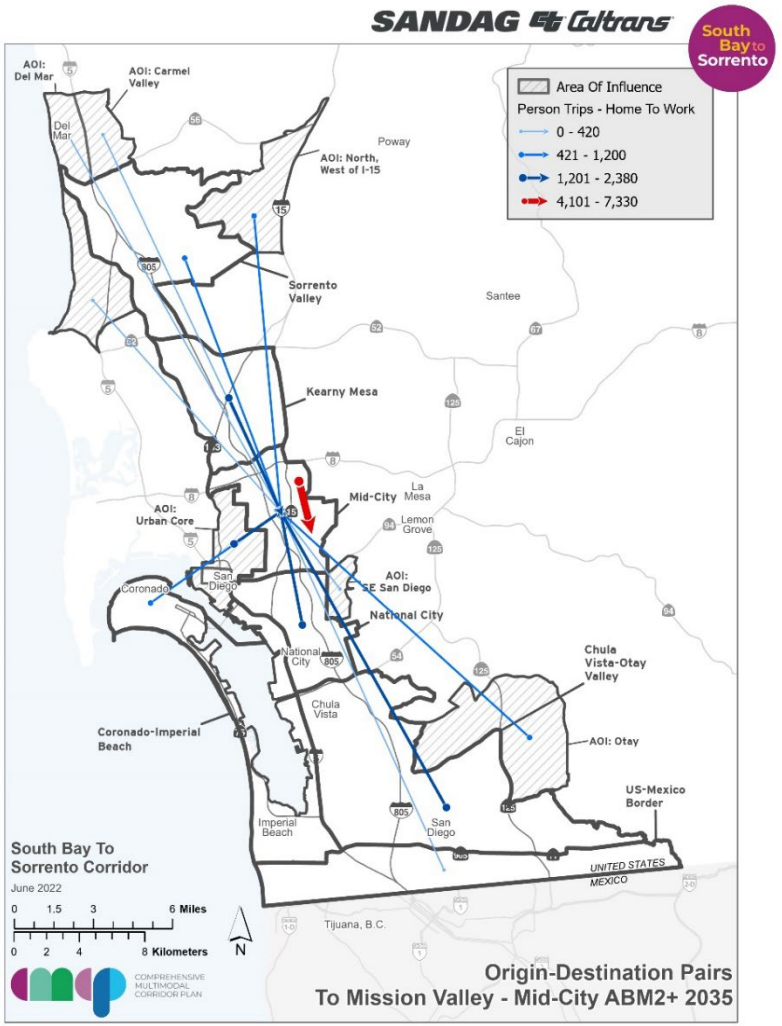




[30] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

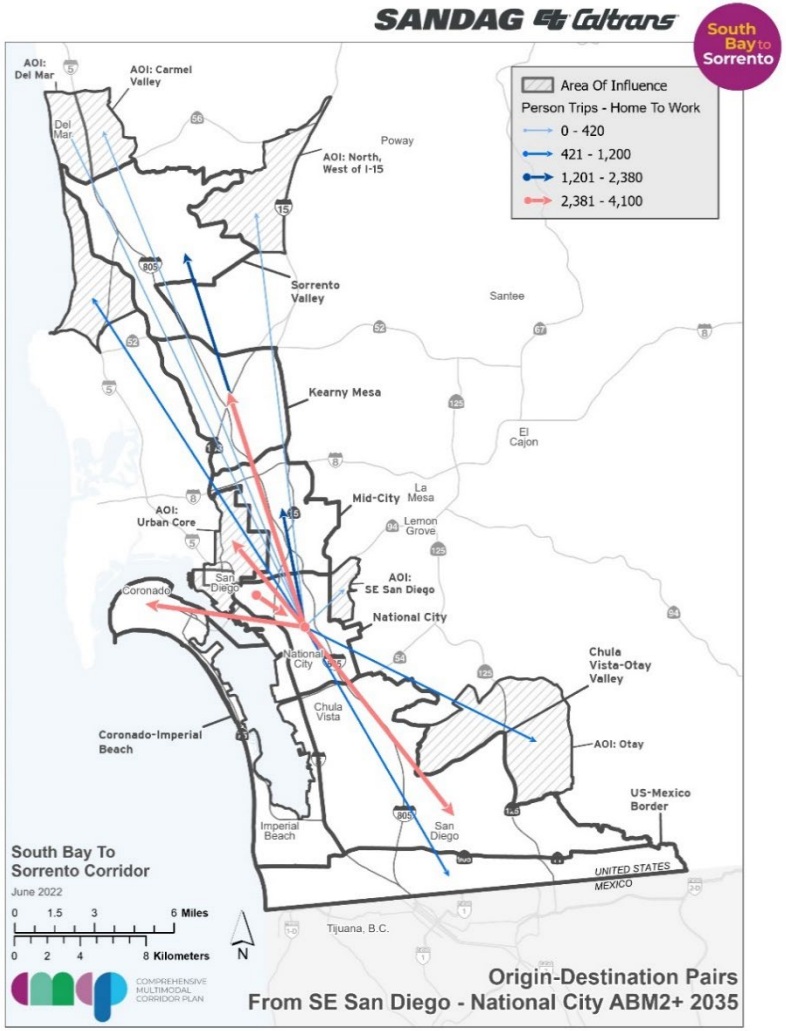
Figure 18. Mission Valley/Mid-City 2035 Home-to-Work Trips [31](AM Commute)

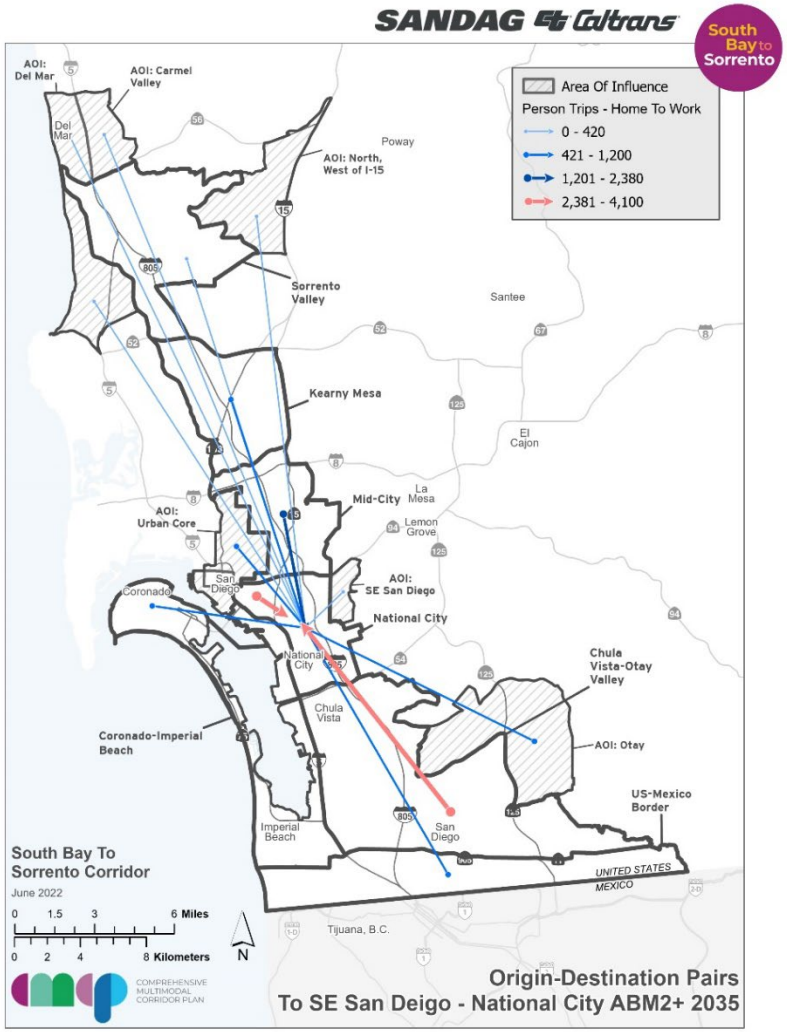




[31] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

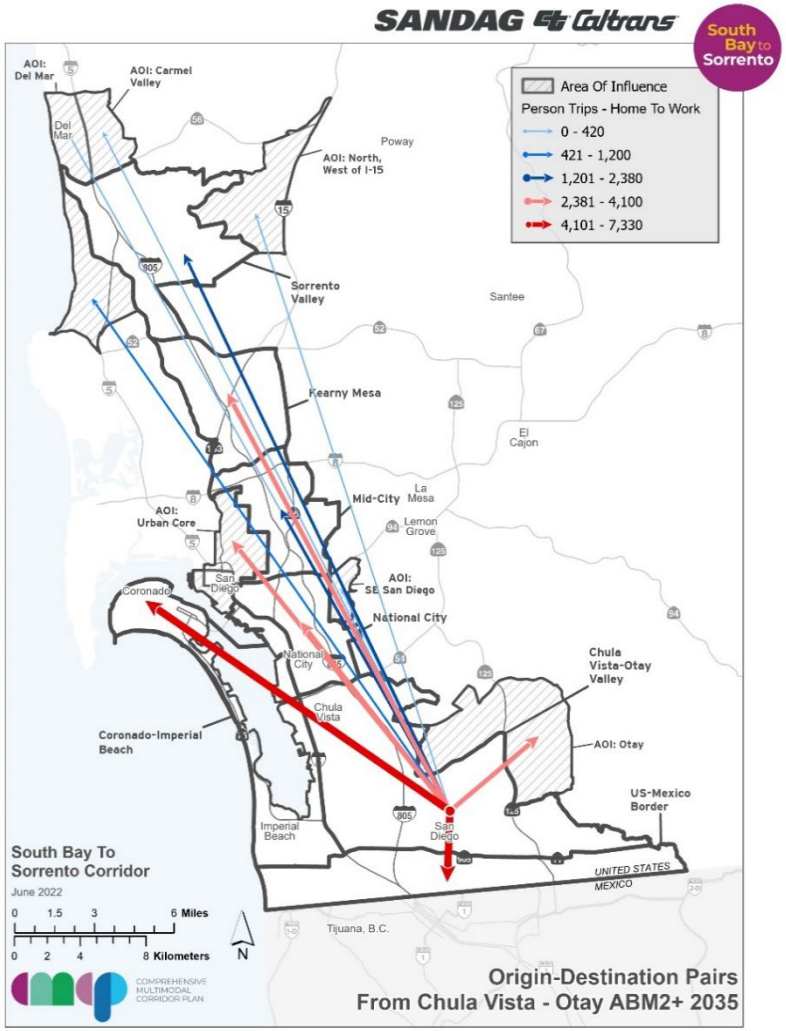
Figure 19. SE San Diego/National City 2035 Home-to-Work Trips [32](AM Commute)

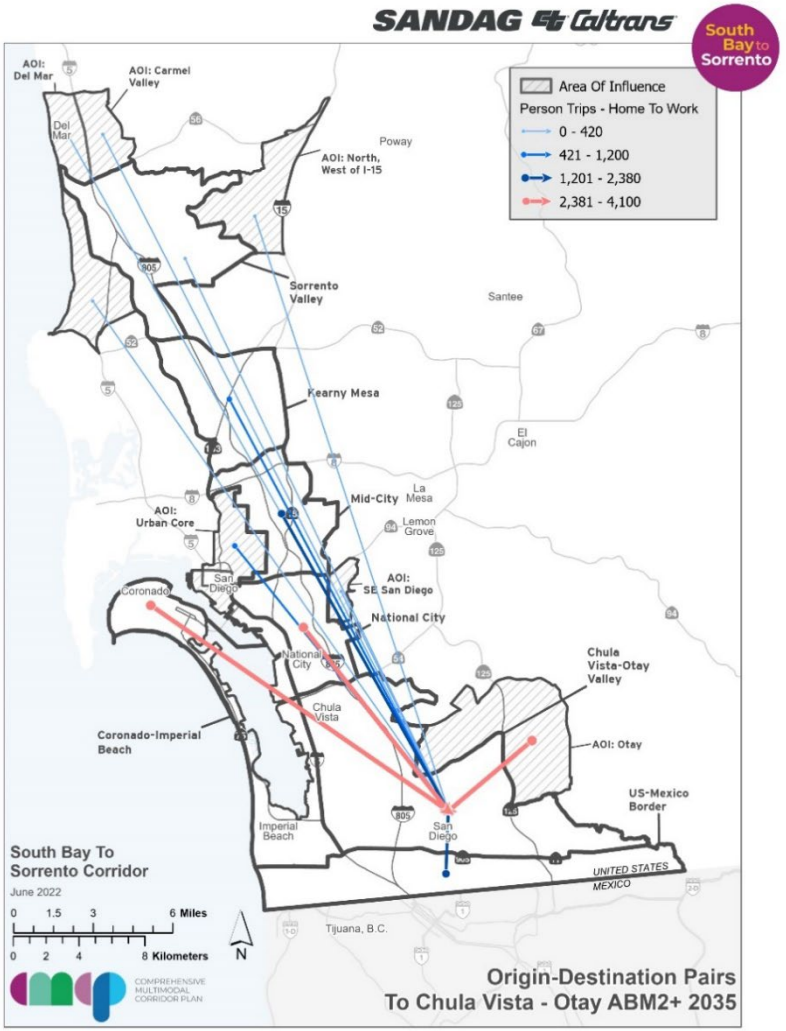




[32] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

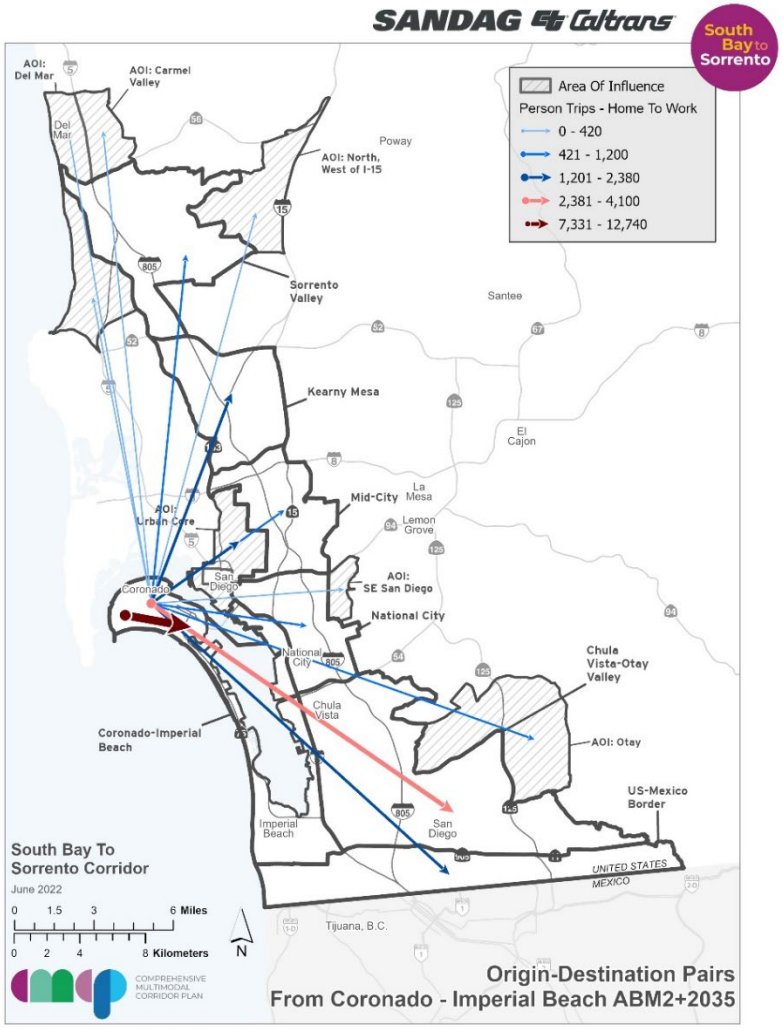
Figure 20. Chula Vista/Otay 2035 Home-to-Work Trips [33](AM Commute)

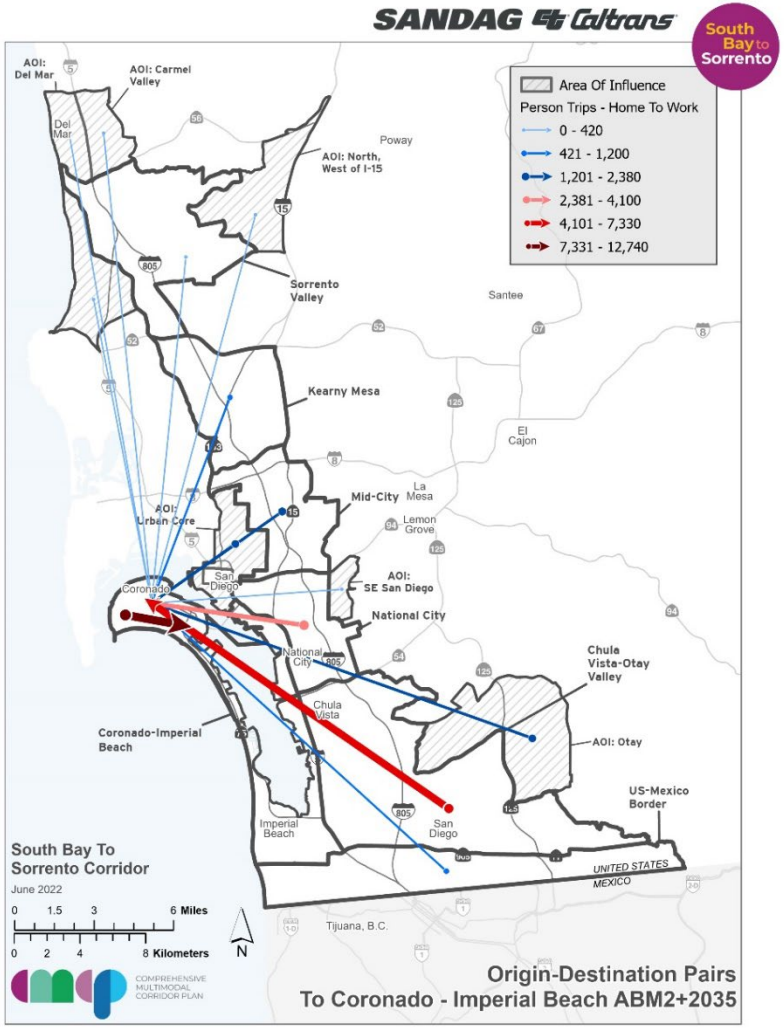




[33] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

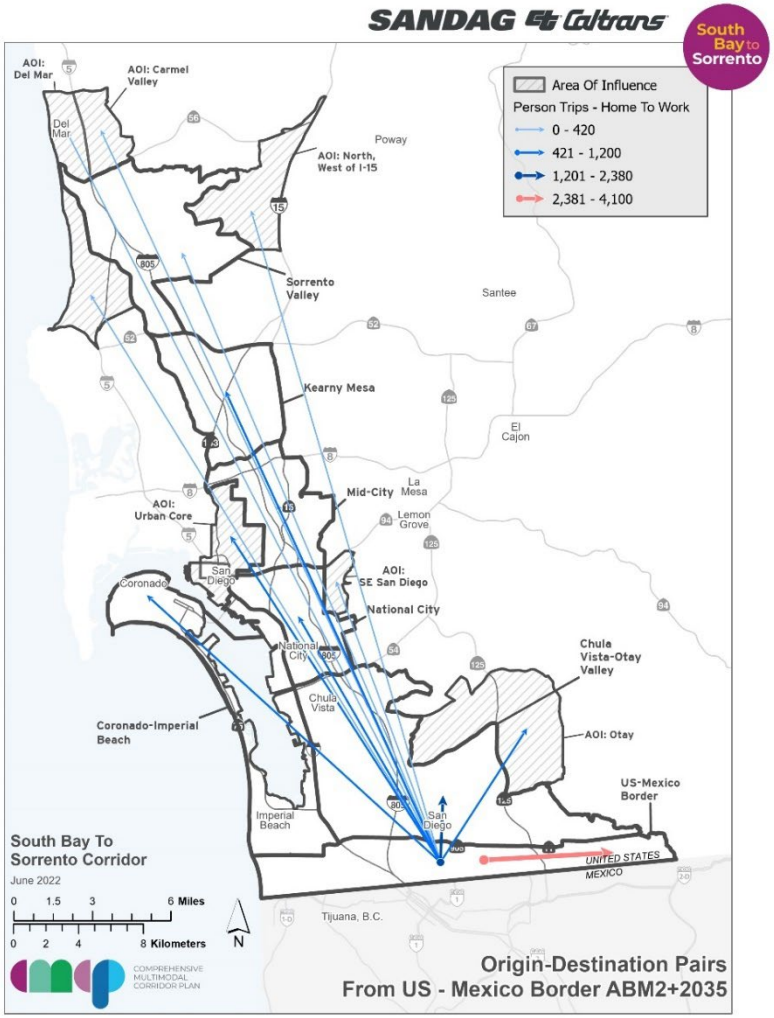
Figure 21. Coronado/Imperial Beach 2035 Home-to-Work Trips [34](AM Commute)

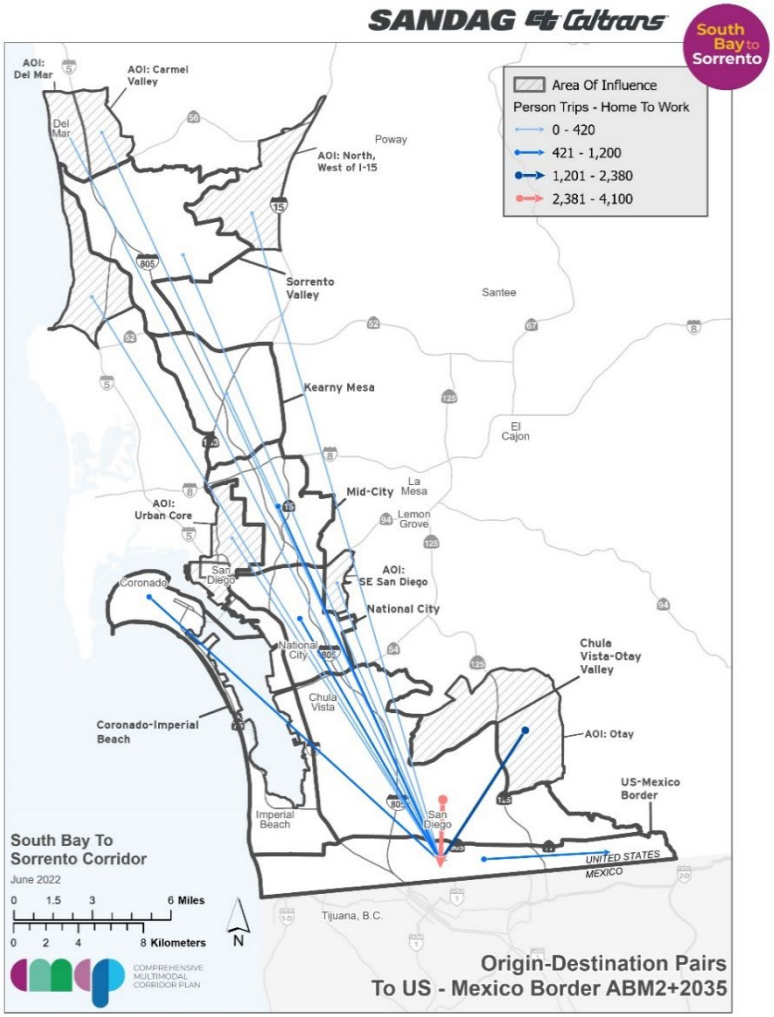




[34] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

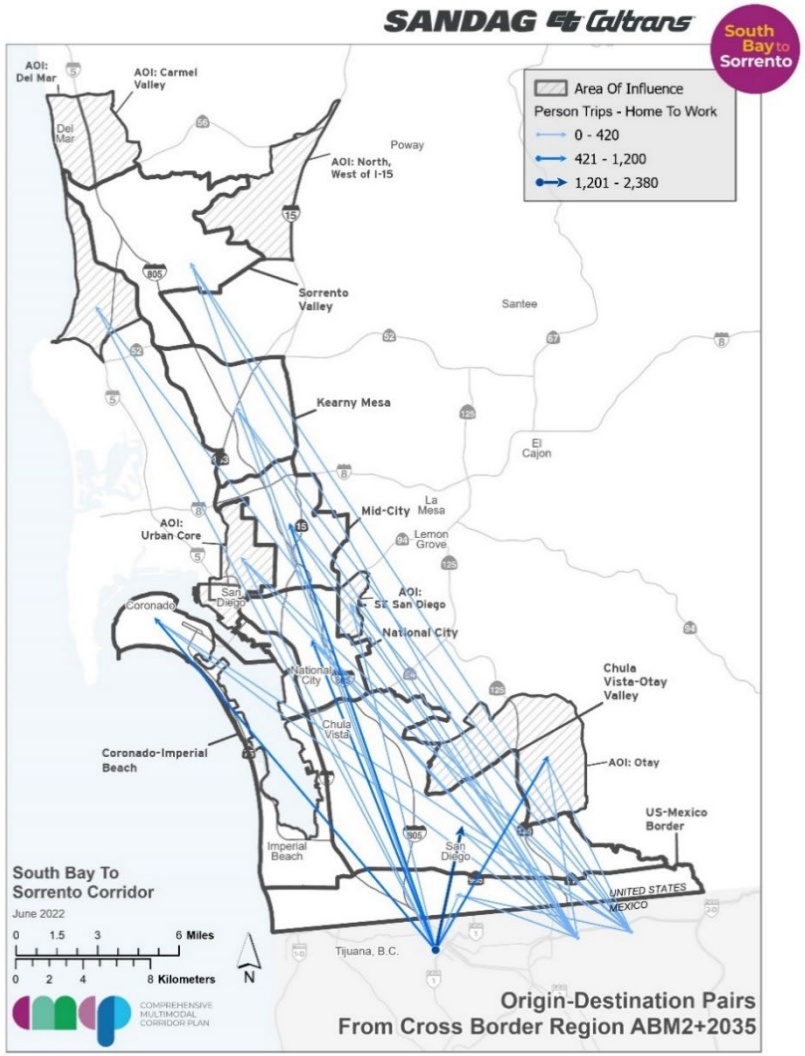
Figure 22. U.S.-Mexico Border 2035 Home-to-Work Trips [35](AM Commute)

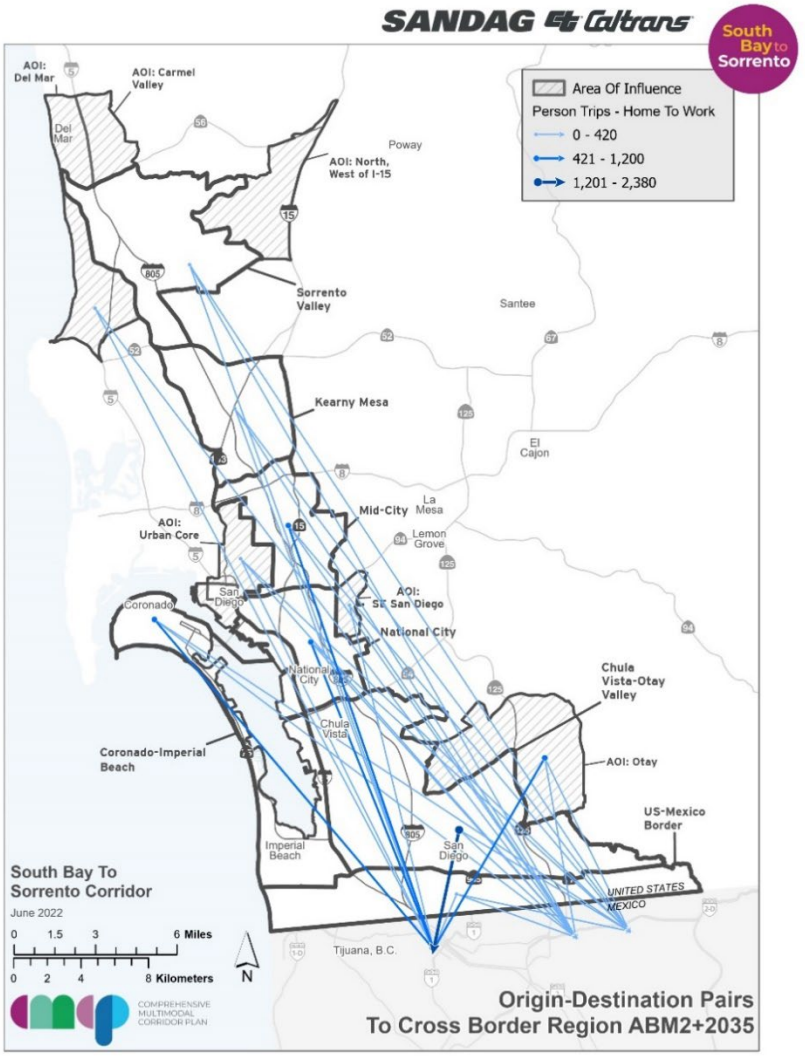




[35] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

Figure 23. Cross-border 2035 Home-to-Work Trips [36](AM Commute)

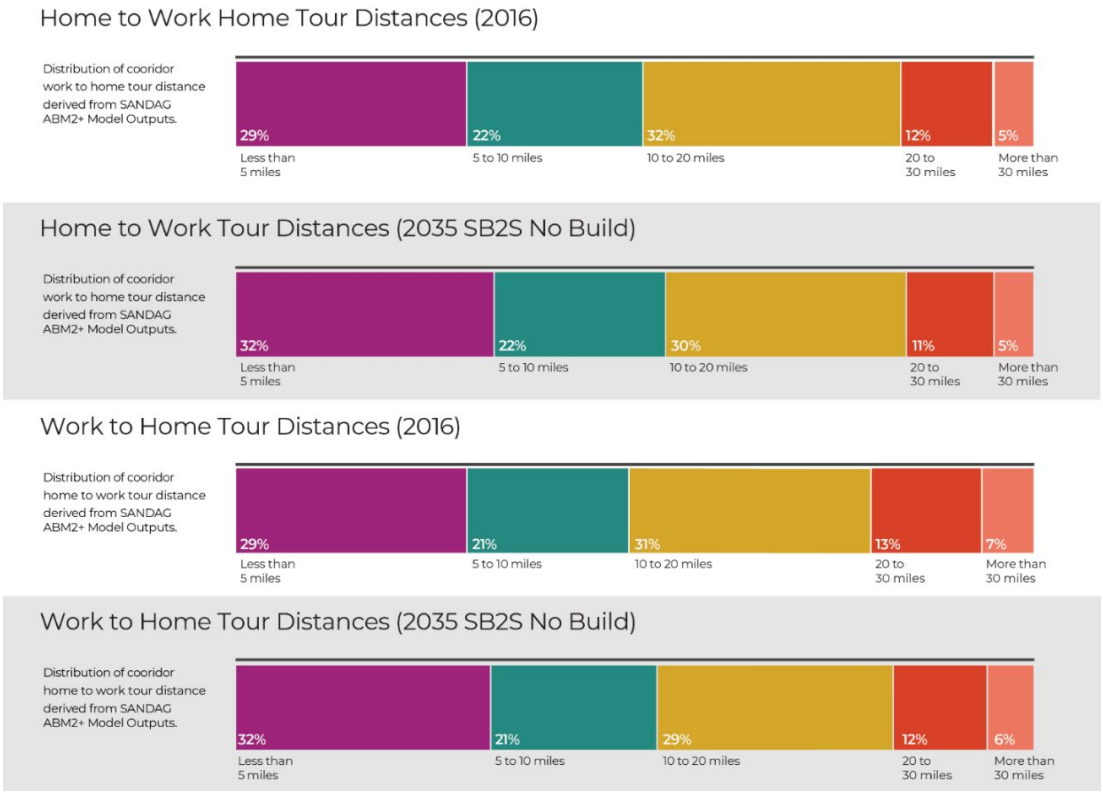




[36] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

Figure 24 summarizes the distribution of commute tour distances[37] for travel within the corridor throughout the day. Data is provided for both home-to-work and work-to-home as trips made and interim destinations visited during those tours can be different (e.g., dropping off students at school in the morning vs. shopping in the evening). As shown, more than 50% of home-to-work tours are shorter than 10 miles under existing conditions, and that percentage is expected to increase to nearly 53% in the 2035 SB2S No Build scenario. Work-to-home tours are longer in both Existing and 2035 SB2S No Build Conditions; however, the general pattern is similar with almost half of the tours being longer than 10 miles. The increase in shorter trips by 2035 is due in part to the implementation of Regional Plan and local strategies and infrastructure outside the SB2S study area that improve the jobs-housing balance and geographic distribution, as well as increasing local accessibility that will result in shorter commute trips.

