

# Comprehensive Multimodal Corridor Plan

June 2024

## Kumeyaay Corridor



**Kumeyaay Corridor (Interstate 8)  
Comprehensive Multimodal Corridor Plan**

**SANDAG & California Department of Transportation**

The San Diego Association of Governments (SANDAG) and California Department of Transportation (Caltrans) District 11 have developed a Comprehensive Multimodal Corridor Plan (CMCP) to address the current and future multimodal needs. The CMCP process encourages cross-agency collaboration, seeks out public input, and leverages the knowledge of communities to develop strategies, programs, and projects. This report is a testament to successful collaboration across multiple agencies and community partners.

**Disclaimer:** The information and data contained in this document are for planning purposes only and should not be relied upon for final design of any project. Any information in this Comprehensive Multimodal Corridor Plan (CMCP) is subject to modification as conditions change and new information is obtained. Although planning information is dynamic and continually changing, SANDAG and Caltrans make every effort to ensure the accuracy and timeliness of the information contained in the CMCP. The information in the CMCP does not constitute a standard, specification, or regulation, nor is it intended to address design policies and procedures.



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# EXECUTIVE SUMMARY

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## Kumeyaay Corridor



Source: CR Associates



# Executive Summary

In collaboration with the community and local agencies and partners, the California Department of Transportation (Caltrans) and the San Diego Association of Governments (SANDAG) have developed a Comprehensive Multimodal Corridor Plan (CMCP) for the area surrounding Interstate 8 in urbanized San Diego County, also known as the Kumeyaay Corridor CMCP. This document builds on previous and current regional and local efforts to create a comprehensive strategy that sets a foundation for enhancing multimodal connectivity and accessibility across communities within the Kumeyaay Corridor.

**CMCP Purpose.** A CMCP is required to be eligible for certain sources of state funding, such as the Solutions for Congested Corridors Program (SCCP), funded by Senate Bill 1 (SB 1), which can then be leveraged for various other local, state, and federal funding opportunities. Funds made available for the program shall be allocated by the California Transportation Commission to projects designed to achieve a balanced set of transportation, environmental, and community access improvements within highly congested travel corridors throughout the state.

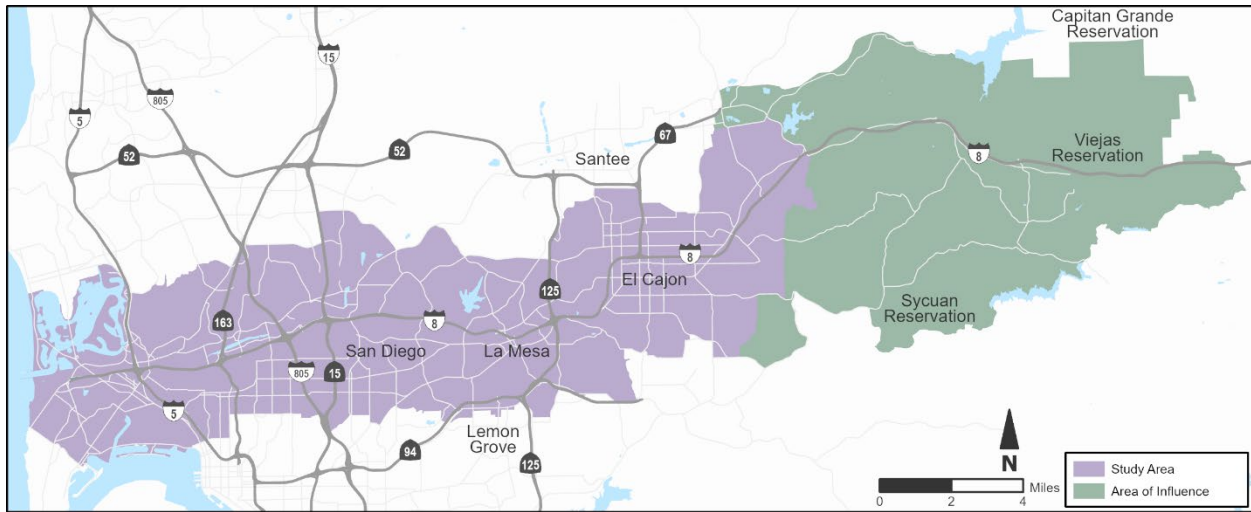
**CMCP Process.** The CMCP process, summarized in **Figure ES-1**, was designed to understand the characteristics of the Kumeyaay Corridor and create equitable and sustainable solutions for residents, commuters, and visitors. The Kumeyaay Corridor CMCP is based on an integrated planning process that brings together residents, local jurisdictions, and other partner agencies. It utilized a multimodal approach to create a balanced, equitable transportation system that integrates mobility options such as driving, biking, walking, transit, micromobility, and other mobility services to move people and goods within the designated corridor and beyond.

Figure ES-1: CMCP Process



**Kumeyaay Corridor Study Area.** The Kumeyaay Corridor extends from the Pacific Ocean in the west to the Lakeside community in the east and includes communities adjacent to Interstate 8 (I-8). The 24-mile-long corridor spans a diverse spectrum of communities, topographical features, employment and shopping centers, and educational institutions. The transportation networks within the Kumeyaay Corridor are depended on for hundreds of thousands of trips that start, end, or pass through each day. **Figure ES-2** displays the Kumeyaay Corridor study area and area of influence.

Figure ES-2: Kumeyaay Corridor Study Area and Area of Influence



**Corridor Context.** The project team evaluated the existing conditions of the corridor, documenting the inventory of existing transportation infrastructure, current transit service, economic conditions, and population characteristics, as well as planned infrastructure and anticipated changes in population and employment characteristics. The CMCP team was also careful to document social equity characteristics such as race, income, zero-car households, and senior populations which allowed the project team to consider equity for future transportation scenarios. The 2050 horizon year is used as the basis for population, economic, and ridership forecasts, which are interpreted to illustrate what the corridor may look like in the future. The Kumeyaay Corridor has several areas projected to have significant growth, including Mission Valley, Midway, Grantville, and La Mesa.

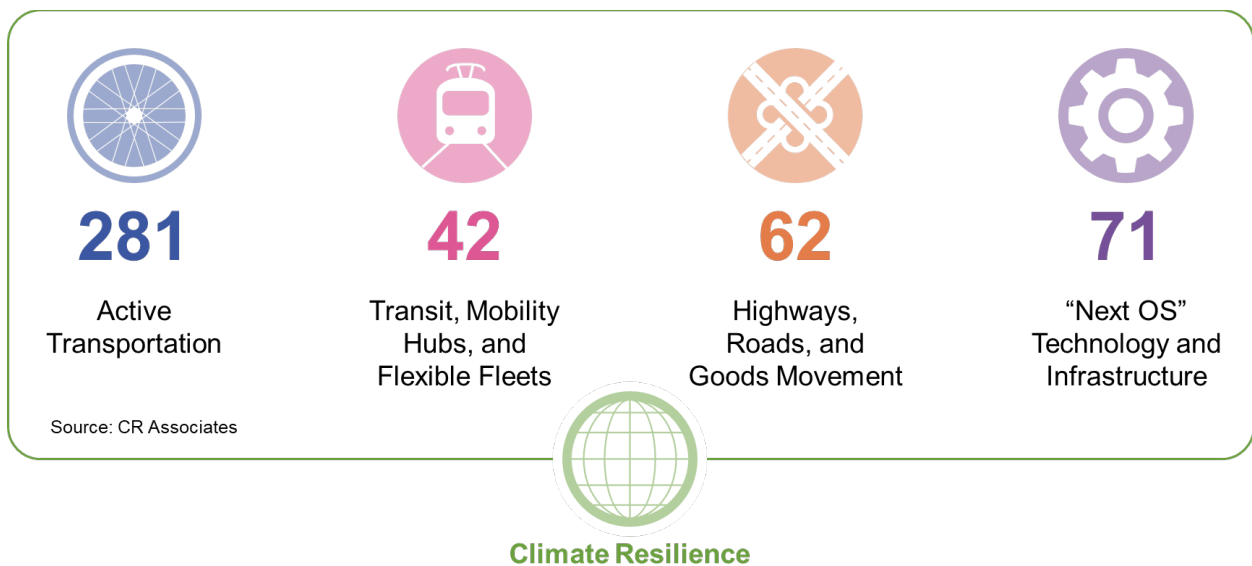
The corridor contains many unique and varying topographical features, such as coastal and bay areas, the San Diego River, slopes, canyons, valleys, hills, and mesas. These features contribute to rich biodiversity while also shaping development patterns and the transportation infrastructure. Examples of regional destinations within the Kumeyaay Corridor include Mission Bay Regional Park, the San Diego Sports Arena, San Diego International Airport, Old Town San Diego, University of San Diego, San Diego State University, and Mission Trails Regional Park. Employment centers are located in the Midway and Mission Valley communities, Morena District, Grantville area, downtown La Mesa, and northwestern El Cajon near Gillespie Field. The mix of entertainment, recreation, commercial, industrial, office, education, and cultural sites draws residents, students, workers, and visitors. Corridor users rely on a variety of transportation modes; however, most trips are taken by private automobile. Land use patterns, major infrastructure, and the topography have resulted in disconnected communities and transportation network gaps, negatively impacting active transportation and transit users.

**Engagement.** A comprehensive outreach process was established and implemented to inform and help develop the Transportation Solution Strategies (TSS) for the Kumeyaay Corridor CMCP. The social distancing requirements of the COVID-19 pandemic brought unique challenges to public engagement where activities were held online and publicized through social and local media as well as advocacy groups. These protocols shifted as the COVID-19 pandemic continued to evolve. In-person engagement activities took place to the extent possible and in accordance with public health guidance in place at the time of each engagement activity. The process engaged technical subject matter experts (SMEs), local community planning organizations, tribal representatives, partner agencies, and the general public. Meetings were held to help identify key needs, draft an inventory of TSS, and provide feedback. The outreach process helped ensure an inclusive approach to the development of the Kumeyaay Corridor CMCP.

**Transportation Solution Strategies.** The TSS proposed in this plan align with the SANDAG 2021 Regional Plan and its five transformational strategies – the 5 Big Moves. The strategies are designed to enhance equitable access and comprehensive mobility for everyone, especially for equity focused communities. The strategies provide equitable, efficient, and reliable mobility alternatives to vehicular travel, regardless of ability or means.

The Kumeyaay Corridor CMCP includes 456 solutions and 10 climate resilience strategies, with careful consideration for how these solutions create equitable access to employment and other key activity centers by connecting these destinations via direct and frequent transit service and other transportation options. The number of solutions by category are summarized in **Figure ES-3**. The plan identifies key locations of population and employment densities and equity factors where mobility hubs serve as key connection points to other transit services. Access to and from the mobility hubs is expanded with first/last mile connections to the surrounding communities via new bikeways, micromobility, transit and microtransit services. The TSS work together across the 5 Big Moves to achieve an equitable and balanced multimodal transportation system for the Kumeyaay Corridor.

Figure ES-3: Transportation Solution Strategies by Category

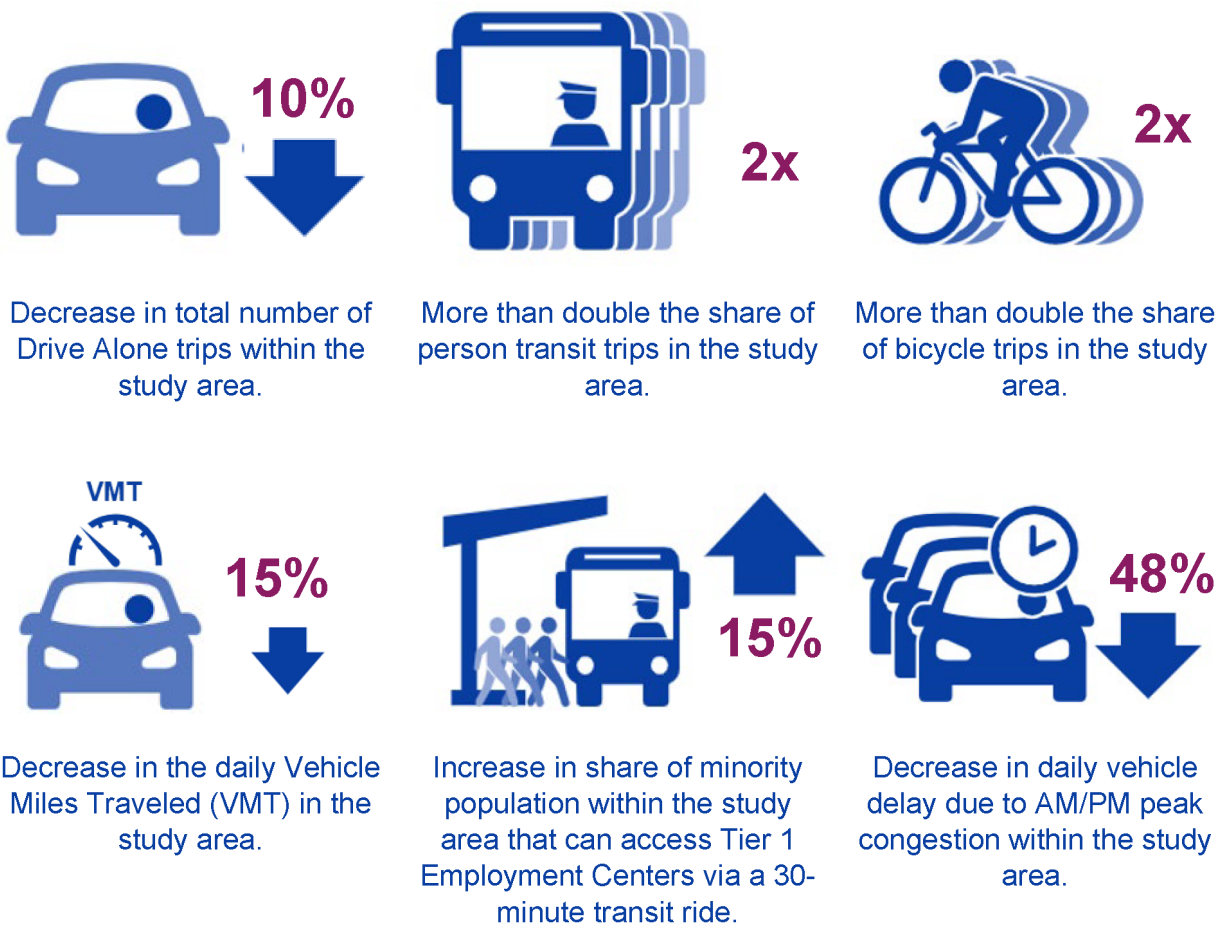


**Evaluation of Corridor Alternative.** The TSS were organized into two alternatives for review and analysis. Alternative 1 includes greater investments in transit projects such as rail expansion, direct access ramps to transit stations, and a skyway. Alternative 2 focused on expanding and enhancing Next Gen Rapid bus services, supported by managed lanes and operational improvements. Both alternatives include substantial improvements to active transportation networks and first/last mile connections to major transit services through mobility hub service areas which expand the reach of transit. The alternatives were compared to a Regional No Build scenario to facilitate performance comparisons.

Both alternatives demonstrated substantial benefits when compared to the Regional No Build scenario:

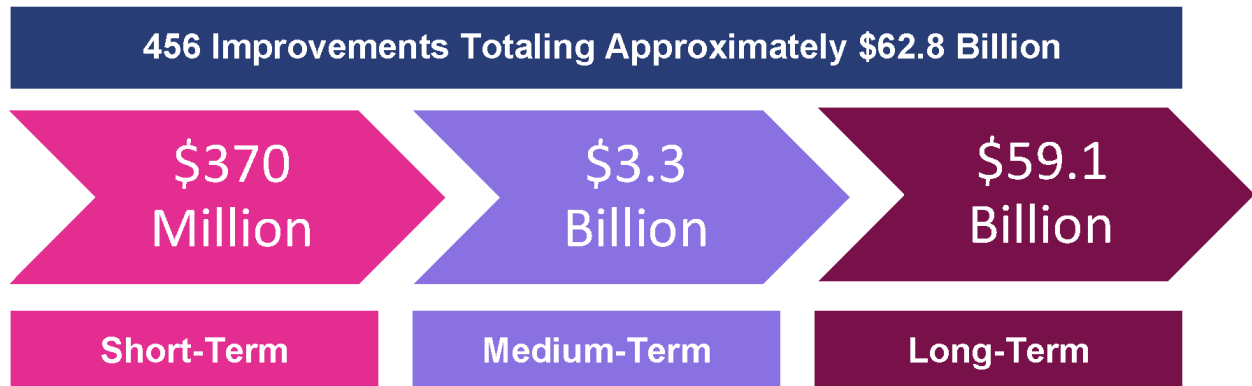
- Increases the amount of commute trips taken via transit, walking, and biking
- Improves access to high frequency transit service and major employment centers for minority, senior, and low-income populations
- Reduces traffic congestion and greenhouse gas emissions

Figure ES-4: Average Benefits of the Kumeyaay Corridor CMCP Alternatives Compared to Regional No Build



**Implementation.** The 456 TSS were evaluated against criteria such as safety, accessibility (to jobs, education, transit, and health centers/hospitals), efficiency, air quality, and multimodal measures to determine the implementation timeframe: short- (less than 5 years), medium- (6 to 15 years), or long-term (more than 15 years). Rough order of magnitude costs were primarily estimated by using methods from the 2021 Regional Plan and other CMCPs. Other costs that were not included in the SANDAG Regional Plan process or other CMCPs were identified through discussions with subject matter experts.

Figure ES-5: Transportation Solution Strategy Implementation Phases and Costs



Securing new funding will be necessary to implement the transportation solutions by 2050. Funding for these improvements may be pursued from a variety of state and federal sources, such as SB 1 funding.

SANDAG, Caltrans, and members of the Kumeyaay Corridor CMCP project team continued to collaborate to advance the development of projects and programs proposed in the Kumeyaay Corridor. The project team engaged stakeholders as necessary to help refine the multimodal transportation improvements.