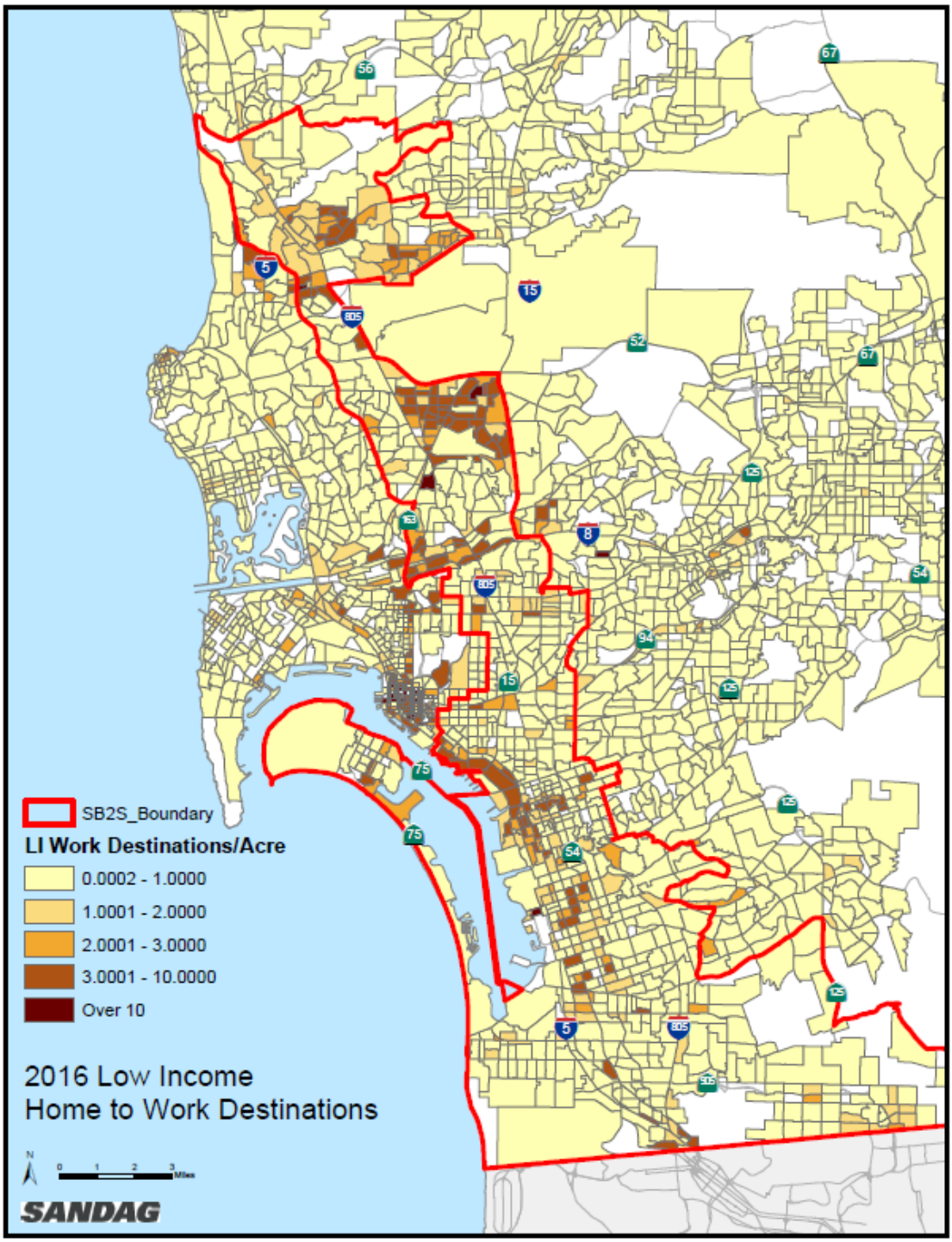
Figure 24. Commute Tour Distances



[37] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035)

Figure 25 identifies work destinations for low-income workers in the 2016 Base Year[38]. Within the corridor study area, low-income communities primarily need access to Sorrento Valley, Kearny Mesa, Mission Valley/Mid-City, and the working waterfront employment areas.

Figure 25. 2016 Low Income Home-to-Work Destinations



[38] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

Travel patterns were validated utilizing 2018 Teralytics data[39]. Teralytics determines origins and destinations based on cell tower data that is aggregated to census tract geography. A trip is deemed completed when dwell time is longer than 30 minutes (no intermediate destinations or linked trips). The Teralytics data does have some limitations. For instance, it does not allow for determining the exact number of trips occurring from each subarea area, it only serves to estimate a magnitude of trips relative to other areas. It also does not determine the exact routes that are being used for trips, this is instead inferred from the origin and destination location. For processing feasibility, Teralytics data was filtered to show weekday AM peak trip volumes (5:00 AM to 9:00 AM) and PM peak trip volumes (2:00 PM to 6:00 PM). Data was aggregated by subareas. The remaining trips were aggregated into larger "other" geographies delineated at census tract boundaries to represent similar areas, such as Santee.

The results of the review of the Teralytics analysis are shown in Table 2. The data shows that in both the AM and PM peak periods, approximately 30% of origins and 30% of destinations of the regional trips occur within the study area. The largest volume of trips occurs in the Chula Vista/Otay subarea. This is consistent with this subarea containing the largest share of the study area population.

Table 2. Mobility Analysis Summary Data

Subarea	Teralytics AM Peak - Origin	Teralytics AM Peak - Destination	Teralytics PM Peak - Origin	Teralytics PM Peak - Destination	Transit Ridership	Activity Centers[40]
Sorrento Valley	1.6%	5.6%	5.5%	1.9%	0.9%	0.7%
Kearny Mesa	2.7%	5.8%	4.9%	3.4%	1.1%	5.8%
Mission Valley/ Mid-City	6.0%	3.7%	4.5%	5.6%	4.0%	3.1%
SE San Diego/ National City	6.2%	4.0%	4.6%	5.6%	8.0%	1.7%
Chula Vista/ Otay	8.6%	6.3%	7.7%	9.0%	11.9%	4.4%
Coronado/ Imperial Beach	3.0%	3.5%	3.2%	2.8%	0.3%	4.4%
U.S.-Mexico Border	3.2%	1.9%	2.2%	3.0%	5.7%	1.7%
Study Area Totals	31.3%	30.9%	31.3%	31.3%	32%	21.8%

Figure 26 summarizes the modes that serve key origin/destination pairs within the study area. As shown, the majority of travel within the corridor must be made by private vehicle due to longer distances between origins and destinations and a lack of high-quality transit service.

[39] Teralytics 2018

[40] Source data includes the SanGIS Places, Healthcare Facilities, and Tourist Attractions layers, as well as historical activity center and major attractors data produced by SANDAG. The intended use of the data is to identify key locations in the San Diego region that attract a significant number of trips.

Figure 26. Existing Corridor Travel Options

	Distance	Private Vehicle	Commuter Rail	Trolley	Bus	Walking	Bicycling
Peak hour commute from Chula Vista to Sorrento Valley	20+ miles	Yes	(No)	(No)	No	No	No
Peak hour commute from Sorrento Valley to Chula Vista	20+ miles	Yes	(No)	(No)	No	No	No
Off-peak travel from Chula Vista to Sorrento Valley	20+ miles	Yes	No	(No)	No	No	No
Travel between Southeast San Diego and Sorrento Valley	15 miles	Yes	No	(No)	No	No	No
Travel between Mid City and Kearny Mesa	5 miles	Yes	No	No	Yes	No	(No)
Travel between Southeast San Diego and National City	3 miles	Yes	No	(No)	Yes	Yes	Yes

No = Because of excessive travel time, number of transfers, or inadequate facilities/connections

(**No**) = Possible, but requires use of infrequent service and/or a number of transfers

Mode Share[41]

Mode share for all (including commute and non-commute) trips is projected to increase between the 2016 and 2035 No Build scenario for those driving alone, using transit, walking, or bicycling. Driving alone trips are expected to increase by the largest percentage, from 46.1% in 2016 to 48.6% in 2035, followed by walking trips (from 6.2% to 7.4%), transit trips (from 2.2% to 2.6%), and bicycling trips (from 0.7% to 0.9%).

For commute trips, transit trips are expected to increase by the largest percentage, from 4.3% in 2016 to 5.1% in 2035, followed by walk trips (from 1.7% to 2.2%), and bicycle trips (from 1.6% to 2.1%). Auto trips are expected to decrease between the 2016 Base Year and 2035 No Build scenario with drive alone trips decreasing by the largest amount (from 79.1% to 78.0%).

[41] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035 No Build)

Vehicle Miles Traveled

Daily VMT within the study area is expected to increase between the 2016 and 2035 No Build Model Years. VMT per resident is expected to increase from 15.79 to 16.23, whereas VMT per employee is expected to decrease from 26.33 to 24.91[42].

4.4.2 *Transit Analysis*

Transit Ridership

Transit ridership in the corridor was reviewed as part of the existing conditions mobility assessment. Ridership data from 2018 was obtained from SANDAG and reviewed[43]. The analysis showed that 32% of the region's transit ridership occurs in the study area. Nine of the region's top 10 rail and bus routes intersect or operate within the study area, and they are ranked in terms of ridership as follows:

1. Route 510: Blue Line Trolley
2. Route 530: Green Line Trolley
3. Route 520: Orange Line Trolley
4. Route 7: Downtown to University and College
5. Route 929: Iris Transit Center to 12th and Imperial
6. Route 215: San Diego State University to Downtown
7. Route 13: Kaiser Hospital/Grantville Trolley to 24th St. Trolley
8. Route 3: UC San Diego Medical Center, Hillcrest to Euclid Trolley
9. Route 235: Downtown San Diego to Escondido Transit Center

The Blue Line has the highest ridership in the region, carrying approximately 20% of all transit passengers. In addition to the ridership, other transit metrics were reviewed based on the 2018 data. The nine routes listed above as the top ridership routes have an average on-time performance of 61%. The Blue, Orange, and Green lines have an average combined on-time performance of 77%. More specifically, the Blue Line has an individual on-time performance of 73%. The average of all the routes that are within or intersect the study area have an average on-time performance of 58%.

The average trip length for routes in the study area were also reviewed. For all of the routes in the study area, the average trip length was 5.15 miles. The Blue Line has an average trip length of 6.19 miles while the other rail lines range from 5 to 5.66 miles. The nine routes listed previously have an average trip length of 5.3 miles.

The study area contains 68 of the 140 transit routes in the region. This includes 8.4 miles of the regional commuter rail (COASTER) network, 21 miles of the light rail network, and 103 miles of the Rapid network. The study area also contains 29% of the region's transit stops, including local bus, rapid bus, and rail stations.

[42] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035 No Build)
[43] SANDAG, FY2018 Transit Ridership

Access to Transit for Social Equity Focus Populations[44]

Within the study area, the percentage of people living within 0.5 mile of high frequency transit stops is 67.0% in the 2016 and 66.7% in the 2035 No Build scenarios. The percentage of low-income and minority populations decreases slightly between the 2016 and 2035 No Build scenarios from 76.7% to 75.6% and from 70.2% and 68.0%, respectively. The percentage of study area senior residents within 0.5 mile of high frequency transit is also expected to decrease from 67.1% in the 2016 Base Year to 65.7% in the 2035 No Build scenario.

Transit Commute Times[44]

The average peak commute time to work for transit users is expected to decrease from 56.9 minutes in the 2016 Base Year to 56.6 minutes in the 2035 No Build scenario.

Transit near Multi-family Housing[44]

The percentage of people living in multi-family residences within 0.25 mile of a transit stop is expected to decrease from 82.4% in 2016 to 80.4% in the 2035 No Build scenario. Similarly, the number of multi-family housing units within 0.5 mile of high frequency transit is expected to decrease from 84.0% in 2016 to 81.4% in the 2035 No Build scenario.

4.4.3 *Roadway Performance*

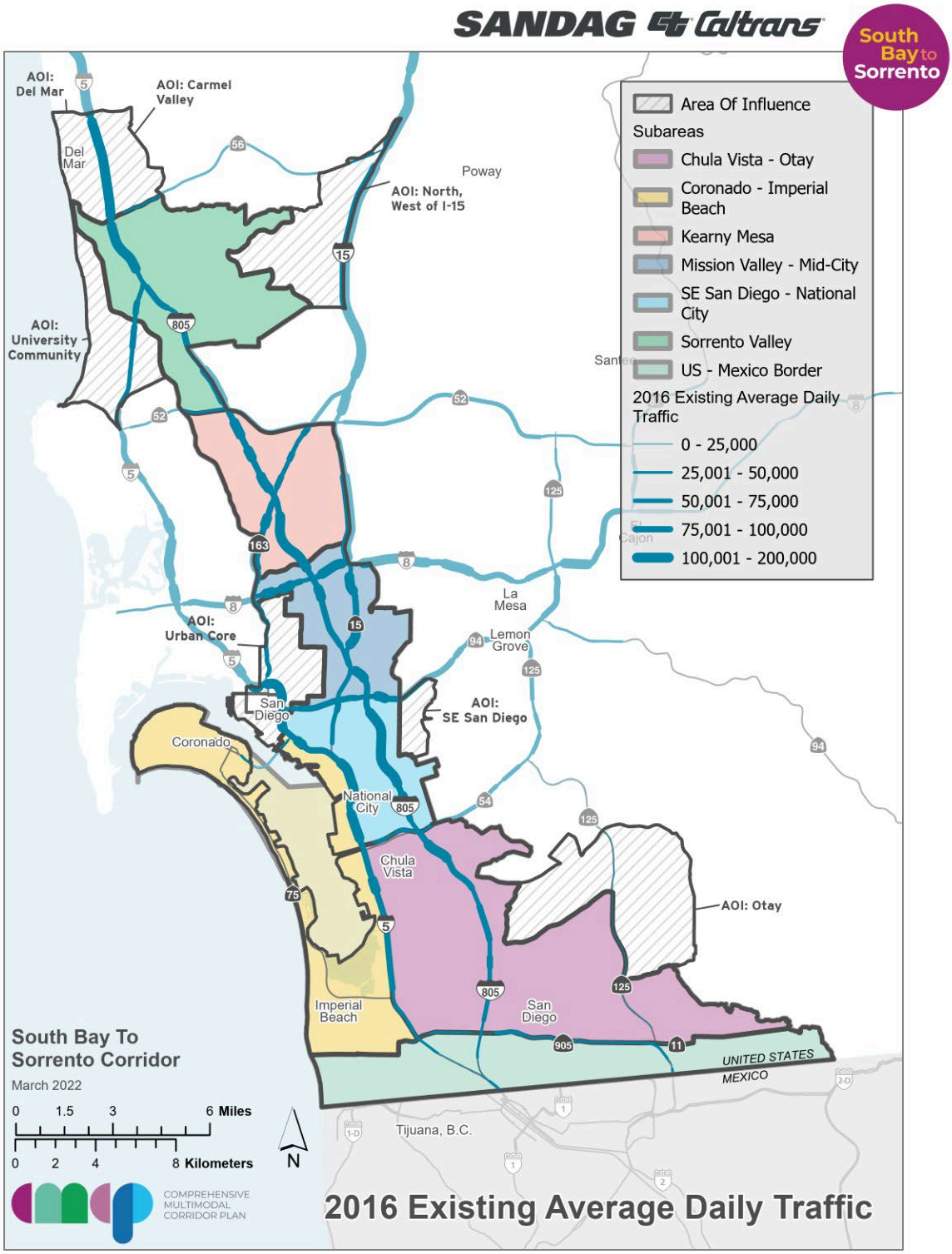
Approximately 28% of the region's freeway/expressway miles and 13% of the region's roadway infrastructure are included in the study area.[45] Along both I-5 and I-805, there are lengthy delays for commuters traveling to employment centers in Downtown San Diego, University City and Sorrento Valley, and at NBC. Current roadway performance is evaluated through data obtained by Caltrans' Performance Management System (PeMS, 2016-2019). Congestion on I-805 is directional with I-805 north experiencing more congestion during the AM peak period and I-805 south experiencing more congestion during the PM peak period. Morning congestion on I-805 north starts as early as 6:00 AM with speed reductions to 30 miles per hour (mph) near the I-15 interchange. The peak period congestion lasts until almost 9:00 AM with the peak hours falling mostly between 6:00 AM to 8:00 AM. Afternoon congestion on I-805 south starts around 2:00 PM with the highest volume peak hour from 3:00 PM to 4:00 PM. The volume-to-capacity (V/C) ratio is consistently close to or greater than one and speeds range from 20 mph to 40 mph between Sorrento Valley and the I-15 interchange. The PM peak period is even longer with traffic volumes close to capacity even beyond 6:00 PM[46].

Average Daily Traffic[47]

Figure 27 and Figure 28 show the daily vehicle volumes along key corridors under the existing 2016 Base Year and the forecasted future 2035 Year. These figures show that the I-5 and I-805 corridors will continue to have substantial demand and carry a similar proportion of traffic in the future as they do today.

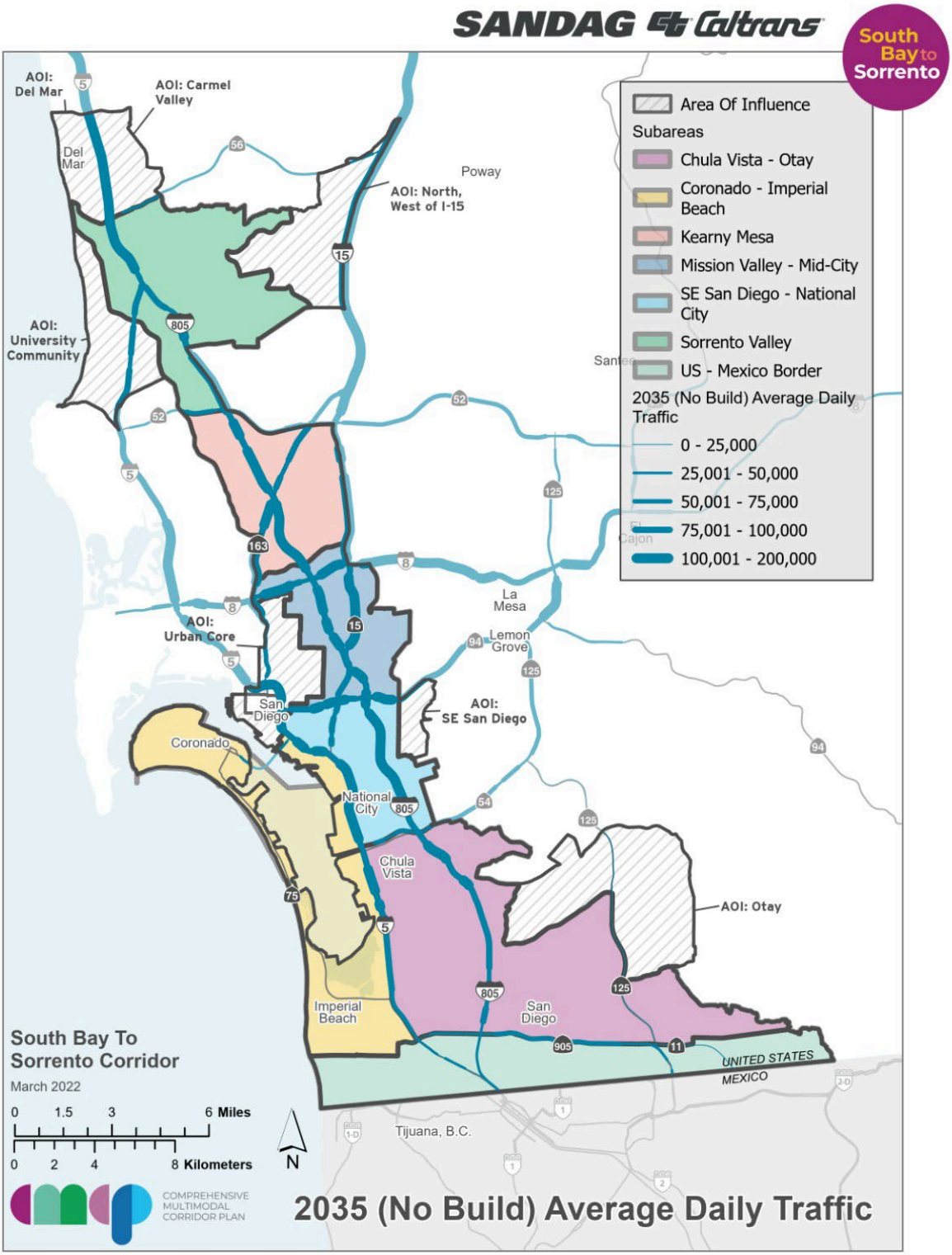
[44] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035 No Build)
[45] SanGIS, Roads, Roads_All
[46] Caltrans, PeMS (2016-2019)
[47] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035 No Build)

Figure 27. Existing (2016) Average Daily Traffic[48]



[48] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

Figure 28. Future (2035) Average Daily Traffic[49]



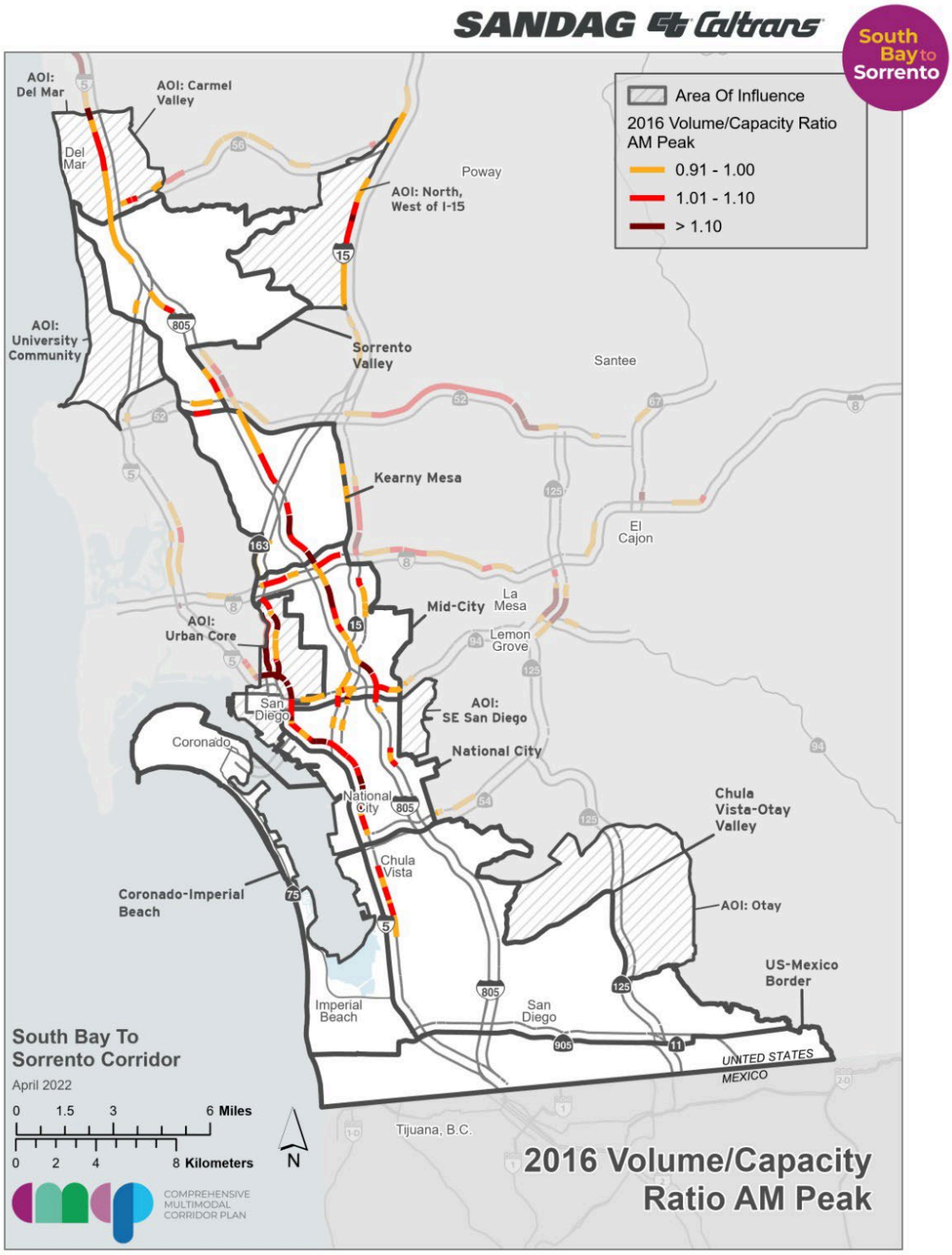
[49] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

Congestion on I-5 is also directional with AM peak period congestion on I-5 north and PM peak period congestion on I-5 south. Although the peak period ranges from 6 AM to 9 AM, the highest volume peak hour on I-5 north is from 7 AM to 8 AM with V/C higher than one and speeds below 40 mph. The highest volume peak hour on I-5 south is from 2:00 PM to 3:00 PM with peak period congestion continuing until 6:00 PM.

Figure 29 and Figure 30 illustrate the results from the ABM2+ V/C analysis[50] for AM and PM peak periods, respectively. The AM peak period includes three hours (6:00 AM to 9:00 AM) of average peak commute time in the morning and the PM peak period includes three and a half hours (3:30 PM to 7:00 PM) of average peak commute time in the evening. Segments shown in red/dark red have V/C greater than one (greater than the capacity of the roadway segment), segments shown in yellow have V/C between 0.9 and 1.0 (close to capacity), and segments in green generally have free-flow traffic. As shown on Figure 29**,** I-805 north is extremely congested in the AM peak period from SR-54 to SR-52. I-5 north is also congested from south of SR-54 to SR-52 with some intermittent relief in a few segments. Similarly, in the PM peak period, and as illustrated on Figure 30, both I-5 south and I-805 south are congested within the corridor. This analysis validates the PeMS data results. Within the corridor, the east-west freeways (i.e., I-8, SR-54, SR-52, and SR-94) have high levels of congestion in the westbound direction in the AM peak hour and eastbound direction in the PM peak hour. Since the V/C data only provides average peak period static data on a particular segment, the analysis does not consider its queuing effects on further downstream locations. Hence, the results of the V/C data were further validated by examining the peak period speed profiles from ABM2+ for each of these facilities. These speed profiles are included in Appendix D, Figure 51 through Figure 54.

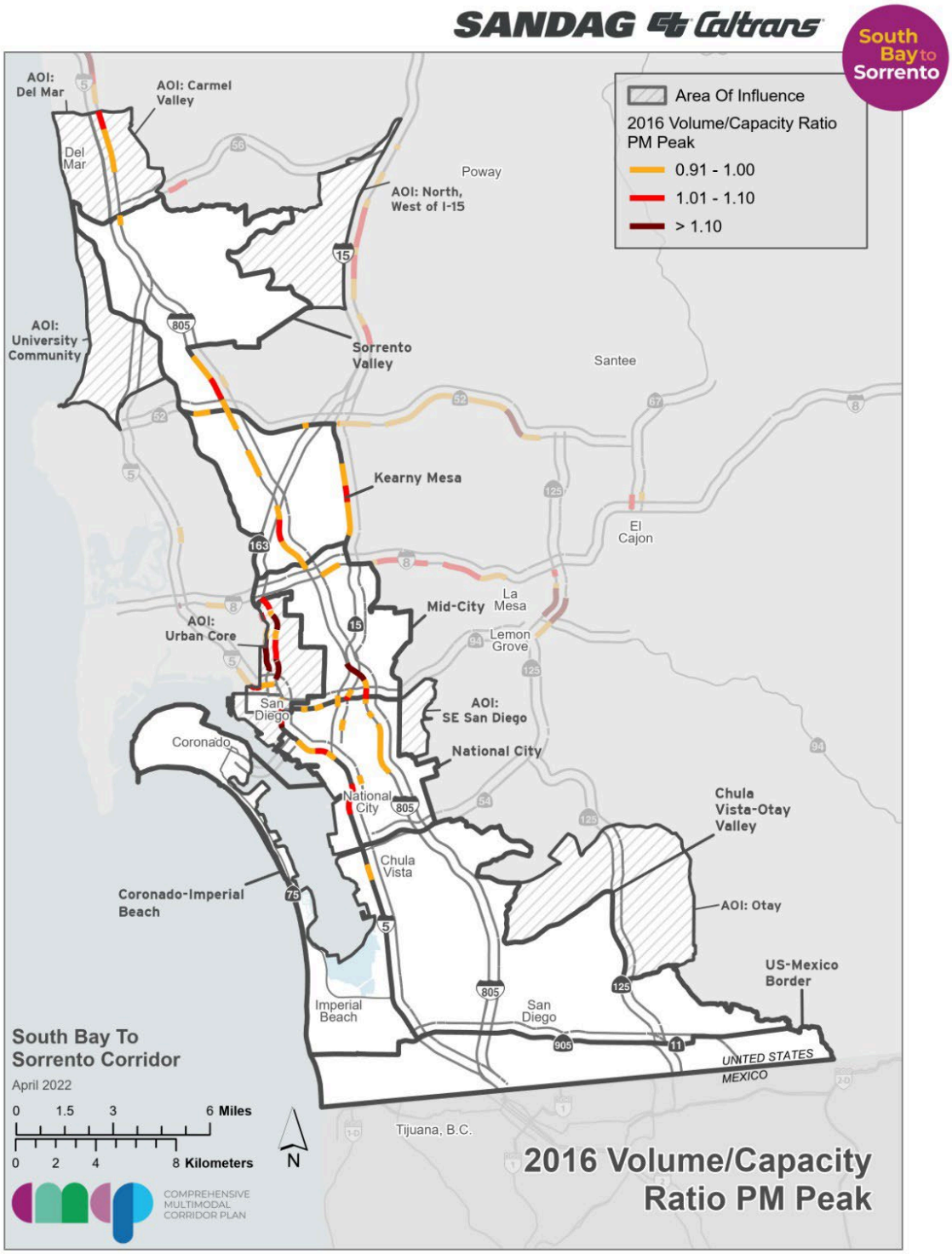
[50] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035 No Build)

Figure 29. Existing (2016) Volume-to-Capacity Ratio AM Peak Hour[51]



[51] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

Figure 30. Existing (2016) Volume-to-Capacity Ratio PM Peak Hour[52]

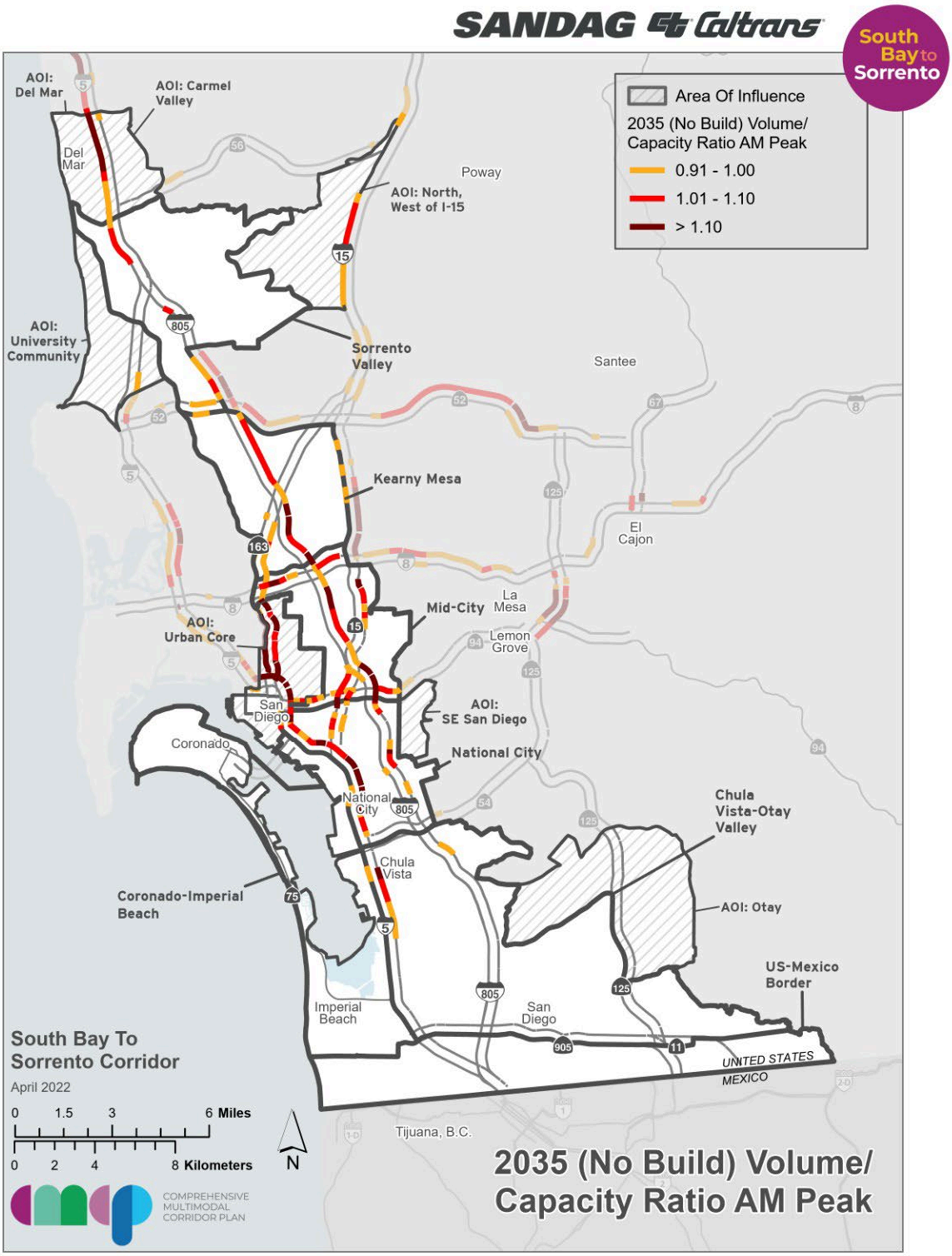


[52] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

In addition to Year 2016 ABM2+ results, the No Build 2025 and No Build 2035 ABM2+ model results were also analyzed. In general, 2025 No Build and 2035 No Build patterns are similar to 2016 where northbound and westbound traffic is the most constrained in the AM peak period, and southbound and eastbound traffic is heavier in the PM peak period.

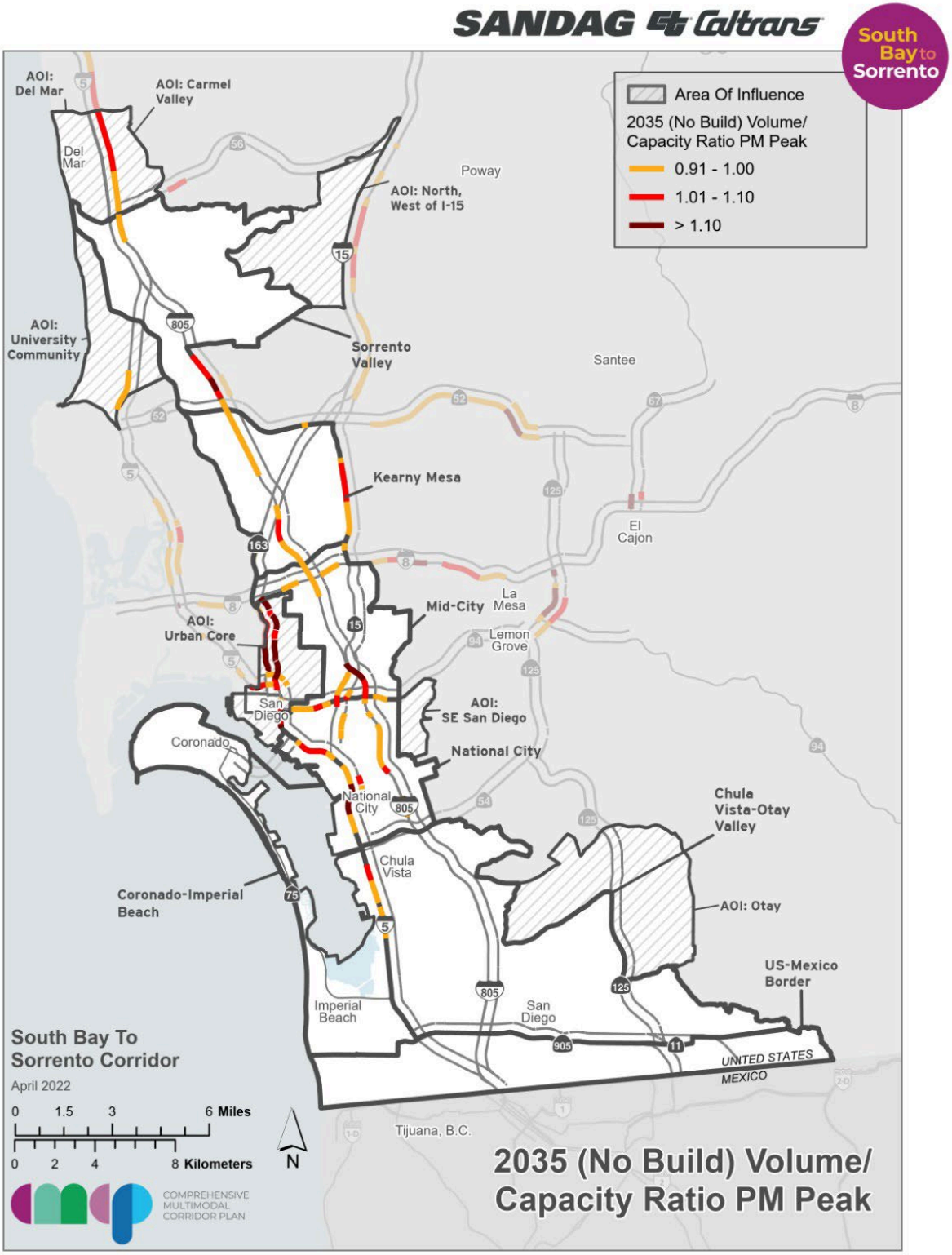
Figure 31 and Figure 32 illustrate the 2035 No Build results from the analysis of the AM and PM peak periods, respectively. In the absence of any capital improvement projects in the No Build scenario, congestion levels in the corridor deteriorate further. This is consistent with peak hour vehicle hours of delay, which are expected to increase by approximately 32% (from 78,589 to 103,570) between 2016 and the 2035 No Build for single-occupancy vehicles (SOV), by approximately 21% (from 16,154 to 19,566) for HOVs, and by approximately 12% (from 216 to 241) for transit buses. As in the base year (2016) analysis, the results of the V/C data for the 2035 No Build AM and PM peak periods were further validated by examining the peak period speed profiles from ABM2+ for each of these facilities (Appendix D).

Figure 31. 2035 No Build Volume-to-Capacity Ratio AM Peak Hour[53]



[53] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

Figure 32. 2035 No Build Volume-to-Capacity Ratio PM Peak Hour[54]



[54] SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast

Auto Commute Times[55]

The average peak commute time to work for auto users is expected to increase between the 2016 Base Year and 2035 No Build scenario. For those driving alone, the peak commute time is forecasted to increase from 22.6 minutes in 2016 to 23.7 minutes in the 2035 No Build scenario. For those in a vehicle with two people, the peak commute time is forecasted to increase from 21.4 minutes in 2016 to 22.2 minutes in the 2035 No Build scenario. For those in a vehicle with three or more people, the peak commute time is forecasted to increase from 22.0 minutes in 2016 to 22.5 minutes in the 2035 No Build scenario.

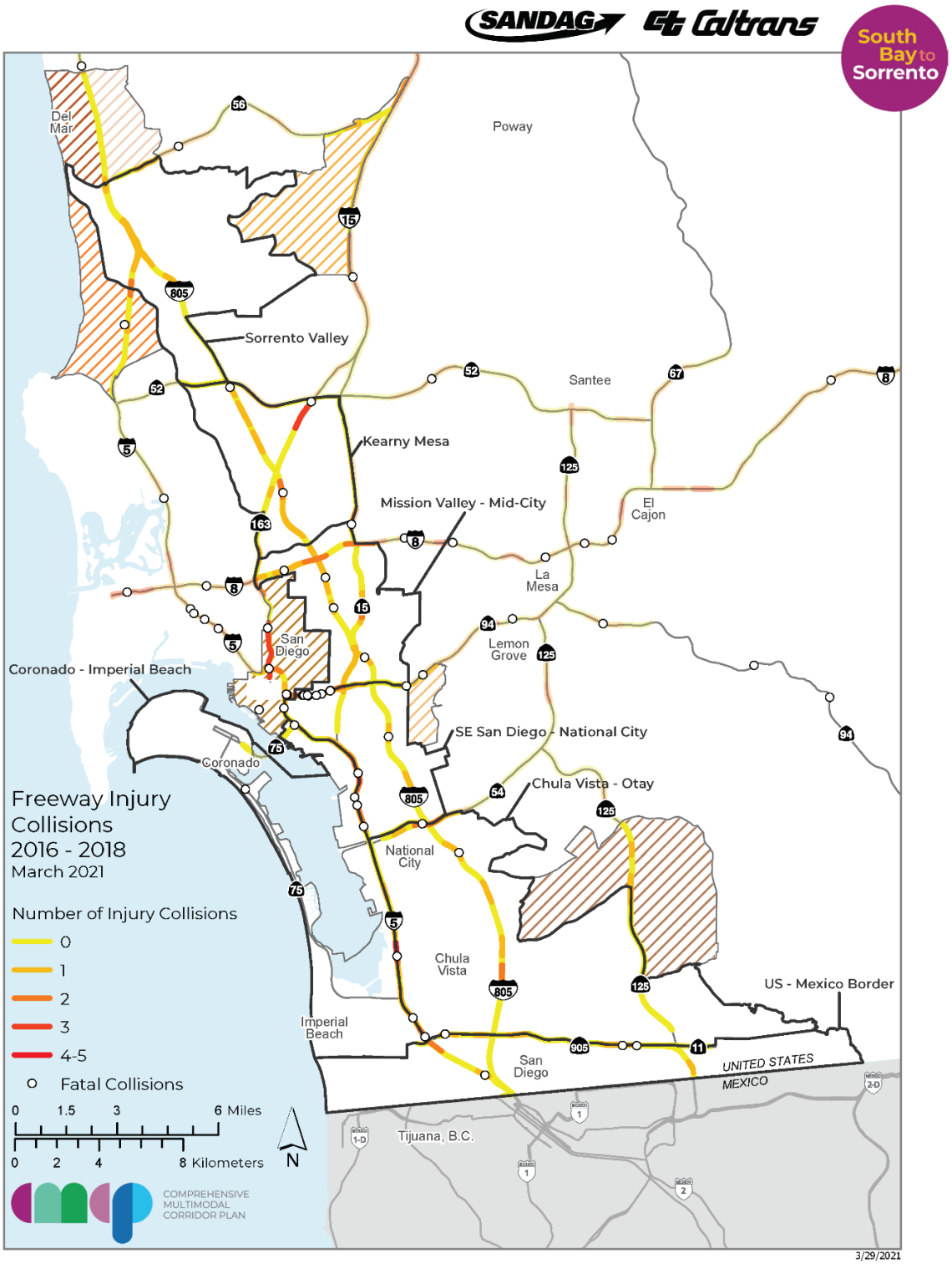
Collisions[56]

Collisions can occur on corridor freeways for a variety of reasons, including congestion and unsafe driver behavior. Collisions not only create safety risks for those involved, but they can also exacerbate congestion along key travel corridors and put other travelers at risk.

Figure 33 presents the distribution of collisions resulting in injuries that occurred between 2016 and 2018. As shown, collisions resulting in injuries and/or fatalities occurred along numerous corridor freeway segments. The highest concentration of fatalities during this time period occurred along SR-94, east of downtown San Diego.

[55] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035 No Build)
[56] UC Berkeley TIMS

Figure 33. Freeway Serious Injury Collisions[57]



[57] UC Berkeley TIMS

4.4.4 *Active Transportation*

Study Area in Relation to Active Transportation

Approximately 20% of the region's active transportation infrastructure is located in the study area[58]. The study area is very large by active transportation standards. At 30 miles in length and width varying from 1 to 14 miles, it is highly unlikely one would walk or cycle from one part of the corridor to another. This presents challenges in active transportation planning as in many cases, active transportation will need to be only one part of a greater multimodal trip.

In addition to the scope of the study area, jobs and dwelling units are unevenly distributed across it. There is a concentration of jobs in the northern part of the corridor that is not accessible for many residents outside of the area traveling only by active modes. Each active transportation mode can be associated with a maximum distance that one will travel using that mode and this presents a challenge with an uneven distribution of jobs and dwelling units. The following thresholds have been estimated based on experience and literature review.

- Walking: 1 mile (about 20 minutes)
- Bicycling: 5 miles (about 30 minutes)
- E-bike: 8 miles (about 30 minutes)

The thresholds listed above can be considered for monomodal active transportation trips, meaning the mode of transportation chosen is the only mode used for the entire trip. For multimodal trips, where the active transportation component is only one part of a larger journey involving transit or a car, the distance or time one is willing to use active transportation decreases. For multimodal trips, 45 minutes is the desired maximum limit for the entire trip. The distance covered in this time can vary greatly depending on the modes used and how long each mode is used. These thresholds are reasonable maximum distances/travel times for the majority of (potential) cyclists and pedestrians, though certain groups (e.g., avid cyclists) are willing to travel longer distances.

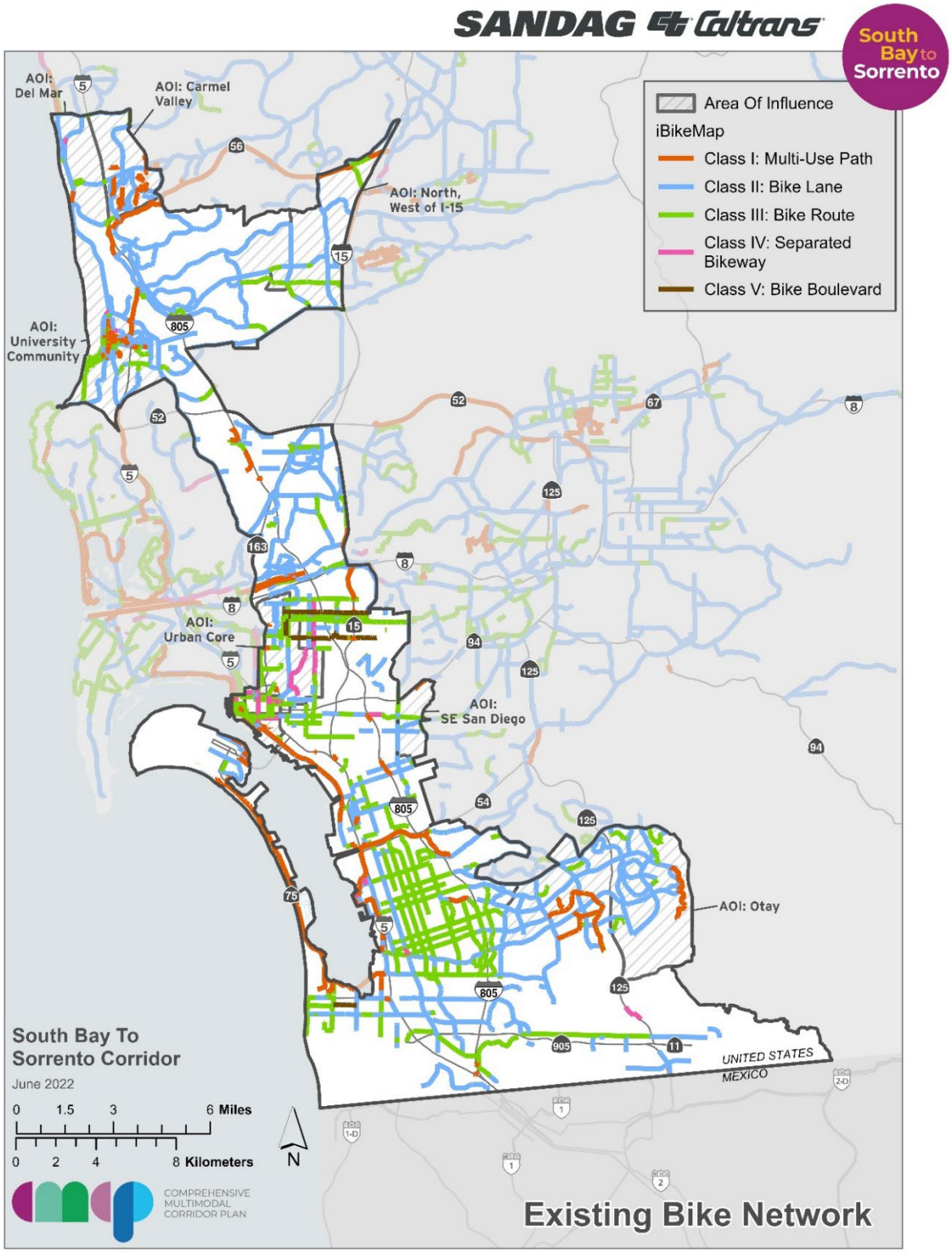
Existing Regional Bike Plan and Network

The existing regional bicycle network has characteristics that suggest the network does not ideally serve those who may wish to use it. First, the mesh size of the network is very large. With large distances between safe cycling facilities there are limited routes available for bicycle trips at the local level that would require a greater concentration of facilities connecting to local origins and destinations. A large mesh size is more suitable for wider area and longer distance trips; however, given the scale of the region, such distances may be too long for the average cyclist. The integration of the existing network with good quality networks at the local scale is crucial for improving active transportation.

As shown on Figure 34, a large part of the network is comprised of on-street facilities that may include Class II bike lanes, Class III bike routes, and Class IV separated bikeways, which are usually used for shorter, local trips that require a greater access function to nearby land uses. A network better suited to longer, regional trips may be better served by off-street paths that could offer a more direct, comfortable, and (sometimes but not necessarily) scenic ride for users. It is recommended that any major regional bike routes be built with separated infrastructure (i.e., Class I bike path and Class IV bike boulevards).

[58] SANDAG Bike Routes, updated 4/2/2021

Figure 34. Existing Bike Network[59]



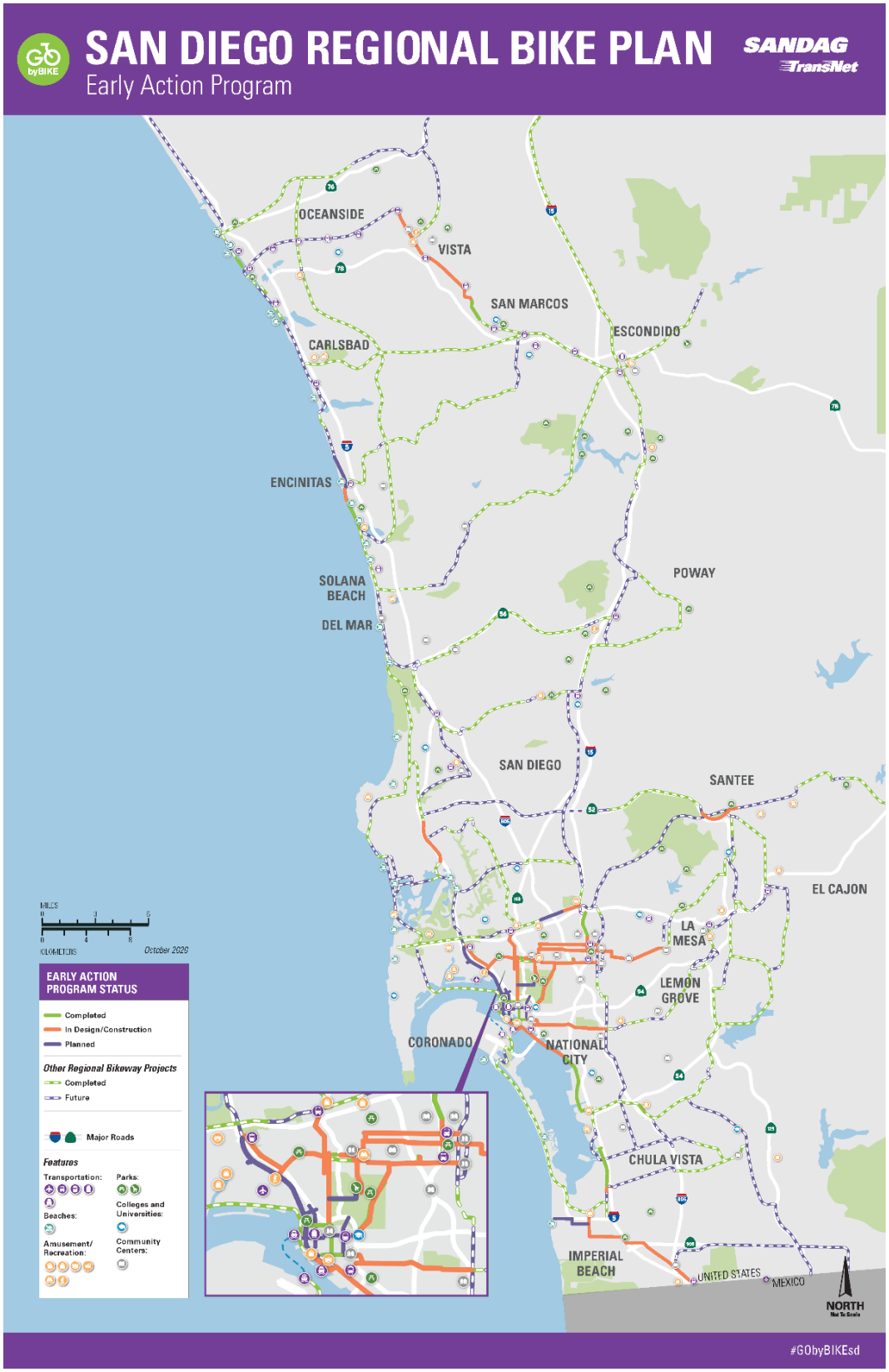
[59] SANDAG Bike Routes, updated 4/2/2021

Given the more regional nature of the study area and existing bicycle network, integration with transit is imperative to encourage multimodal trips that will help increase mode shift and reduce VMT and GHG emissions. To integrate active transportation with transit, safe facilities must connect trip origin locations with transit stations. Many segments of the existing bicycle network appear to run parallel with transit lines or do not connect to (rapid) transit at all. Safe facilities connecting to transit stations (feeder segments) are important to encourage multimodal trips on the regional scale. These facilities should not only include the infrastructure for cycling or walking itself, but also amenities like bicycle parking and the provision of bicycle share stops at important destinations, among other things.

Overall, there are still large parts of the bicycle network that are incomplete. Over the past 10 years, the rate of expansion for the network has been low, with most of the Early Action Projects (Figure 35) yet to be completed.

The *2010 Regional Bike Plan* also emphasizes supportive programs and facilities, many of which are already established. Although further expansion of supporting programs, such as bike parking and bikeshare, will fall under the Mobility Hubs and Flexible Fleet big moves, they should be taken into an integral approach when installing or upgrading bicycle infrastructure. Any new or updated supporting policies and programs will be included in the active transportation strategies for the CMCP.

Figure 35. San Diego Regional Bike Plan Early Action Projects



Corridor Gaps

Comments and feedback from the active transportation subject matter experts with regard to how the corridor gaps have impacted active transportation safety and mobility are summarized as follows:

- Insufficient facilities for alternative modes to meet the regional and state requirements for active transportation best practices.
- Sparse active transportation connectivity for all ages and abilities.
- Need a parallel and continuous bicycle/pedestrian facility along I-805, similar to the Bayshore Bikeway along I-5.
- Consistent lack of bicycle amenities throughout the corridor.
- Safety concerns for vulnerable road uses along arterials, especially near freeway ramps or crossing freeways.
- Difficult first- and last-mile access to transit services.

Active Transportation Mode Share[60]

According to the *2006 Journey to Work Data*, the mode share for walking was 2.9% in the San Diego region, which is consistent with the national average. The adjusted bicycling mode share (including to work, school, and college) was 2.7%. This may be the result of a basic bikeway network that primarily consists of bicycle lanes and shoulders, which generally yields a bicycle mode share of 2-3% in U.S. cities.

The 2035 No Build scenario estimates the mode share for walking for commute trips is 2.2%, which is higher than the 2016 baseline of 1.7%. For cycling mode share, the No Build estimate is 2.1% for 2035 compared to 1.6% in 2016.

For all short trips that are 3 miles or shorter, walking mode share increases from 16.7% in 2016 to 19.5% in 2035 No Build. Bicycle mode share increases slightly from 1.1% in 2016 to 1.3% in 2035. This increase in pedestrian and bicycle mode share is also shown by an increase in pedestrian and bicycle miles traveled. Pedestrian miles traveled is expected to increase by nearly 36% (from 529,130 in 2016 to 717,225 in 2035). Bicycle miles traveled is expected to increase by approximately 58% (from 124,480 in 2016 to 196,651 in 2035).

Though densification in the urban area increases the number of people who choose to walk (typically up to 1 mile), due to the lack of safe and connected cycling network, there is no significant mode shift from driving to cycling for short trips that are beyond walking distance. The lack of dedicated cycling facilities is likely why the average peak commute time to work by cycling increases from 20 minutes in 2016 to 22.5 minutes in 2035, which is the largest increase compared to other modes. The strategies developed in this CMCP should aim to decrease overall travel times and increase walking and bicycling mode share.