# CHAPTER 1. INTRODUCTION

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## Kumeyaay Corridor



Source: CR Associates

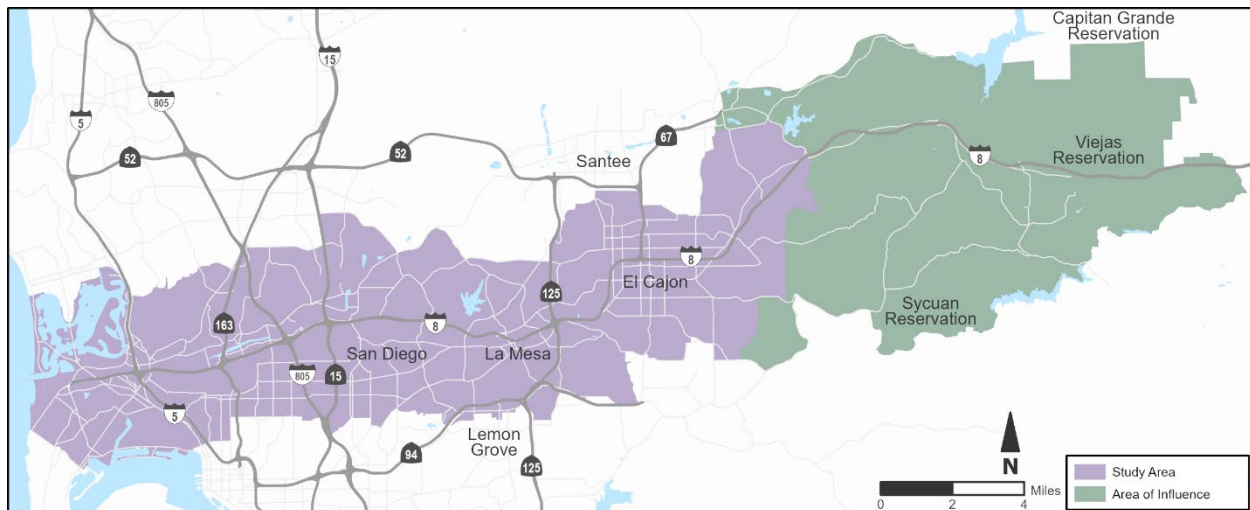
## Introduction

Interstate 8 (I-8) is centrally located in urbanized San Diego County and serves as the only east-west running interstate in the region. Over 30% of all daily regional travel (approximately 3.5 million trips) starts and/or ends within the corridor study area (shown in **Figure 1-1**), while hundreds of thousands of additional trips pass through<sup>1</sup>. The 24-mile-long corridor spans a diverse spectrum of communities and topographical features, creating unique needs and challenges that affect a large portion of the people and goods moving throughout the region every day. These factors make it necessary for SANDAG, Caltrans, local communities, and the people who regularly travel through the area to make progress towards the vision of a technologically- advanced, balanced, and integrated multimodal transportation system.

The study area is located on traditional, ancestral, and unceded lands of the Kumeyaay people. Caltrans has designated I-8 in San Diego County as the "Kumeyaay Highway" due to the traditional tribal trade route the freeway follows. Considering these, and in consultation with representatives of the Kumeyaay Nation, this document is titled as the Kumeyaay Corridor Comprehensive Multimodal Corridor Plan (Kumeyaay Corridor).

The Kumeyaay Corridor encompasses parts of the cities of San Diego, Santee, La Mesa, Lemon Grove, and El Cajon, and the County of San Diego. Major transportation facilities in the study area include I-8 and its connections with I-5, SR 163, I-805, I-15, SR 125, SR 67, and the MTS Green, Orange, and Blue Line Trolleys and multiple MTS bus routes, as well as local roadways, and bicycle and pedestrian facilities. Natural features include the coastal areas, Mission Bay, San Diego River, canyons, valleys, hills, and mesas which have shaped development patterns and transportation infrastructure throughout the area.

Figure 1-1: Kumeyaay Corridor Study Area and Area of Influence



<sup>1</sup> LOCUS (2019)

In collaboration with the community, SANDAG and Caltrans developed this Comprehensive Multimodal Corridor Plan (CMCP) to address the current and future multimodal needs of the Kumeyaay Corridor. A CMCP strives to create equitable and sustainable solutions for people living in the community and focuses improvements on topics such as transit, managed lane priorities, goods movement, climate impacts, environmental considerations, technology, and local road connections including bicycle and pedestrian connections.

Based on the characteristics and needs of the corridor, SANDAG and Caltrans have developed a package of projects, programs, and policies in which the region can consider investing in to create a safe, equitable, reliable, and intelligent transportation system of the future. This CMCP highlights the transportation solutions along with the general timeline and estimated costs for that implementation. The appendices to this document provide extensive details on the technical aspects of the plan, including how solutions were evaluated through research, analysis, community input, and implementation considerations and challenges.

SANDAG and Caltrans would like to thank representatives from the following organizations who served on the Project Development Team, Agency Coordination Team, and/or as Subject Matter Experts:

- California Coastal Commission
- City of El Cajon
- City of La Mesa
- City of Lemon Grove
- City of San Diego
- City of Santee
- County of San Diego
- Interagency Technical Working Group on Tribal Transportation Issues (Tribal TWG)
- Port of San Diego
- San Diego County Regional Airport Authority
- San Diego Gas and Electric (SDG&E)
- San Diego Metropolitan Transit System (MTS)
- San Diego State University

A special acknowledgment is extended to the community-based organizations, partner agencies, and community members that participated in the development of this plan.

## What is a Comprehensive Multimodal Corridor Plan?

A Comprehensive Multimodal Corridor Plan (CMCP) is a strategic blueprint for identifying and implementing multimodal projects and services within communities predominantly along a specific corridor. The document is based on an integrated planning process that brings together residents, local jurisdictions, tribal governments, and other partner agencies.

*A CMCP is a data-informed planning document created to reflect the values, goals, and objectives of the communities served by the corridor.*



A CMCP utilizes a multimodal planning process to create a balanced, equitable transportation system that integrates mobility options such as driving, biking, walking, transit, micro-mobility, and other mobility services to move people and goods within the designated corridor and beyond. A corridor study area may include multiple facilities such as local arterial roadways, state highways, rail lines, transit systems, and active transportation facilities.

A CMCP document plans for all modes of transportation by evaluating existing and future conditions, community priorities, and the potential benefit of proposed mobility solutions that align with state, regional, and project-specific goals. As the blueprint for multimodal mobility implementation within a corridor, a CMCP helps align community priorities and initiatives with state and regional goals to develop projects and services.

## What is Expected from a CMCP?

A CMCP supports the continuous improvement of the transportation system through a meaningful and collaborative planning process and is intended to be referenced and updated frequently. CMCPs are expected to:

- **Reimagine the approach to mobility** by focusing on quality of life, accessibility, sustainability, access to jobs, housing, education, and health for all;
- **Address today's mobility challenges** while building a foundation for the future;
- **Develop a balanced implementation plan** for timely, phased, integrated (with other parallel efforts), and effective results;
- **Provide an integrated set of multimodal transportation improvements** that align with regional, state, and local objectives and inform future transportation plans; and
- **Enable regions to compete for state funding** under Senate Bill 1 (SB1)<sup>2</sup>, the Road Repair and Accountability Act (2017), and the Congested Corridors Program.

As the blueprint for multimodal mobility implementation within a corridor, a CMCP helps align community priorities and initiatives with state and regional goals to develop projects and services. CMCPs are expected to be leveraged for applicable state and federal funds for projects. When funding is obtained, the Kumeyaay Corridor CMCP transportation projects and programs will be added to the Regional Transportation Improvement Program (RTIP).



### Senate Bill 1 Provides Funds for California Transportation

The Road and Repair Accountability Act of 2017, also known as Senate Bill 1 (SB1), provides a stable funding source for transportation in the state by providing multiple funding sources for transportation. This Act invests \$54 billion through 2027 to fix roads, freeways, and bridges in communities across California. In order for the San Diego region to be eligible to receive qualifying funds from SB1, a CMCP must be developed and approved. A CMCP can also help access funds from other sources, such as federal dollars.

<sup>2</sup> SB1, the Road Repair and Accountability Act of 2017 <https://dot.ca.gov/programs/sb1>

The RTIP is a multi-billion-dollar, five-year program of major transportation projects funded by the federal, state, and local governments. **Figure 1-2** shows how the CMCP process works in conjunction with state and regional planning efforts to make the identified transportation projects a reality.

Figure 1-2: CMCP Development and Implementation Process



The following regional, state, and local initiatives guide the CMCP process and are described in subsequent sections:

- SANDAG 2021 Regional Plan
- California Transportation Plan 2050
- Climate Action Plan for Transportation Infrastructure
- Caltrans Corridor Planning Process Guide
- Caltrans Smart Mobility Framework
- Other local plans

### **SANDAG 2021 Regional Plan**

The 2021 Regional Plan is the region’s vision for how the San Diego region will grow through 2050 and implement a fast, fair, and clean transportation system and a resilient region. The 2021 Regional Plan was adopted by the SANDAG Board of Directors in December 2021 and combines three required planning documents: Regional Transportation Plan (RTP), Sustainable Communities Strategy (SCS), and Regional Comprehensive Plan (RCP).

The plan defines projects, policies, and programs to address regional land use and transportation challenges while meeting the following regional goals and areas of emphasis:

- Efficiently move people and goods by providing competitive alternatives to driving
- Access to affordable, reliable, and safe mobility options for everyone

- Healthier air and reduced GHG emissions regionwide by supporting shorter trip-making through focused integration of transportation and land use
- The 2021 Regional Plan incorporates five transformational strategies – “the 5 Big Moves” – into one integrated regional transportation system. Provided below, in **Figure 1-3**, are the moves and their associated descriptions.

Figure 1-3: SANDAG 5 Big Moves

### NEXT OS

The underlying technology that allows people to connect to transportation services and a digital platform that allows for dynamic management of roadways and transit services.

### COMPLETE CORRIDORS

Roadways that offer dedicated, safe space for everyone, including people who walk, bike, drive, ride transit, and use Flexible Fleets, as well as those who drive freight vehicles. Complete Corridors use technology to dynamically manage the flow of traffic.



### TRANSIT LEAP

A complete network of fast, convenient, and reliable transit services that connect people from where they live to where they want to go.

### FLEXIBLE FLEETS

Transportation services of many forms, varying in size from bikes to scooters to shuttles, that offer first- and last-mile connections to transit and alternatives to driving alone.

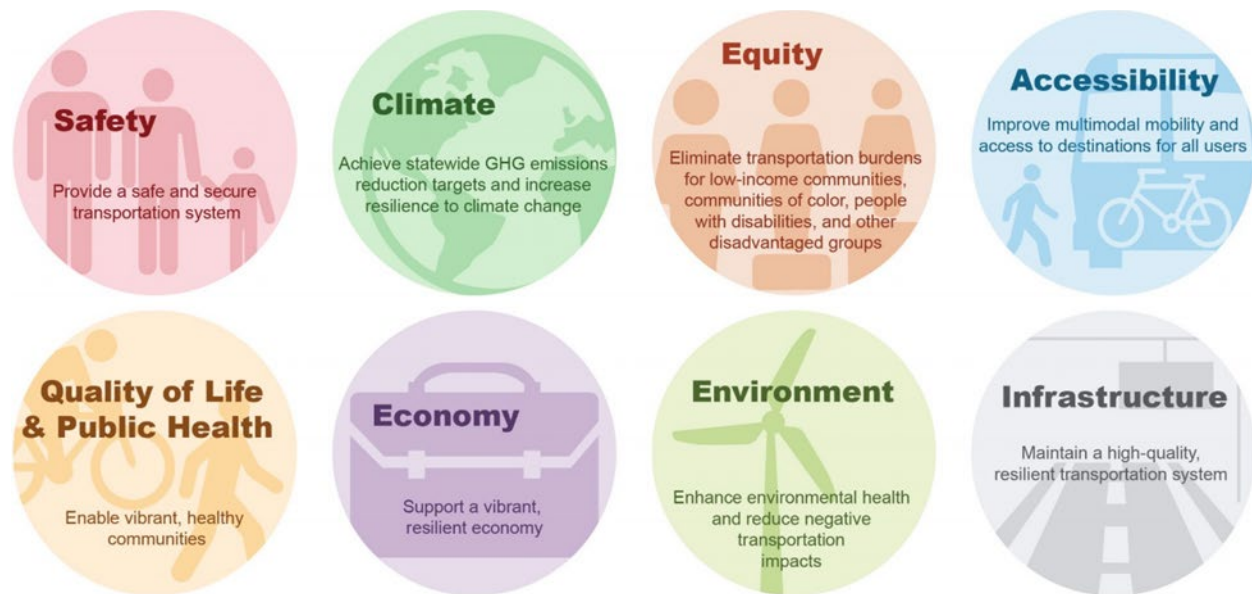
### MOBILITY HUBS

Vibrant centers of activity where transit and on-demand travel options, supported by safe streets, connect people with their destinations and businesses with their customers. Mobility Hubs are also planned to accommodate future growth and development.

## California Transportation Plan 2050

The California Transportation Plan (CTP) 2050<sup>3</sup> is a long-range transportation roadmap for achieving the state’s vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The CTP 2050 provides a framework for making effective, transparent, and transformative transportation decisions in California. While specific projects are not included in the CTP 2050, it does provide **people-focused policies, strategies, and investments that close the gap between the goals in regional transportation plans and the state goals**, shown in Figure 1-4.

Figure 1-4: California Transportation Plan 2050 Goals



## Climate Action Plan for Transportation Infrastructure

In July 2021, the California State Transportation Agency (CalSTA) adopted its Climate Action Plan for Transportation Infrastructure (CAPTI)<sup>4</sup> to prioritize transportation infrastructure investments that “...realize a truly low-carbon, sustainable, resilient, and economically competitive future for the state...” As part of the CAPTI investment framework and CTP 2050, the State of California is taking a “fix-it-first” approach using existing funding sources and prioritizing projects that align with CAPTI’s Guiding Principles. In addition to the Guiding Principles for funding, the following strategies and key actions are most applicable to the Kumeyaay Corridor:

- **Cultivate and Accelerate Sustainable Transportation Innovation by Leading with State Investments** – promote innovative sustainable transportation solutions in Solutions for Congested Corridor Programs (SCCP).
- **Support a Robust Economic Recovery by Revitalized Transit, Supporting ZEV Deployment, and Expanding Active Transportation Investments** – increase funding for active transportation projects.

<sup>3</sup> CTP 2050: California Transportation Plan

<sup>4</sup> CAPTI: Climate Action Plan for Transportation Infrastructure

- **Elevate Community Voices in How We Plan and Fund Transportation Projects** – enhance and mainstream community engagement best practices.
- **Advance State Transportation Leadership on Climate and Equity through Improved Planning & Project Partnerships** – refocus corridor planning efforts to prioritize sustainable multimodal investments in key corridors of statewide and regional significance.
- **Support Climate Resilience through Transportation System Improvements and Protections for Natural and Working Lands** – update transportation infrastructure competitive program guidelines to incentivize climate adaptation and climate risk assessments/strategies.
- **Strengthen Transportation and Land Use Connections** – explore a “Highways to Boulevards” conversion pilot program; leverage transportation investments to incentivize infill housing production.
- **Support Local and Regional Innovation to Advance Sustainable Mobility** – explore new mechanisms to mitigate increases in vehicle miles travelled (VMT) from transportation projects.

### ***Corridor Planning Process Guide***

Caltrans Division of Transportation Planning published the Corridor Planning Process Guide (Guide) in April 2022 to provide direction on a comprehensive analysis of transportation corridors to Caltrans and relevant partner agency staff<sup>5</sup>. The Guide provides an eight-step corridor planning process:

1. Scope Effort
2. Gather Information
3. Conduct Baseline Performance Assessment
4. Identify Potential Projects and Strategies
5. Analyze Improvement Strategies
6. Select and Prioritize Solutions
7. Publish/Implement Corridor Plan
8. Monitor and Evaluate Progress

The eight-step corridor planning process is the foundation for the development of the Kumeyaay Corridor process, which is outlined in the CMCP Process section of this document.

### ***Caltrans Smart Mobility Framework***

The Smart Mobility Framework (SMF) is guidance that emphasizes the integration of transportation and land use concepts to bring about smart growth transportation strategies across California. Principles outlined in the SMF are woven throughout the development of Kumeyaay Corridor – helping to guide the selection of solutions by emphasizing:

- **Location efficiency** – integrating land use and transportation to improve accessibility, maximizing non-motorized modes and transit, and reducing the number and length of trips.
- **Reliable mobility** – expanding multimodal options and operational strategies to better manage transportation network predictability.

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<sup>5</sup> Corridor Planning Process Guide (Caltrans, 2020)

- **Health and safety** – designing, operating, and managing a system to improve user safety, encourage active lifestyles, and lessen exposure to pollution.
- **Environmental stewardship** – reducing transportation greenhouse gas emissions while enhancing and protecting the State’s built and natural environments.
- **Social equity** – designing a transportation system that provides mobility for all users.
- **Robust economy** – supporting the economic health of the State and local governments, competitiveness of businesses, and the welfare of residents.

### **Local Plans**

The Kumeyaay Corridor CMCP leveraged the completed work from other CMCP efforts (such as the Central Mobility Hub CMCP and the South Bay to Sorrento CMCP), as well as dozens of planning documents from local agencies that include transportation needs and recommendations within the Kumeyaay Corridor. These local plans include mobility elements, active transportation plans, safety studies, specific plans, and corridor studies. The Relevant Document Review (**Appendix A**) summarized information from these local efforts pertinent to the Kumeyaay Corridor context and served as a foundation for understanding needs and developing transportation solutions.

Beyond the detailed document review, the Kumeyaay Corridor CMCP Project Team engaged the cities of El Cajon, La Mesa, Lemon Grove, San Diego, and Santee, and the County of San Diego to ensure that the analysis, findings, and proposed projects and programs from the CMCP were compatible with existing and future local plans. The review of local plans was combined with additional data sources to develop the State of the Corridor memo (**Appendix B**) which was folded into Chapter 2 of this CMCP.

### **CMCP Process**

The CMCP process was developed to build an understanding of Corridor characteristics and identify needs through data driven approaches and involvement from a broad spectrum of the public. The plan leveraged a variety of data sources, such as Big Data, regional transportation modeling, collision records, demographic information, and previously completed planning documents and studies. The data was coupled with input from members of the public and agency representatives to create transportation solutions that address the issues of today with the flexibility and foresight to accommodate future growth and challenges.

Consistent with SANDAG’s and Caltrans’s commitments to equity, the Kumeyaay Corridor CMCP development sought input from communities across the study area, including concentrated efforts to engage social equity focus communities through discussions with community-based organizations (CBO’s) and community planning groups, surveys, and pop-up events. The overall CMCP process is shown in **Figure 1-5** and the key steps are described in this section.