4.4.5 *Goods Movement*

San Diego has a diverse and expansive goods movement network that supports the transportation of goods for residents, government agencies, and businesses, including:

[60] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast (2016); SANDAG, ABM2+ version 14.2.2 with DS39 SCS forecast (2035 No Build)

groceries, clothing, household goods, electronics, medical supplies, and raw materials or parts for manufacturing or construction. The region includes nearly every mode of freight with its interstate highways and arterials, rail corridors, land ports of entry, maritime port, and international airport. San Diego also enjoys a distinct competitive advantage based on its proximity to the U.S.-Mexico border. The two nations have grown increasingly interdependent since the passage of the North American Free Trade Agreement in 1994 and the resulting integration of many Northern American supply chains.

Much of San Diego's existing goods movement network is intertwined with the region's legacy of urban sprawl. Decades of low-density development patterns have increased dependency on the region's highways for both personal transportation and freight. Changes in land use patterns and increases in urban land value have also pushed warehousing to the outskirts of urban areas. The vast majority of the region's goods are moved along the highway system, and facilities are accessed using arterials and other roadways, which increases congestion and contributes to bottlenecks along many key regional corridors, including I-805, I-5, and I-15, among others.

The SB2S study area includes major freight highways and facilities or zones that are shown in the map on Figure 36. Though not shown on the map, there are many other essential arterials and local roads that support access to these highways and facilities.

Figure 36. Major SB2S Freight Movement Highways, Facilities, and Zones by Mode

Trucking

Trucks move the majority of goods in the region and are the dominant consideration for the SB2S Corridor. Overall, freight traveling within San Diego County or to/from other domestic locations (approximately 50 million tons per year) accounts for over 85% of the truck tonnage on the region's interstate freeways, highways, and local roads[61]. Freight that flows via truck throughout the county and along the SB2S Corridor involves all sizes and types of trucks (from small 2-axle delivery trucks to Class 8 tractor-trailers (18-wheelers) to the largest rigs hauling oversized cargo), and it includes all types of roadways (interstate highways, state routes, arterials, and local streets). Highway freight movement is most prominent on the north-south corridors – I-5, I-805, and I-15 – although it moves east and west as well using SR-52, I-8, SR-94, SR-54, and SR-905. SR-905 merits special consideration as a heavy freight corridor serving the international border with Mexico. The highway network used depends on the freight origin and destination, as well as whether the freight being moved is local, regional, or long haul. Some freight moves through the county with an origin or destination that is an intermodal transfer point to/from a seaport, rail terminal, airport, or a land port of entry.

Other types of freight are local or regional with origins and/or destinations within San Diego or Imperial counties. The San Diego region is also the destination for international or interstate freight coming in via ship, plane, train, or long-haul trucks. This often includes the transfer of freight to smaller vehicles and other conveyances for last-mile delivery on the region's roadway network. In several areas, the presence of freight traffic along arterial roadways (e.g., Harbor Drive and Cesar E. Chavez Parkway in Barrio Logan) can negatively impact communities and business districts.

The international border with Mexico is an important freight gateway on the SB2S Corridor. The movement of trucks through the international border at the Otay Mesa Cargo Facility, the second busiest truck crossing along the U.S.-Mexico border, is expected to grow due to an acceleration in ecommerce, fueled by the increase in online shopping due to the COVID-19 pandemic, and just-in-time manufacturing practices on both sides of the border to support maquiladora operations. I-805 is the major north-south connector with SR-905 for freight originating at or destined for the international border at Otay Mesa.

The Port of San Diego has two seaports with marine terminals that handle maritime cargo: TAMT and NCMT. Both marine terminals serve as important gateways within the SB2S Corridor and trucks or trains are the primary intermodal connection for cargo entering and exiting the region through the port's terminals.

Primary access for trucks serving TAMT terminal is located at the end of Cesar E. Chavez Parkway which becomes Crosby Rd. and leads to the terminal gates. Trucks over 5 tons are prohibited from traveling on most streets within the Barrio Logan community and truck routes have been designated to reduce impacts on the community. Therefore, trucks are not permitted to use the Cesar E. Chavez Pkwy exit from I-5. Instead, trucks must use the Civic Center Drive and travel to Harbor Drive and then continue north on Harbor Drive to Cesar E. Chavez Parkway to reach TAMT. The reverse is required to access I-5 North or South when exiting the port terminal. To access I-15 North, trucks are required to head south on Harbor Drive and use the 32nd Street on-ramp, or the 28th Street on-ramp.

[61] SANDAG. 2016. 2016 Freight Gateway Study Update. https://sandag.org/uploads/projectid/projectid_437_21373.pdf. 2021.

NCMT is a seaport and another important freight gateway within the SB2S Corridor that is served predominantly by truck. The NCMT and Burlington Northern Santa Fe's (BNSF) rail facility, located adjacent to the terminal, requires truck and roadway access to serve the rail and marine terminals along with the numerous tenants at the terminal and the adjacent national distribution center. Arterials such as Bay Marina Drive, Harbor Drive, and Tidelands Avenue have historically supported most of this access. The entire working waterfront that coincides with the SB2S Corridor and the tenants that occupy this industrial zone rely heavily on efficient roadway access for trucks to service their operations.

NBSD is also the recipient of regular truck deliveries of supplies to support their operations. This facility must also be considered as projects and strategies are developed such that trucks can continue to efficiently access the base.

Railroad

San Diego also has a rail freight crossing at its San Ysidro Port of Entry, where the main line that is owned by MTS' subsidiary San Diego and Eastern Arizona Railway Company (SDAE), terminates. Freight on this short line is operated by the San Diego and Imperial Valley Railroad (SDIV). A defunct rail crossing also exists about 5 miles east of the Tecate Port of Entry that would connect the SDAE main line through the Tijuana-Tecate short line to the currently non-operational Desert Line. While accounting for only a small portion of total cross-border trade, approximately $88 million of goods passes through San Diego's rail crossings.

San Diego's rail infrastructure carries a significant amount of domestic freight. Of the approximately 3,200 rail carloads carried by SDIV in 2019, about half are transported between locations other than the international border.[62] The SB2S Corridor also contains portions of the LOSSAN rail corridor, which carries approximately $1 billion of freight annually by its Class I freight-operator, BNSF.[63,64] Both BNSF and SDIV must work around the operating times of popular passenger service routes (i.e., trolley, COASTER, and Amtrak).

Rail activity at BNSF's National City Rail Yard (adjacent to the NCMT) serves as the terminal rail and provides rail transportation to the north (and then east to other U.S. destinations) predominantly for automobiles arriving at the terminal for further distribution. There are multiple tenants at NCMT. Rail is one way the primary terminal operator moves cargo for their automobile and domestic Hawaii service.

Other major facilities of interest regarding truck access to rail along the SB2S Corridor with commercial and industrial zone or distribution centers include Mira Mesa, Miramar, Sorrento Valley, Kearny Mesa, and Mission Valley.

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[62] San Diego Metropolitan Transit System – San Diego and Arizona Eastern Railway Company (SDAE). 2020. https://sdmts.com/about-mts-meetings-and-agendas/sdae. 2021.

[63] Los Angeles–San Diego–San Luis Obispo (LOSSAN). 2019. Rail Corridor Agency Fact Sheet. https://www.octa.net/pdf/LOSSAN_Agency_Fact_Sheet_11.2019.pdf. November 15, 2021.

[64] North County Transit District (NCTD). 2020. https://gonctd.com/nctd-sandag-receive-106-million-grant-for-rail-improvements.

Airport

The San Diego International Airport (SDIA) is the region's major cargo airport. This airport is being studied under the Central Mobility Hub CMCP. Cargo is trucked in and out of the airport, thus access considerations are important for trucks as strategies are developed on the SB2S Corridor. Due to SDIA's limited footprint and capacity, sharing its runway with passenger and cargo operations, it is expected that other regional airports will continue to be important for some types of cargo.

The other major airport within the SB2S Corridor is Brown Field, located off of SR-905 near the international border with Mexico. This airport supports government operations and light cargo only. This airport offers more potential warehousing space and could help relieve some of the capacity issues that exist at SDIA.

SDIA is currently expanding Terminal 1 as part of the *Airport Development Plan*[65]*.* With an estimated completion in 2028, the expansion will increase the number of gates at SDIA from 51 to 61. The expansion is anticipated to increase vehicular congestion along adjacent arterial roadways and at adjacent intersections. Anticipated effects on mobility are reflected in the SB2S CMCP future conditions assessment.

Seaport

Port cargo operations are split between two terminals: TAMT and NCMT. Between the TAMT and NCMT, more than 1.6 million metric tons of waterborne cargo are processed by San Diego's seaports annually[66].

In addition to standard shipping containers, San Diego's maritime ports are equipped to process breakbulk and refrigerated cargo. NCMT primarily handles lumber and automobiles, while TAMT receives a wider variety of goods, including fruit, sand/cement, and petroleum products. Both TAMT and NCMT have on-site rail connections and are minutes away from major highways.

TAMT is the northern-most terminal and inside San Diego Bay. The terminal is located at the end of Cesar E. Chavez Parkway (which becomes Crosby Road) in the community of Barrio Logan in the City of San Diego. The terminal covers 96 acres and includes 23 acres of warehouses and transit sheds. The terminal currently has 8 berths and 25 acres of paved open space for cargo staging. The terminal has onsite rail operated by BNSF Railroad. The port's tenants handle a variety of cargo types including containerized produce, dry bulk cargoes, petroleum products, break bulk and project cargos.

NCMT is further inside San Diego Bay, south of TAMT and approximately 10 nautical miles from the harbor entrance. The terminal is located at the end of Bay Marina Drive in the City of National City. It covers 125 acres and houses 8 berths. Lumber and automobiles have been the primary cargos moving through NCMT. There is also a regular ship carrying cargo to Hawaii. The terminal operator, Pasha Auto Group, hosts these operations.

The terminal is accessed by truck and rail service. There is a continuing need to improve freeway access to NCMT, particularly for Bay Marina Drive and Harbor Drive, and harmonize

[65] San Diego County Regional Airport Authority. 2019. Airport Development Plan San Diego International Airport. September.

[66] U.S. Army Corps of Engineers, 2022. U.S. Army Corps of Engineers (USACE) Waterborne tonnage for principal U.S. ports and all 50 states and U.S. territories. https://usace.contentdm.oclc.org/digital/collection/p16021coll2/id/1492. 2022. 2022.

these needs with those of the local community regarding access to the recreational waterfront that coexists with the working waterfront.

Pipeline

There are two pipelines in San Diego operated by Kinder-Morgan Santa Fe Pacific Pipeline, L.P. for gasoline and aviation fuel and the WestPac pipelines for aviation fuel. Major Kinder-Morgan terminals are located in Mission Valley (which supplies the majority of gasoline for San Diego County). Gasoline is blended at this terminal and loaded on trucks for final distribution to service stations. The pipeline also extends to central San Diego to supply the Chevron and Tesoro Logistics distribution terminals. Access to these terminals for trucks will be important considerations as strategies are developed for the SB2S Corridor.

4.4.6 *Intelligent Transportation Systems*

For this CMCP, the *San Diego Region Intelligent Transportation Systems Strategic Plan*[67] plays a key role in providing equitable access to transportation, as well as having positive impacts on everyday challenges to the local communities and cities within this corridor. The plan was developed through the active participation of the regional stakeholders, including 18 cities, San Diego County, Caltrans District 11, MTS, and the NCTD. It documents the region's priorities for transportation system management (TSM) investments and measures for evaluating the value of ITS projects. The plan focuses on multimodal performance-based management of the region's transportation system and sets priorities and focus areas toward those goals. ITS is the cornerstone of NextOS where all users can experience safety, better mobility, improved opportunity, and better environmental quality while providing improved operating efficiency. In order to realize the vision of NextOS, ITS provides the framework for three focus areas that can address the users' needs:

- Enabling Technologies (Smart Intersection, Connected Vehicle Environment)
- Emerging Technologies (Level 5 Autonomous Vehicles)
- Enhanced Services (Multimodal Trip Planning, Smart Mobility Hubs, Curb Management, Trip Planning, and Mobility Assistance)

To execute on such focus areas, a robust Regional ITS Architecture provides the technical roadmap for local agencies looking to implement ITS projects, and, more importantly, for rolling out NextOS. A well-defined Regional ITS Architecture can enable stakeholders with planning, requirements development, and implementation phasing. The Regional Architecture Development for Intelligent Transportation (RAD-IT), currently under development by SANDAG, is a crucial application for developing corridor concepts, priorities/phasing, operational concepts, and strategy definition. With the RAD-IT tool, ITS Architecture service packages will identify specific functions for the SB2S CMCP. Using the RAD-IT tool, the Mobility Hub and Flexible Fleet leads can consider service packages, such as Loading Zone Management, Curb Management Loading Zone, Parking Reservations, Personalized Traveler Information, and Electric Charging Station Management. Alongside the RAD-IT tool utilization, the SB2S CMCP will leverage the *I-805 Active Traffic and Demand Management Concept of Operations*[68], and

[67] San Diego Association of Governments (SANDAG). 2011. *San Diego Region Intelligent Transportation Systems Strategic Plan*. https://www.sandag.org/uploads/2050RTP/F2050RTPTA21.pdf. 2021.
[68] SANDAG. 2016. *I-805 Active Traffic and Demand Management Concept of Operations.*

the *I-805 Transportation Systems Management & Operational Plan* (TSM&O Plan)[69]. The strategies within the TSM&O Plan for I-805 will guide the development of this CMCP and the ITS deployment by the local agencies. The TSM&O Plan ensures the success of the Purple Line/Blue Line/I-5 South/I-805 Corridor. With Next Generation Transit, services packages, such as Transit Vehicle Tracking, Transit Fixed-Route Operations, Transit Fleet Management, Transit Security, and Regional Dynamic Lane Management and Shoulder Use, will be considered during solution refinement. Commuter Rail Strategies will rely on the Tunnel Management, Border Management System, and Southbound Automated Border Wait Time System service packages from RAD-IT.

The SB2S roadway and transit strategies will rely on technology solutions, such as Traffic Signal Control, Variable Speed Limit, Congestion Pricing, HOV/High-occupancy Toll (HOT) Lane Management, and Connected Vehicle Monitoring and Management service packages from RAD-IT.

4.4.7 *Military*

San Diego is the Navy's most strategic port and the location for numerous operational and administrative headquarters, including Naval Special Warfare Command (oversight and training of Sea, Air, and Land Forces [SEALS]), the Navy's Third Fleet (operational control of all ships and aircraft), Naval Surface Forces (oversight of all surface ships in the Navy), Naval Air Forces (oversight of all aircraft and aircraft carriers in the Navy), Navy Region Southwest (administrative responsibility for all bases in six states), Naval Information Warfare Command (headquarters for the design and production of all Navy command and control systems), Naval Medical Forces Pacific (all western hospitals, clinics, and laboratories), and Naval Surface and Mine Warfare Development Command (training and doctrine headquarters). San Diego is also the operational home to numerous Carrier Strike Group headquarters and Expeditionary Strike Group, each led by an Admiral. As the home port for about 20% of Navy vessels and 17% of active duty personnel, San Diego has the largest naval personnel concentration in the country.

NBC is located within the Coronado/Imperial Beach subarea. Key facilities include NASNI, Naval Amphibious Base, Silver Strand Training Center (SSTC), and Navy Outlying Field. NBC serves as a hub for U.S. Navy activity and provides a shore-based platform for helicopters, aircraft carriers, SEAL teams, and other ashore and afloat commands. NBC is bordered by the Pacific Ocean and San Diego Bay and supports more than 30,000 military and civilian personnel who utilize three airfields, three ports, multiple training ranges, and more than 1,400 buildings.

I-5 and SR-75 are the two major freeways Navy personnel use to access NBC. I-5 connects with SR-75 at the San Diego-Coronado Bay Bridge in the City of San Diego and at Palm Avenue in Imperial Beach. SR-75 passes through the City of Coronado and extends the length of the Silver Strand, turning into Palm Avenue in Imperial Beach. SR-75 is part of the Strategic Highway Network (STRAHNET), a designated system of roads for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, and supplies to support U.S. military operations. SR-75 is 13 miles long and is the only road in and out of Coronado Island. Due to limited access, SR-75 and the City of Coronado streets experience congestion during morning and evening peak hours.

[69] SANDAG. 2021. *I-805 Transportation Systems Management & Operational Plan.*

NBSD is located within the Coronado/Imperial Beach subarea between Main Street and the San Diego Bay, south of Downtown San Diego and the Barrio Logan community, and west of National City. NBSD supports more than 30,000 military personnel, has 12 piers, and is the homeport to over 60 Navy ships, which represents the largest concentration of Navy surface vessels on the west coast. Harbor Drive, rail, and the Blue Line trolley split the base into two sides: the wet side and the dry side. The wet side is the area west of Harbor Drive and is comprised of piers, maintenance support, and supply operations. The dry side is the area east of Harbor Drive and includes base housing, professional education, training facilities, fitness/recreation centers, region headquarters of Navy Medicine West, Navy Exchange, and distribution centers.

I-5, I-805, and I-15 are major north-south corridors and SR-54 is a major east-west connector Navy personnel use to access NBSD. Each of these freeways have nearby park-and-ride lots where commuters can meet to carpool, vanpool, or use transit services to access NBSD. There are no carpool lanes on SR-54 or along I-5 near NBSD.

Harbor Drive and 32nd Street provide street access to the base. Harbor Drive is part of the STRAHNET and a preferred truck route. The Blue Line Trolley is a north-south light rail that parallels Harbor Drive with four stops within 1 mile of the base. The BNSF rail line runs adjacent to Harbor Drive. BNSF is part of the Strategic Rail Corridor Network, a designated railway providing materials and goods to support U.S. military operations. Approximately eight BNSF trains pass through the corridor every day. A rail spur north of Harbor Drive crossing provides direct access to the North American Steel and Shipbuilding Company shipyards for delivery of shipbuilding and ship repair materials.

Harbor Drive experiences congestion during peak hours. Multiple intersections experience poor levels of service, which increases the amount of time it takes to access NBSD. Congestion at the intersection of 32nd Street and Harbor Drive affects goods movement and causes truck traffic to divert to local roads. Truck traffic on residential streets causes concern for pedestrian safety, air quality, pavement conditions, and noise in surrounding communities, such as Barrio Logan.

Due to military schedules, the peak hours for these facilities start as early as 5 AM in the morning and 2:00 PM in the evening.

4.5 Resilience

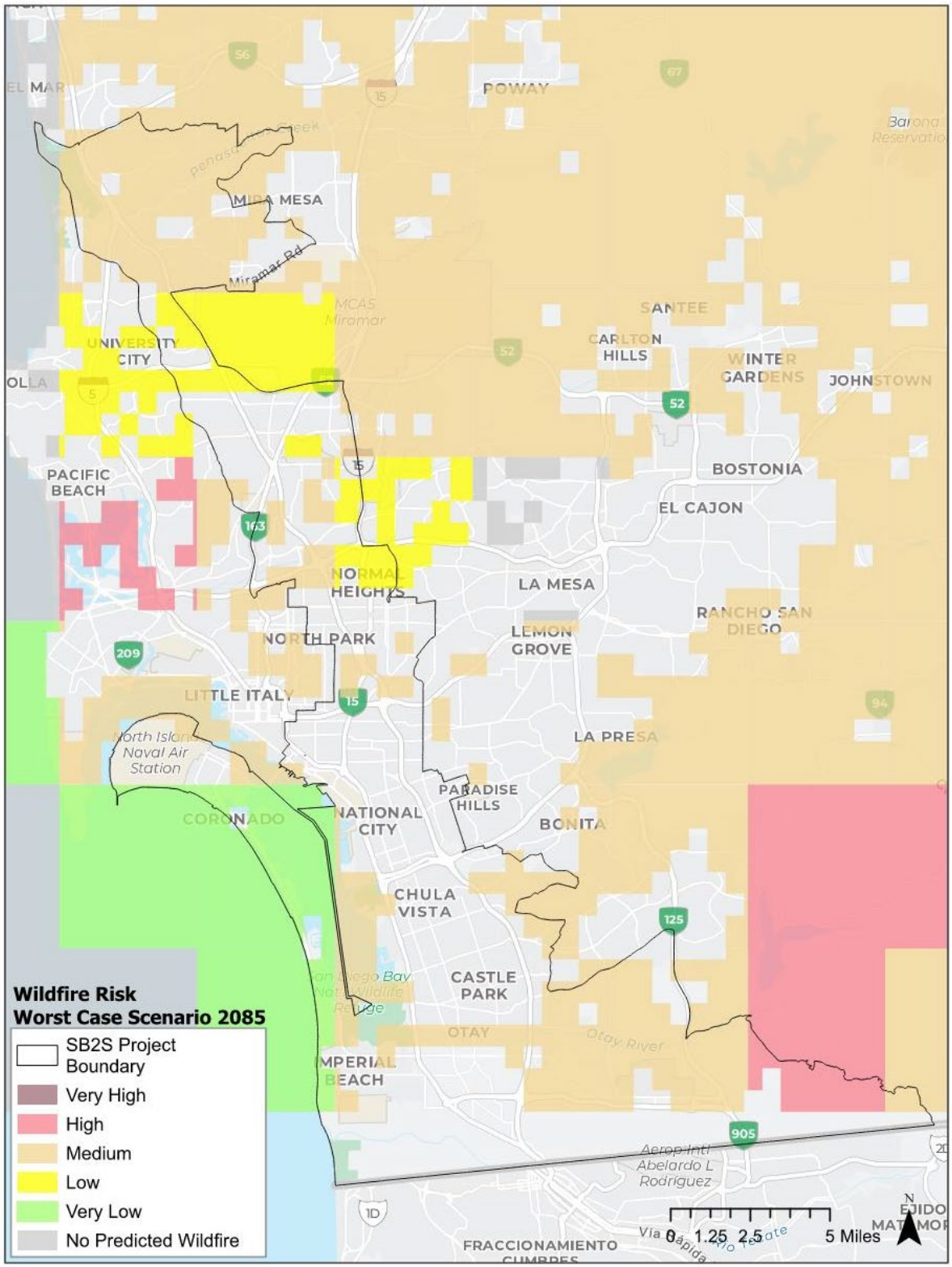
An underlying goal of this study is to prioritize resilience throughout the overall transportation network in projects that also benefit mobility, social equity, safety, and economic development. The term "resilience" refers to the capacity of any entity – an individual, community, organization, or natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience. Sustainability, a term correlated with resilience, refers to meeting the needs of the current population without compromising the ability of future generations to meet their own needs. Both climate mitigation and human and/or environmental risk adaptation strategies will be considered. When considering resilience in the development of goals and strategies for this CMCP, the following human and environmental risks were identified by SANDAG as of primary relevance: storm surges, coastal erosion, sea level rise, landslides, flooding, severe storms and weather, wildfires, and extreme heat.

Using the most up to date GIS data, wildfire and flooding hazard risks were analyzed. Figure 37 and Figure 38 display wildfire and sea level rise risk in the region. Figure 37 displays the worst-

case scenario wildfire risk for year 2055.[70] In this scenario, portions of the Chula Vista/Otay, Coronado/Imperial Beach, SE San Diego/National City, and Sorrento Valley subareas would be exposed by medium level wildfire risk. Transportation assets within the network, such as I-805 in the Sorrento Valley would be directly impacted. Figure 38 displays sea level rise impacts and storm surges for a year 2050 100-year storm. In this worst-case scenario, coastal areas within Imperial Beach, Coronado, Chula Vista, National City, and northwest Sorrento Valley would be impacted and sections of SR-75 in Coronado would be inundated by flood waters due to coastal storms and sea level rise.[71]

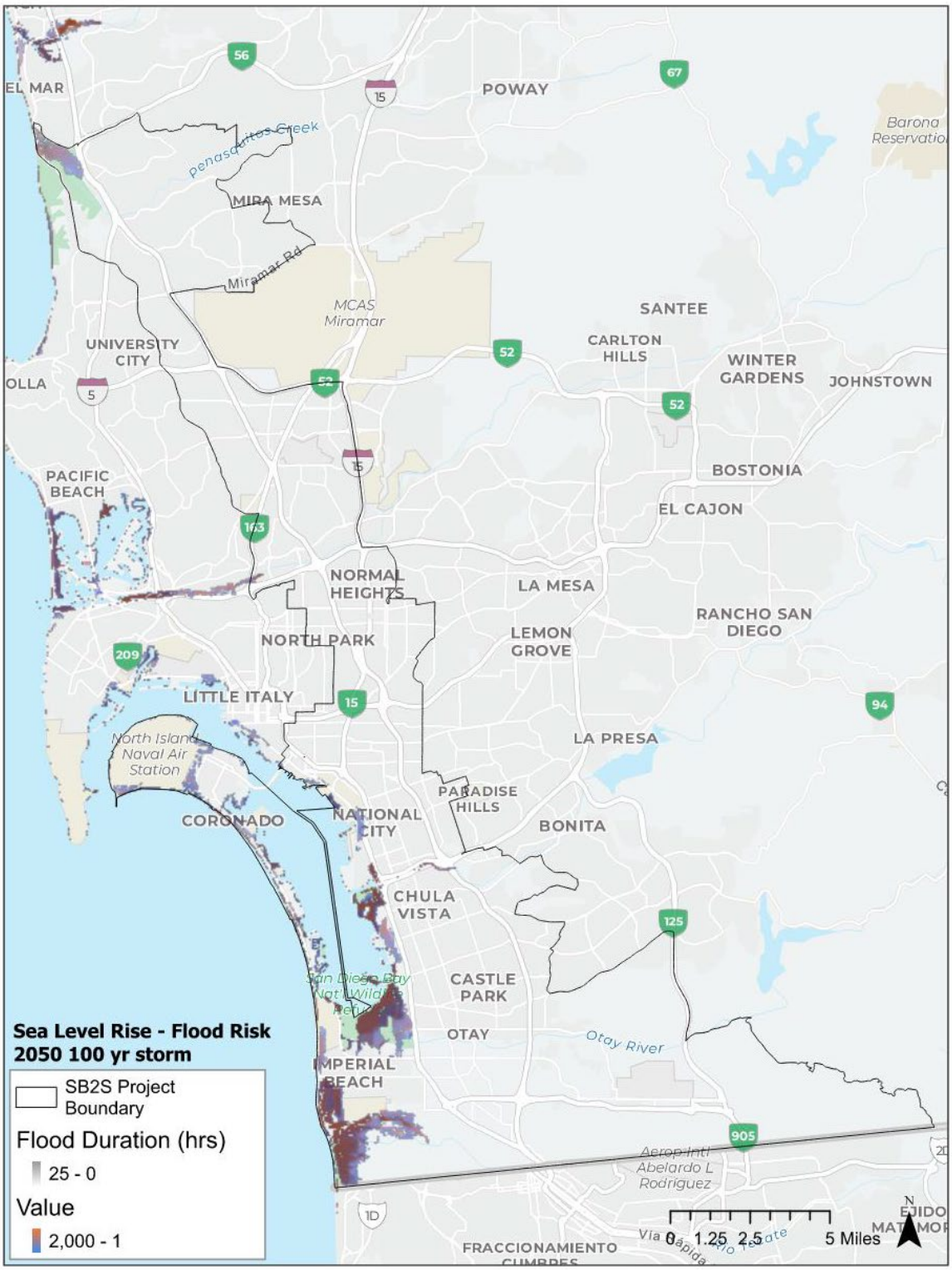
[70] Caltrans, Resilience, Future Wiildfire: 2055, RCP 4.5, accessed March 2021
[71] U.S. Geological Survey (USGS), 100-year storm for Year 2050 (RCP 4.5)

Figure 37. Wildfire Exposure-Year 2085 Within the Project Boundary [72]



[72] Caltrans, Resilience, Wildfire 2085, RCP 8.5 time period 2070-2099

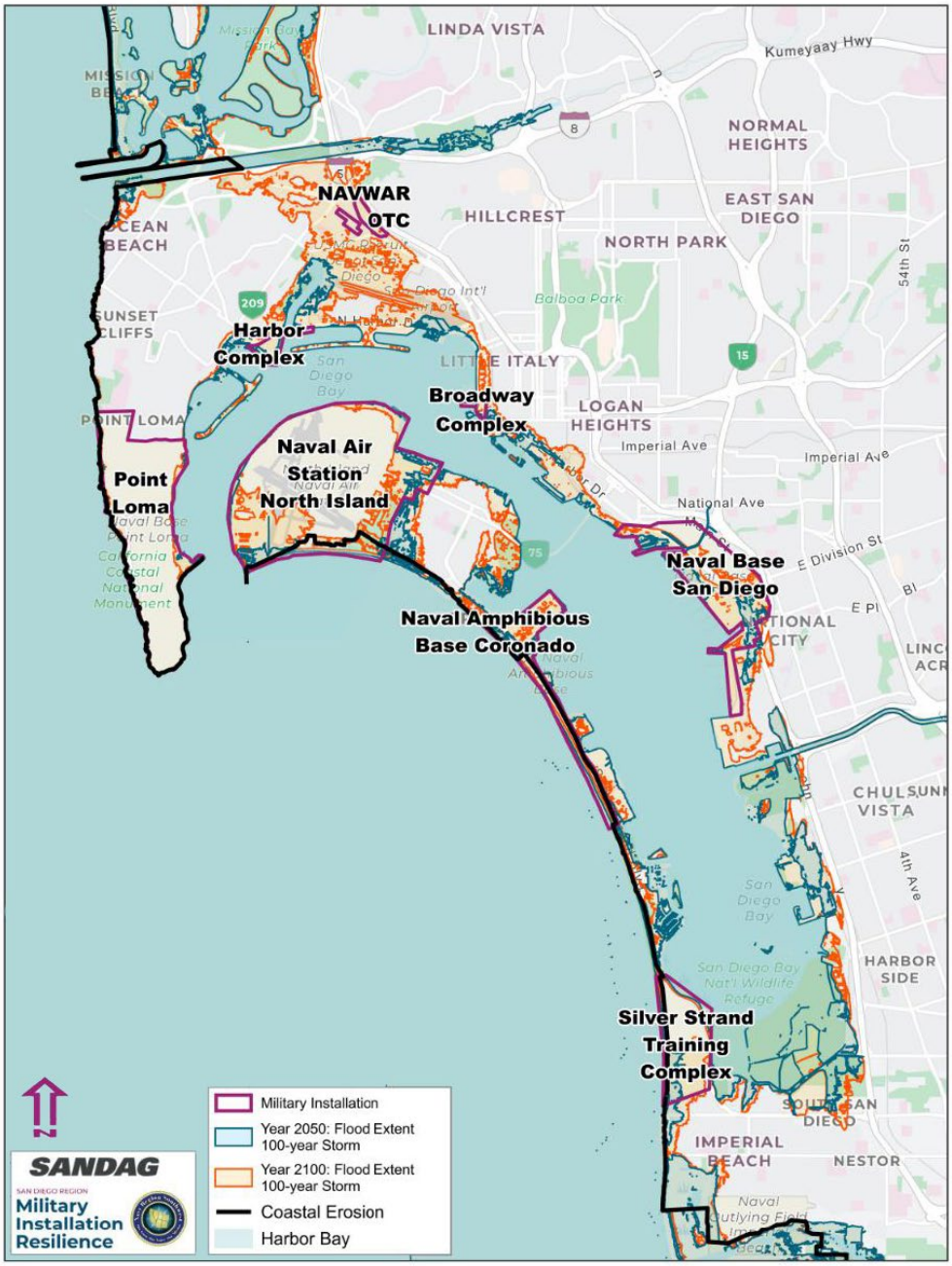
Figure 38. Sea Level Rise Risk-Year 2050 Within the Project Boundary[73]



[73] U.S. Geological Survey (USGS), 100-year storm for Year 2050 (RCP 4.5)

As mentioned in the previous section, the San Diego region is home to three naval installations and the resilience of these facilities and surrounding transportation networks is critically important to ensuring the Navy remains mission ready. Figure 39 displays flood extent risk for years 2050 and 2100 100-year sea-level rise and coastal erosion impacts within key regional navy installations.[74] Figure 40, Figure 41, and Figure 42 show impacts to transportation facilities serving NBC, NBSD, Naval Base Point Loma, and other naval installations.