Figure 1-5: CMCP Process Flowchart



The literature review and Baseline Conditions Analysis established key contextual information for the Corridor as discussed in [Chapter 2](#), which was further informed by the community engagement efforts summarized in [Chapter 3](#). The Baseline Conditions Analysis results combined with feedback obtained from outreach efforts were used to inform development of a transportation solution framework.

The transportation solution framework highlights recurring key themes as overarching needs for the Kumeyaay Corridor. This process resulted in four goals and 20 issues/needs that were used to identify a suite of proposed transportation solutions for the Study Area. A performance-based evaluation framework was created as a structured mechanism to screen potential projects using criteria that align with federal, state, and regional policies and performance goals.

The Kumeyaay Corridor goals, issues, strategies, and evaluation framework are presented in [Chapter 4](#). The development of scenario alternatives and identification of transportation solution networks are presented in [Chapter 5](#). An implementation strategy was developed for the Kumeyaay Corridor and is detailed in [Chapter 6](#), consisting of cost estimates, an overview of the phasing process and results, and identification of potential funding sources to pursue.

## Defining the Study Area

In September 2019, the SANDAG Board of Directors allocated funding to develop 11 corridor plans throughout the region, including I-8. The Kumeyaay Corridor CMCP study area originated as a 2-mile buffer area of I-8 between its western terminus near the Pacific Ocean and Lake Jennings Park Road in the unincorporated community of Lakeside to the east, a length of approximately 24 miles. This initial shape was refined using Census Tract boundaries to facilitate demographic and socio-economic analyses and to reflect major transportation facilities, urbanization patterns, and topography—factors often considered in the delineation of census geographies. Further study area refinements were made to account for areas with higher concentrations of low-income populations and to limit gaps in major transportation facilities. The Kumeyaay Corridor study area development process is shown in [Figure 1-6](#).

An area of influence was also established (previously shown in Figure 1-1), with the intent of expanding engagement efforts to the Sycuan, Viejas, and Capitan Grande Bands of the Kumeyaay Nation and the unincorporated community of Alpine. Accessing these areas may rely on connections through the study area, emphasizing the need for their involvement in needs identification and solution development to increase the reach of potential project benefits.

Figure 1-6: Kumeyaay Corridor Study Area Development Process



**Preliminary Study Area:** 2-mile buffer along I-8, from western terminus at the Pacific Ocean to Lake Jennings Park Road in Lakeside.

**Census Tracts aligned with Preliminary Study Area:** Study area was aligned with Census Tracts to account for demographic and socio-economic data widely available at this level of geography.

**Adjacent Low-Income Census Tracts:** Census Tracts adjacent to the area comprised of 60% or more low-income populations were added to ensure the effort accounts for these community members.

**Discretionary Refinements:** Additional Census Tracts were added to ensure sections of major roadways were not arbitrarily excluded.



# CHAPTER 2. CORRIDOR CONTEXT

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## Kumeyaay Corridor



Source: CR Associates

## Demographics

Historically, transportation projects have placed significant physical, social, and health-related burdens on low-income, senior, and minority communities. The construction of major transportation infrastructure has divided neighborhoods, displaced residents, and increased sources of noise and air pollutants.

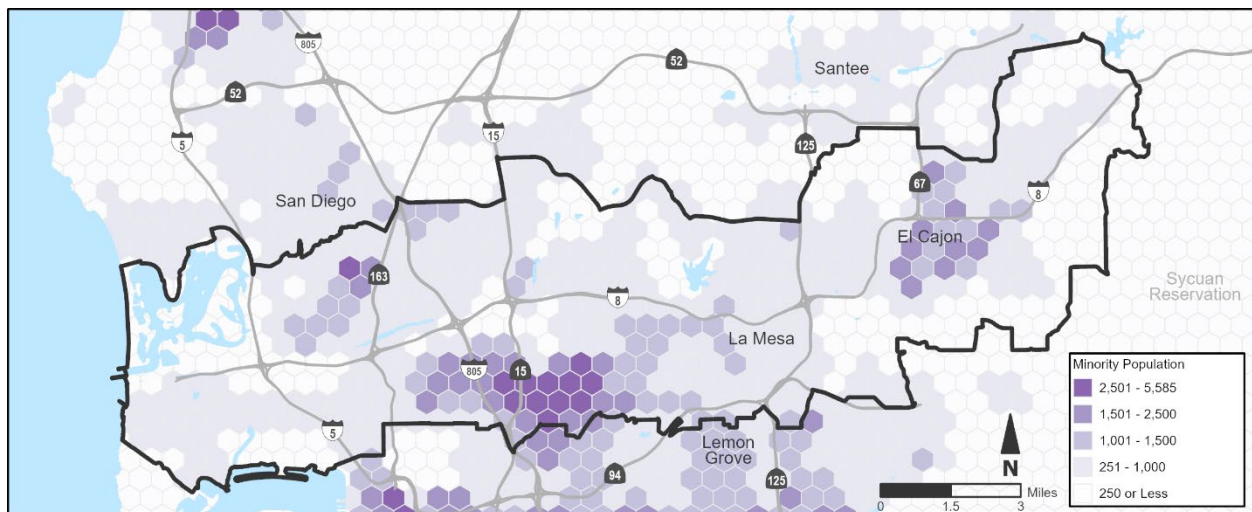
Affected populations have often been left without representation or a voice in critical decisions. Understanding demographic conditions is a critical step to engage and prioritize these communities, mitigate past mistakes, and support a prosperous future. This is especially important within the Kumeyaay Corridor where over 20% of the region's social equity focused community members reside.

Accounting for social equity focused communities – such as minorities, seniors, and low-income households – should not be limited to where these community members call home. People often work, go to school, visit, or shop in areas outside of their home community, emphasizing the need for strong regional networks and well-connected communities.

### Minority Populations

Community members identifying with one or more minority groups are present throughout the Kumeyaay Corridor. Greater concentrations are shown west of SR 163 and north of I-8, east of I-805 and south of El Cajon Boulevard, and within central El Cajon. The Sycuan and Viejas Reservations are comprised of additional minority community members, located within the area of influence, just east of the study area.

Figure 2-1: Minority Population



Source: US Census, 2020

## The Kumeyaay Corridor Includes:



20.5% of the region's population



21.2% of the region's jobs



22.2% of the region's housing units



20.7% of the region's senior population (age 65+)



20.4% of the region's low-income households



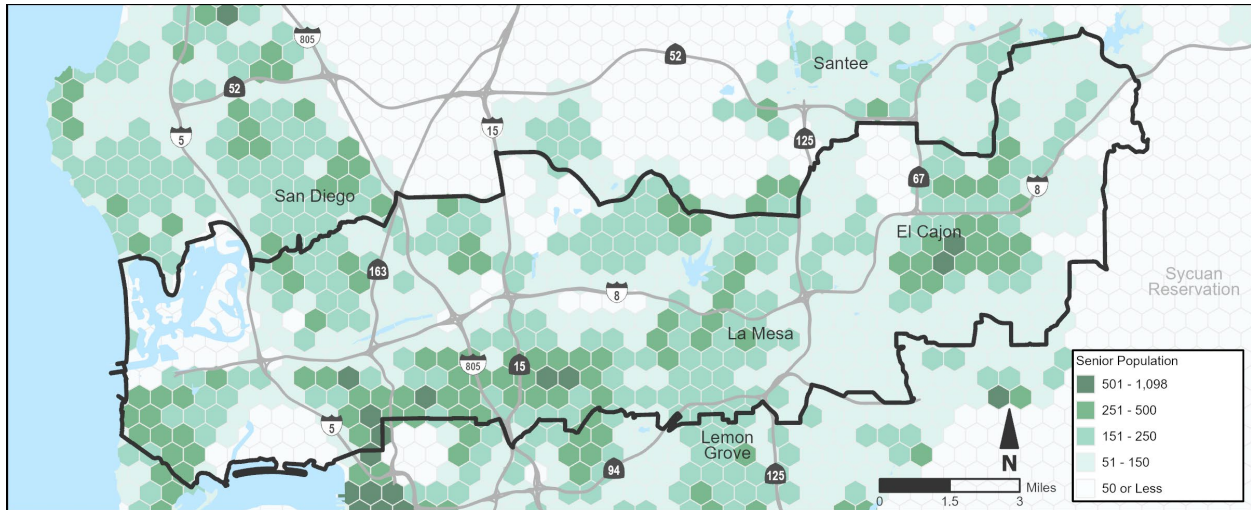
18.9% of the region's minority population

Sources: SANDAG, 2020;  
US Census LEHD OnTheMap, 2019

## Senior Populations

Seniors (≥ 65 years of age) represent a significant and growing segment of the population. Over 20% of the region's senior population reside within the Kumeyaay Corridor. Planning for their mobility helps promote continued independence and access to daily needs and essential services.

Figure 2-2: Senior Population

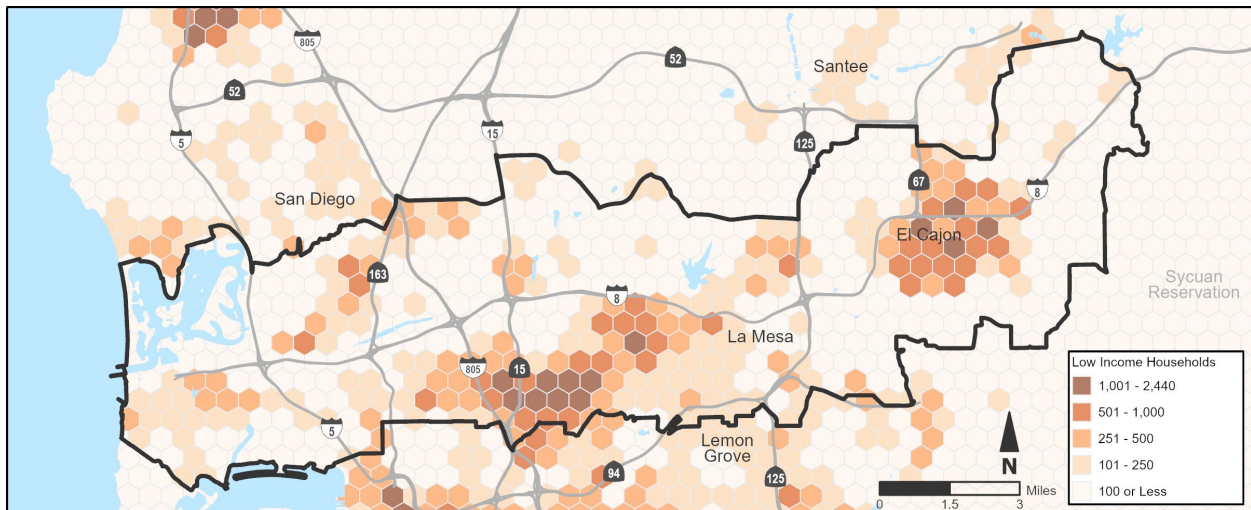


Source: US Census, 2020

## Low-Income Households

Income influences vehicle ownership, which makes reliance on alternative travel options such as public transportation, walking, and bicycling vital to accessing employment and daily needs. Ensuring these transportation choices are well provided helps ensure all community members have viable mobility options. The greatest concentrations of low-income households within the Kumeyaay Corridor include the areas south of I-8 surrounding I-805 and SR 15 and central El Cajon, south of I-8.

Figure 2-3: Low-Income Households

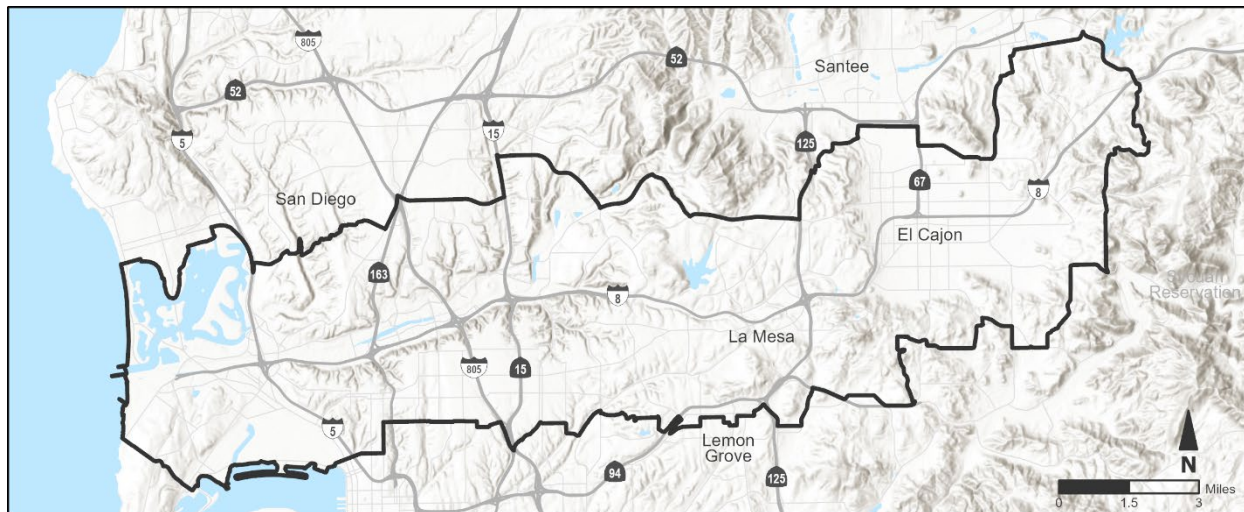


Source: US Census, 2020

## Physical Setting

The Kumeyaay Corridor is centrally located in urbanized San Diego County, encompassing the only east-west running interstate in the region, I-8. The 24-mile-long corridor spans a variety of topographical features like coastal and bay areas, the San Diego River, valleys, hills, and mesas. These features greatly shaped the existing transportation infrastructure and development patterns.

Figure 2-4: Topography



Source: US Geological Survey, 2022

The west end of the Kumeyaay Corridor abuts the Pacific Ocean, San Diego Bay, and Mission Bay, features that create community edges and limit local access. Some of the major destinations in this area include the ocean, bays, marinas, San Diego International Airport, Pechanga Arena, and Sea World. Just east of Mission Bay, I-5 and rail service for the MTS Blue Line, COASTER, Amtrak, and BNSF run north-south.

A linear valley runs east-west, formed by steep grades to the north and south. I-8, the San Diego River, and Green Line Trolley all follow the valley floor. SR 163, I-805, and I-15 are additional north-south running freeways traversing the western half of the study area. Communities north of I-8 generally exhibit post-war suburban development patterns formed around the natural canyons, resulting in a circuitous street network with limited alternative connections. Destinations in this western portion of the study area include University of San Diego, Old Town San Diego, Presidio Park, Fashion Valley Mall, Westfield Mission Valley Mall, the San Diego State University Mission Valley site, Kaiser Permanente Zion Medical Center, and Mission Basilica San Diego de Alcalá. A significant complex of medical facilities is sited just south of where I-805 and SR 163 converge.

A relatively flat mesa with intermittent canyons is present south of the valley. The older communities in this area established a grid street pattern with mixed use environments along major corridors surrounded by residential neighborhoods. Balboa Park abuts the south side of the study area and is a major destination attracting trips from across the region and beyond. Scripps Mercy San Diego and University of California San Diego Medical Center are both located just west of SR 163, south of I-8. Additionally, the vibrant communities in these areas can be destinations in and of themselves.

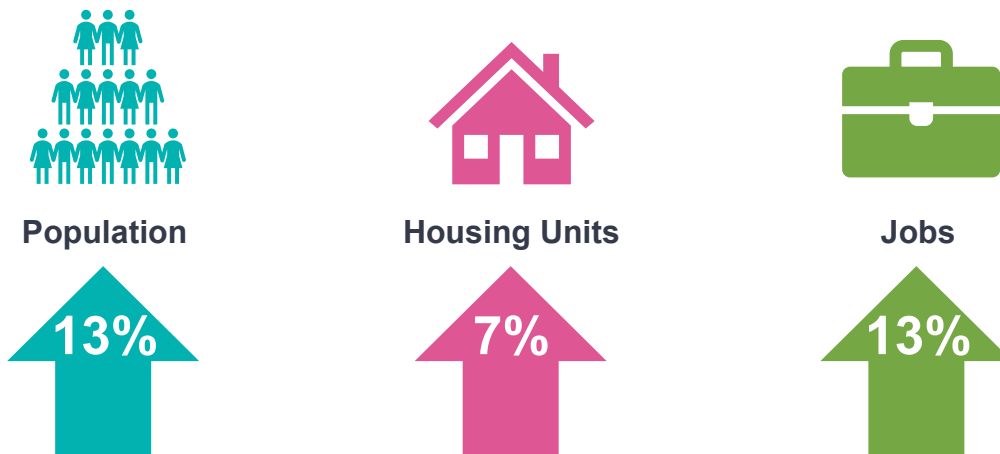
To the east, the mesa south of I-8 becomes less flat, and roadways deviate from the grid pattern to follow the contours of canyons. San Diego State University is centrally located in this area. It includes a dedicated transit station served by the Green Line Trolley and multiple bus routes. The entirety of La Mesa and northernmost part of Lemon Grove are also within the Kumeyaay Corridor study area, each with Orange Line Trolley Stations. SR 94 and SR 125 also enter the study area in La Mesa and Lemon Grove. Downtown La Mesa, Lake Murray, Grossmont Center, and Sharp Grossmont Hospital are additional destinations in this part of the study area.

The valley floor widens east of SR 125, which enabled El Cajon to develop in a traditional grid pattern. El Cajon is the easternmost urbanized city in the study area, with unincorporated San Diego County communities further east and to the south. The Green Line Trolley ventures away from I-8 in El Cajon, heading to its terminus at the Santee Town Center just north of the study area. The southern terminus of SR 67 is at I-8 in El Cajon, providing connections to Santee and unincorporated communities to the north. Destinations in this area include Grossmont College, Main Street, and Gillespie Field. The Sycuan and Viejas Bands of Kumeyaay Indians have reservations just east of the study area, within the project area of influence. Many tribal members reside within the reservations which also serve as regional destinations and employment centers that include casinos, shopping, and resort facilities.

## Land Uses, Residential Population, and Employment

The 20-year period from 2000 to 2020 experienced balanced population and job growth within the Kumeyaay Corridor, while housing production has followed at a slower rate. This growth has resulted in increased demand for the transportation system.

Figure 2-5: Twenty Years of Corridor Growth: 2000 – 2020

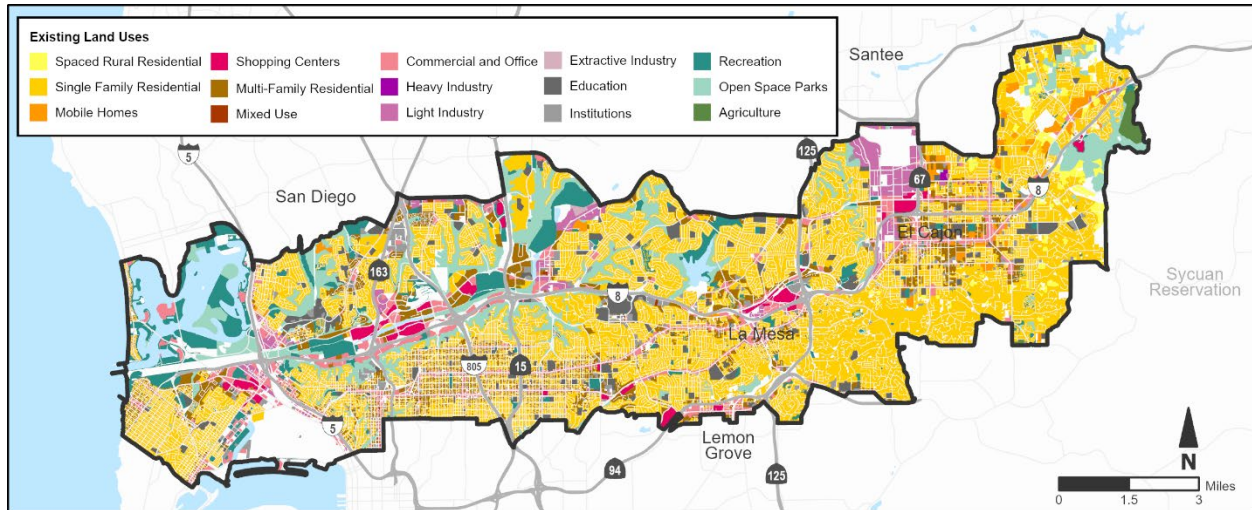


Sources: US Census, 2000, 2020; US Census LEHD OnTheMap, 2002, 2019; SANDAG Regional Transportation Model Series 10, 2020

## Existing Land Uses

Existing land uses within the Kumeyaay Corridor are largely single-family residential with commercial uses lining major roads. The greatest concentrations of multi-family residential uses are located south of I-8 within the Uptown, North Park and City Heights communities, western Ocean Beach, and throughout Mission Valley, La Mesa, and El Cajon.

Figure 2-6: Existing Land Uses<sup>6</sup>



Source: SANDAG, 2020

## Residential Population

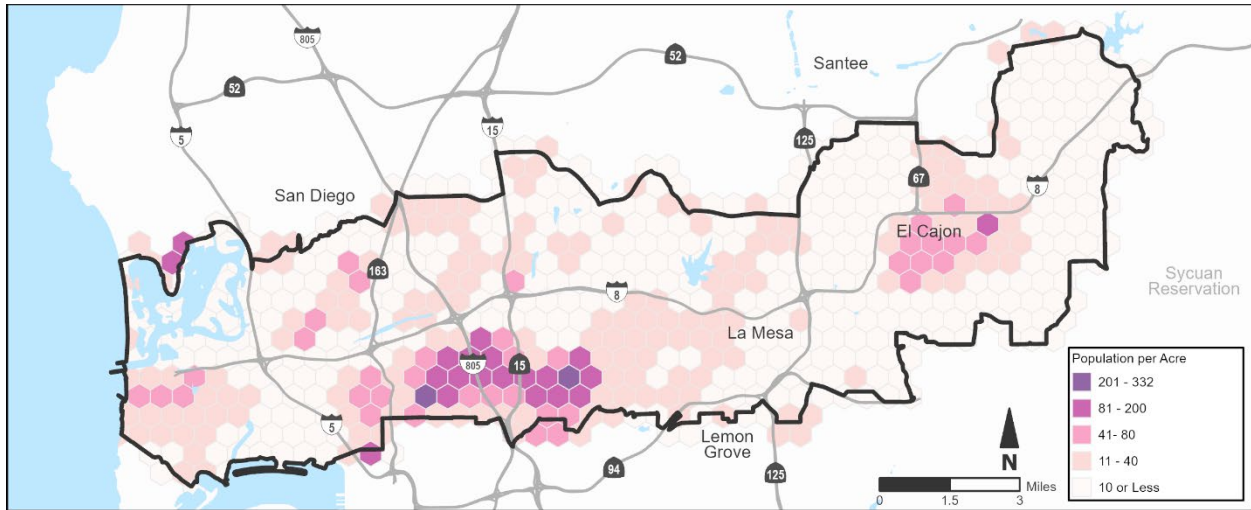
Residences are typical places for commute trips to begin and end, therefore, areas with a greater concentration or residential density are likely to have greater amounts of trips leaving during morning commute hour and returning during evening commute hours. Areas with the greatest existing residential density within the Kumeyaay Corridor include Uptown, North Park, City Heights, and central El Cajon.

Understanding where growth is going to occur is important to providing for future transportation needs. Between now and 2050, greater residential population growth is anticipated in Midway, Mission Valley, Serra Mesa, Grantville, City Heights, central La Mesa, and central El Cajon<sup>7</sup>.

<sup>6</sup> Graphics depict the categories and data utilized in SANDAG's regional transportation model which is not reflective of all locally adopted planning documents.

<sup>7</sup> SANDAG, 2021

Figure 2-7: Population Density



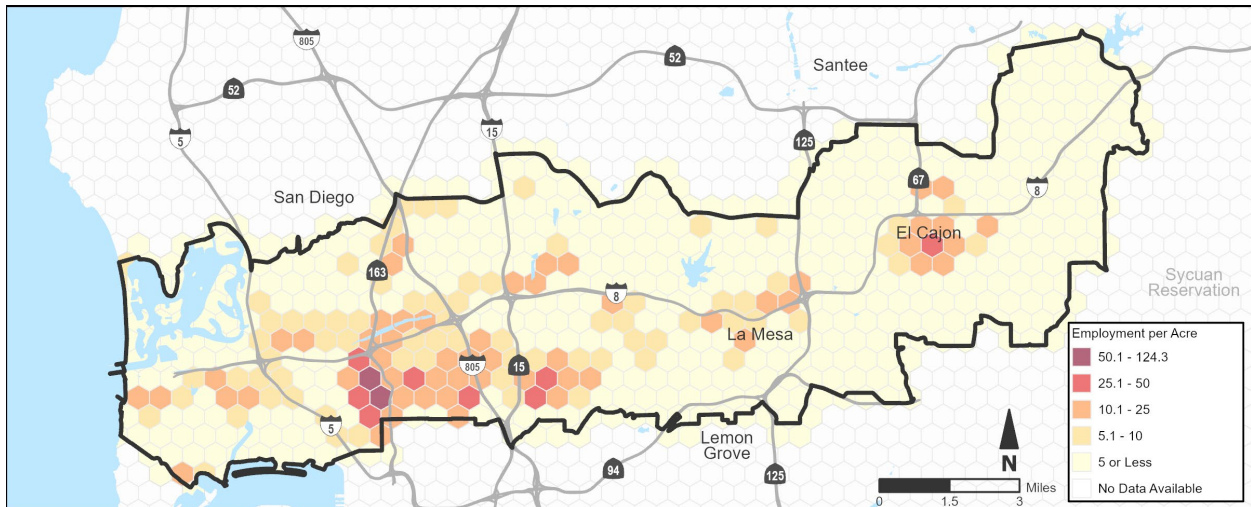
Source: US Census, 2020

### Employment

While commute trips typically originate at residences, places of employment often serve as the destination. Building an understanding of these locations helps plan for future transportation services and infrastructure improvements that are most needed. Greater concentrations of jobs are located in Midway, Uptown, Linda Vista, Mission Valley, San Diego State University, central La Mesa, and central El Cajon.

The greatest job growth within the Kumeyaay Corridor is anticipated in Midway, Linda Vista, Mission Valley, and El Cajon. In most of these higher growth areas, the share of residential population and jobs is forecast to be more balanced – conditions that have the potential to facilitate shorter trip distances<sup>8</sup>.

Figure 2-8: Employment Density



Source: US Census, 2020

<sup>8</sup> SANDAG, 2021

# CHAPTER 3. COMMUNITY ENGAGEMENT

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## Kumeyaay Corridor



Source: CR Associates



## Equity Considerations

Corridor Planning is a multimodal transportation planning approach that recognizes that transportation needs are based on communities' complex geographic, demographic, economic, and social characteristics. As such, equity is a crucial part of the corridor planning process. Both SANDAG and Caltrans are committed to prioritizing equity and ensuring that everyone has the opportunity to be involved and benefit from their transportation planning efforts.

The full SANDAG **Commitment to Equity** statement and full Caltrans **Equity Statement** can be found in **Appendix C**. Reflecting the SANDAG and Caltrans equity statements and best practices in inclusive public engagement, equity was incorporated throughout the engagement process by providing language accommodations and addressing the digital divide. For example, all outreach materials used to develop the Draft CMCP were provided in English and Spanish and additional language translations were available upon request. Closed captioning services were also available during the Public Workshop. To address the digital divide in community engagement, analog information-sharing methods were used as alternatives, or in addition, to digital ones, such as physical copies of the Social Pinpoint engagement survey and map, in-person pop-up events, and public comment opportunities via a CMCP telephone hotline. Additional details are available in Appendix C, *Public and Stakeholder Feedback*.

### Limitations from COVID-19

The approach to in-person engagement was aligned with regional and local public health guidance and protocols. These protocols shifted as the COVID-19 pandemic continued to evolve. In-person engagement activities were held, to the extent possible and as agreed upon by the Project Management Team, in accordance with public health guidance and social distancing guidance in place at the time of each engagement activity. Additionally, hybrid events took the form of a virtual meeting or securing an agenda item on a standing meeting and then providing a link to the Social Pinpoint site with hard copies of maps for markup and feedback.

### Community-Based Organizations

Community-based organizations, which can be a public or private nonprofit organization, were consulted to gather a variety of perspectives and views on the corridor needs, challenges, opportunities, and transportation solution strategies. The list of community-based organizations that were consulted are listed in Appendix C, *Community-Based Organization Events*. Social equity focus meetings were held in partnership with community-based organizations, with the goal of holding meetings directly in historically underserved and marginalized areas to reduce barriers to participation by traditionally underrepresented groups. The following topics were addressed during these meetings:

Figure 3-1: Community-Based Organization Meeting Topics



In addition, open question-and-answer sessions helped identify issues, opportunities, and ideas and communicated the next steps in incorporating feedback on the CMCP's Transportation Solution Strategies.

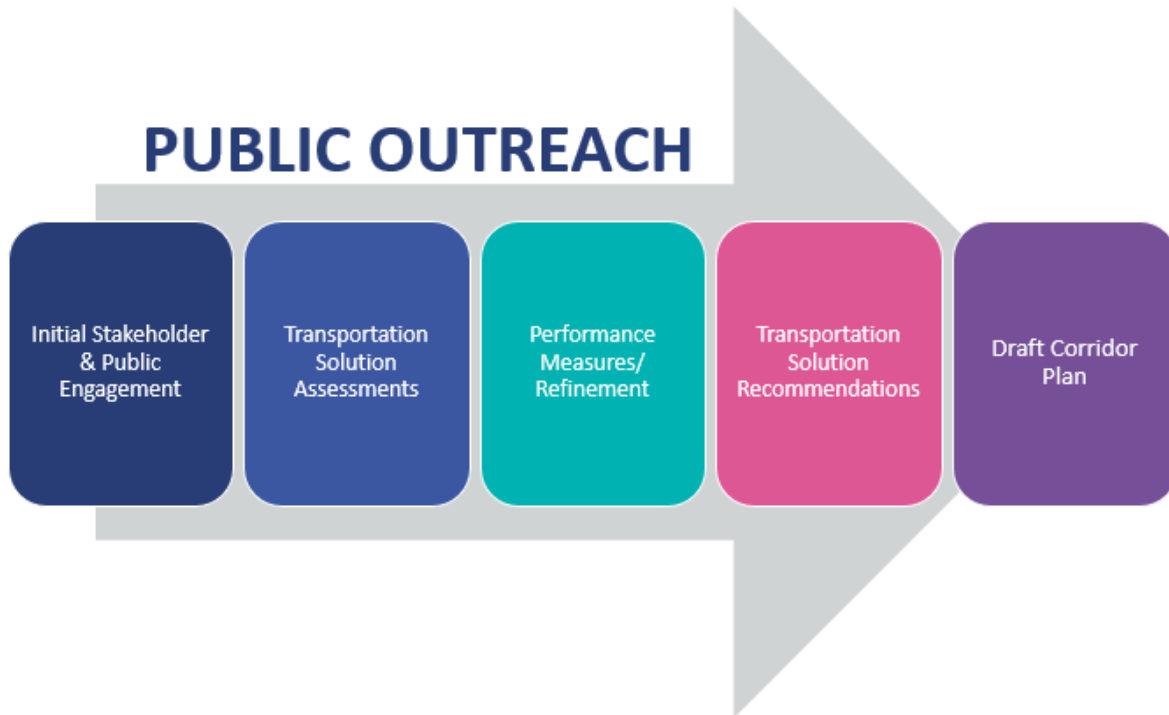
## Engagement Approach and Activities

The engagement approach prioritized social equity concerns and considerations and leveraged existing meetings. The approach also considered innovative ways to reach out to the community, such as tabling events and farmers markets and maximizing the use of online engagement. Additional details about the engagement approach fundamentals are provided in Appendix C, *Key Themes from Public and Stakeholder Engagement*.

### CMCP Timeline

The Kumeyaay Corridor CMCP is one of many CMCP projects. Each CMCP is designed to reduce vehicle miles traveled and greenhouse gas emissions and identify mobility solutions in the San Diego region's busiest travel corridors. The success of each corridor plan is attributed to the public feedback from a corridor's residents and commuters throughout its development, deeming outreach an essential part of the project. CMCP outreach is organized into five phases. To maintain consistency and effectiveness, the Kumeyaay Corridor CMCP follows this standardized outreach framework below.

Figure 3-2: Public Outreach Framework



## Overview of the Public and Stakeholder Engagement

The Kumeyaay Corridor public and stakeholder engagement consisted of varied events and efforts designed to receive broad and representative feedback primarily from communities within the Corridor and Area of Influence (see Figure 1-1), but open to all members of the public. As detailed in the sections below, a total of 21 touchpoints were provided between August 9, 2022, and March 20, 2024, which included meetings and engagement with working groups, stakeholders, community-based organizations, community planning group meetings, a public workshop, pop-up events, and a virtual engagement hub. Additionally, public and stakeholder engagement was developed in coordination with the Project Management Team (PMT) and Agency Coordination Team (ACT), as detailed below. Refer to Appendix C, *Public and Stakeholder Feedback* for the list of each event/meeting and date it was held. The Kumeyaay Corridor Public and Stakeholder Engagement also gathered feedback from Subject Matter Experts.

### Key Themes from Public and Stakeholder Engagement

The following are key themes that highlight the feedback gathered across the varied events and efforts. The initial public and stakeholder engagement occurred at the conclusion of the issue identification phase and at the onset of Transportation Solution Strategy development. Each comment received was categorized by topic and provided to the relevant Subject Matter Experts for review and consideration. Ultimately, the public feedback provided was used to refine the documented transportation needs and issues and inform development of corridor goals and strategies. Specific feedback, including comments and notes from each of the meetings and engagement activities are summarized in Appendix C, *Public and Stakeholder Feedback*.

**Travel Destination:** The Kumeyaay Corridor was most frequently cited by participants as primarily a travel destination for commercial and recreational activity (groceries, retail, entertainment, worship), followed by an employment center, then a residential area. Survey participants most frequently noted travel through and within the study area at least five days a week.

**Vehicle-Oriented Environment:** Many participants noted that private vehicles (car, truck, motorcycle) were their primary mode of travel in the study area. Participants noted deficiencies in vehicle-oriented infrastructure, such as missing shoulder lanes or short on-ramps, causing dangerous roadway conditions.

**Transportation Concerns:** Members of the public were most concerned about traffic congestion, travel safety, and the lack of environmentally friendly options for travel within the study area. Notably, the concerns about traffic congestion were elevated for the Mission Valley area.

**Pedestrian and Bike Infrastructure Focus:** Comments about the need for pedestrian and bike infrastructure improvements were raised frequently. The physical separation of pedestrians and bikes from vehicle traffic was frequently cited as a way to improve safety for all modes of travel studied for the CMCP. Participants also noted a desire for pedestrian-only infrastructure, such as pedestrian overpasses, citing difficulties with vehicular traffic at at-grade crossings.

**Rail Transportation Options:** Members of the public shared frequent comments about their desire for expanded coverage and increased frequency of service for rail transportation options in the study area, including Trolley, COASTER, and Amtrak. Additionally, participants shared desired improvements to existing services, including more frequent and faster travel times and improved pedestrian connections to stations.

### Virtual Engagement Hub (Social Pinpoint)

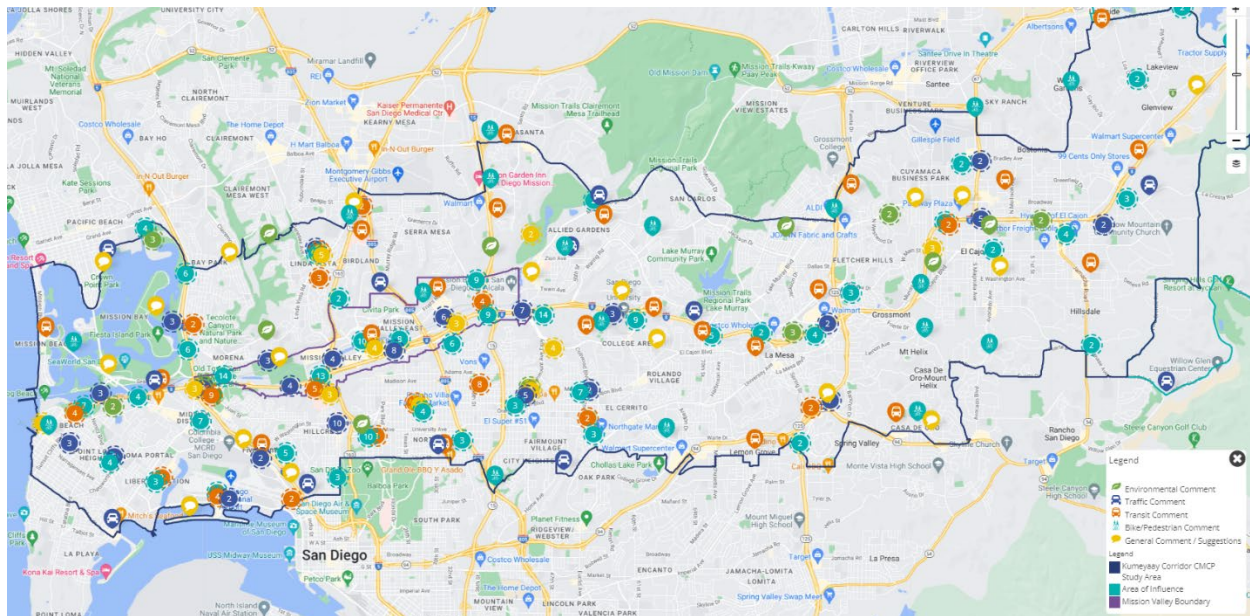
The Kumeyaay Corridor Virtual Engagement Hub was developed using Social Pinpoint in English and Spanish. This web-based community engagement platform hosted an interactive map, survey, fact sheet, and comment form. The Virtual Engagement Hub provided a digital method through which members of the public could learn, engage, and provide feedback at each phase of the development of the CMCP, in addition to in-person events and meetings. Additionally, the Virtual Engagement Hub served as a repository of project collateral created primarily in English and Spanish. Some materials also were posted in Arabic and Vietnamese as requested by community-based organizations.