Figure 39. Region Naval Base Flood and Coastal Erosion Impacts



[74] For more information, see the Office of Local Defense Community Collaboration (OLDCC) Grant for Military Resilience: Adaptation Planning and Design Considerations.

Figure 40. Impacts to NASNI, NBC, and SR-75

Figure 41. Impacts to I-75, SSTC, and Imperial Beach

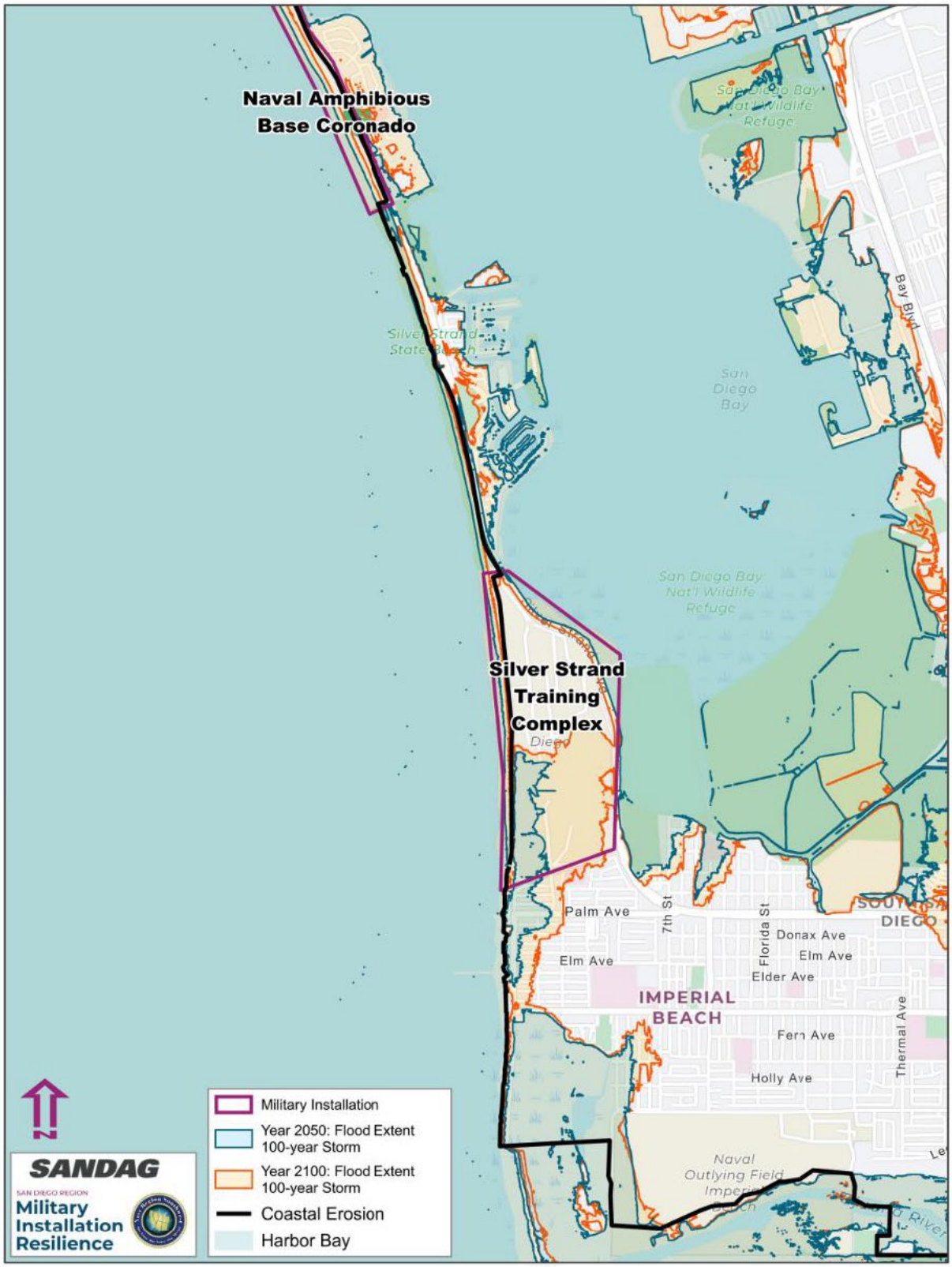
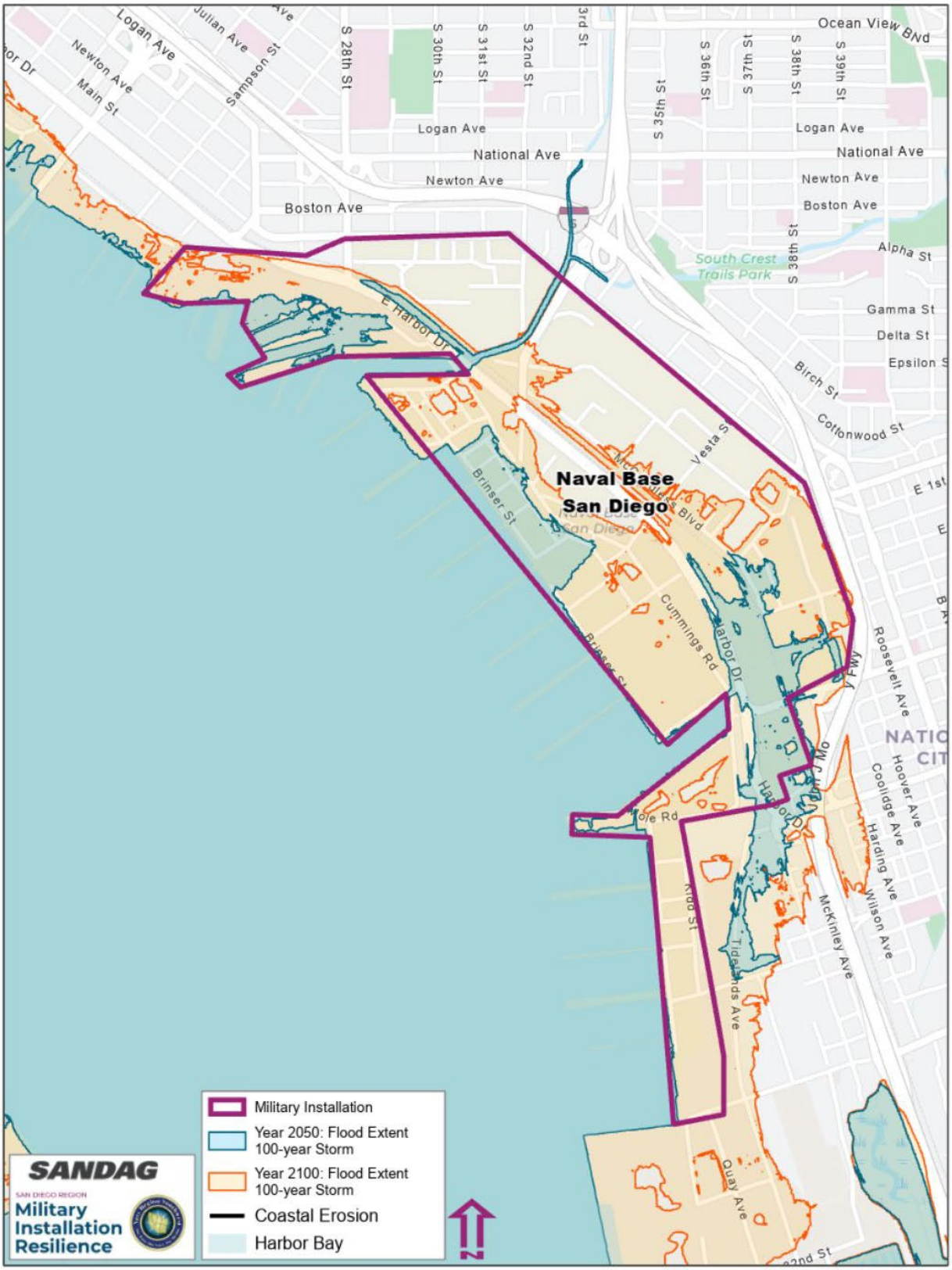


Figure 42. Impacts to NBSD



5 KEY FINDINGS, ISSUES, AND OPPORTUNITIES

This document has provided an overview of corridor characteristics and mobility performance for the 2016 and 2035 No Build scenarios. Findings of this effort are described in this section.

5.1 Key Findings

5.1.1 *Population, Employment, and Housing*

By 2035, corridor population is expected to increase by nearly 175,000 people, mostly in the Kearny Mesa, Mission Valley/Mid-City, and Chula Vista/Otay subareas. The total number of jobs within the corridor is expected to increase by approximately 165,000. The highest rate of job growth is expected in the U.S.-Mexico Border and Chula Vista/Otay subareas; however, the vast majority of jobs within the corridor will continue to be in the Sorrento Valley, Kearny Mesa, and Coronado/Imperial Beach subareas. Approximately 100,000 housing units are expected to be added by 2035. The largest increase in housing units is expected in Mission Valley/Mid-City (12,000 units), Kearny Mesa (17,000 units), and Chula Vista/Otay (14,000 units).

The addition of residents in northern parts of the corridor and jobs in the southern portions of the corridor will help the regional jobs-housing imbalance. At the same time, there will continue to be a strong demand for longer trips to and from regional job centers in the middle and northern portions of the corridor. As such, it will be important to develop strategies that enhance mobility for both shorter and longer trips and for varying trip types.

5.1.2 *Social Equity Focus Communities*

Between 2016 and 2035 the low-income population within the corridor is expected to increase by approximately 18,500. The majority of low-income populations will be located in the Chula Vista/Otay, SE San Diego/National City, Mission Valley/Mid-City, and Coronado/Imperial Beach subareas. During the same timeframe, the minority population within the corridor is expected to increase by approximately 200,000 with the largest concentration of minority populations in the Chula Vista/Otay, Mission Valley/Mid-City, and SE San Diego/National City subareas. The senior population within the corridor is expected to double between 2016 and 2035 from approximately 45,600 residents to approximately 103,000 with the largest concentration of seniors living in the Chula Vista/Otay, Mission Valley/Mid-City, and Kearny Mesa subareas.

Enhancing transit services and access to transit, and providing other mobility options (e.g., active transportation and/or flexible fleet services) will improve both regional and intra-subarea mobility within these areas for those who might not have access to a motor vehicle. Transportation improvements serving these communities are particularly important given that they have been historically underserved in terms of infrastructure and economic opportunities.

5.1.3 *Land Use*

Major employment centers exist in the northern part of the corridor (UTC/Sorrento Valley/Kearny Mesa) and in military installations. People working in these areas live throughout the corridor and region, which creates the need for longer, regional trips. Improving these types of connections requires enhanced high-capacity transit services, managed lanes, and mobility hubs as a way of enhancing access to future transit services.

Several areas (e.g., Mid-City, western portions of National City, and Chula Vista) currently have a good diversity of land use. Other areas like Kearny Mesa, Mission Valley, Otay, and University City/UTC are adding housing to improve diversity of land use. Areas with higher diversity of land use will have more intra-subarea travel demand. Active transportation and flexible fleet strategies will improve mobility in these areas.

Industrial land uses primarily exist in Sorrento Valley, Kearny Mesa, Coronado/Imperial Beach, and the U.S.-Mexico Border. Regional airports exist within the study area at Montgomery Field Airport and Brown Field. Strategies to enhance goods movement to, from, and within these areas will alleviate demand on corridor freeways, roadways and at SDIA.

In general, 2035 land use within the study area is expected to be similar to existing conditions, although intensities are expected to increase. Much of the study area will continue to be auto centric due to challenging topography and/or development patterns with low density or diversity. SE San Diego/National City includes some of the highest concentrations of social equity focus populations in the study area, including a large portion of transit-dependent travelers.

5.1.4 *Travel Patterns*

During peak periods approximately 30% of origins or destinations of the regional trips occur within the corridor. The largest volume of trips occurs in the Chula Vista/Otay subarea, which is consistent with this subarea containing the largest share of the study area population.

Mode share for all (including commute and non-commute) trips is projected to increase between 2016 and 2035 for those driving alone, using transit, walking, or bicycling. Walking trips are expected to increase by the largest percentage. For commute trips specifically, transit trips are expected to increase by the largest percentage.

Daily VMT within the study area is expected to increase between 2016 and 2035. VMT per resident is expected to increase slightly, whereas VMT per employee is expected to decrease notably.

The travel demand data indicates traveler behavior will change between 2016 and 2035, albeit by marginal amounts generally. Given this, it can be expected that mobility issues will continue to exist, and in many cases worsen, in 2035. As such, a series of mobility improvements designed to provide travelers with more modal options is needed to increase the use of alternative modes of travel and facilitate more efficient movement throughout the corridor.

5.1.5 *Transit*

Nearly half of the region's transit routes and approximately 30% of the region's transit stops (including local bus, rapid bus, and rail stations) are located in the corridor. Of the routes that are within or intersect the study area, on-time performance is just under 60%. In 2018 over 30% of the region's transit boardings occurred in the corridor and the average trip length was approximately 5 miles. In 2035, the percentage of overall study area population, including social equity focus populations, with access to transit is expected to decrease.

Given the wide range of trip types and rider characteristics within the corridor, the development of a high-quality, reliable transit network that can facilitate short-, medium-, and long-distance trips for varying trip purposes will both enhance mobility for current transit users as well as attract choice riders who might otherwise drive.

5.1.6 *Highway and Roadway*

Within the SB2S study area, congestion on I-805 and I-5 is directional with northbound traffic experiencing more congestion during the AM peak period and southbound experiencing more congestion during the PM peak period. East-west freeways in the corridor, including SR-52, I-8, SR-94, and SR-54, experience congestion in the westbound direction during the AM peak and in the eastbound direction during the PM peak. Several arterial roadways within the corridor experience congestion during peak periods. In 2035, congestion levels in the corridor are projected to deteriorate further.

Providing managed lanes and other strategies will incentivize travelers to carpool and/or use other modes of transportation to make trips; therefore, improving operations along corridor highways. Enhancing other types of mobility (e.g., transit, active transportation) will help improve operations along local arterial roadways.

5.1.7 *Active Transportation*

Currently, several gaps in bicycle and pedestrian facilities exist throughout the study area, particularly near freeway ramps or freeway interchanges. These gaps make walking or bicycling longer distances difficult and create first- and last-mile access to transit challenges and safety issues. A moderate increase in pedestrian mode share for all trips that are 3 miles or less is expected in 2035; however, bicycle mode share is anticipated to remain relatively constant. An increase in pedestrian and bicycle miles traveled is also anticipated in 2035. The average peak commute time to work by cycling is projected to increase in 2035.

Given the variety of trip types and distances taken by travelers within the corridor, improvements to pedestrian and bicycle connectivity should be integrated to both improve non-motorized intra-subarea connectivity and to enhance first- and last-mile access to transit.

5.1.8 *Goods Movement*

A variety of goods movement facilities exist within the corridor or adjacent to it. This includes interstate highways and arterials, rail corridors, land ports of entry, a maritime port, and an international airport. The region also enjoys a distinct competitive advantage based on its proximity to the U.S.-Mexico border. Most of the region's goods are moved along the highway system and adjacent arterials and other roadways. Freight activity increases congestion and contributes to bottlenecks along many key regional corridors including I-805, I-5, and I-15. Freight traffic along arterial roadways (e.g., along Harbor Drive and Cesar E. Chavez Parkway in Barrio Logan) can adversely affect communities and business districts.

Freight traveling by rail is also affected by bottlenecks caused by the rail corridor serving both the movement of goods and people. Both BNSF and SDIV operate on the LOSSAN rail corridor and must work around the operating times of popular passenger service routes (trolley, COASTER, and Amtrak).

To balance the transportation needs of freight as well individuals, managed lanes should be implemented on the key regional corridors, which could increase freight capacity by dynamically serving only freight trucks during off-peak travel times. These corridors should also implement supporting infrastructure for alternative fuel to encourage truck fleet conversion. Improvements are also needed to enhance access to key freight destinations, such as the NCMT, the major Kinder-Morgan terminals (which supply the majority of gasoline for San Diego County), and various international crossings along the border with Mexico. Providing new rail logistics centers

at key locations would improve operational efficiency of existing freight rail infrastructure. Finally, the provision of parcel lockers at transit stations and other key destinations can allow deliveries to occur via smaller vehicles; therefore, reducing effects on local communities and businesses.

5.1.9 *Intelligent Transportation Systems*

ITS play a key role in providing equitable access to transportation as well as having positive impacts on everyday challenges to the local communities and cities within this corridor. NextOS strategies include: traffic signal control, variable speed limit, congestion pricing, HOV/HOT lane management, and connected vehicle system monitoring and management service packages throughout the corridor. The implementation of these strategies will be dependent on the RAD-IT architecture framework.

5.1.10 *Military*

San Diego has the largest naval personnel concentration in the country, and NBC and the NBSD are both located within the Coronado/Imperial Beach subarea. Roadways providing access to each site experience congestion during peak hours, delaying commuters and adversely affecting neighboring communities. Strategies that improve ingress and egress from military facilities will alleviate congestion along corridor roadways and freeways, such as Harbor Drive in San Diego and the 3rd Street/4th Street couplet in Coronado.

5.1.11 *Resilience*

When considering resilience in the development of goals and strategies for this CMCP, the following human and environmental risks were identified by SANDAG as of primary relevance: storm surges, coastal erosion, sea level rise, landslides, flooding, severe storms and weather, wildfires, and extreme heat. Resilience strategies should be incorporated into related projects/strategies identified under other modes wherever feasible so that resilience is integral to the final recommended alternatives.

5.2 Issues and Opportunities

Based on the above findings, the project team has developed the following issues and opportunities statement for the corridor:

> *There are high levels of congestion along I-5 between northern Chula Vista and downtown San Diego and along I-805 between SR-54 and Sorrento Valley, especially during the peak periods. By 2035, congestion is expected to worsen due to increases in population and jobs within the corridor. This congestion is the result of a lack of mobility options for making trips to, from, and within the corridor. Further, local streets and arterials typically lack contiguous safe, low stress, bicycle and pedestrian facilities, especially at freeway interchanges. A lack of mobility options and infrastructure for non-motorized modes of transportation results in many travelers electing to make most trips via personal automobile, and also inhibits mobility in social equity focus communities. Implementing strategies like high-capacity north-south transit services, contiguous high-occupancy vehicle/managed lanes (HOV/ML), and active transportation facilities and flexible fleets services will provide additional mobility options for making trips of varying lengths and purposes. These strategies would*

both alleviate congestion along corridor facilities and improve mobility in social equity focus communities.

Cross-border travel and goods movement within the corridor are also subject to high levels of delay at ports of entry and along I-5, I-805, and local arterial roadways. Alleviating congestion along major freight routes, implementing parcel delivery lockers at mobility hubs, and the addition of zero emissions freight vehicles will help improve the flow of goods within the corridor while reducing air quality and noise impacts on local residents and businesses.

Intelligent Transportation Systems (ITS) applications will be an important need in the corridor with particular attention to goods movement and border activities. In addition, the need to plan for climate change impacts, such as sea level rise, extreme heat, and precipitation changes, is necessary to ensure functionality of the corridor into the future.

The Issues and Opportunities Statement supports the overall goals and objectives of the corridor, which are discussed in Section 6 of this memo and includes the desire to enhance safety, provide multimodal choices (transit and active transportation), reduce recurrent and non-recurrent congestion and delays, increase transit choices, and leverage new technologies to reduce VMT and alleviate border crossing connectivity issues.

6 STUDY GOALS AND OBJECTIVES

This section provides an overview of the study goals and objectives developed by the SB2S PDT, and it considers the findings of the previous sections. A summary of how each goal is related to SANDAG and Caltrans' CMCP policy areas and California Transportation Commission guidelines and each goal's relevance to the SB2S Corridor are included in Appendix F.

Table 3 summarizes the objectives for each goal of the SB2S CMCP. Objectives shown in bold address unique aspects of the SB2S Corridor: the large number of proposed mobility hubs, passenger and freight activity at ports of entry on the U.S.-Mexico border, and the generally large amount of freight activity throughout the corridor generated by the Port of San Diego and land ports of entry. In addition, to reflect the substantial presence of the military and veterans in the corridor, the social equity objectives will consider veterans as a community of concern to the extent that data particular to veterans can be obtained.

Table 3. Summary of Objectives

SB2S CMCP Goal	SB2S Corridor-Specific Objectives
Improve Travel Safety	• Reduce fatal and injury collisions • Improve safety for motorized and non-motorized users
Improve Mobility (Traffic Congestion and Transportation Choices)	• Improve mode share for non-SOVs • Reduce congestion • Increase number of trips completed by active transportation
Social Equity/Fairness	• Increase access to frequent transit for social equity focus populations • Increase access to active transportation options for social equity focus populations • **Increase access to flexible fleet options for social equity focus populations** • Improve connectivity to employment centers and higher education
Support Economic Opportunity	• Improve access to employment centers and higher education • **Improve access to border crossings** • **Improve freight efficiency**
Efficient Land Use	• Provide multimodal choices to mixed-use and infill development
Sustainability, Health and Resilience	• Reduce GHG and criteria pollutants • Reduce impacts to water, habitat, community, or recreational resources • Improve the resilience and state of good repair of the transportation system

Note: objectives shown in **bold** address unique aspects of the SB2S Corridor

APPENDIX

APPENDIX A
PLANNING DOCUMENTS REVIEWED

The documents in Table 4 were reviewed to develop Section 3.1 Existing Studies and Other Planning Documents.

Table 4. Planning Documents Reviewed

Document Title	Date/Year (Last Amendment/ Update)	Lead Agency
Balboa Station Specific Plan	2019	City of San Diego
Barrio Logan Community Plan and Preliminary Community Plan Update	2021	City of San Diego
California's Fourth Climate Change Assessment – San Diego Region Report	2019	Governor's Office of Planning and Research
Caltrans Climate Change Vulnerability Assessments District 11 Technical Report	2019	Caltrans
Carmel Valley Community Plan	1988 (2014)	City of San Diego
Chula Vista General Plan	2005	City of Chula Vista
Chula Vista Greenbelt Master Plan	2003	City of Chula Vista
City Heights Community Plan/Mid-City Community Plan	1998 (2015)	City of San Diego
Clairemont Community Plan	1989 with periodic revisions	City of San Diego
Clairemont Mesa Community Plan Update - Community Discussion Draft	January 2020	City of San Diego
Coronado General Plan	2012	City of Coronado
Coronado Comprehensive Active Transportation Plan and Complete Streets Strategy	2018	City of Coronado
Climate Action Plan	2020	City of San Diego
Climate Change Adaptation Plan	2019	Pala Band of Mission Indians
Climate Change Vulnerability Assessment	2020	City of San Diego
Del Mar Mesa Specific Plan	2006	City of San Diego
General Plan	2008	City of San Diego
County Resilience Program	2020	County of San Diego
Imperial Beach Bike Transportation Plan	2008	City of Imperial Beach
City of Imperial Beach General Plan/Local Coastal Program Land Use Plan	2019	City of Imperial Beach

Document Title	Date/Year (Last Amendment/ Update)	Lead Agency
Imperial Beach Sea Level Rise Assessment	2016	City of Imperial Beach
Imperial Beach Zoning Map	2013	City of Imperial Beach
Kearny Mesa Community Plan	2011	City of San Diego
Kearny Mesa Community Plan Update DRAFT	July 2020	City of San Diego
Kearny Mesa Community Plan Update Final Environmental Impact Report (EIR)	July 2020	City of San Diego
Kearny Mesa Community Plan Update Mobility Technical Report	July 2020	City of San Diego
La Jolla Community Plan	2014	City of San Diego
Linda Vista Community Plan	2019	City of San Diego
Military Multimodal Access Strategy	2020	SANDAG
Mira Mesa Community Plan	1994 (2001), currently being updated	City of San Diego
Mission Boulevard Public Spaces and Active Transportation Plan	2019	City of San Diego
Mission Valley Community Plan	2019	City of San Diego
Mobility Element Existing Conditions Report for Clairemont Community Plan Update	June 2017	City of San Diego
Morena Corridor Specific Plan	2019	City of San Diego
Multi-Jurisdictional Hazard Mitigation Plan	2017	County of San Diego
National City General Plan	2012	City of National City
National City Historic Preservation	2019	City of National City
National City Zoning Map	2019	City of National City
Otay Mesa Central Village Plan	2017	City of San Diego
Otay Mesa Community Plan	2014	City of San Diego
Otay Mesa Southwest Village Plan	In-progress	City of San Diego
Orange Avenue Corridor Specific Plan	2014	City of Coronado
Pacific Beach Community Plan	2018	City of San Diego

Document Title	Date/Year (Last Amendment/ Update)	Lead Agency
Port of San Diego Sea Level Rise Vulnerability Assessment and Coastal Resilience Report	2019	Port of San Diego
Purple Line Conceptual Planning Study	2017	SANDAG
Re-imagine D Street	2019	City of Chula Vista
Regional Transportation Infrastructure Sea Level Rise Assessment and Adaptation Guidance	2019	SANDAG
Resilience Review Report 1-19: Wildland Fires	2019	County of San Diego
San Diego International Airport Climate Resilience Plan	2019	San Diego Int'l Airport
San Diego Sea Level Rise Vulnerability Assessment – Draft	2019	City of San Diego
San Ysidro Community Plan	2016	City of San Diego
Torrey Hills Community Plan	1997 (2014)	City of San Diego
Torrey Pines Community Plan	1995 (2014)	City of San Diego
Transportation Concept Report: I-15, District 11	2018	Caltrans
Transportation Concept Report: I-805, District 11	2017	Caltrans
Transportation Concept Report: SR-54, District 11	2014	Caltrans
University Community Plan	2016	City of San Diego
Westside Specific Plan	2010	City of National City

APPENDIX B
SANDAG MODEL DATA REVIEWED

Table 5 through Table 10 summarize existing and future land use and demographic forecast data that was used for the adopted 2021 RP (ABM2+ version 14.2.2 with DS38 SCS forecast). Table 11 summarizes performance measures for 2106 and 2035 No Build scenarios (ABM2+ version 14.2.2 with DS39 SCS forecast), which assume no substantial changes from the 2016 transportation network.