Figure 3-3: Phase I Virtual Engagement Input



An interactive mapping tool enabled participants to place pins on a web map and provide comments. Users could select pins categorized by topics that included transit, walking/bicycling, vehicular transportation, the environment, and general comments. This exercise yielded 686 comments overall in the Kumeyaay Corridor CMCP area. The walking/bicycling topic area generated 343 comments, followed by vehicular transportation with 139 comments, transit with 111 comments, 69 general comments/suggestions, and 24 environmental-related comments. Refer to Appendix C, *Phase I - Virtual Engagement Hub (Social Pinpoint)* for the list of all comments and feedback.

Figure 3-4: Virtual Engagement Map Comments



A snapshot of the comments received on the Kumeyaay Corridor CMCP Virtual Engagement Hub.

The Virtual Engagement Hub also was used to host materials and obtain feedback during the draft CMCP public comment period in March 2024. The Draft CMCP and its appendices, fact sheet, webinar recording and comment form were made available.. The comments received during this phase of the project are documented in Appendix C, *Phase 2 - Virtual Engagement Hub (Social Pinpoint)*.

### *Project Management Team*

The Project Management Team (PMT), led by SANDAG, Caltrans, and CR Associates, provided oversight of the public engagement process by providing feedback on planned public engagement activities and participating in meetings and events.

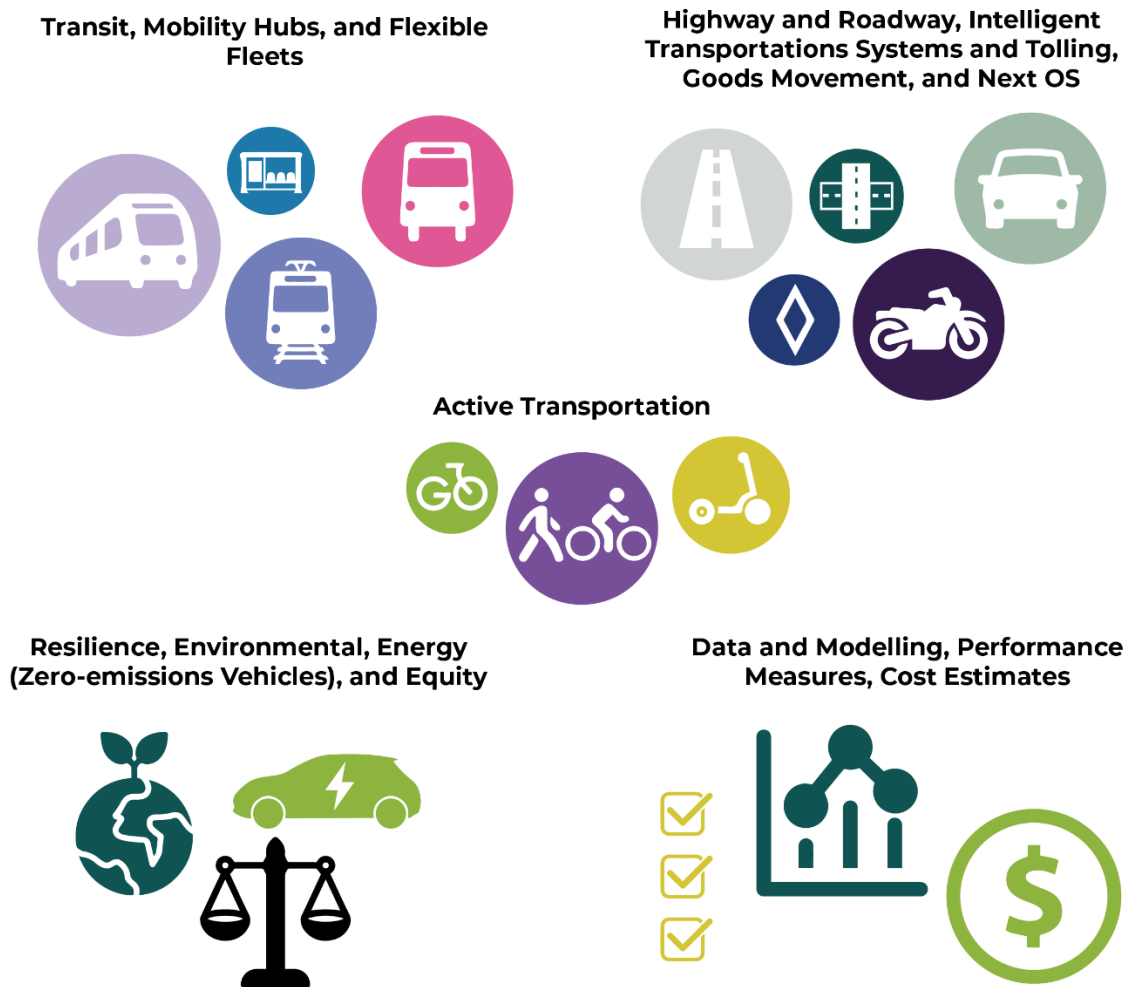
### *Agency Coordination Team*

The Agency Coordination Team (ACT) provided a coordinated mechanism for interaction with key agency and stakeholder representatives. The ACT meetings served to provide project updates, ensure coordination among key stakeholders, and solicit feedback and technical assistance at critical junctures of the study process. A digital collaboration platform was used to facilitate and document ACT member input. Refer to Appendix C, *Agency Coordination Team Meetings* for the list of the key agencies, meeting dates, and feedback.

## Subject Matter Experts

Subject Matter Experts (SMEs) were brought into the community engagement process to provide reliable information and guidance on specific technical topics or issues that affect the community, and to address questions and concerns from community members and stakeholders. SMEs represented technical planners, engineers, and service workers from various public, private, and institutional organizations categorized in 5 general topic areas (as shown on the graphic below). SME representatives also reviewed and provided feedback on draft strategies. Refer to Appendix C, *Subject Matter Expert Meetings* for the dates of the SME meetings and feedback.

Figure 3-5: Subject Matter Expert Categories



*Working Groups*

The PMT engaged in early and ongoing coordination with SANDAG Committees and Working Groups to discuss key issues, challenges, and ideas, allowing the project team to incorporate feedback in future phases and generate project support. By listening to and learning from different voices and experiences, the PMT was able to identify community members' and partners' needs, interests, challenges, and opportunities along the Kumeyaay Corridor. Meetings were held with the following Working Groups:

Figure 3-6: Working Group Meetings



*Coordination with Tribal Nations*

San Diego County is home to more tribal nations than any other county in the United States, including the Sycuan Band of Kumeyaay Nation and Viejas Band of Kumeyaay Nation whose reservations are in the vicinity of the Kumeyaay Corridor CMCP Study Area. A meeting with the Interagency Technical Working Group on Tribal Transportation Issues (Tribal TWG) was held on October 5, 2022. Refer to Appendix C, *Working Group Meetings* for the summary of feedback from the coordination with Tribal Nations.

## Stakeholder Interviews

The purpose of stakeholder interviews was to gather insights and feedback from major employers, institutions, and developers with an interest or influence on the corridor. Stakeholder interviews identified the needs, preferences, challenges, and opportunities for improving the mobility, safety, and livability of the Kumeyaay Corridor. Stakeholder interviews also helped build trust and collaboration among different parties and aimed to foster a shared vision for the future of the corridor. Refer to Appendix C, *Stakeholder Interviews* for the summary of feedback at each of these meetings.

Figure 3-7: Stakeholder Interviews





*Community-Based Organization Events*

Several social equity-focused community-based organizations were engaged in the planning process, including Linda Vista Collaborative (September 21, 2022), El Cajon Collaborative (October 4, 2022), San Diego Transportation Equity Working Group (October 10, 2022), Mid-City Community Action Network (Mid-City CAN) (November 21, 2022), San Diego Riverwalk Foundation (November 22, 2022), and City Heights Community Development Corporation (City Heights CDC) (November 22, 2022).

Social equity focus meetings were held in historically underserved and marginalized communities with a direct focus on reducing barriers for participation. These meetings drew upon community-based organizations with a specific social equity mission to expand reach to traditionally underrepresented groups.

These meetings discussed the purpose and benefits of the Kumeyaay Corridor CMCP, the project’s timeline, and additional public engagement opportunities. In addition, open question-and-answer sessions helped identify issues, opportunities, and ideas and communicated the next steps in incorporating feedback received on the CMCP’s Transportation Solution Strategies. Refer to Appendix C, *Community-Based Organization Events* for the summary of feedback at each of these meetings.



Photo from the Tribal Working Group meeting held on October 5, 2022

**Community Planning Group Meetings**

Community planning groups (CPG) provide citizens with an opportunity for involvement in advising the City Council, the Planning Commission, and other decision-makers on projects like the Kumeyaay Corridor CMCP. CPGs were sent notifications about the CMCP with the opportunity to request a presentation at one of their standing meetings. Refer to Appendix C, *Community Planning Group Meetings* for the summary of feedback at the Mission Valley Planning Group Meetings.

**Public Workshops**

The first public workshop was held on September 15, 2022 and provided an opportunity for broad public input to identify issues, opportunities, and ideas throughout the Kumeyaay Corridor CMCP. The meeting format was designed to allow for education about the CMCP and provided an opportunity for meaningful input into the next project milestone.

The second public workshop was held on March 20, 2024 and served to introduce the draft mobility networks and key concepts to the public and oriented users to the content of the draft plan. Participants could ask questions about the transportation networks, CMCP document, and process. Both workshops were held virtually with Spanish interpretation available, and the English and Spanish recordings were made available after the events on the virtual engagement hub website.

Figure 3-8: Public Workshop #1 Comments

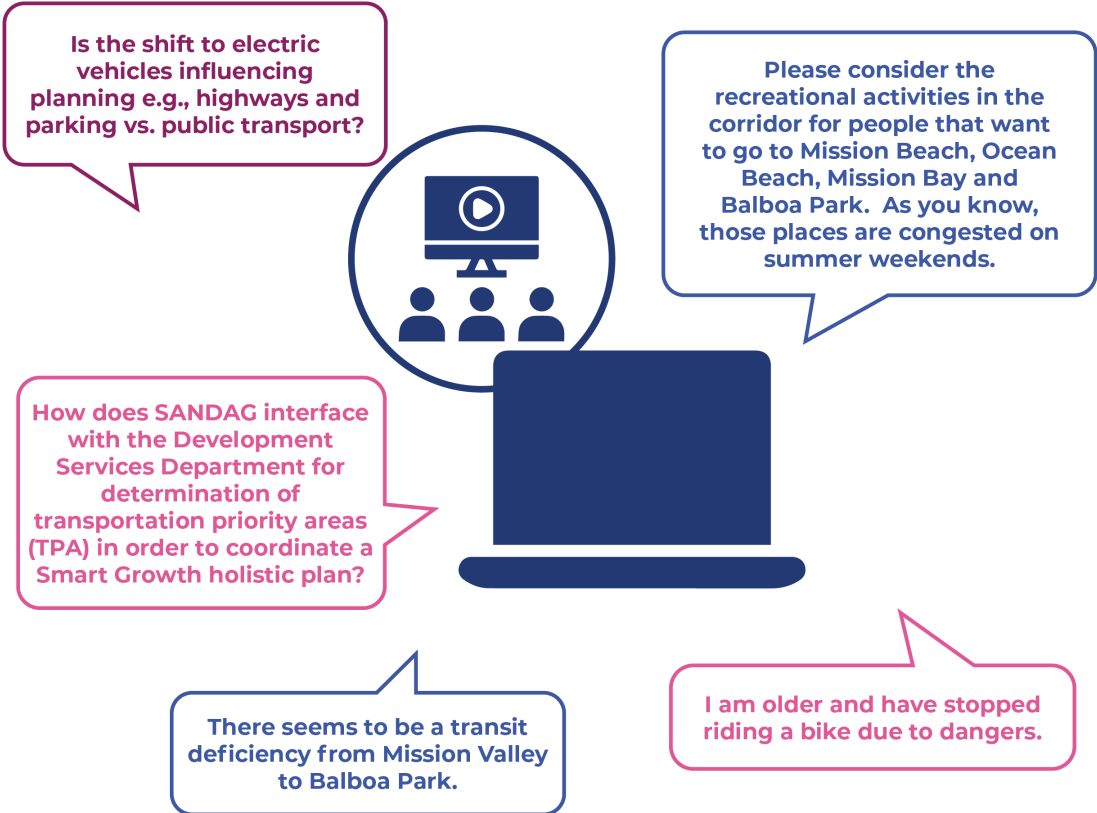


Figure 3-8 provides a snapshot of some of the comments received during the initial public workshop. Refer to Appendix C, *Virtual Public Meeting* for the full list of comments and feedback received during the public workshops.

### Pop-Up Events

Two pop-up community events were also held – one at the SANDAG Community Fair (October 9, 2022) and the other at Linda Vista Farmer’s Market (November 3, 2022). The purpose of the pop-up events was to create additional in-person opportunities for meaningful interactions with diverse audiences and help to raise awareness, share information, and gather feedback. Comments with geographic specificity obtained from the public at both events were incorporated into the Social Pinpoint map.



Source: SANDAG



Source: SANDAG

Images from pop-up events held at the Linda Vista Farmer’s Market (top) and the SANDAG Community Fair (bottom).

# CHAPTER 4. PLANNING APPROACH

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## Kumeyaay Corridor



Source: CR Associates

The Kumeyaay Corridor CMCP is a long-range planning document intended to provide a path for addressing existing transportation challenges and accommodating anticipated growth. This chapter documents the process used to arrive at Transportation Solution Strategies (TSS), touching on the following topics:

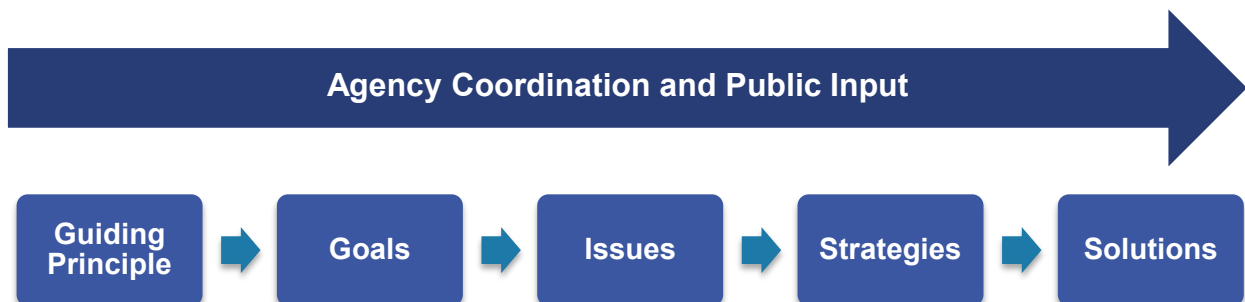
- Framework used to guide strategy development
- Identification of the broad strategy types and the issues they are intended to address
- Preliminary strategy evaluation methods used to inform alternative development

The TSS proposed in this document align with the California Transportation Plan 2050 and the SANDAG 2021 Regional Plan and its five transformation strategies – the 5 Big Moves – integrated into one regional transportation system. The strategies are designed to enhance equitable access and comprehensive mobility for everyone and to increase safety and infrastructure resiliency. This includes equitable access to recreational facilities, which can be difficult to access without a car.

## Transportation Solution Strategy Framework

A framework was established to guide the development of transportation solutions, support consistency with regional and state planning documents, and ensure planned improvements are tied to needs and address documented issues. The graphic below illustrates the workflow undertaken to arrive at transportation solution strategies, with the subsequent sections summarizing the processes within each step.

Figure 4-1: Transportation Solution Strategy Framework



- **Guiding Principle** – Inspired by goals from SANDAG’s 2021 Regional Plan and Caltrans’ California Transportation Plan 2050, the Guiding Principle provided an overarching direction to reference throughout TSS development that is consistent with currently adopted documents.
- **Goals** – Goals were developed based on existing conditions analysis findings, review of recent planning documents, and input received from members of the public and agency representatives. The goals state desired outcomes that could be achieved through the Kumeyaay Corridor CMCP. A total of four goals were developed, touching on active transportation, transit, vehicular travel, and resilience.
- **Issues** – A series of issues were identified for each of the four goals. Issues were identified from recent reports, community engagement, and discussions with agency stakeholders. The issues identified represent some of the challenges that need to be addressed to achieve the respective goals.

- **Strategies** – The strategies serve as project types or categories intended to address identified issues. The strategies were developed as general concepts, providing direction for the identification of site-specific solutions to be deployed at locations throughout the corridor.
- **Solutions** – The solutions are presented in Chapter 5. The solutions are site-specific improvements inspired by the strategy types. They are intended to address the respective issue(s) and contribute towards goal advancement. Solutions were derived from adopted plans and public comments. New solutions were also developed as part of the Kumeyaay Corridor CMCP to complement locally planned networks and help fill gaps. The solutions were vetted by agency stakeholders and serve as potential enhancements that will be further analyzed and refined at individual project levels.

### **Guiding Principle**

A guiding principle was established at the onset of the transportation solution strategy. Goals from SANDAG’s 2021 Regional Plan and Caltrans’ California Transportation Plan 2050, introduced in Chapter 1, were reviewed, and referenced when developing the guiding principle. The intent and spirit of the goals were consolidated into a single, succinct guiding principle for the Kumeyaay Corridor that was reviewed and refined by project stakeholders.

#### **Guiding Principle**

A safe and efficient transportation system comprised of equitable travel options that support a healthier environment.

Inspiration for the guiding principle was also from forward thinking documents, such as California’s Climate Action Plan for Transportation Infrastructure (CAPTI), which serves as an action plan for aligning state transportation investments with climate, health, and social equity goals. Referencing the CAPTI helps ensure Kumeyaay Corridor CMCP projects will advance state efforts and be more competitive for future funding sources.

### **Project Goals**

The existing conditions analysis, input from community members via surveys and public workshops, and discussions with Community Based Organizations and agency representatives were further used to identify key needs for the corridor. These needs were written as project goals with the intent of representing desired outcomes that could be achieved through the Kumeyaay Corridor CMCP.

#### **Goals**

- Comfortable, safe, and convenient active transportation options.
- Reliable and accessible transit service with competitive travel times.
- Reduced vehicular congestion and improved safety along arterials and freeways.
- Resilient infrastructure that can adapt to emergencies and climate change.

## ***Issues & Strategies***

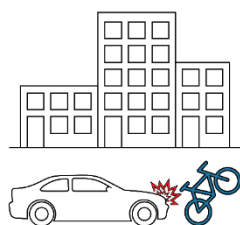
Achieving the stated goals first requires understanding the impediments or issues that stand in the way. Mobility issues come in a variety of forms but can be broadly categorized as challenges related to access, connectivity, safety, and quality/performance. Issues related to each category were considered and documented for each of the four goals, based on analyses and input collected.

The issues served as the starting point for developing strategy types. The strategies, or improvement concepts, are general in nature with the intent of being expanded upon through site-specific assessments.

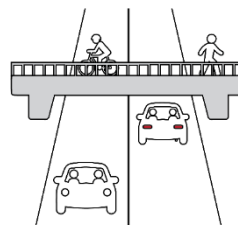
The remainder of this section documents the issues and strategies associated with each goal. The information is presented through four tables (**Table 4-1** through **Table 4-4**), one for each goal. The display format is intended to highlight how many strategies can address multiple issues.

Table 4-1: Active Transportation Issues and Strategies

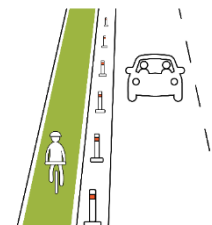
**Goal: Comfortable, safe, and convenient active transportation options.**



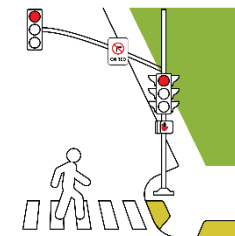
**Traffic Safety:** Improve active transportation safety while focusing on social equity communities



**Connectivity:** Physical barriers and gaps



**Quality:** Bike facility and roadway incompatibility



**Access:** Access to destinations and transit stations<sup>1</sup>

**Strategies**

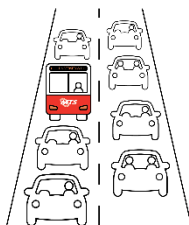
	Traffic Safety	Connectivity	Quality	Access
Redesign interface between freeway ramps and streets <sup>2</sup>	●	●		●
Address barriers <sup>3</sup> in the active transportation network		●		●
Build connections to regional active transportation networks	●		●	●
Develop a network of separated bike facilities <sup>4</sup>	●	●	●	●
Enhance the San Diego River Trail <sup>5</sup>		●	●	●
Improve intersection crossings for pedestrians <sup>6</sup>	●			●
Widen sidewalks in higher activity areas and develop sidewalk infill	●			●
Improve ADA access to transit stops <sup>7</sup>	●	●		●
Create access through large blocks and major developments		●		●
Leverage lower speed & volume roadways	●		●	

<sup>1</sup> Issue and associated strategies are also relevant to the transit goal. <sup>2</sup> Examples include eliminating free turn movements, squaring approaches, widening bike/ped facilities, adding crossing features, etc. <sup>3</sup> Facilitate crossing of the San Diego River, rail line, freeways and expressways. <sup>4</sup> Intended to be deployed along higher speed (> 25 mph) and higher volume roadways. <sup>5</sup> Improve comfort and safety of the trail by strengthening at-grade crossings, providing lighting, and improving trail visibility. <sup>6</sup> Examples include high visibility crosswalks, protected left-turns, advance stop bars, curb extensions, daylight intersections, etc. <sup>7</sup> Examples include curb ramps and street crossings, removal of sidewalk obstructions, accessible ramps, etc.

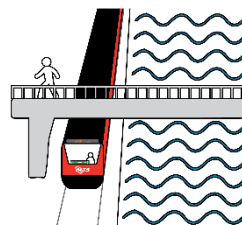


Table 4-2: Transit Issues and Strategies

**Goal:** Reliable and accessible transit service with competitive travel speeds.



**Quality:** Long transit travel times

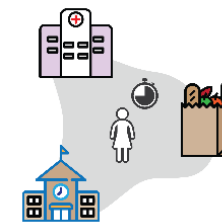


**Connectivity:** Transition from east-west to north-south services

**Issues**



**Coverage:** Lack of rail and Rapid services in study area periphery



**Access:** Efficient access to basic needs and opportunity by transit

**Strategies**

Transit priority treatments <sup>1</sup>	●	●		●
Express light rail service <sup>2</sup>	●			
Direct access ramps and new roadway connections <sup>3</sup>	●	●	●	●
Green Line to (future) Purple Line transfers	●	●		●
Connections between Green Line and communities to the south	●	●		●
Improved transit services to medical facilities <sup>4</sup>				●
Microtransit / flexible fleets		●	●	●

<sup>1</sup> Examples include Flex Lanes, shoulder running service, transit signal priority, ITS enhancements benefiting transit, etc.

<sup>2</sup> Double/triple track rail to accommodate express service.

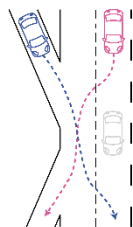
<sup>3</sup> Improve transit travel times and improve transfers between north-south running bus services to transit centers.

<sup>4</sup> Examples include Rady's Children's medical complex, Sharp Hospital, UCSD Medical Center – Hillcrest, and Scripps Mercy Hospital.

Table 4-3: Vehicular Issues and Strategies

**Goal:** Reduced vehicular congestion and improved safety along arterials and freeways.

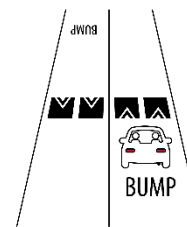
**Issues**



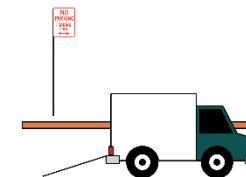
**Safety:** Freeway and arterial weaving between access points



**Quality:** Congestion during peak hours, seasonal, and special events



**Safety:** High vehicle speeds and collisions along arterials



**Connectivity:** Lack of goods movement infrastructure and broadband gaps

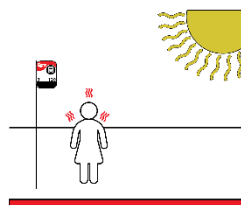
**Strategies**

Freeway ramp reorganization <sup>1</sup>	●	●		
ITS enhancements <sup>2</sup>	●	●	●	●
Improved use of existing frontage roads as collectors/distributors	●	●		
NextGen Managed Lanes <sup>3</sup>		●		
Coordinated special event transportation management		●	●	
Repurpose travel lanes on major arterials <sup>4</sup>		●	●	
Traffic calming measures <sup>5</sup>			●	
Dynamic curb assignment				●
Improved freight connections between airport and freeway				●
Establish partnerships to provide high speed internet to underserved areas				●
Establish broadband service/management partnerships				●

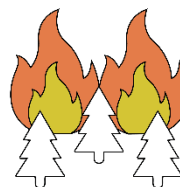
<sup>1</sup> Close ramps with short storage length to increase distance between ramps to reduce weaving. <sup>2</sup> Examples include dynamic lane assignment, dynamic speed limit, Active Traffic Management, Active Transportation Demand Management, etc. <sup>3</sup> Features could include limited access, multimodal integration, interconnected and autonomous support capabilities. <sup>4</sup> Examples include Flex Lanes and enhanced active transportation facilities. <sup>5</sup> Examples include reduced lane widths, speed and volume control on collector/local road, etc.

Table 4-4: Resilience Issues and Strategies

**Goal:** Resilient infrastructure that can adapt to emergencies and climate change.

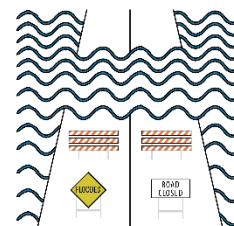


**Safety:** Increasing temperatures



**Safety:** Wildfires

**Issues**



**Quality/Connectivity:** Congestion during evacuations; flood risks to infrastructure



**Connectivity:** Gaps in electric vehicle charging

**Strategies**

Increase heat protection <sup>1</sup>	●		
Increase infrastructure heat resilience <sup>2</sup>	●		
Increase tree canopy	●		
Increase vegetation management <sup>3</sup>		●	
Plan post-event resilience <sup>4</sup>		●	●
ITS infrastructure to facilitate evacuations		●	●
Update evacuation plans <sup>5</sup>		●	●
Increase drainage capacity			●
Increase green/permeable infrastructure			●
Elevate or floodproof infrastructure			●
Provide rainfall flood sensors			●
Provide stormwater infrastructure upgrades			●
Improve EV charging infrastructure <sup>6</sup>			●

<sup>1</sup> Examples include shade structures, seating, improved transit frequency, transit priority treatments, etc. <sup>2</sup> For example, standardize pavements and asphalt binders to increase heat durability. <sup>3</sup> Vegetation management can be used to maintain fire breaks and reduce kindling. <sup>4</sup> Examples include debris removal, re-seeding burned areas, upsizing culverts, etc. <sup>5</sup> Climate risks evolve, and trip patterns shift. Evacuation plans should be regularly reviewed to determine if modifications are needed. <sup>6</sup> Locate EV charging infrastructure outside of floodplains and areas with higher climate risks.

# Performance Measure Evaluation Framework

## *Purpose of Performance Measures*

A performance-based evaluation framework was developed as a mechanism for scoring and prioritizing projects and to inform the determination of project alternatives. This section summarizes the Performance-Based Evaluation Framework Memo (**Appendix D**) components relevant to the project selection and alternative identification phases.

## *Development Approach*

The Kumeyaay Corridor evaluation framework was developed to be consistent with policies and performance goals established at federal (FHWA Transportation Performance Management indicators), state (Caltrans Comprehensive Multimodal Corridor Plan Guidelines & Corridor Planning Process Guide) and regional (SANDAG 2021 Regional Plan) levels.

## *Performance Measure Categories*

With guidance from the documents referenced in the previous section, and input from agency stakeholders, a prioritized set of performance measures were identified and categorized into five areas. The five summary categories are:

- **Accessibility** is central to the goal, “Access to Affordable, Reliable, and Safe Mobility Options for Everyone,” and includes many measures such as transit proximity, access to jobs and education, active transportation facilities and usage, and non-auto travel.
- **Efficiency** primarily gauges the goal for “Efficient Movement of People and Goods,” and includes many measures such as state of repair, travel times and distances, delay, reliability, and resiliency.
- **Air Quality** addresses the goal, “Healthier Air & Reduced Greenhouse Gas (GHG) Emissions Regionwide,” and measures PM2.5 exposure, on-road smog forming pollutants, contributors to GHG, and proximate resident population exposed to roadways (four measures).
- **Multimodal** captures person trips, short trips, transit ridership, and mode share (four measures). Mode share is further divided by single-occupant vehicle (SOV), vehicles with two or more occupants (Occ2), vehicles with three or more occupants (Occ3), transit, bicycling, and walking.
- **Safety** relates both to individual safety and public health and includes measures of fatalities, serious injuries, and incidents involving vulnerable road users (VRUs) (three measures).

# CHAPTER 5. TRANSPORTATION SOLUTION STRATEGIES

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## Kumeyaay Corridor

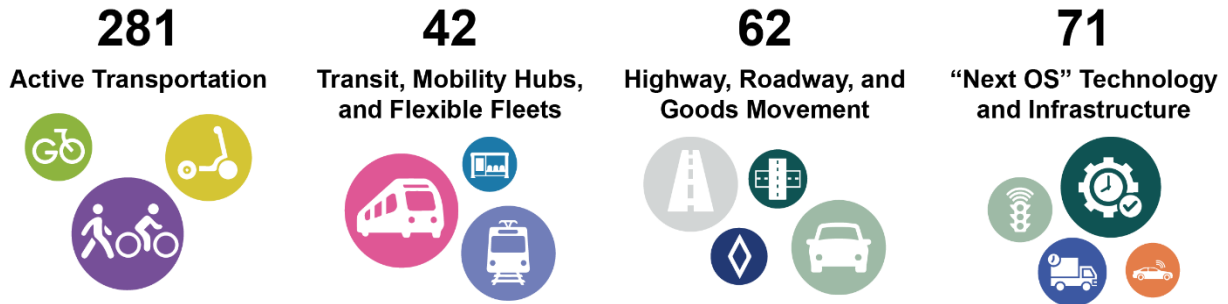


Source: CR Associates

## Transportation Solution Strategies

A total of 456 transportation solutions were developed to address transportation needs and enhance mobility in the Kumeyaay Corridor CMCP study area. Project development relied on the Transportation Solution Strategies framework described in the previous chapter, as well as agency and public input.

Figure 5-1: Transportation Solution Solutions by Category



Source: CR Associates

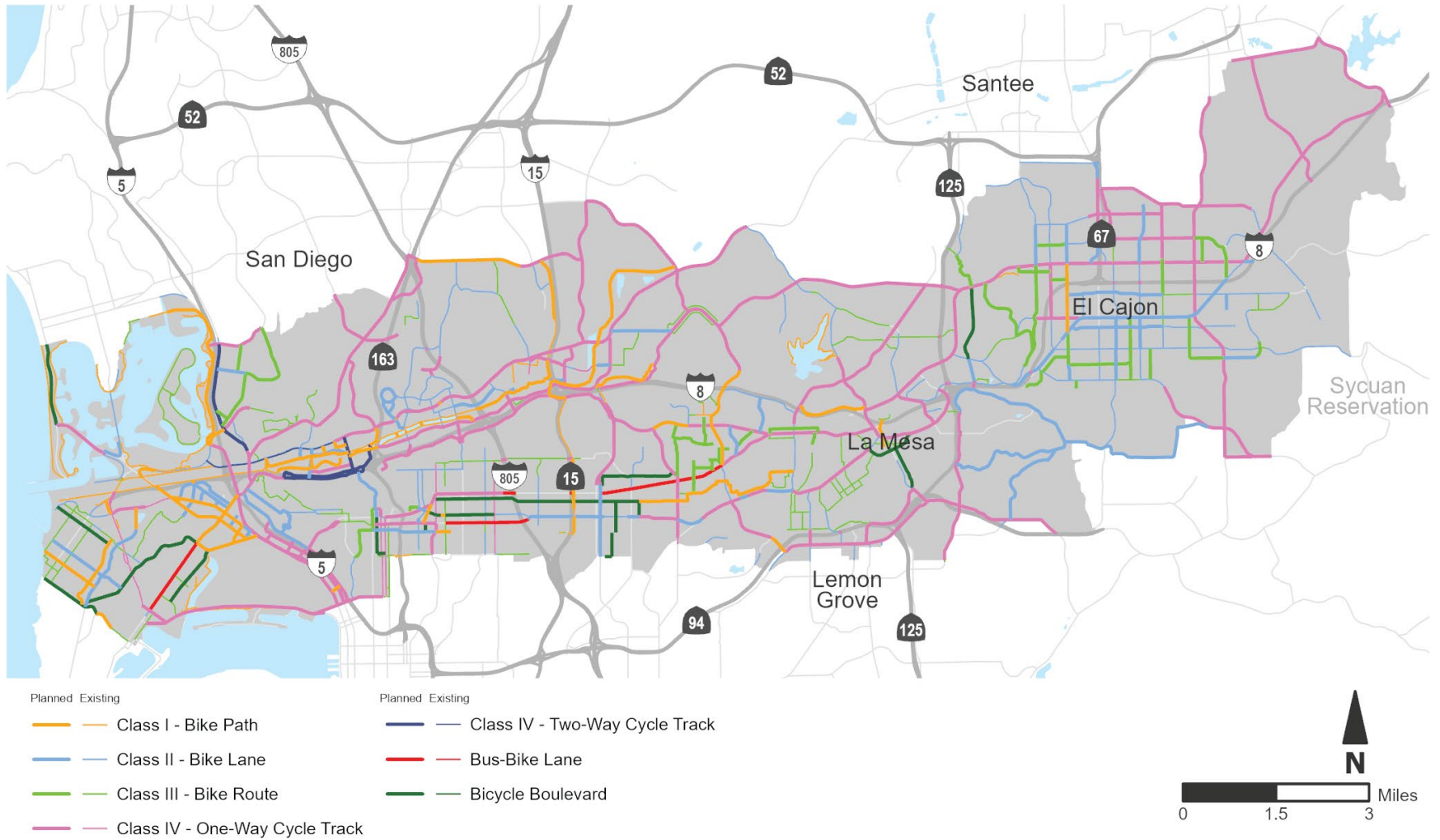
Note, some solutions may fit within multiple categories. The sections within this chapter introduce the strategy types and Transportation Solution Strategy maps.

The strategy highlights provide examples of the proposed transportation solutions intended to improve mobility. The complete list of transportation solutions is provided in **Appendix E**.

### Active Transportation

Kumeyaay Corridor bicycle network projects are presented in **Figure 5-2**. These projects are built off previous planning efforts and intended to establish a network largely comprised of Class I bike paths and Class IV cycle tracks. These facility types provide physical separation from vehicular traffic helping to create a lower stress cycling environment that will improve comfort for cyclists of all ages and abilities. The bicycle network is further supported by bike boulevards, bike lanes, and bike routes where contextually appropriate or constrained. Individual project level studies may indicate additional opportunities for separated facilities or alternative recommendations.

Figure 5-2: Bicycle Network



Source: CR Associates

### *Class I Bike Paths*

Bike paths (also referred to as multi-use paths) are facilities exclusively for bicyclists, pedestrians, and micromobility users. They are separated from and prohibit vehicular traffic. Bike paths are configured for two-way travel and intended to have minimal crossflow interactions with vehicular traffic. As such, they are well suited parallel to linear barrier features such as waterways, freeways, or rail, where there are fewer at-grade conflicts. Any at-grade crossings should be treated with traffic controls and other treatments to ensure safe crossings. Examples of proposed bike paths include along College Avenue crossing I-8 in the City of San Diego, and along Parkway Drive parallel to I-8 in the City of La Mesa.