Table 5. Forecasted Population Growth

Subarea	Existing Population (2016)	Forecasted Population (2035)	Forecasted Population Change	Percent Change
Sorrento Valley	47,243	67,567	20,324	43%
Kearny Mesa	76,982	110,446	33,464	43%
Mission Valley/Mid-City	159,053	169,767	10,714	7%
SE San Diego/National City	122,945	130,988	8,043	7%
Coronado/Imperial Beach	90,046	102,833	12,787	14%
Chula Vista/Otay	215,768	244,233	28,465	13%
U.S.-Mexico Border	32,761	44,429	11,668	36%
Study Area Total	**744,798**	**870,263**	**125,465**	**17%**
AOI - Otay	84,323	91,495	7,172	9%
AOI - Urban Core	64,755	100,739	35,984	56%
AOI - Del Mar	11,042	10,861	-181	-2%
AOI - Carmel Valley	21,303	21,778	475	2%
AOI - University Community	51,142	60,203	9,061	18%
AOI - SE San Diego	12,875	11,102	-1,773	-14%
AOI - North, West of I-15	73,676	72,021	-1,655	-2%
AOI Total	**319,116**	**368,199**	**49,083**	**15%**

Table 6. Forecasted Job Growth

Subarea	Existing Jobs (2016)	Forecasted Jobs (2035)	Forecasted Job Growth	Percent Growth
Sorrento Valley	136,491	152,330	15,839	12%
Kearny Mesa	143,291	158,745	15,454	11%
Mission Valley/Mid-City	51,516	57,296	5,780	11%
SE San Diego/National City	38,034	44,599	6,565	17%
Coronado/Imperial Beach	88,864	107,511	18,647	21%
Chula Vista/Otay	65,104	84,101	18,997	29%
U.S.-Mexico Border	19,205	45,766	26,561	138%
Study Area Total	**542,505**	**650,348**	**107,843**	**20%**

Subarea	Existing Jobs (2016)	Forecasted Jobs (2035)	Forecasted Job Growth	Percent Growth
AOI - Otay	15,934	25,816	9,882	62%
AOI - Urban Core	50,434	69,919	19,485	39%
AOI - Del Mar	5,587	5,658	71	1%
AOI - Carmel Valley	13,522	14,519	997	7%
AOI - University Community	42,630	67,909	25,279	59%
AOI - SE San Diego	1,120	1,141	21	2%
AOI - North, West of I-15	18,541	19,951	1,410	8%
AOI Total	**147,768**	**204,913**	**57,145**	**39%**

Table 7. Forecasted Housing Growth

Subarea	Existing Housing (2016)	Forecasted Housing (2035)	Forecasted Housing Growth	Percent Growth
Sorrento Valley	17,974	28,743	10,769	60%
Kearny Mesa	30,016	47,263	17,247	57%
Mission Valley/Mid-City	62,206	74,231	12,025	19%
SE San Diego/National City	35,480	44,114	8,634	24%
Coronado/Imperial Beach	27,190	32,224	5,034	19%
Chula Vista/Otay	65,875	79,541	13,666	21%
U.S.-Mexico Border	9,217	15,187	5,970	65%
Study Area Total	**247,958**	**321,303**	**73,345**	**30%**
AOI - Otay	25,903	30,067	4,164	16%
AOI - Urban Core	32,340	49,961	17,621	54%
AOI - Del Mar	5,691	5,838	147	3%
AOI - Carmel Valley	8,840	10,129	1,289	15%
AOI - University Community	18,122	20,167	2,045	11%
AOI - SE San Diego	3,988	4,206	218	5%
AOI - North, West of I-15	26,533	28,966	2,433	9%
AOI Total	**121,417**	**149,334**	**27,917**	**23%**

Table 8. Social Equity Focus Populations – Low-income Population

Subarea	Existing Population (2016)	Low-Income Population (2016)	Percent Low-Income (2016)	Forecasted Population (2035)	Low-Income Population (2035)	Percent Low-Income Population (2035)
Sorrento Valley	47,243	10,458	22%	67,567	15,098	22%
Kearny Mesa	76,982	24,680	32%	110,446	35,693	32%
Mission Valley/Mid-City	159,053	68,882	43%	169,767	58,008	34%
SE San Diego/National City	122,945	72,962	59%	130,988	65,866	50%
Coronado/Imperial Beach	90,046	46,007	51%	102,833	51,555	50%
Chula Vista/Otay	215,768	81,870	38%	244,233	80,274	33%
U.S.-Mexico Border	32,761	17,438	53%	44,429	15,600	35%
Study Area Total	**744,798**	**322,297**	**43%**	**870,263**	**322,094**	**37%**
AOI - Otay	84,323	5,200	6%	91,495	6,633	7%
AOI - Urban Core	64,755	11,955	18%	100,739	22,261	22%
AOI - Del Mar	11,042	169	2%	10,861	144	1%
AOI - Carmel Valley	21,303	132	1%	21,778	92	0%
AOI - University Community	51,142	21,314	42%	60,203	27,942	46%
AOI - SE San Diego	12,875	1,769	14%	11,102	1,463	13%
AOI - North, West of I-15	73,676	1,798	2%	72,021	2,556	4%
AOI Total	**319,116**	**42,337**	**13%**	**368,199**	**61,091**	**17%**

Table 9. Social Equity Focus Population – Minority Population

Subarea	Existing Population (2016)	Minority Population (2016)	Percent Minority (2016)	Forecasted Population (2035)	Minority Population (2035)	Percent Minority Population (2035)
Sorrento Valley	47,243	32,361	68%	67,567	60,202	89%
Kearny Mesa	76,982	51,473	67%	110,446	110,745	100%
Mission Valley/Mid-City	159,053	104,799	66%	169,767	118,785	70%
SE San Diego/National City	122,945	113,587	92%	130,988	116,812	89%
Coronado/Imperial Beach	90,046	53,118	59%	102,833	65,133	63%
Chula Vista/Otay	215,768	176,596	82%	244,233	199,705	82%
U.S.-Mexico Border	32,761	30,952	94%	44,429	40,123	90%
Study Area Total	**744,798**	**562,886**	**76%**	**870,263**	**711,505**	**82%**
AOI - Otay	84,323	16,108	19%	91,495	25,207	28%
AOI - Urban Core	64,755	17,224	27%	100,739	39,955	40%
AOI - Del Mar	11,042	392	4%	10,861	500	5%
AOI - Carmel Valley	21,303	379	2%	21,778	492	2%
AOI - University Community	51,142	27,246	53%	60,203	38,122	63%
AOI - SE San Diego	12,875	4,031	31%	11,102	3,555	32%
AOI - North, West of I-15	73,676	6,532	9%	72,021	15,232	21%
AOI Total	**319,116**	**71,912**	**23%**	**368,199**	**123,063**	**33%**

Table 10. Social Equity Focus Population – Senior Population

Subarea	Existing Population (2016)	Senior Population (2016)	Percent Senior (2016)	Forecasted Population (2035)	Senior Population (2035)	Percent Senior Population (2035)
Sorrento Valley	47,243	3,662	8%	67,567	9,770	14%
Kearny Mesa	76,982	6,344	8%	110,446	18,241	17%
Mission Valley/Mid-City	159,053	7,224	5%	169,767	18,480	11%
SE San Diego/National City	122,945	5,174	4%	130,988	9,189	7%
Coronado/Imperial Beach	90,046	4,310	5%	102,833	8,033	8%
Chula Vista/Otay	215,768	11,269	5%	244,233	18,141	7%
U.S.-Mexico Border	32,761	1,336	4%	44,429	3,059	7%
Study Area Total	**744,798**	**39,319**	**5%**	**870,263**	**84,913**	**10%**
AOI - Otay	84,323	624	1%	91,495	1,947	2%
AOI - Urban Core	64,755	2,401	4%	100,739	8,889	9%
AOI - Del Mar	11,042	168	2%	10,861	275	3%
AOI - Carmel Valley	21,303	57	0%	21,778	165	1%
AOI - University Community	51,142	2,379	5%	60,203	4,764	8%
AOI - SE San Diego	12,875	203	2%	11,102	306	3%
AOI - North, West of I-15	73,676	403	1%	72,021	1,703	2%
AOI Total	**319,116**	**6,235**	**2%**	**368,199**	**18,049**	**5%**

Table 11. Detailed SANDAG Model Data

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	Base 2016 458	2021 RP No Build Network 2035 NB 469
Multimodal Focus	Mode Share (Commute Trips, All Trips)	Commute Trips	Drive Alone	79.1%	78.0%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	Commute Trips	Shared Ride 2	9.7%	9.4%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	Commute Trips	Shared Ride 3+	3.3%	2.8%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	Commute Trips	Transit	4.3%	5.1%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	Commute Trips	Bike	1.6%	2.1%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	Commute Trips	Walk	1.7%	2.2%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	All Trips	Drive Alone	46.1%	48.6%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	All Trips	Shared Ride 2	25.0%	24.1%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	All Trips	Shared Ride 3+	18.4%	15.0%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	All Trips	Transit	2.2%	2.6%

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	**Base 2016 458**	**2021 RP No Build Network 2035 NB 469**
Multimodal Focus	Mode Share (Commute Trips, All Trips)	All Trips	Bike	0.7%	0.9%
Multimodal Focus	Mode Share (Commute Trips, All Trips)	All Trips	Walk	6.2%	7.4%
Multimodal Focus	Mode Share for Short Trips (3 miles or less for all trip types)	All Trips	Drive Alone	34.4%	37.1%
Multimodal Focus	Mode Share for Short Trips (3 miles or less for all trip types)	All Trips	Shared Ride 2	25.6%	23.7%
Multimodal Focus	Mode Share for Short Trips (3 miles or less for all trip types)	All Trips	Shared Ride 3+	19.2%	15.2%
Multimodal Focus	Mode Share for Short Trips (3 miles or less for all trip types)	All Trips	Transit	1.2%	1.4%
Multimodal Focus	Mode Share for Short Trips (3 miles or less for all trip types)	All Trips	Bike	1.1%	1.3%
Multimodal Focus	Mode Share for Short Trips (3 miles or less for all trip types)	All Trips	Walk	16.7%	19.5%
Multimodal Focus	Person Trips (commute trips, all trips)	Commute Trips	Drive Alone	426,363	463,081

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	Base 2016 458	2021 RP No Build Network 2035 NB 469
Multimodal Focus	Person Trips (commute trips, all trips)	Commute Trips	Shared Ride 2	52,196	55,804
Multimodal Focus	Person Trips (commute trips, all trips)	Commute Trips	Shared Ride 3+	18,044	16,857
Multimodal Focus	Person Trips (commute trips, all trips)	Commute Trips	Transit	23,319	30,225
Multimodal Focus	Person Trips (commute trips, all trips)	Commute Trips	Bike	8,420	12,490
Multimodal Focus	Person Trips (commute trips, all trips)	Commute Trips	Walk	9,089	13,297
Multimodal Focus	Person Trips (commute trips, all trips)	Commute Trips	Total	538,921	593,896
Multimodal Focus	Person Trips (commute trips, all trips)	All Trips	Drive Alone	2,440,162	2,890,092
Multimodal Focus	Person Trips (commute trips, all trips)	All Trips	Shared Ride 2	1,323,774	1,430,088
Multimodal Focus	Person Trips (commute trips, all trips)	All Trips	Shared Ride 3+	972,862	888,634
Multimodal Focus	Person Trips (commute trips, all trips)	All Trips	Transit	117,638	156,901
Multimodal Focus	Person Trips (commute trips, all trips)	All Trips	Bike	35,102	52,889

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	Base 2016 458	2021 RP No Build Network 2035 NB 469
Multimodal Focus	Person Trips (commute trips, all trips)	All Trips	Walk	327,970	439,529
Multimodal Focus	Person Trips (commute trips, all trips)	All Trips	Total	5,287,630	5,941,419
Multimodal Focus	Person Trips for short trips (3 miles or less for all trip types)	All Trips	Drive Alone	673,068	836,234
Multimodal Focus	Person Trips for short trips (3 miles or less for all trip types)	All Trips	Shared Ride 2	500,946	534,016
Multimodal Focus	Person Trips for short trips (3 miles or less for all trip types)	All Trips	Shared Ride 3+	376,369	342,151
Multimodal Focus	Person Trips for short trips (3 miles or less for all trip types)	All Trips	Transit	23,826	32,080
Multimodal Focus	Person Trips for short trips (3 miles or less for all trip types)	All Trips	Bike	21,252	30,346
Multimodal Focus	Person Trips for short trips (3 miles or less for all trip types)	All Trips	Walk	327,970	439,529
Multimodal Focus	Person Trips for short trips	All Trips	Total	1,958,222	2,253,818

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	Base 2016 458	2021 RP No Build Network 2035 NB 469
	(3 miles or less for all trip types)				
Economic Development and Goods Movement	Freight - Average Amount of Time in Congestion (Vehicle hours of delay)	All day - All Heavy Duty (HHD + MHD + LHD)	Highway (SHS)	961	1,604
Economic Development and Goods Movement	Freight - Average Amount of Time in Congestion (Vehicle hours of delay)	All day - All Heavy Duty (HHD + MHD + LHD)	Arterial	4,292	5,601
Economic Development and Goods Movement	Freight - Average Amount of Time in Congestion (Vehicle hours of delay)	All day - All Heavy Duty (HHD + MHD + LHD)	Total	5,252	7,205
Economic Development and Goods Movement	Freight - Average Amount of Time in Congestion (Vehicle hours of delay)	AM and PM peak - All Heavy Duty (HHD + MHD + LHD)	Highway (SHS)	751	1,131
Economic Development and Goods Movement	Freight - Average Amount of Time in Congestion (Vehicle hours of delay)	AM and PM peak - All Heavy Duty (HHD + MHD + LHD)	Arterial	1,824	2,383
Economic Development and Goods Movement	Freight - Average Amount of Time in Congestion (Vehicle hours of delay)	AM and PM peak - All Heavy Duty (HHD + MHD + LHD)	Total	2,575	3,514

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	**Base 2016 458**	**2021 RP No Build Network 2035 NB 469**
System Operations and Congestion Relief	Daily Vehicle Hour Delay by Vehicle Class	All Day	SOV	121,324	165,711
System Operations and Congestion Relief	Daily Vehicle Hour Delay by Vehicle Class	All Day	HOV	25,597	32,402
System Operations and Congestion Relief	Daily Vehicle Hour Delay by Vehicle Class	All Day	Bus	438	506
System Operations and Congestion Relief	Daily Vehicle Hour Delay by Vehicle Class	AM and PM peak	SOV	78,589	103,570
System Operations and Congestion Relief	Daily Vehicle Hour Delay by Vehicle Class	AM and PM peak	HOV	16,154	19,566
System Operations and Congestion Relief	Daily Vehicle Hour Delay by Vehicle Class	AM and PM peak	Bus	216	241
System Operations and Congestion Relief	Daily Vehicle Delay Per Capita (min)	-	-	12.0	13.8
Low-Income and Disadvantaged Community Focus	Percentage of Population within 0.5 Mile of High Frequency Transit Stop	Study Area Total	-	67.0%	66.7%

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	Base 2016 458	2021 RP No Build Network 2035 NB 469
-	(Social Equity Analysis)	-	-	-	-
Low-Income and Disadvantaged Community Focus	Percentage of Population within 0.5 Mile of High Frequency Transit Stop (Social Equity Analysis)	Low Income population	-	76.7%	75.6%
Low-Income and Disadvantaged Community Focus	Percentage of Population within 0.5 Mile of High Frequency Transit Stop (Social Equity Analysis)	Non-Low-Income population	-	60.4%	62.1%
Low-Income and Disadvantaged Community Focus	Percentage of Population within 0.5 Mile of High Frequency Transit Stop (Social Equity Analysis)	Minority population	-	70.2%	68.0%
Low-Income and Disadvantaged Community Focus	Percentage of Population within 0.5 Mile of High Frequency Transit Stop (Social Equity Analysis)	Non-Minority population	-	59.0%	63.0%
Low-Income and Disadvantaged	Percentage of Population within 0.5 Mile of High	Senior population	-	67.1%	65.7%

Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	Base 2016 458	2021 RP No Build Network 2035 NB 469
Community Focus	Frequency Transit Stop (Social Equity Analysis)	-	-	-	-
Low-Income and Disadvantaged Community Focus	Percentage of Population within 0.5 Mile of High Frequency Transit Stop (Social Equity Analysis)	Non-Senior population	-	67.0%	66.8%
Reduce GHG Emissions and VMT	Daily VMT	Study Area Total	-	22,288,021	25,375,198
Reduce GHG Emissions and VMT	Daily VMT	SB743 VMT Per Resident	-	15.79	16.23
Reduce GHG Emissions and VMT	Daily VMT	SB743 VMT per Employee	-	26.33	24.91
Reduce GHG Emissions and VMT	Daily VMT	Lane Mile	-	6,447	6,879
Active Transportation And Micromobility	Bicycle and Pedestrian Miles Traveled	Pedestrian	-	529,130	717,225
Active Transportation And Micromobility	Bicycle and Pedestrian Miles Traveled	Bicycle	-	124,480	196,651
Active Transportation	Percentage of the Population	-	-	17.5%	20.1%

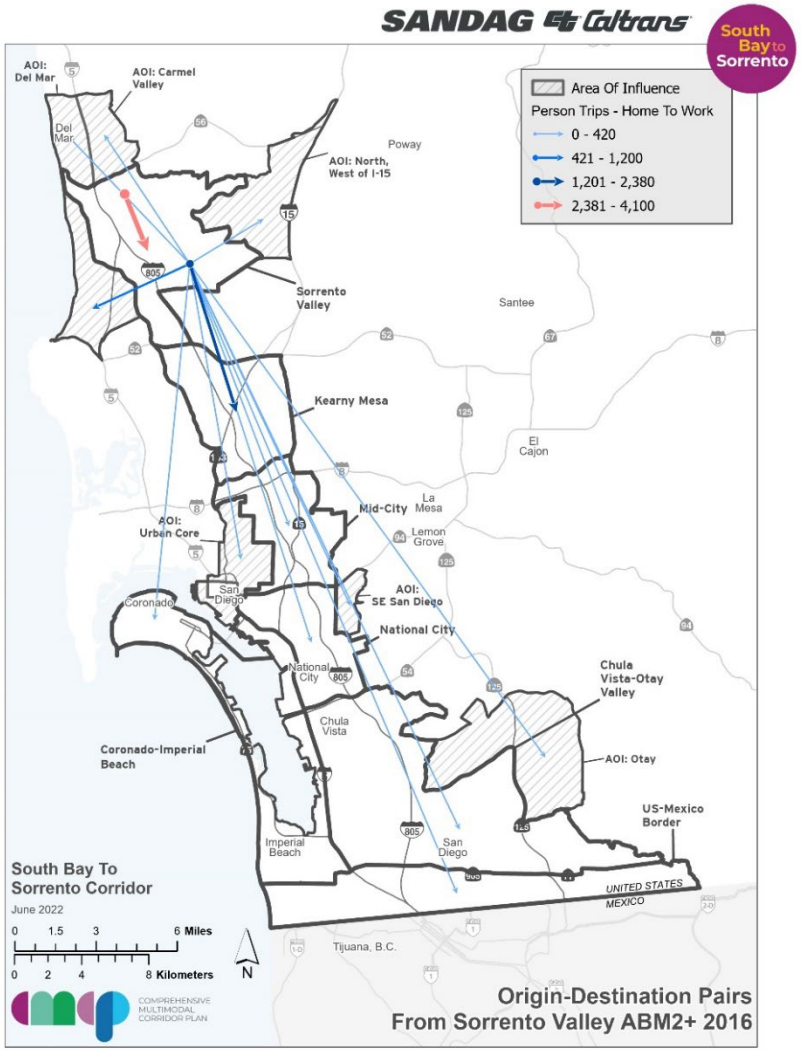
Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	Base 2016 458	2021 RP No Build Network 2035 NB 469
And Micromobility	Engaged in 20 Minutes or More of Transportation Related Physical Activity	-	-	-	-
Improve Jobs-Housing Balance	Population in Multi-family Residences within 0.25 Mile of a Transit Stop	Number	-	287,562	387,051
Improve Jobs-Housing Balance	Population in Multi-family Residences within 0.25 Mile of a Transit Stop	Percent	-	82.4%	80.4%
Improve Jobs-Housing Balance	Average Peak Commute Time to Work (Min)	Drive Alone	-	22.6	23.7
Improve Jobs-Housing Balance	Average Peak Commute Time to Work (Min)	Shared Ride 2	-	21.4	22.2
Improve Jobs-Housing Balance	Average Peak Commute Time to Work (Min)	Shared Ride 3+	-	22.0	22.5
Improve Jobs-Housing Balance	Average Peak Commute Time to Work (Min)	Transit	-	56.9	56.6
Improve Jobs-Housing Balance	Average Peak Commute Time to Work (Min)	Bike	-	20.0	22.5
Improve Jobs-Housing Balance	Average Peak Commute Time to Work (Min)	Walk	-	22.2	21.8

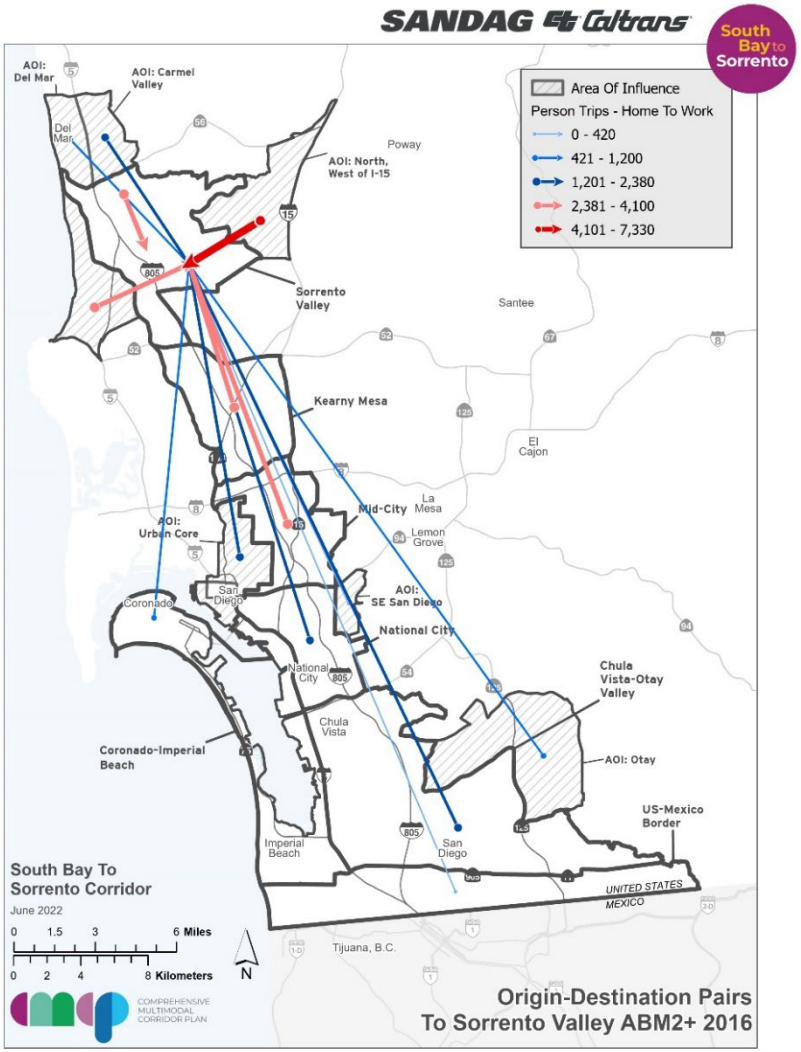
Category	*Data Factor A*	*Data Factor B*	*Scenario ID*	**Base 2016 458**	**2021 RP No Build Network 2035 NB 469**
Increase Supply Of Affordable Housing	Multi-family Housing within 0.5 Mile of High Frequency Transit	Number	-	106,453	155,423
Increase Supply Of Affordable Housing	Multi-family Housing within 0.5 Mile of High Frequency Transit	Percent	-	84.0%	81.4%

HHD = Heavy-Heavy-Duty (33,001-60,000 lbs)
LHD = Light-Heavy-Duty (8,501-14,000 lbs)
Min = Minutes
MHD = Medium-Heavy-Duty (14,001-33,000 lbs)
NB = northbound
SHS = state highway system

APPENDIX C
BASE YEAR (2016) HOME-TO-WORK (ORIGIN AND DESTINATION) MAPS BY SUBAREA

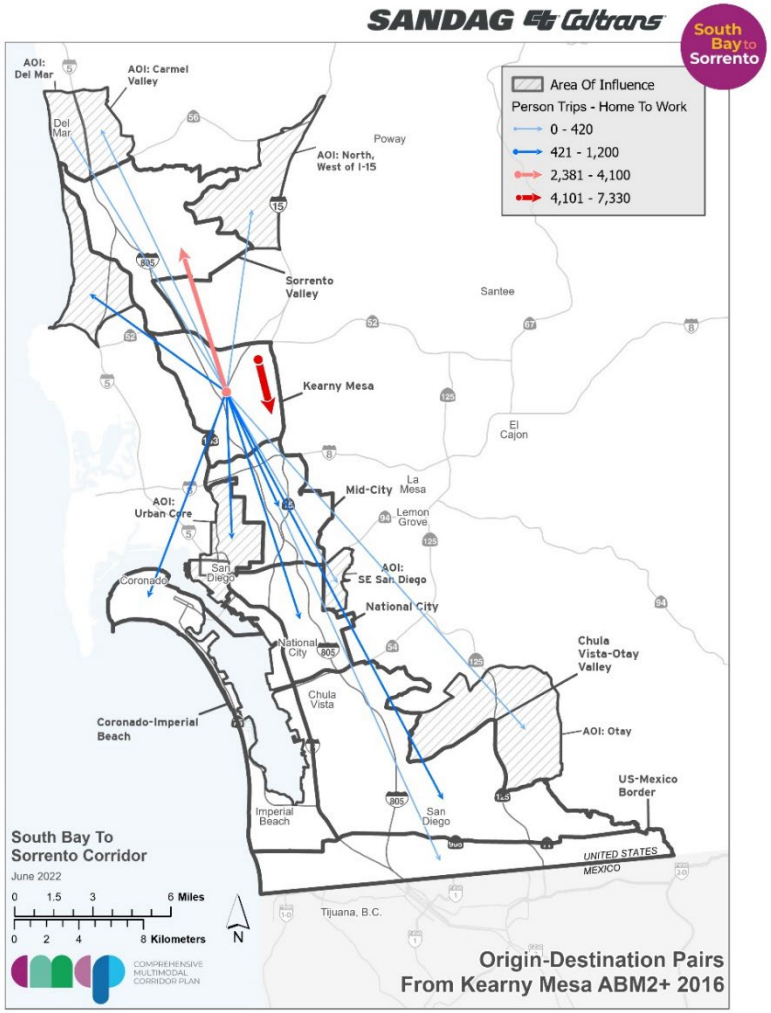
Figure 43. Sorrento Valley 2016 Home-to-Work Trips[75] (AM Commute)

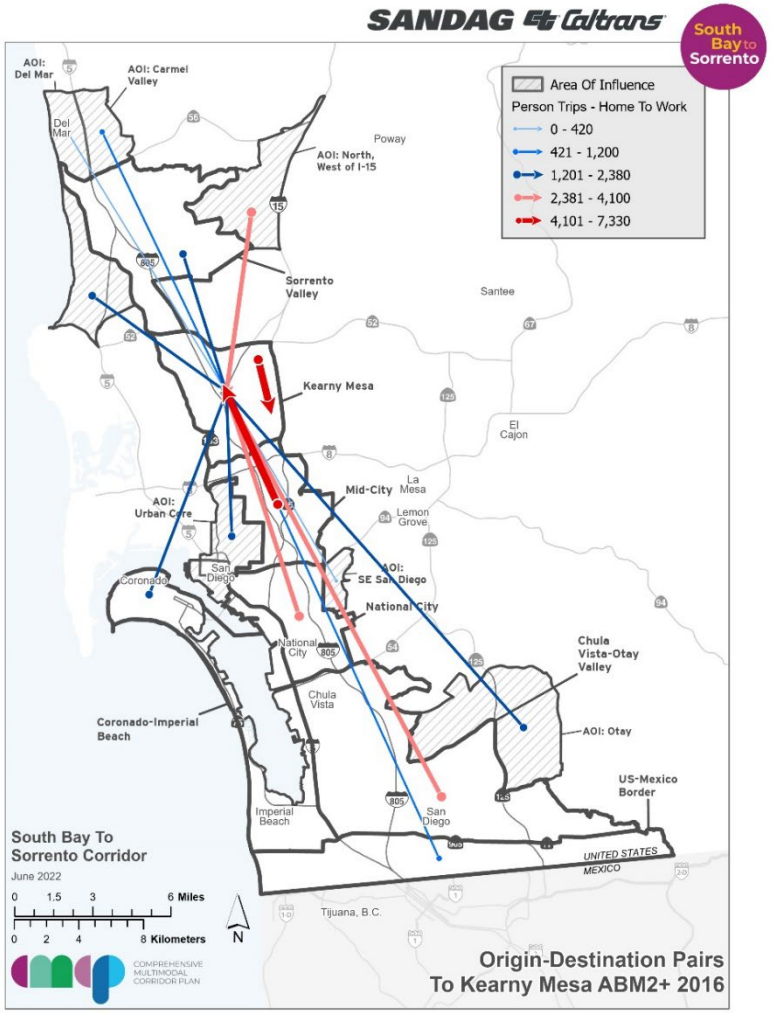




[75] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

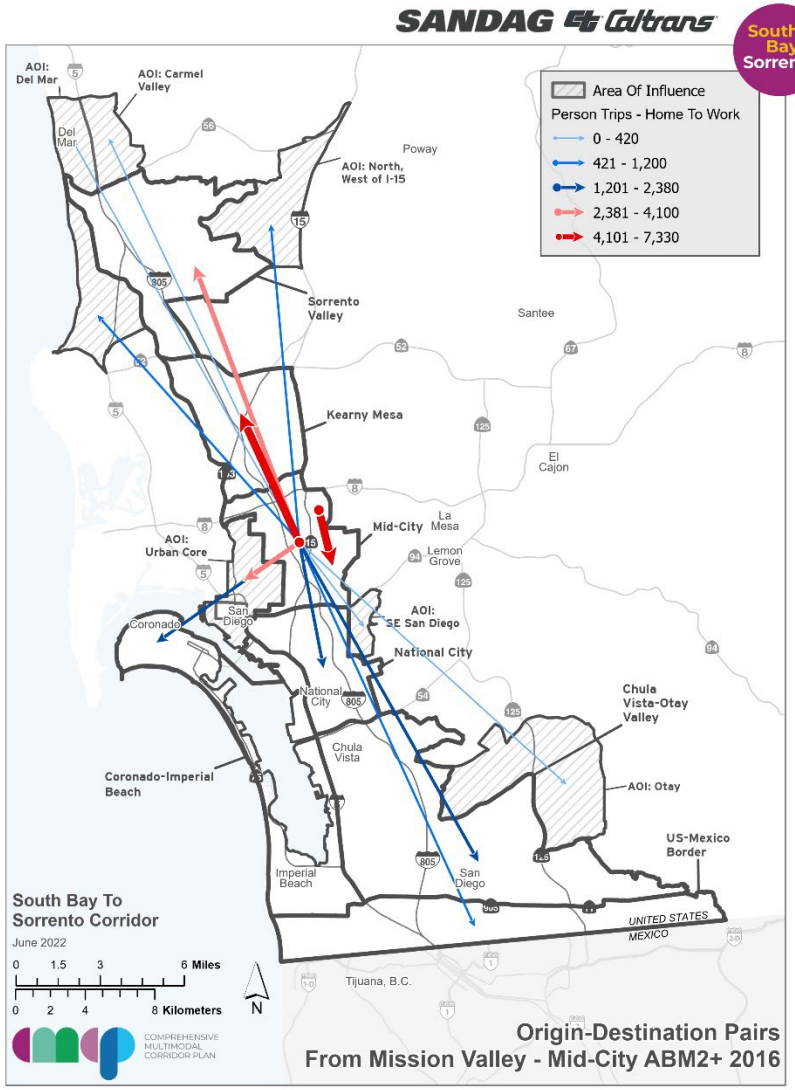
Figure 44. Kearny Mesa 2016 Home-to-Work Trips[76] (AM Commute)

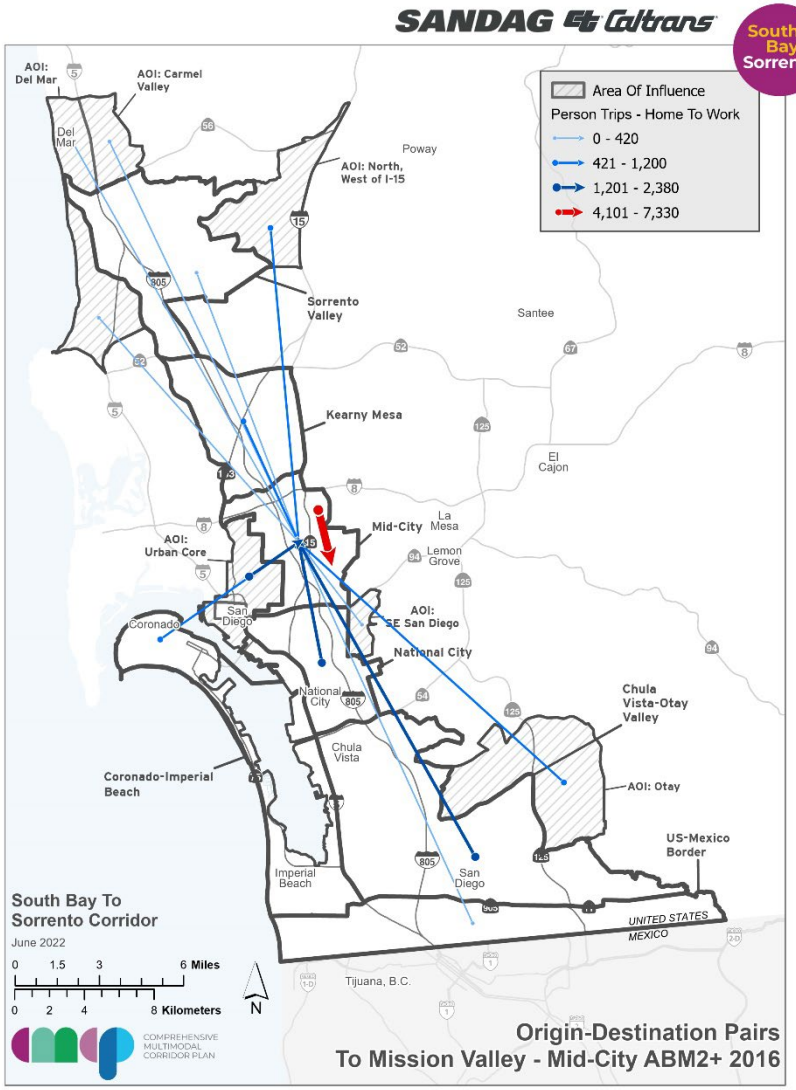




[76] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

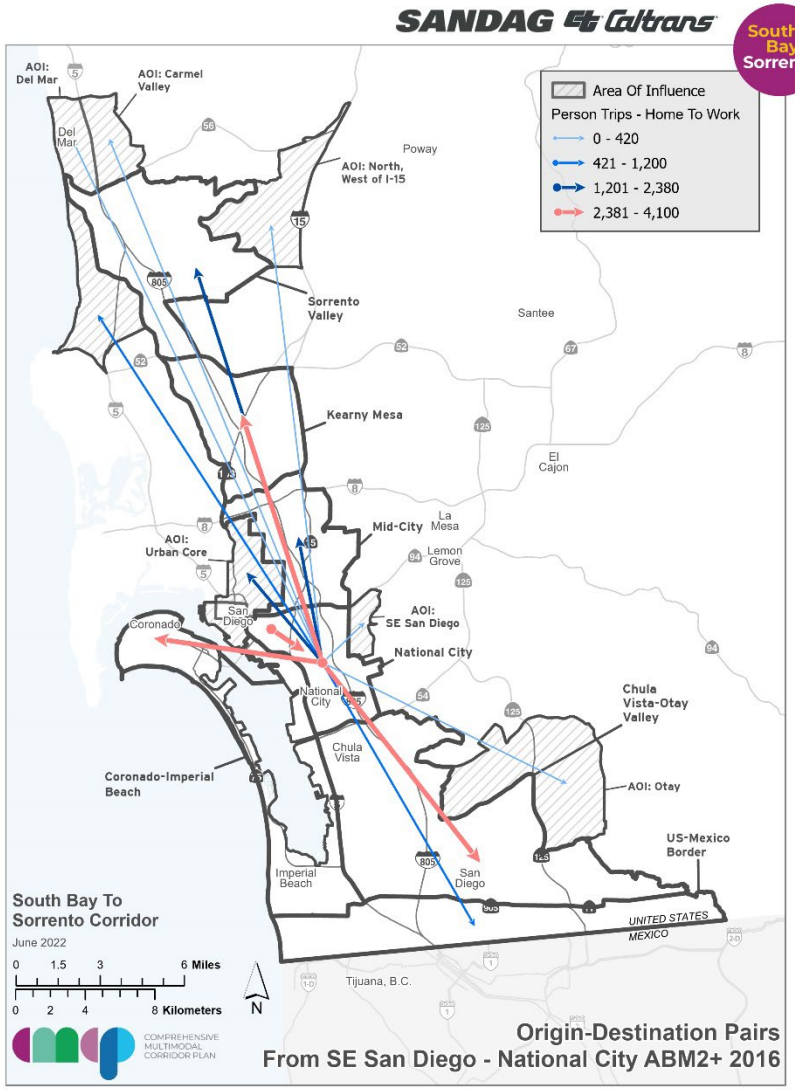
Figure 45. Mission Valley/Mid City 2016 Home-to-Work Trips[77] (AM Commute)

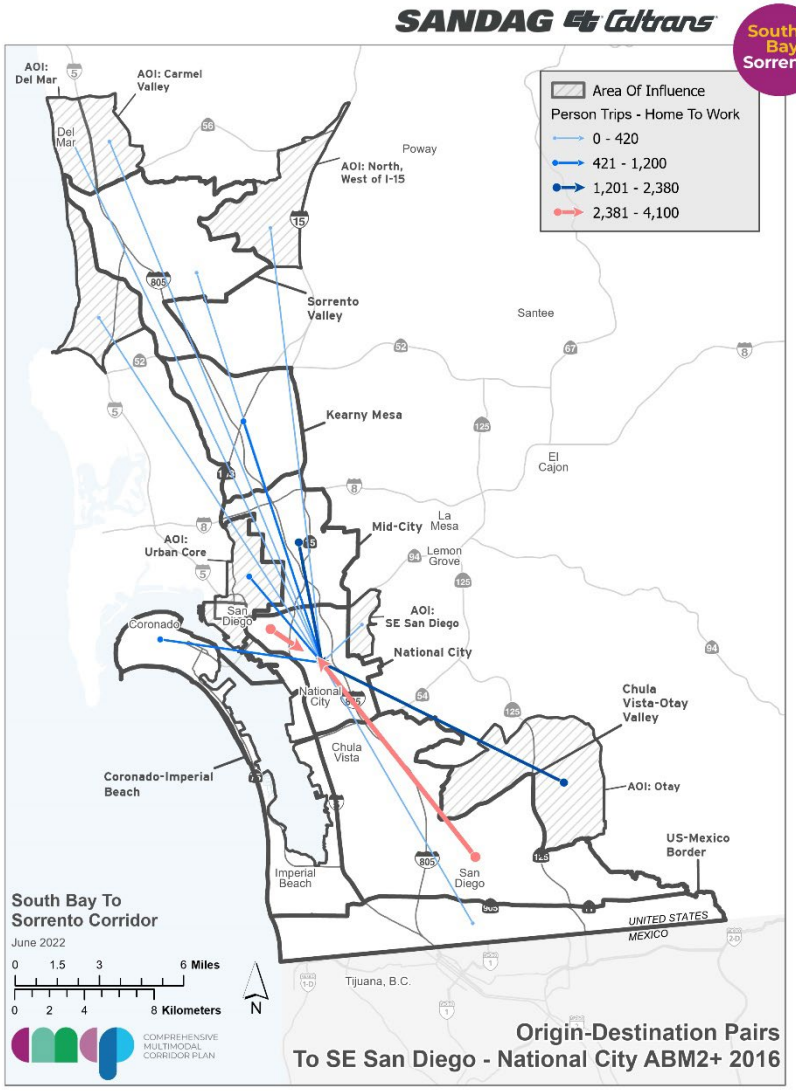




[77] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

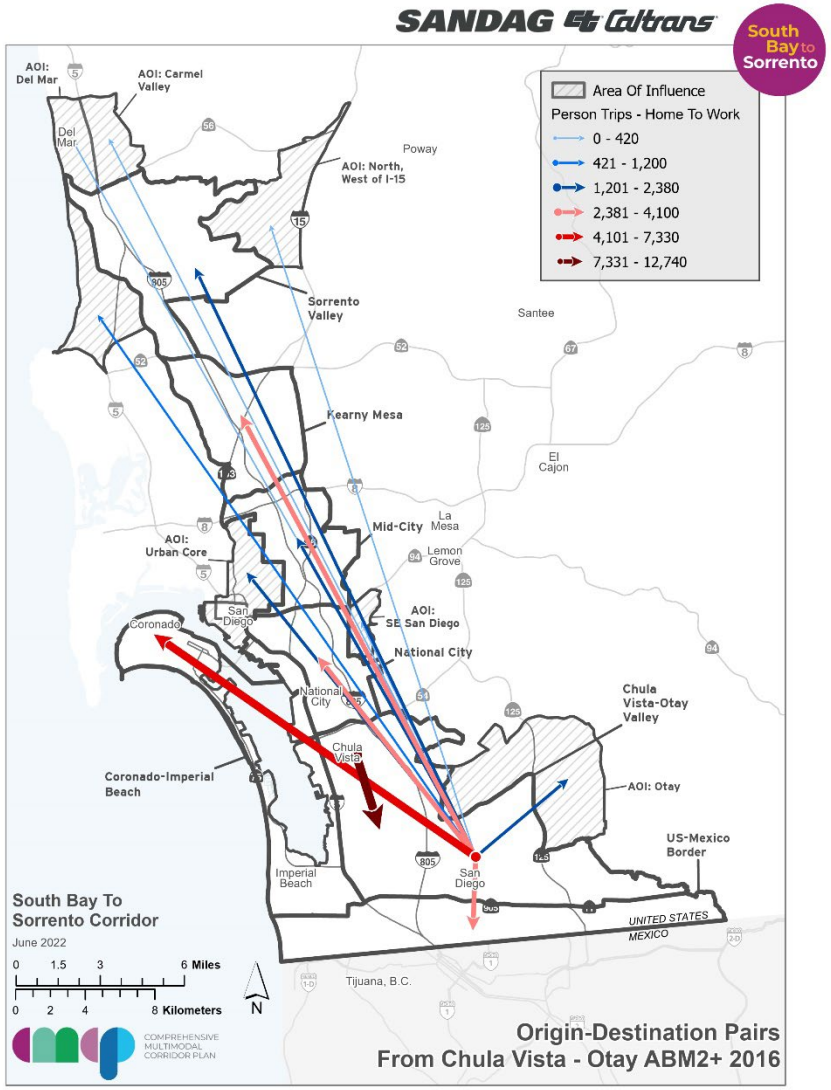
Figure 46. SE San Diego/National City 2016 Home-to-Work Trips[78] (AM Commute)

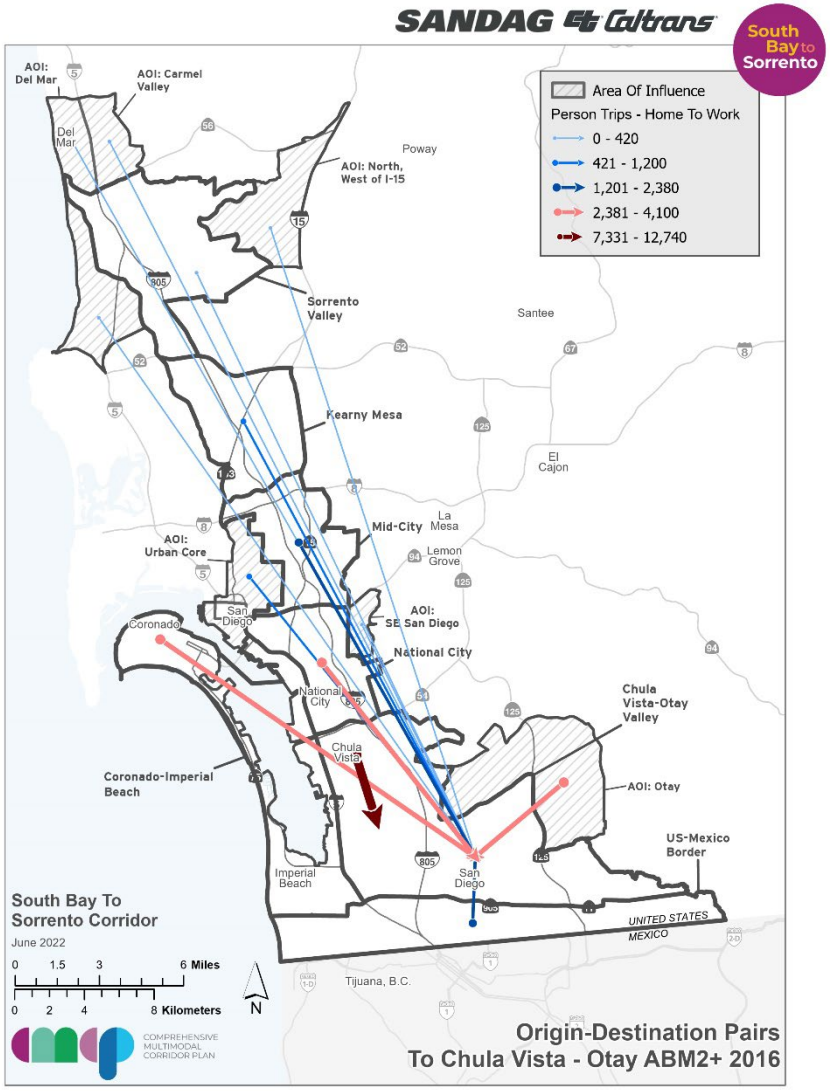




[78] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

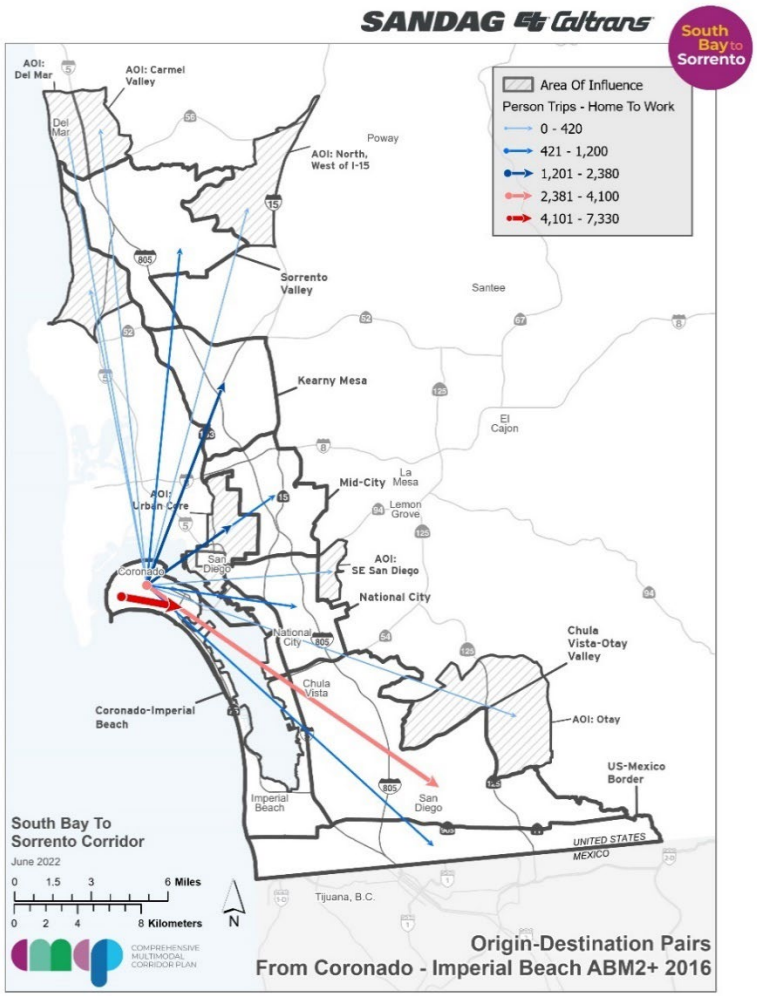
Figure 47. Chula Vista/Otay 2016 Home-to-Work Trips[79] (AM Commute)

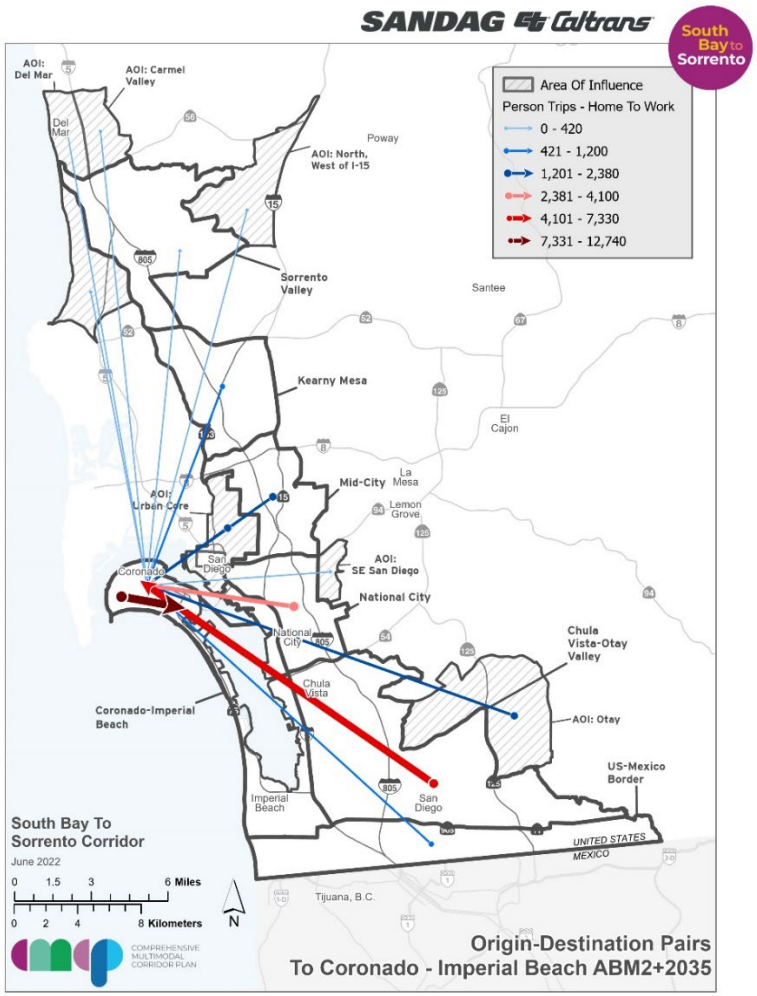




[79] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

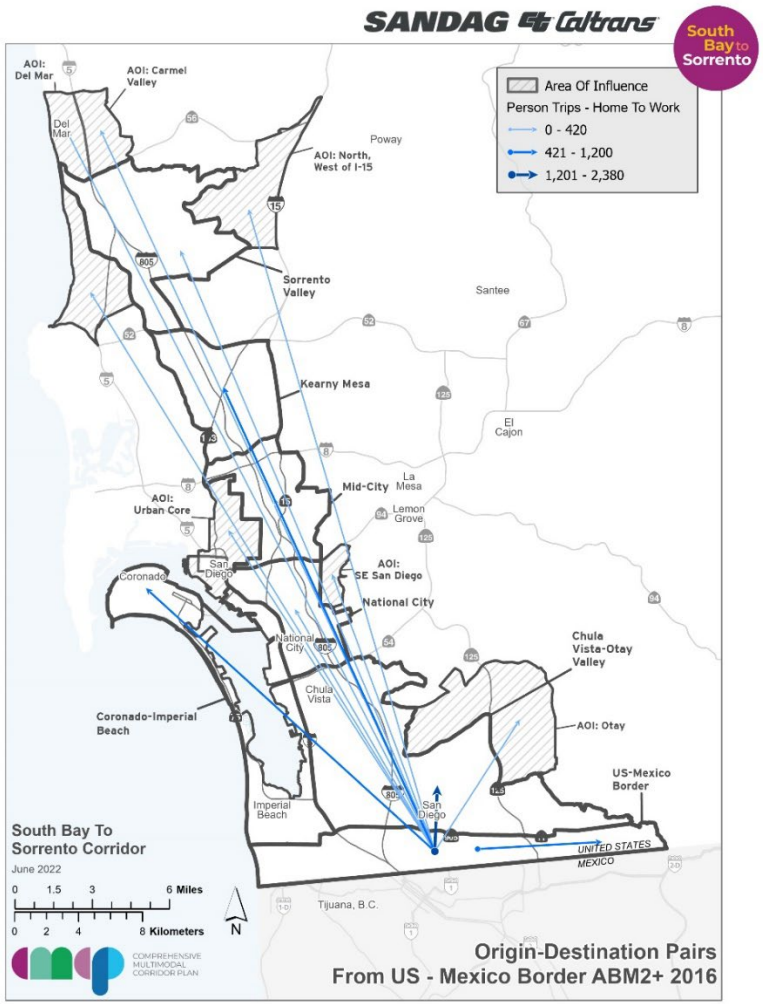
Figure 48. Coronado/Imperial Beach 2016 Home-to-Work Trips[80] (AM Commute)

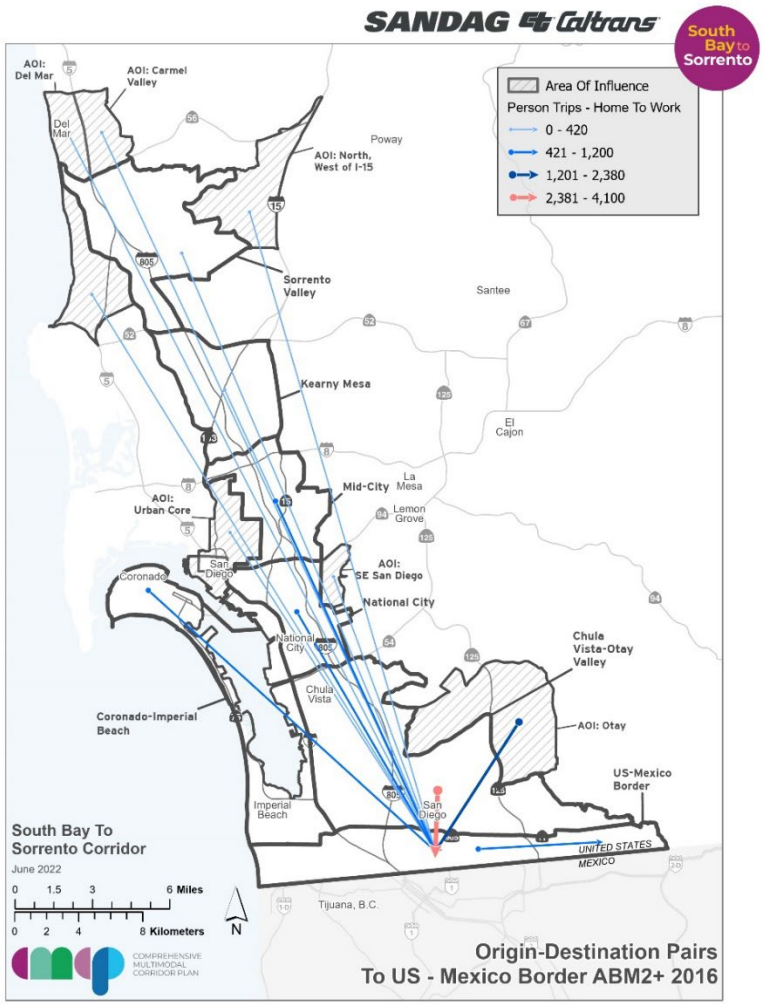




[80] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

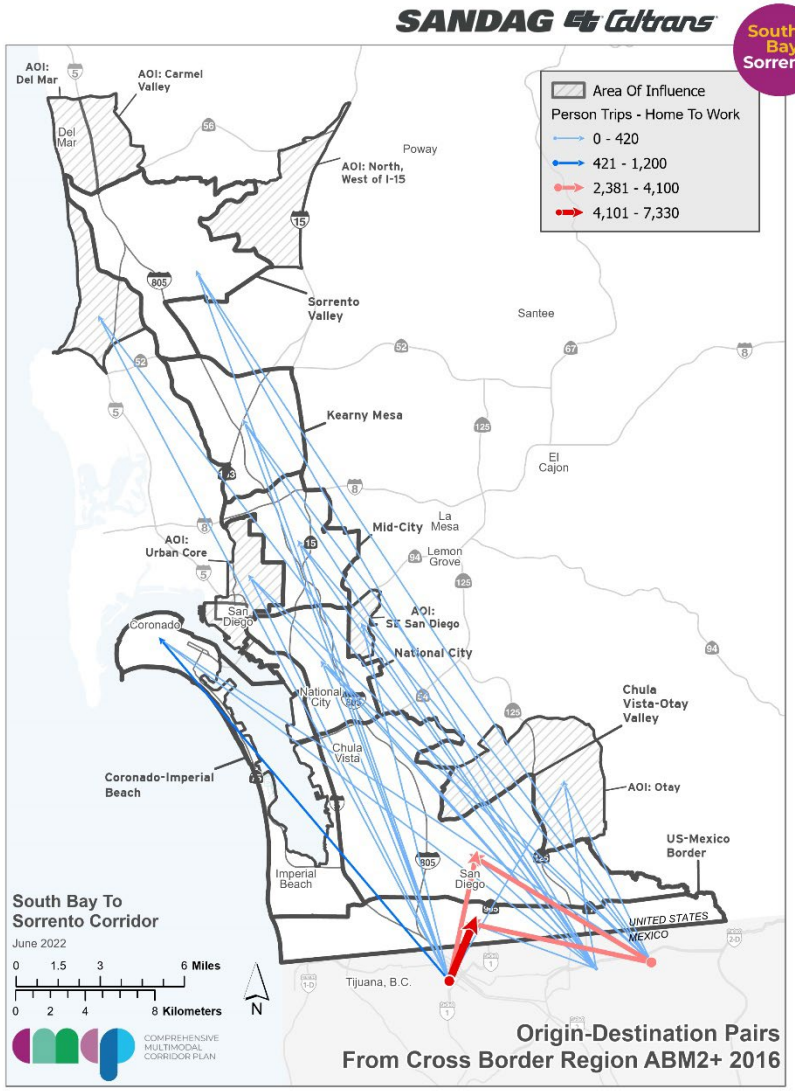
Figure 49. U.S.-Mexico Border 2016 Home-to-Work Trips[81] (AM Commute)

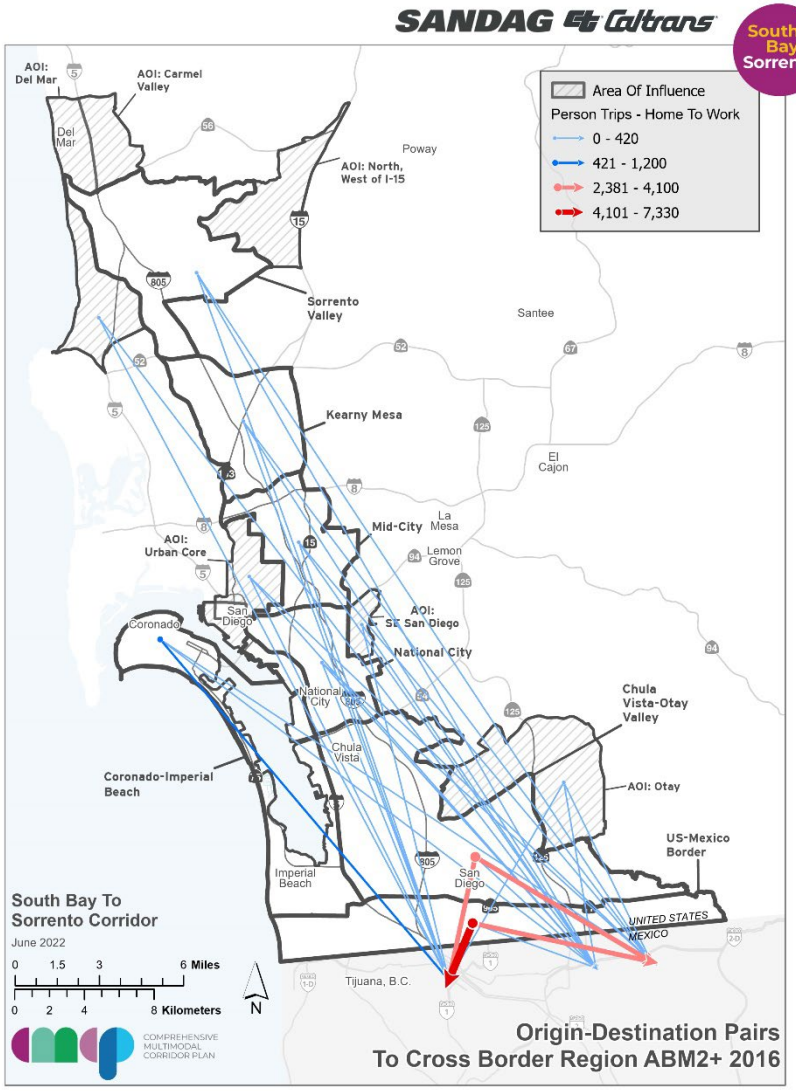




[81] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

Figure 50. Cross-border 2016 Home-to-Work Trips[82] (AM Commute)