San Diego River Trail Class I Bike Path

Source: CR Associates

### *Class IV Separated Bikeway*

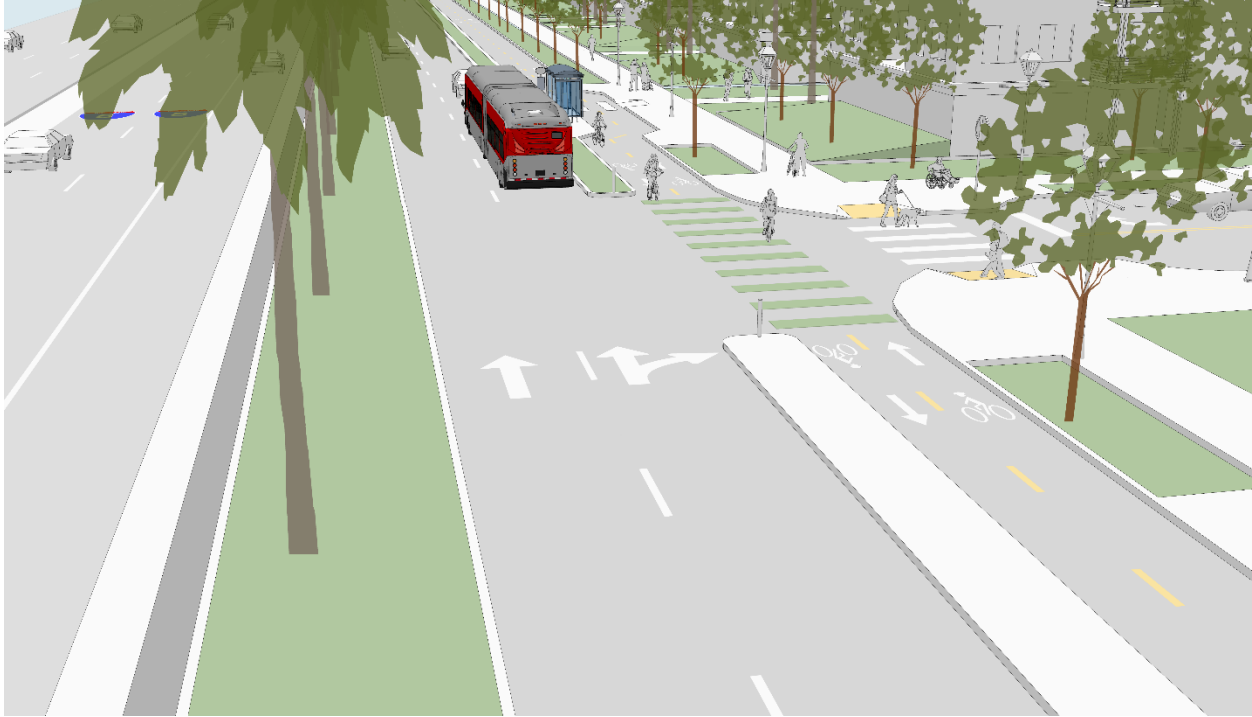
Class IV bikeways – referred to as separated bikeways or cycle tracks – are located within the confines of a street and physically separate bicyclists from vehicular traffic and pedestrians. Physical separation from vehicular traffic can be achieved with raised concrete separation, bollards, or flex posts, and may also incorporate on-street parking (providing an added layer of separation from moving traffic). A Class IV bikeway may be configured for one-way or two-way travel. Examples of proposed Class IV bikeways include Hotel Circle (two-way) and Mission Gorge Road (one-way) in the City of San Diego and Fletcher Parkway (one-way) in the City of El Cajon.



One-Way Separated Bikeway (Class IV) along Laurel Street

Source: CR Associates





Two-Way Separated Bike Lanes (Class IV) along Hotel Circle North in San Diego

Source: CR Associates

### ***Transit Leap, Mobility Hubs, Flexible Fleets***

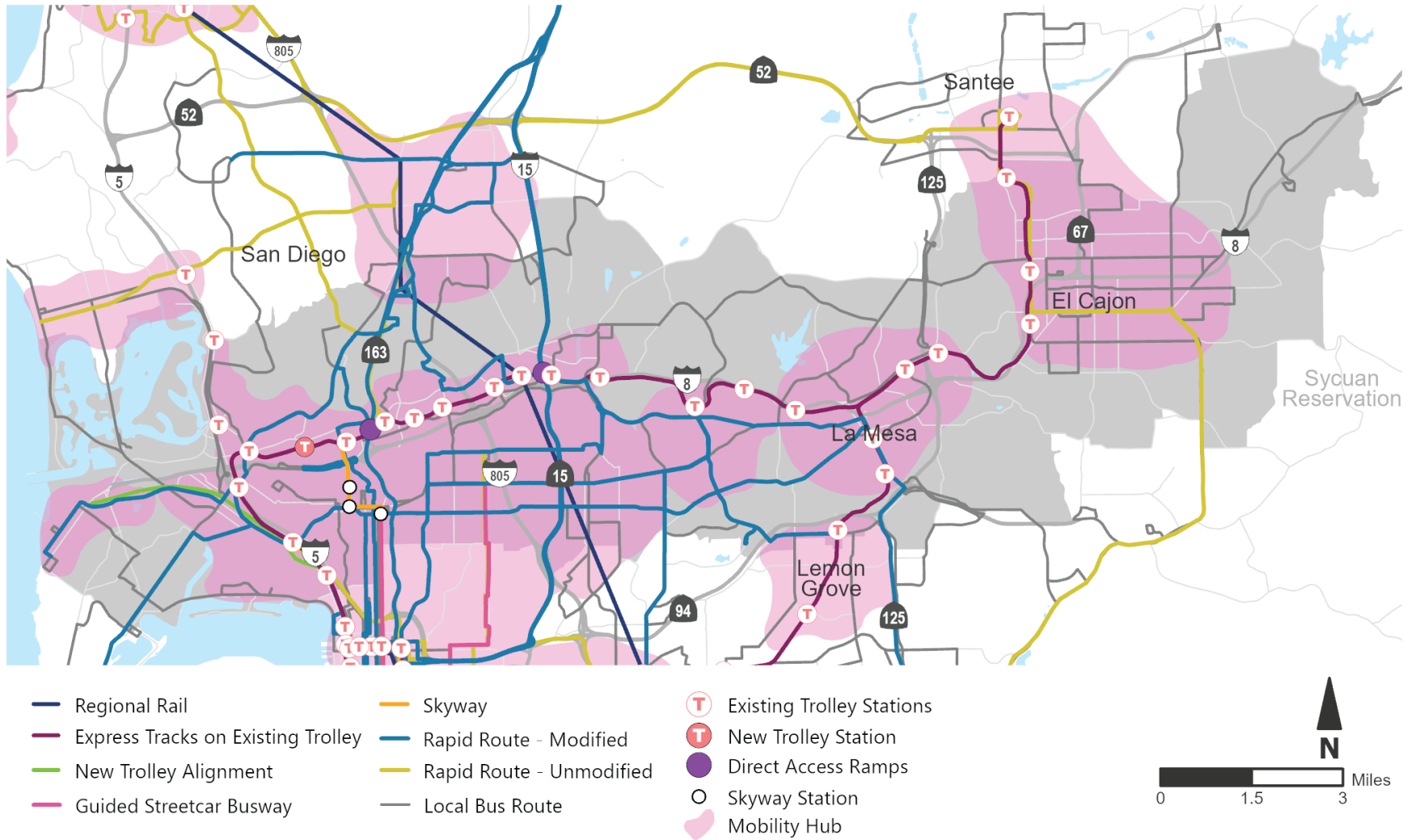
**Figure 5-3** shows the Transit, Mobility Hub, and Flexible Fleet solutions included within the Kumeyaay Corridor study area. The main elements of these projects include new rail infrastructure to enable high speed regional rail (named “Commuter Rail” in the Regional Plan), additional tracking for the San Diego Trolley to enable express service overlays, and Next Gen Rapid Bus routes and supporting infrastructure.

A cable car “skyway” is included to connect the Mission Valley and Uptown communities of San Diego, where terrain complicates ground transportation solutions. Mobility Hubs would serve to supplement the transit system, facilitating connections to and from transit and other types of travel. Flexible Fleets are various types of mobility amenities, equipment, and services that increase transit access and are often programmed at, or interface with, mobility hubs.

### ***Regional Rail***

A cornerstone of SANDAG’s Transit Leap strategy is high speed and high frequency regional rail connecting the San Diego region’s main employment centers. This service is envisioned to be entirely grade separated, or outside of the roadway and separated from vehicular traffic. Wide station spacing (about two to five miles apart) enables trains to reach faster travel speeds. The only regional rail proposal in this plan is an inland north-south rail line (Purple Line), providing high-capacity transit services between Sorrento Valley and the international border. This line would connect to the Green Line in Mission Valley. SANDAG is currently undertaking an alignment study that will provide more specific information on how and where the Purple Line will travel.

Figure 5-3: Transit Network



Source: CR Associates

### Light Rail and Streetcar

The TSS includes enhancements to San Diego Trolley service, including increased frequency, additional tracking projects, and station retrofits to enable express service overlays with existing service. Express service would bypass interior stations along a rail line, providing faster service between Downtown, transit hubs, and the outer extents of the rail system. This CMCP also includes a potential new Trolley alignment to Ocean Beach, and the creation of a transit loop route around Balboa Park served by streetcar, consistent with the Regional Plan.



Source: CR Associates

### Next Gen Rapid Bus

Next Gen Rapids are bus routes with high-frequency service, aided by treatments (e.g., roadway striping, transit priority signals) to maximize operating speeds. Flex Lanes – introduced in the Highway and Roadway section – separate buses from general vehicular traffic, enabling Next Gen Rapid buses to have priority over general vehicular traffic. These will be supplemented with amenities at stops to reduce vehicle dwell time as passengers enter and exit buses, such as all-door and level boarding, and off-board fare collection.



Source: MTS

### Direct Access Ramps

Direct Access Ramps (DARs) are on- and off-ramps connecting a freeway's Managed Lanes (lanes reserved for transit, high occupancy vehicles, and/or single-occupancy toll-paying vehicles) with the roadway network. DARs provide users travel time savings because they are separated from general purpose freeway traffic. The DAR solutions in this CMCP are proposed exclusively for transit to help access major connections that cannot easily be served by conventional freeway exits without significant detour or delay.



Source: CR Associates

## Skyway

Skyways provide a higher capacity connection between places separated by steep or challenging topography, which cannot easily be connected by ground transportation infrastructure. Skyways use large cabins which can seat dozens of passengers per direction. A skyway between Mission Valley and Hillcrest (in Uptown) is included in this CMCP to improve connectivity. This project was considered as an alternative to a north-south running Rapid Bus route.



The Portland Aerial Tram connects Downtown Portland to one of the city's largest employment centers, traversing Interstate 5 and climbing over 500 feet in elevation.

Source: tusharkoley / Shutterstock

## Mobility Hubs and Flexible Fleets

Mobility hubs are places where different transportation options and amenities are configured in one physical location. They help facilitate trips without the need for driving and/or streamline trips where a change of travel mode may be necessary. The amenities at mobility hubs are intended to help address the “first/last mile” access problem commonly encountered within public transportation.

Flexible Fleets are the vehicles staged within mobility hubs. They provide users alternative options for short trips or connections to/from other transit modes. Flexible Fleets can include shared vehicle fleets for individual users to rent, such as bicycles, scooters, and cars. They can also include the types of vehicles used in providing Microtransit, neighborhood electric vehicles, taxi/ride-hailing, and carpool/vanpool services. Mobility hub and Flexible Fleet coverage is included throughout most of the study area.



A prototypical mobility hub, with Flexible Fleet scooters and bicycles, next to a bus stop.

Source: CR Associates

## Highway and Roadway

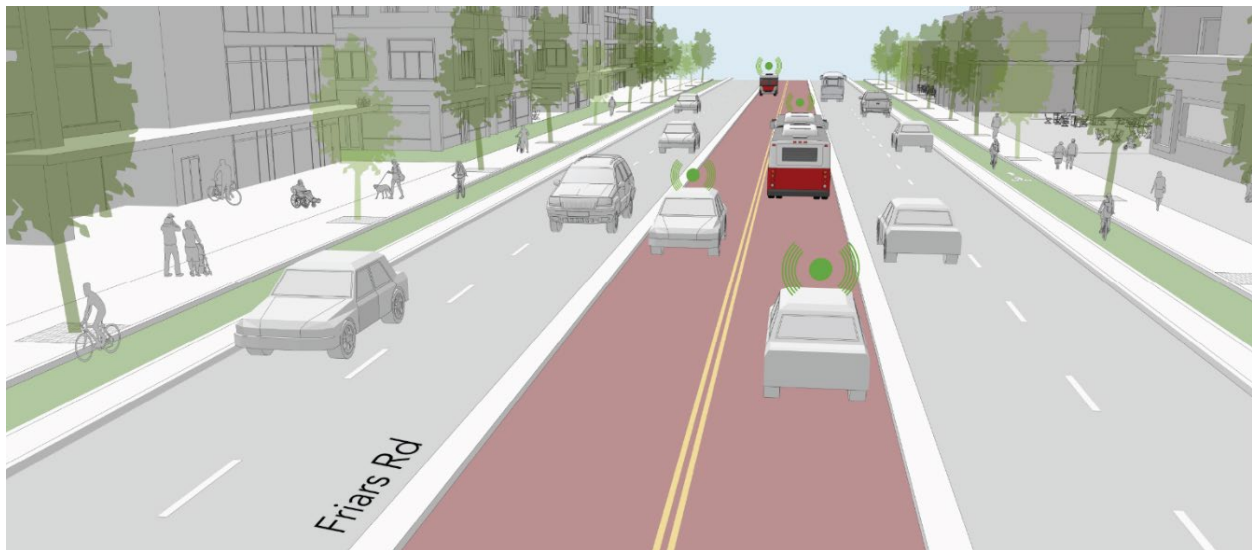
**Figure 5-4** displays the network for highway and roadway solutions. Managed Lanes are included for most freeways within the study area to prioritize high occupancy and toll-paying vehicles. There are modifications proposed at several of the Interstate 8 interchanges, improving the freeway's currently outdated ramp infrastructure. Flex Lanes are included along major roadways to give priority to transit and other kinds of congestion-reducing transportation.

### Managed Lanes

Managed Lanes are used to address congestion by restricting use based on vehicle type (e.g., transit vehicles, electric vehicles), occupancy (e.g., two or more users), or fees paid in the form of tolls. Managed Lanes can be equipped with technological features which “manage” traffic demand to help address congestion. Features may include dedicated striping with limited access (HOV lanes), reversible travel lanes to ensure lane capacity is optimized according to time-of-day patterns, and/or dynamic tolling to ensure usage does not overwhelm capacity. Interchange treatments (e.g., Managed Lane Connectors, Direct Access Ramps) can also be applied to support transitions to, from, or between highways. Interstate 15 between State Route 78 and State Route 163 is a present example of Managed Lanes in the San Diego region.

### Flex Lanes

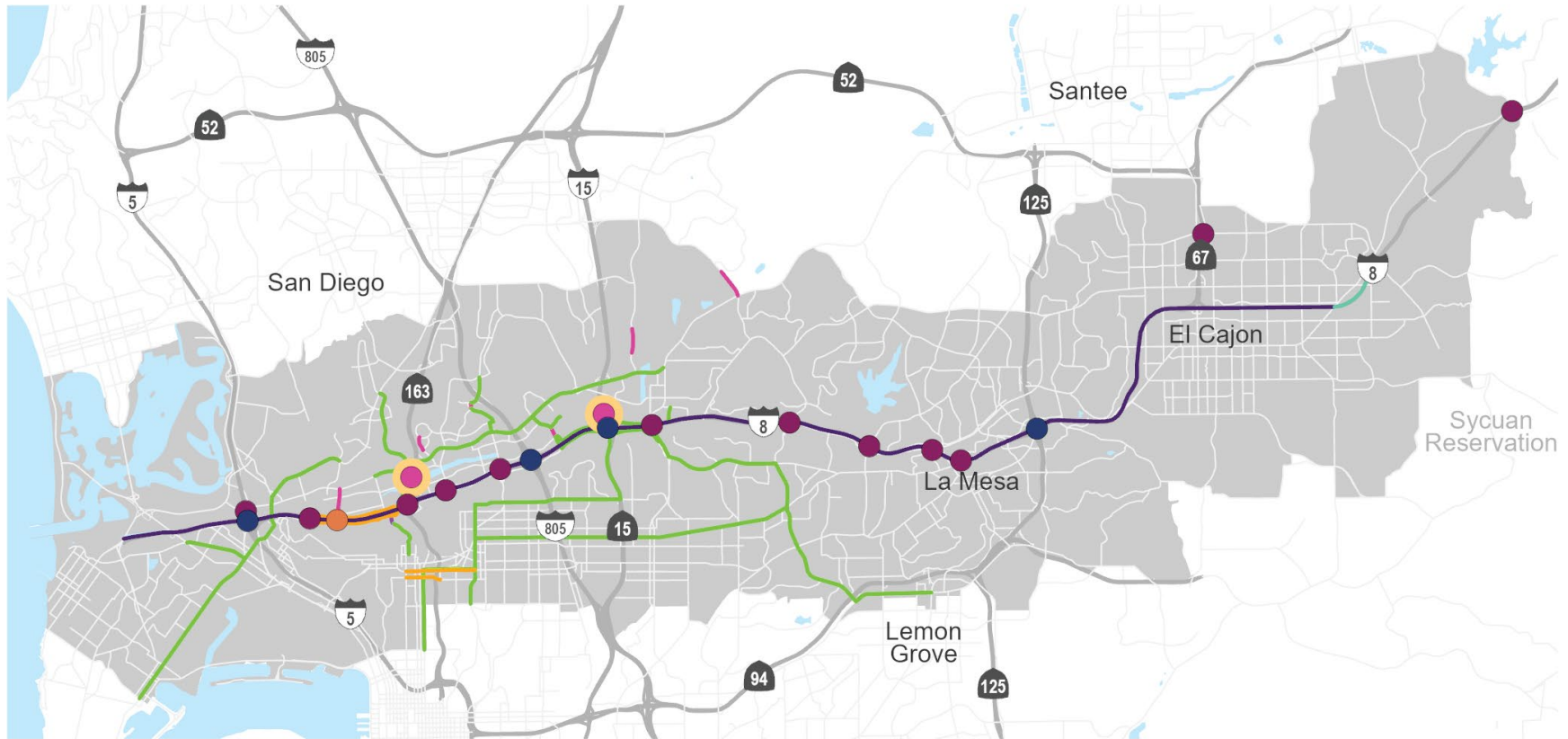
Flexible (Flex) Lanes are a type of managed lane yet are intended for multi-lane roadways rather than highways. They can be dedicated for transit and/or other congestion-reducing mobility forms (e.g., autonomous, connected vehicles, and shuttles). Flex Lanes are intended to increase efficiency of circulation and reduce congestion during normal operations and special events. Flex Lanes will include transit priority measures and signal timing that adapts to changes in congestion and traffic demand in real-time, which can improve the flow of traffic.