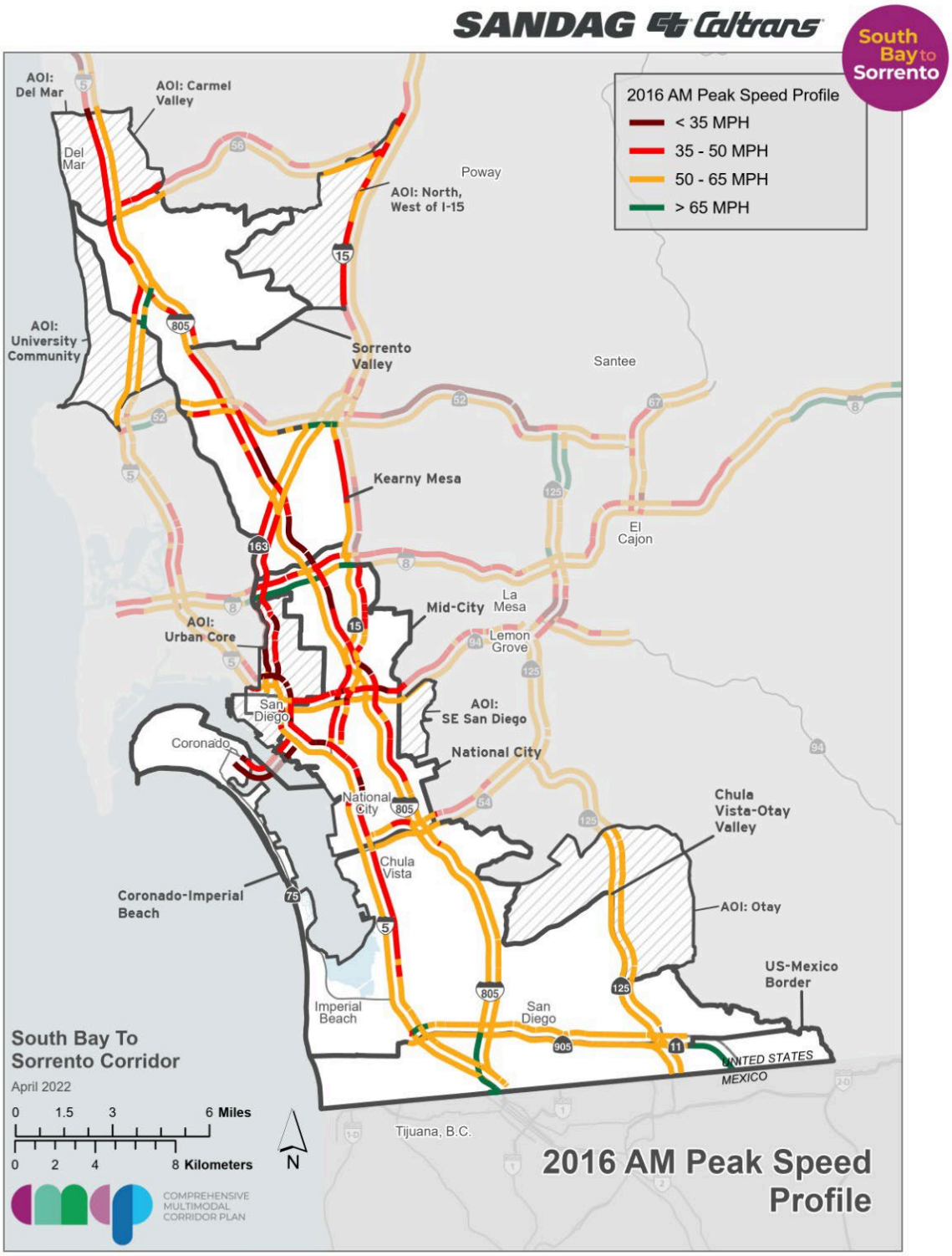




[82] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

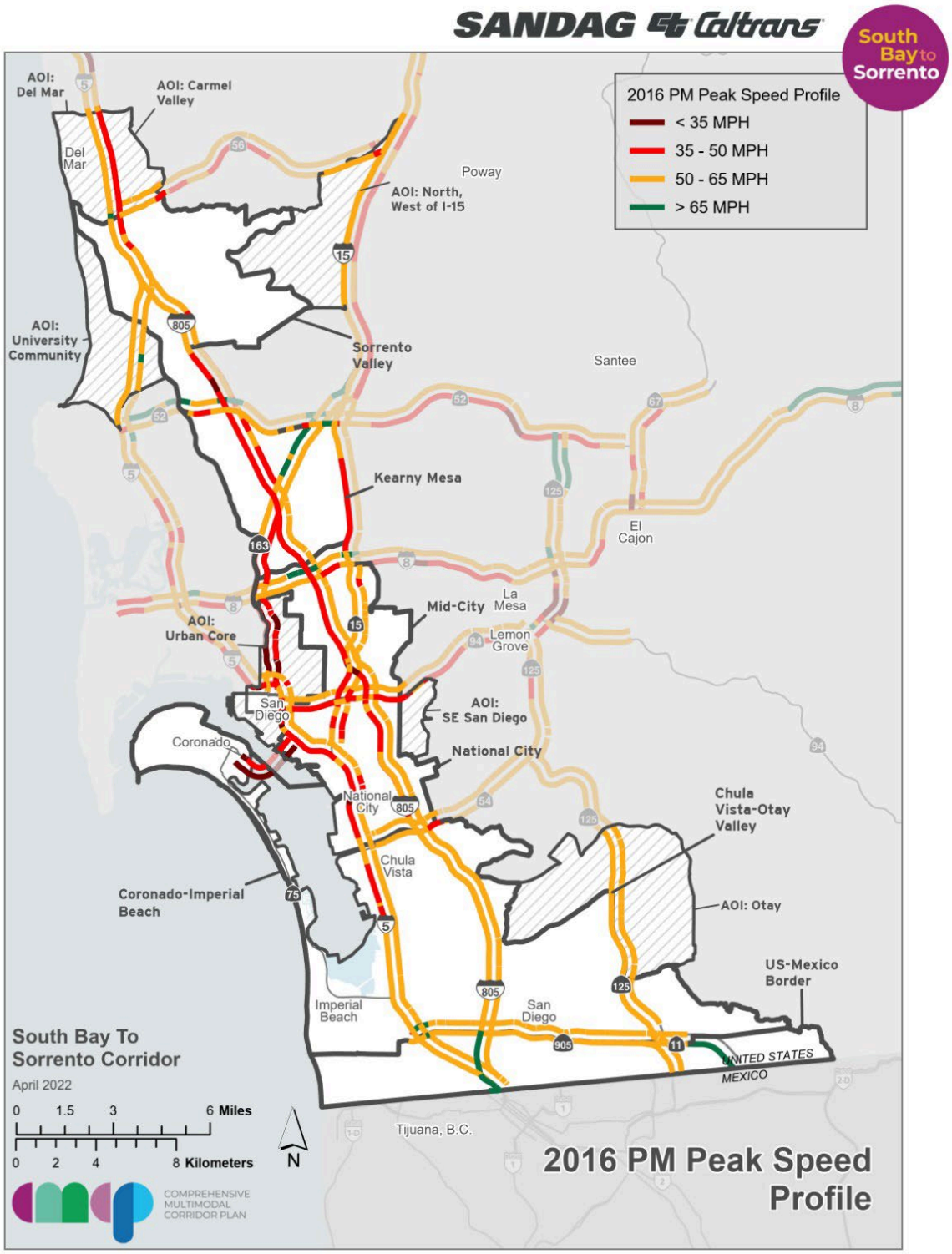
APPENDIX D
BASE YEAR (2016) AND 2035 NO BUILD SPEED PROFILES

Figure 51. Base Year 2016 AM Peak Speed Profile[83]



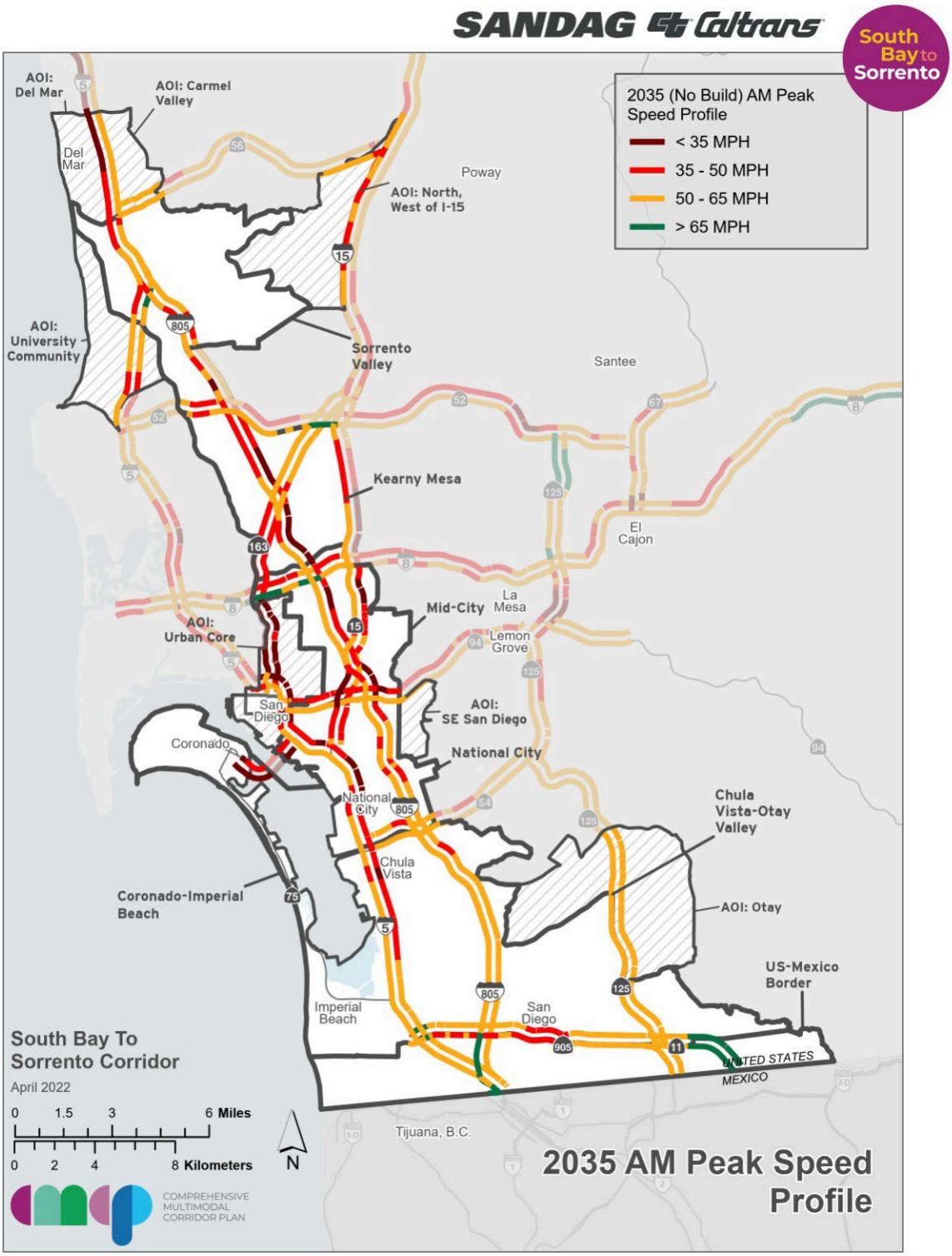
[83] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

Figure 52. Base Year 2016 PM Peak Speed Profile[84]



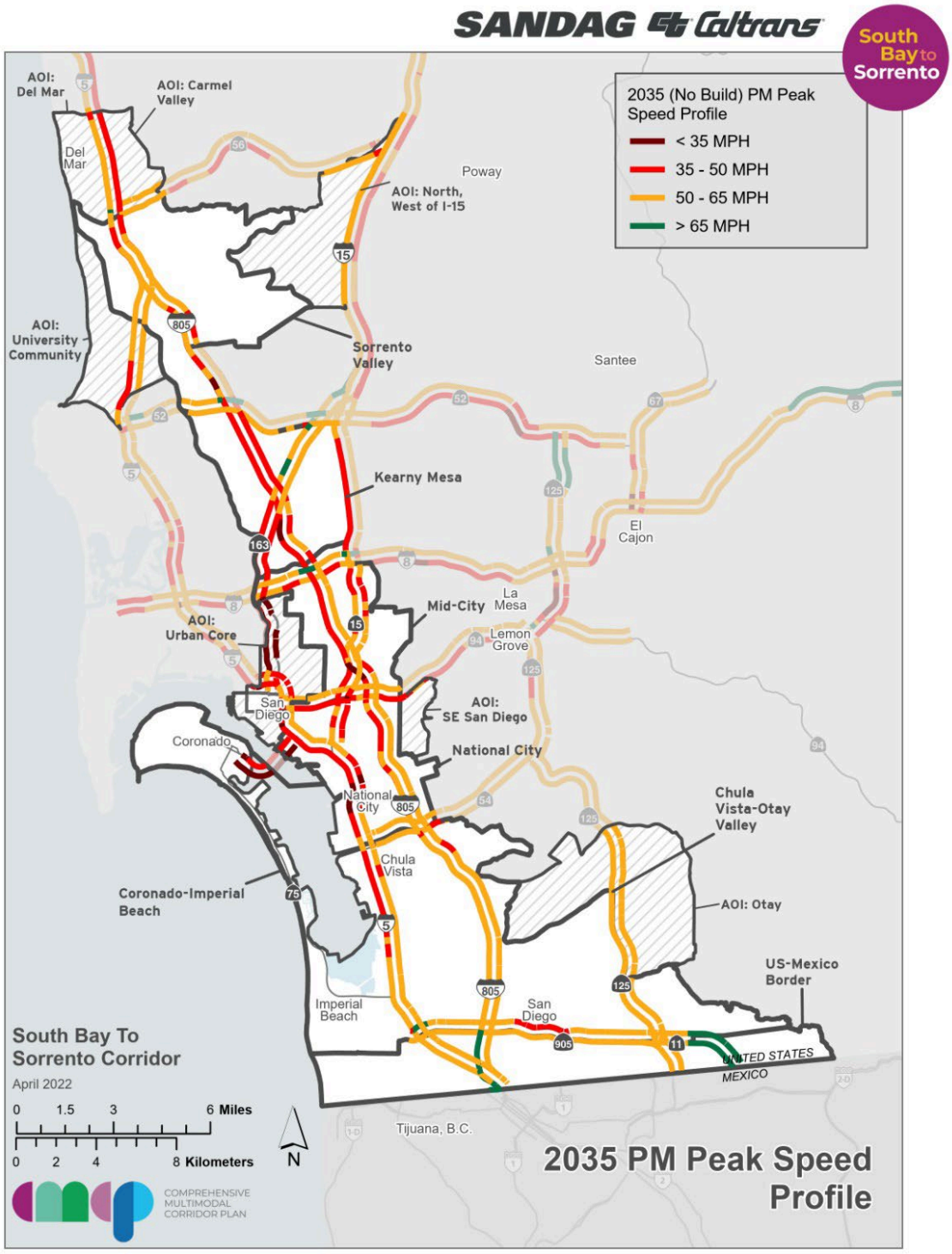
[84] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

Figure 53. Year 2035 No Build AM Peak Speed Profile[85]



[85] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

Figure 54. Year 2035 No Build PM Peak Speed Profile[86]



[86] SANDAG, ABM2+ version 14.2.2 with DS38 SCS forecast

APPENDIX E
CMCP GUIDING PRINCIPLES, GOALS, AND OBJECTIVES

GUIDING PRINCIPLES

These draft Guiding Principles may inform the CMCP's approach to assessing and addressing gaps and opportunities in the multimodal corridor. The Goals and Objectives are listed in the matrix on the following pages.

Future Proofing

- Leverage **emerging technologies** and prepare physical and digital infrastructure for those emerging trends, such as automated, connected, shared, and electric vehicles.
- Promote a **state of good repair** by maintaining/improving existing system assets.

Partnerships/Collaboration

- Leverage opportunities to meet the unique needs of **disadvantaged, low-income, military, and binational communities** that live and travel within and through the corridor.
- Promote complete transportation systems by building consensus amongst local, regional, and state team members so that commute events are well-designed as they move from one jurisdiction to another.

Resiliency/Sustainability/Livability

- Consider investments that **enhance the vitality and livability of public space,** such as through human-scaled designs, placemaking, and access to recreation and open space.
- Promote **high quality, comfortable, and efficient multimodal** intra- and inter-community trips that are attractive and feasible alternatives to **the SOV** and recognize that at some point in every trip everyone is a pedestrian.
- Improve the **ability of the transportation system to maintain service during planned and unplanned** disruptions due to maintenance and repair, extreme events, and disasters during planned and unplanned disruptions.
- Avoid/**reduce impacts to high quality habitat areas** (MSCPs).
- Consider projects that don't necessarily involve heavy infrastructure (promote vanpooling/ telework, internet accessibility, etc.).
- Consider incorporating alternative sources of energy to support transportation facilities.

Economic Opportunity

- **Support economic opportunity while limiting harmful emissions and balancing right-of-way and safety,** especially in low-income and disadvantaged communities where low-cost transportation alternatives would be essential.
- Minimize residential and small business **displacement.**
- Consider business opportunities for those interested in serving travelers.

GOALS AND OBJECTIVES

In preparation for the development of this CMCP and other CMCPs in the region, SANDAG and Caltrans established a set of "Policy Consideration Areas" for each CMCP to address as follows:

- Multimodal focus
- Economic development and goods movement
- System operations and congestion relief
- Low-income and disadvantaged community focus
- Reduce GHG emissions and VMT
- Improve air quality and public health
- Active transportation and micromobility
- Improve jobs-housing balance
- Increase supply of affordable housing
- Public safety and security
- Preserve existing transportation infrastructure
- Prevent residential and small business displacement

Over a series of meetings, the PDT and other subject matter experts discussed goals and objectives that capture the intent of the Policy Consideration Areas that can be used to guide the evaluation of strategies (projects, programs, and policies).

The study team recommended that the draft goals be consolidated, as shown in the first column of Table 12, to eliminate duplication. The second column of the table demonstrates that each of the proposed goals can be mapped to one or more Policy Consideration Areas.

Table 12. Comparison of Proposed SB2S CMCP Goals to Policy Consideration Areas

Proposed SB2S CMCP Goal	Policy Consideration Area
Improve Travel Safety	• Public Safety and Security
Improve Mobility (Traffic Congestion and Transportation Choices)	• Multimodal Focus • System Operations and Congestion Relief • Active Transportation and Micromobility
Social Equity/Fairness	• Low-income and Disadvantaged Community Focus • Prevent Residential and Small Business Displacement
Support Economic Opportunity	• Economic Development and Goods Movement
Efficient Land Use	• Improve Jobs-Housing Balance • Increase Supply of Affordable Housing
Sustainability, Health and Resilience	• Reduce GHG emissions and VMT • Improve Air Quality and Public Health • Preserve Existing Transportation Infrastructure

Refinement of CMCP Objectives

Objectives are derived from the goals and should specify a measurable change that will indicate whether progress is being made toward achieving the corresponding goal. They need not identify *how* that change will be measured. For example, the objective of "reduce collisions" specifies something that can be measured and the direction of the desired change. It leaves open how collisions will be measured (e.g., what the data source will be, whether the rate or absolute number will be quantified, what time period will be analyzed).

In a complex evaluation process such as that required for the CMCP, there are additional considerations when establishing objectives. Because the CMCP incorporates multiple, disparate goals ranging across economic, environmental, and mobility concerns, practicality argues for limiting the number of objectives for each goal. Decision-makers, public stakeholders, and professional analysts have limits to their ability to make multiple, simultaneous comparisons and trade-offs. Generally, considering more than 10 factors can become difficult. With six goals for the CMCP, it would be reasonable to limit the number of objectives per goal.

It follows from the desirability of limiting the number of objectives per goal that the objectives for each goal should be different and lead to different performance measures. Some objectives, such as reducing VMT, may be relevant to multiple goals (e.g., improving safety, efficient land use, and sustainability). However, once an objective is identified to represent one goal, it need not be repeated for other goals.

Therefore, SANDAG and Caltrans' draft objectives were reviewed, and a reduced set of proposed objectives was developed. The following sections review each goal, discussing the draft objectives and presenting proposed objectives along with the rationale for each change. Following the discussion of the proposed objectives, a summary table shows the consolidated proposed objectives.

Goal 1 - Improve Travel Safety

This goal reflects the importance of reducing the potential for physical harm related to travel. This includes fatal and injury collisions (single- or multi-party) that may occur while traveling in an automobile, train, bus, on a bicycle, by other mobility device, or while walking. It also includes reducing potential safety threats from potential crime at or near transportation facilities.

The draft SANDAG and Caltrans CMCP objectives identified three separate objectives. The proposed SB2S objectives consolidated these to two objectives. The first objective is to reduce fatal and injury collisions regardless of mode. In addition, there are other safety measures, specific to each mode, that may affect safety other than by reducing collisions, such as improving lighting. These are captured under the second objective to "Improve safety for motorized and non-motorized users" (see Table 13).

Table 13. Summary Table, Goal 1 - Improve Travel Safety

Draft SANDAG/Caltrans CMCP Objectives	Proposed SB2S Objectives
• Reduce fatal and injury collisions • Reduce bicycle and pedestrian fatalities/injuries • Improve worker safety	• Reduce fatal and injury collisions • Improve safety for motorized and non-motorized users

Goal 2 - Improve Mobility

This goal captures the provision of additional transportation modes to a greater number of people for a greater number of trips, as well as the ability of these modes to transport more users in the most efficient and swiftest way possible. Since congestion affects each mode in different ways, solutions can be implemented to reduce congestion either through infrastructure improvements or by providing alternate modes, which will lead to reduced reliance on one specific congested mode.

The draft SANDAG and Caltrans CMCP objectives identified six separate objectives. The proposed SB2S objectives reduced this to three objectives. Objectives related to accessibility are included under the goal of social equity/fairness since the measures are the same, but they are simply applied to all transportation system users rather than focusing on social equity focus populations. “Increase the efficiency of the transportation system” was deleted because it is vague and does not suggest the specific intended change and other proposed objectives cover similar issues. “Improve active transportation network facilities and connectivity” was deleted because it is a means to the objective of increasing trips by active transportation (see Table 14).

Table 14. Summary Table, Goal 2 - Improve Mobility

Draft SANDAG/Caltrans CMCP Objectives	Proposed SB2S Objectives
• Improve mode share for non-SOVs • Increase the efficiency of the transportation system, especially for major origin-destination pairs • Reduce recurrent congestion • Reduce non-recurrent congestion • Support achievement of California Transportation Plan 2040[87] targets (e.g., “double walking, triple bicycling, and double transit by 2040,” “Increase the number of complete streets projects by 20%”) • Improve active transportation network facilities and connectivity	• Increase mode share for non-SOV travel • Reduce congestion • Increase number of trips completed by active transportation

Goal 3 - Social Equity/Fairness

Many San Diegans are underserved in their access to high quality transportation options; therefore, their connectivity to economic opportunities. This goal reflects the need to ensure that social equity focus populations, which are populations with a high concentration of low-income people, seniors, communities of color, and federally recognized Native American tribes, are afforded equal access to the transportation networks for all modes and to destinations throughout the region.

The draft SANDAG and Caltrans CMCP objectives identified three separate objectives, and the proposed SB2S objectives included four revised objectives. The objective about information dissemination was deleted because it is a means to achieving the other objectives. An objective about access to flexible fleets (micromobility, rideshare, microtransit, ride-hailing, and last-mile

[87] California Department of Transportation (Caltrans). 2021. California Transportation Plan 2050. https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/ctp-2050-v3-a11y.pdf

delivery) was added because of the large number of mobility hubs envisioned for the corridor and because flexible fleets are distinct from traditional transit and active transportation. The performance measures associated with these objectives will be applied to social equity focus populations and to all transportation system users. To reflect the substantial presence of the military and veterans in the corridor, the social equity objectives will consider veterans as a community of concern to the extent that data particular to veterans can be obtained. All four of the proposed objectives relate to access to activity centers, employment centers, education centers, and other essential destinations (see Table 15).

Table 15. Summary Table, Goal 3 - Social Equity/Fairness

Draft SANDAG/Caltrans CMCP Objectives	Proposed SB2S Objectives
• Improve access to frequent transit and multimodal choices • Include information dissemination platforms available to social equity focus populations • Increase number and quality of transportation options that serve social equity focus populations	• Increase access to frequent high-quality transit for social equity focus populations • Increase access to active transportation options for social equity focus populations • Increase access to flexible fleet options for social equity focus populations • Improve connectivity to employment centers and higher education

Goal 4 - Support Economic Opportunity

This goal reflects the critical role that access to the region's many economic hubs, such as office parks, industrial zones, ports of entry, and higher education facilities, plays in providing economic opportunity to the region's residents. It also recognizes the importance of the efficient movement of people and goods to the overall economic growth of the region.

The draft SANDAG and Caltrans CMCP objectives identified four separate objectives, and the proposed SB2S objectives reduced the number to three. The objective related to drop-off and pick-up areas is encompassed within access to employment centers, higher education, and border crossings. Two of the proposed objectives address unique aspects of the SB2S Corridor: "Improve access to border crossings" addresses passenger and freight activity at points of entry on the U.S.-Mexico border, and "Improve freight efficiency" addresses the large amount of freight activity throughout the corridor generated by land and seaports of entry (see Table 16).

Table 16. Summary Table, Goal 4 - Support Economic Opportunity

Draft SANDAG/Caltrans CMCP Objectives	Proposed SB2S Objectives
• Improve access to economic opportunity (i.e., employment centers) • Enhance transit service options and connectivity to the border crossings • Provide enhanced drop-off and pick-up areas for private "transit/shuttle" services • Improve freight efficiency	• Improve access to employment centers and higher education • Improve access to border crossings • Improve freight efficiency

Goal 5 - Efficient Land Use

This goal recognizes the role that land use plays in increasing the need for and cost of travel, both at the individual and societal level. This goal is intended to encourage the implementation of transportation-efficient land use principles, which would allow for more people to live, work, and recreate in proximity to transportation networks and hubs.

The draft SANDAG and Caltrans CMCP objectives identified three separate objectives, and the proposed SB2S objectives reduced the number to one. The objective related to jobs/housing balance has to do with the locations of employment and residences, not to transportation system improvements. The objective of improving commute times can be addressed by the objective of relieving congestion (see Table 17).

Table 17. Summary Table, Goal 5 - Efficient Land Use

Draft SANDAG/Caltrans CMCP Objectives	Proposed SB2S Objectives
• Improve jobs-housing balance • Improve commute times to work • Improve connectivity of dense areas to transit	• Maximize multimodal choices in mixed-use and in-fill development areas

Goal 6 - Sustainability, Health, and Resilience

This goal encourages the reduction of GHG emissions and other pollutants in order to reduce environmental impacts and the region's contribution to climate change. In addition, it captures the need for infrastructure and communities to enhance resilience to natural and manmade disasters, including stressors resulting from climate change that will impact the region, such as sea level rise and increased wildfires. The goal also addresses other negative health effects that may be caused by transportation facilities.

The draft SANDAG CMCP objectives identified three separate objectives, and the proposed SB2S objectives included three revised objectives. The objectives related to VMT and emissions are highly correlated with GHG emissions, so they were consolidated into a single objective: "Reduce GHG and criteria pollutants." This objective encompasses various means toward that end, such as increasing zero emission vehicle (ZEV) infrastructure and reducing dependence on personal fossil-fuel vehicles.

The objective of "Improve the resilience and state of good repair of the transportation system" captures strategies that improve preparedness for potential future impacts to the transportation network. It also captures reducing the risk of potential service disruptions, as well as redundancy of routes, modes, and energy sources and distribution. The state of good repair aspect of this objective includes asset management to increase the useful life of facilities and improvements to make them more resistant to damage.

There are other environmental benefits beyond air quality, so an objective was added to include those other benefits, such as benefits to water, habitat, community, or recreational resources (see Table 18).

Table 18. Summary Table, Goal 6 - Sustainability, Health, and Resilience

Draft SANDAG/Caltrans CMCP Objectives	Proposed SB2S Objectives
• Reduce VMT per capita • Reduce emission pollutants that affect air quality • Improve the resilience of the transportation system	• Reduce GHG and criteria pollutants • Reduce impacts to water, habitat, community, or recreational resources • Improve the resilience and state of good repair of the transportation system

Table 19 summarizes the proposed objectives for each goal of the SB2S CMCP. Objectives shown in **bold** address unique aspects of the SB2S Corridor: the large number of proposed mobility hubs, passenger and freight activity at ports of entry on the U.S.-Mexico border, and the generally large amount of freight activity throughout the corridor generated by the Port of San Diego and land ports of entry. In addition, to reflect the substantial presence of the military and veterans in the corridor, the social equity objectives will consider veterans as a community of concern, to the extent that data particular to veterans can be obtained.

Table 19. Summary of Proposed Objectives

SB2S CMCP Goal	Proposed SB2S Objectives
Improve Travel Safety	• Reduce fatal and injury collisions • Improve safety for motorized and non-motorized users
Improve Mobility (Traffic Congestion and Transportation Choices)	• Improve mode share for non-SOVs • Reduce congestion • Increase number of trips completed by active transportation
Social Equity/Fairness	• Increase access to frequent transit for social equity focus populations • Increase access to active transportation options for social equity focus populations • **Increase access to flexible fleet options for social equity focus populations** • Improve connectivity to employment centers and higher education
Support Economic Opportunity	• Improve access to employment centers and higher education • **Improve access to border crossings** • **Improve freight efficiency**
Efficient Land Use	• Provide multimodal choices to mixed-use and infill development
Sustainability, Health and Resilience	• Reduce GHG and criteria pollutants • Reduce impacts to water, habitat, community, or recreational resources • Improve the resilience and state of good repair of the transportation system