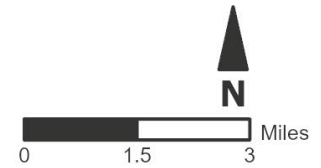
Conceptual rendering of flex lanes along Friars Road being utilized by connected, autonomous vehicles and buses.

Source: CR Associates

Figure 5-4: Highway and Roadway Network



- Direct Access Ramps
- Interchange Enhancement
- Managed Lanes Connector
- New Interchange
- New Auxiliary Lane
- Conversion to One-Way
- Flex Lanes
- Managed Lanes
- New Roadway Connection
- Roadway Widening
- Alternative 1 Only



Source: CR Associates

## Interchange Treatments

Interchange treatments (e.g., Managed Lane Connectors, Diverging Diamond Interchanges, Direct Access Ramps, roundabouts) serve to support transitions to, from, or between highways. Additional ramp reconfigurations could enhance safety, including the removal of loop ramps and uncontrolled vehicular movements, as well as the inclusion of protected bicycle and pedestrian facilities supported by dedicated bicycle signals.

- **Managed Lane Connectors** – Managed Lane Connectors are freeway-to-freeway interchanges which connect the Managed Lanes of two intersecting freeways. Managed Lane Connectors enable users to transition directly from the Managed Lane (e.g., HOV lane) on one highway to the Managed Lane on another highway. This connection helps avoid congestion from the weaving experienced when general purpose users access the freeway mainline from the interchange during peak conditions.
- **Diverging Diamond Interchanges** – The Diverging Diamond Interchange (DDI) configuration is intended to move higher volumes of traffic than conventional interchange design without the need for additional travel lanes and traffic signals. This is accomplished by reversing the two directions of travel to the opposite sides at the interchange approaches. The reversed section of roadway enables traffic entering or exiting the freeway to make left turns without crossing opposing traffic, while also maintaining free right turns to and from the freeway. DDI configurations can improve conditions for pedestrians and bicyclists by reducing crossing lengths and the number of lanes crossed at a time. One example exists in the San Diego region at State Route 11 and Enrico Fermi Drive in Otay Mesa.



Conceptual rendering of the Diverging Diamond Interchange at Texas Street/Qualcomm Way and Interstate 8.

Source: CR Associates

## *Intelligent Transportation System Solutions (Next OS)*

Intelligent Transportation Systems (ITS) solutions are a part of the “Next Operating System (Next OS)” strategy in the Regional Plan. Next OS is a digital platform that compiles information from sources like passenger vehicles, buses, ridesharing vehicles, delivery trucks, e-bikes, and scooters into a centralized data hub. It is the “brain” of the entire transportation system that will allow the ITS strategies to work together. The Next OS provides the foundation for allowing ITS Active Traffic Management (ATM) and Active Demand Management (ADM) solutions to work together with other smart infrastructure solutions like the Smart Intersection System (SIS) strategies.

**Figure 5-5** shows planned ITS infrastructure in the study area. ITS solutions will distribute information in real time. The technology will aid navigation, provide parking information, and help optimize the allocation of traffic to available transportation infrastructure. As vehicular technology becomes more sophisticated, ITS will also enable communications between autonomous vehicles and infrastructure to increase the efficiency of movement throughout the transportation system.

### *Active Traffic Management*

ATM infrastructure monitors conditions and relays information to assign vehicles to specific travel lanes based on those traffic conditions. ATM examples include using variable speed limit controls that adapt to real-time traffic conditions, dynamic lane assignments that allow the utilization of travel lanes across various use cases more efficiently, express/managed lanes, and other integrated corridor management technologies.

### *Active Demand Management*

ADM information disseminates information to travelers to help influence time of travel, route choice and mode choice. Concurrently, through the integration of the data hub, transit optimization, and Mobility as a Service strategies, the transportation system will ensure that visitors are provided with a seamless public transit experience if they choose to travel using public transit.

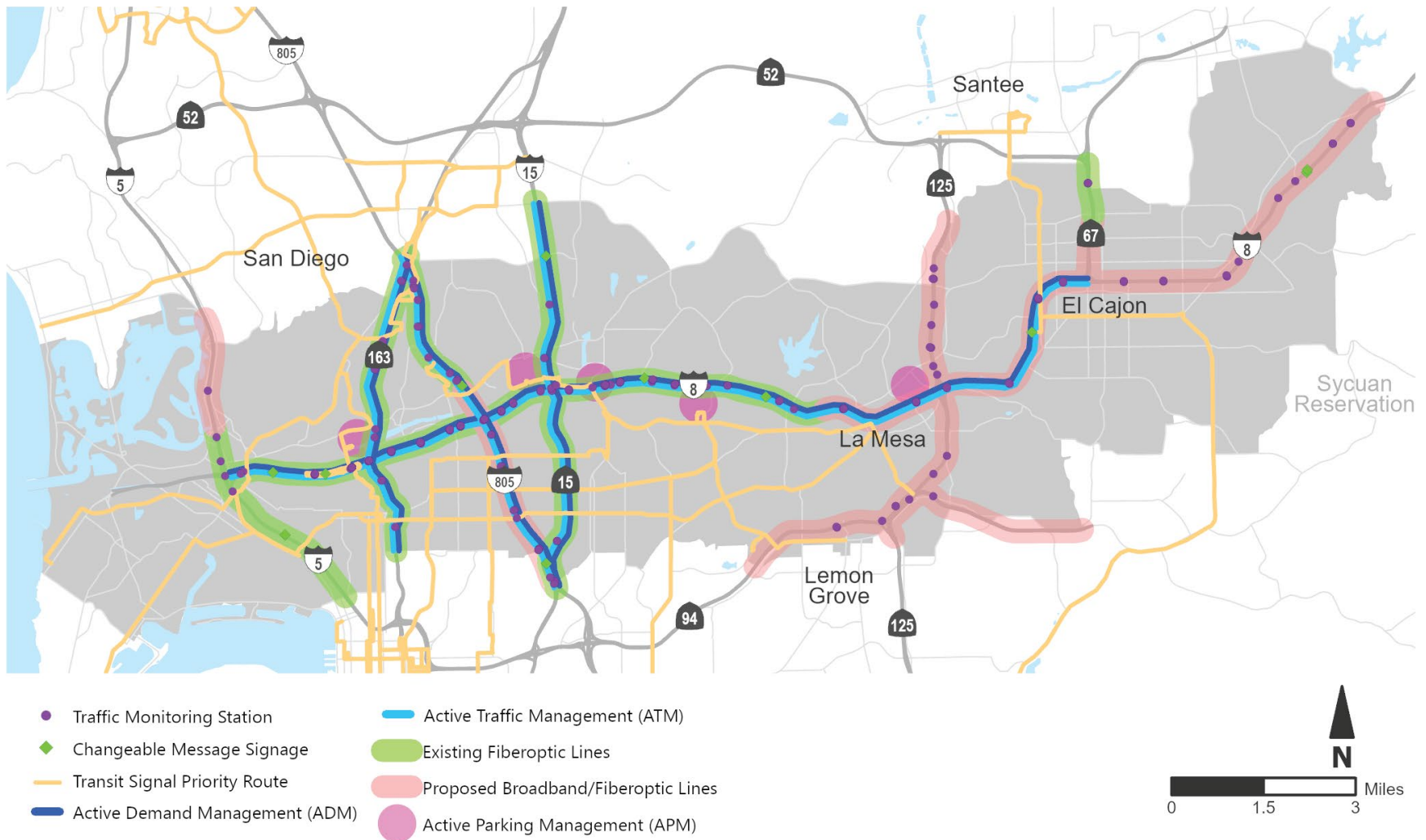


Active Traffic Management through dynamic speed limit and lane assignment signage along I-15 through Las Vegas.

Source: Las Vegas Review-Journal



Figure 5-5: ITS Network



Source: CR Associates

## Resilience

Despite ongoing global efforts to reduce greenhouse gas emissions, climate change will still have an impact on communities, natural environments, and human systems around the world. The San Diego region will face climate hazards such as hotter and more frequent heat waves, more destructive wildfires, more extreme precipitation and flooding, and rising sea levels. Communities in the region must adapt and the region as a whole must become more resilient. Resilience means that the region's unique communities, economies, and natural resources can endure, recover, and thrive in response to climate change impacts.

Integrating resilience into the Kumeyaay Corridor fits into broader regional efforts. Design and planning for the corridor will integrate strategies that reduce climate vulnerability, improve evacuation planning, and protect communities from climate impacts. Assessing the vulnerability of critical transportation infrastructure to climate impacts and prioritizing adaptation can help support regional resilience goals.

The San Diego region is also integrating resilience into its planning. The transportation system envisioned through SANDAG's 5 Big Moves will incorporate strategies to improve regional resilience and climate change adaptation. These strategies include considerations of travel patterns and rapid mobility for evacuations and emergency response, as well as designing coastal infrastructure to withstand rising sea levels and storm surge<sup>9</sup>. These strategies continue from a long history of SANDAG resilience efforts that stem from the 1990s, when SANDAG helped coordinate adaptation efforts to preserve shorelines in the region. Regional resilience planning also supports statewide resilience efforts, such as those led by the California Natural Resources Agency, which carries out the state's Climate Adaptation Strategy<sup>10</sup>.

The remainder of this section summarizes strategies intended to address the Kumeyaay Corridor's resilience needs.

### Public Transit Shade Structures

Adding more shade structures at public transit stops, especially along major routes, can support extreme heat adaptation. Increased seating and other supporting amenities also improve adaptation.



Source: CR Associates

<sup>9</sup> <https://www.sandag.org/-/media/SANDAG/Documents/PDF/projects-and-programs/environment/climate-resilience-and-adaptation/2021-regional-plan-programs-and-policies-climate-adaptation-and-resilience-2020-09-01.pdf>

<sup>10</sup> <https://resources.ca.gov/Initiatives/Building-Climate-Resilience>

### *Increased Tree Canopy*

Increasing tree canopy provides shade that protects people from the impacts of extreme heat. This is often used at public transit stops where people wait outdoors for a long period of time.



Source: CR Associates

### *Cool Pavements*

Cool pavements keep urban areas cooler by reflecting more sunlight, enhancing evaporation, or by using alternative building materials that keep temperatures lower than standard pavement.



Source: Lawrence Berkeley National Laboratory

### *Vegetation Management*

Increasing the funding for and frequency of vegetation management reduces the amount of possible kindling in an area and can maintain fire breaks. This reduces the risk of fast-spreading and destructive wildfires.



Source: Helix Environmental Planning

### *Intelligent Transportation Systems (ITS)*

Leveraging communication opportunities with fiberoptic expansion and using technology in transit establishes more efficient coordination in emergency situations. Intelligent transportation systems (ITS), like digital communication signs, can enhance evacuation and movement for emergency vehicles.



Source: Caltrans

### *Rainfall and Flood Sensors*

Rainfall sensors along transit routes help detect floods and inform officials how to help vehicles navigate inundated roads during flood events.



Source: Intellisense Systems

### *Green Infrastructure and Permeable Surfaces*

Protecting or establishing green areas near flood zones (such as riverbanks) allows flood waters to seep back into the ground. Evaporation from these areas also keeps urban areas cool.



Source: CR Associates

### *Stormwater Infrastructure Upgrades and Drainage Improvements*

Increased drainage and other improvements to stormwater infrastructure transports floodwaters out of urban areas to green spaces where water can be reabsorbed. Stormwater infrastructure upgrades become more necessary as extreme precipitation events increase in frequency and intensity.



Source: City of San Diego

### *Elevate or Floodproof Infrastructure*

Elevating infrastructure or implementing floodproofing protects critical assets from water damage. Floodproofing bridges and roads strengthens them against collapsing during a flood, and elevating transportation infrastructure improves its usability in high water conditions.



Source: CR Associates

### *EV Charging Infrastructure Resilience*

Installing solar power and elevating EV chargers can help prevent chargers from failing during power disruptions or floods.



Source: UC San Diego

## **Project Alternatives**

Project alternatives were identified to enable transportation modeling of the TSS and facilitate performance comparisons. Modeling was performed for a single Horizon Year, 2050, which is consistent with the currently adopted 2021 Regional Plan.

Three scenarios were selected for modeling, including a Regional No Build scenario and two alternatives. Alternative development revolved around two considerations:

- Mutually exclusive projects, or projects that cannot both occur due to space constraints; and/or
- Potential exclusions to better understand the benefits of higher cost TSS.

Alternative 1 includes greater investments in transit projects with a focus on rail expansion (e.g., additional tracks for existing rail services, new rail services, skyway, and direct access ramps to transit stations), while Alternative 2 leverages Next Gen Rapid bus service.

**Appendix F** identifies the differences between Alternatives 1 and 2 and summarizes model outputs for each alternative compared to the Regional No Build scenario.

## **Alternative Performance**

Transportation modeling was performed to assess the benefits and impacts of the proposed Kumeyaay Corridor CMCP projects. The analyses assessed outcomes such as total vehicular trips, transportation mode choice, vehicle miles traveled per capita, employment accessibility, and transit ridership projections were analyzed for both alternatives and compared to an option without any project improvements, referred to as the Regional No Build scenario. The performance analysis is documented in **Appendix F**.

# CHAPTER 6. IMPLEMENTATION

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## Kumeyaay Corridor



Source: CR Associates

## Cost Estimates

Planning level cost estimates were developed for the TSS to support phasing identification, grant funding pursuits, and general implementation efforts. When available, cost estimates from previous planning efforts, such as the Regional Plan 2021, were utilized. The Caltrans Construction Cost Index was utilized to adjust all estimates from prior years to 2023 dollars, when necessary.

For TSS lacking cost estimates from previous efforts, unit costs were developed in 2023 dollars and applied to estimated quantities. Similar project types and engineering judgement were relied upon to generate the estimates.

The resulting cost estimates are provided in **Appendix E**. The Appendix also documents the phasing evaluation inputs and results, described in the following section.

## Phasing

A three-step phasing process was established to evaluate the Transportation Strategy Solutions against a uniform set of criteria and inform determination of phasing timeframes. The inputs utilized consider the ease of implementation, ability to meet corridor goals, and costs. The following criteria categories were used in the evaluation:

- **Complexity** – Considered the construction and operational complexity
- **Right-of-Way Needs** – Considered the impact to right-of-way and if expansion/acquisition is likely to be necessary
- **Environmental Clearance** – Estimated the level of environmental clearance
- **Cost-Performance Effectiveness** – Developed a ratio using performance measure results and planning level cost estimates

Due to the sub-regional size of the study area and variety of project types and locations, this evaluation was a high level, qualitative effort which may not reflect project-specific constraints or nuances. The phasing process is an initial attempt to sequence the full collection of projects, however, should agencies pursue implementing projects within their respective jurisdictions, subsequent project level analyses and agency priorities may alter the phasing.

### Step 1

Initially, the first three categories (complexity, right-of-way needs, and environmental clearance) were evaluated for each TSS. A rating of Low (3 points), Medium (2 points), or High (1 point) was assigned to each TSS for the three categories. The resulting scores were then averaged together for each TSS, providing a score between 1 and 3. 3 being the lowest impact or least implementation barriers and 1 being the most.

### Step 2

Following the initial scoring, cost-performance effectiveness was evaluated. This evaluation relied on the output from the performance measure evaluation presented in Chapter 4, combined with the cost estimates previously described within this chapter. Based on the cost-performance effectiveness score, a rating of Low (3 points), Medium (2 points), or High (1 point) was assigned. 3 being the most effective or project benefits and 1 being the least.

### Step 3

The results from Step 1 and Step 2 were combined and averaged, resulting in a potential new score between 1 – 3.

The resulting score from Step 3 was then used to assign an implementation phase (near-, mid-, and long-term). Higher scoring projects are anticipated to be relatively easier to implement, address more Kumeyaay Corridor goals, and may have lower costs, giving them greater potential for more near-term implementation.

One caveat to the approach was project dependencies. Some TSS may rely or be dependent on another project to be implemented. These dependencies were documented, and the phasing timeframe was adjusted to reflect the phase of the TSS being depended on.

Additionally, SANDAG's Regional Plan 2021 assigned anticipated implementation years (2025, 2035, 2050) to projects. In instances where a TSS was directly aligned with a project from the Regional Plan 2021, the implementation year from the Regional Plan was also reported.

**Appendix E** provides additional detail as to how ratings were assigned for each criterion, the individual scoring results, and phasing for all TSS.

## Funding Sources

Funding for transportation projects is available through a variety of federal, state, and local programs. Activities eligible for grant funding vary by funding source. Some funding programs allocate resources through competitive grant processes or other discretionary means, while other programs distribute funds through formulas to state, regional, or local public agencies.

Discretionary grants permit an agency to exercise judgement in establishing a competitive process for selecting grant recipients. Formula grants are non-competitive and rely on statutes that specify eligibility and how funds are to be allocated among recipients. **Appendix G** provides information on federal, state, local, and non-traditional funding sources relevant to the Kumeyaay Corridor.

## Next Steps

The Kumeyaay Corridor CMCP serves as a unified vision for multi-modal mobility improvements within the study area. SANDAG, Caltrans, and other respective agencies will continue to collaborate to advance transportation. Future public-public and/or public-private partnerships have the potential to be established and serve as mechanisms to advance Kumeyaay Corridor CMCP recommendations. These collaborative partnerships may be effective means to leverage local resources and secure additional funding, while providing regional benefits. Some projects identified in the Kumeyaay Corridor CMCP have been considered in the development of the 2025 Regional Plan initial concept. The Kumeyaay Corridor CMCP can support the pursuit of funding needed to advance projects towards implementation. Future project implementation phases may require additional funding, supplemental analyses and refinements, in addition to collaboration with community members and partner agencies.