



# NORTH COUNTY

## COMPREHENSIVE MULTIMODAL CORRIDOR PLAN



North  
County

FINAL | June 2023

## North County Comprehensive Multimodal Corridor Plan

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### SANDAG & California Department of Transportation

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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 of the region. 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.

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**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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on behalf of Hasan Ikhata

June 8, 2023

Name:

Date

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June 8, 2023

Name:

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# 1

## COMPREHENSIVE MULTIMODAL CORRIDOR PLAN (CMCP) FRAMEWORK

*North County is home to 1 in 5 (20%) of the region's residents and jobs and by 2050 is expected to grow by 13% in population and 26% in jobs. By 2050, 43% of North County Corridor residents and 67% of jobs are anticipated to reside within mobility hubs. Of North County trips, 70% stay within North County and 50% are less than 5 miles. Large employment centers are miles away from regional transportation facilities, exacerbating network congestion. Regional north-south facilities are separated by over 17 miles and limited to I-5, I-15, and COASTER/Amtrak. Consequently, major arterials provide the predominant mobility option for North County users. These factors make it necessary for SANDAG, Caltrans, local communities, and the people who regularly travel through the area to progress the vision of a technologically advanced, balanced, and integrated multimodal transportation system.*





# 1 CMCP FRAMEWORK

The North County Comprehensive Multimodal Corridor Plan (North County CMCP) is a strategic blueprint for identifying and implementing multimodal projects and services within North County communities predominantly located along State Route 78 (SR 78).

North County is the gateway between regional destinations in San Diego County and the communities to the north—especially communities in southern Riverside County. North County mobility, transportation, and quality of life will be affected by a series of unique observations: strained system, continued population growth, and need to adapt and be resilient. 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.

SANDAG and Caltrans developed this Comprehensive Multimodal Corridor Plan (CMCP) to address the current and future multimodal needs of the North County corridor. A CMCP strives to create equitable and sustainable solutions for people living in the community and focuses on things 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 recommended a package of projects, programs, and policies in which the region can invest to create a safe, equitable, reliable, intelligent transportation system of the future. This CMCP highlights the transportation solutions to be implemented 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 strategies were evaluated through research, analysis, community input, and strategic implementation.

SANDAG and Caltrans would like to thank representatives from the following organizations who served on the Project Development Team:

- City of Carlsbad
- City of Escondido
- City of San Marcos
- City of Oceanside
- City of Vista
- County of San Diego
- North County Transit District (NCTD)

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



## What is a CMCP?

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 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 strategies that align with state, regional, and project-specific goals. As the implementation blueprint for multimodal mobility 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 is a blueprint that successfully transitions agencies, stakeholders, and community members into implementing transportation infrastructure and services that support local mobility needs while advancing regional and state goals.*



CMCPs are the evolution of transportation planning as they break down silos between agencies and communities along a corridor. They facilitate a holistic approach to develop a balanced transportation system that meet the mobility needs of all users, especially users from social equity focus communities<sup>1</sup>. A CMCP supports continuous improvement of the transportation system through a meaningful planning and collaborative process that emphasizes the importance of providing useful options to allow people to choose how to get around. A CMCP simply cannot and should not be a “check the box” for project funding (or financing).

CMCPs are expected to:

- Reimagine the mobility approach by focusing on quality of life, accessibility, sustainability, access to jobs, housing, education, and health for all
- Engage communities, especially social equity focus communities, to identify projects and programs that provide meaningful benefits for all users of the transportation system
- Address today’s mobility challenges while building a foundation for the future
- Create a seamless (“door to door”) system of transportation improvements to enhance user experience and promote alternative modes of travel
- Promote cross-jurisdiction partnerships to implement corridor-wide transportation improvements
- Develop a balanced implementation plan for timely, phased (if necessary), integrated (with other parallel efforts), and effective results
- Provide an integrated set of multimodal transportation improvements that align with state, regional and local objectives and inform future plans
- Enable regions to compete for state funding under Senate Bill 1 (SB 1), the Road Repair and Accountability Act (2017), and the Congested Corridors Program

CMCPs are expected to be leveraged for applicable state and federal funds for projects. When funding is obtained, the CMCP transportation projects and programs will be added to the Regional Transportation Improvement Program (RTIP). The RTIP is a multi-billion-dollar, five-year program of major transportation projects funded by the federal, state, and local governments. Figure 1-3 shows how the CMCP process works in conjunction with state and regional planning efforts to make the recommended transportation projects a reality.

<sup>1</sup> Social equity focus communities are areas where there is a high concentration of people with low-income, seniors, People of Color, and federally recognized Native American tribes. These communities are historically underserved and often disadvantaged in terms of infrastructure and economic opportunities.



# What is the North County CMCP?

North County CMCP creates a *strategy* and *implementation* blueprint based on the vision and goals for North County that ties together state, regional and local agency plans and policies.



### Strategy

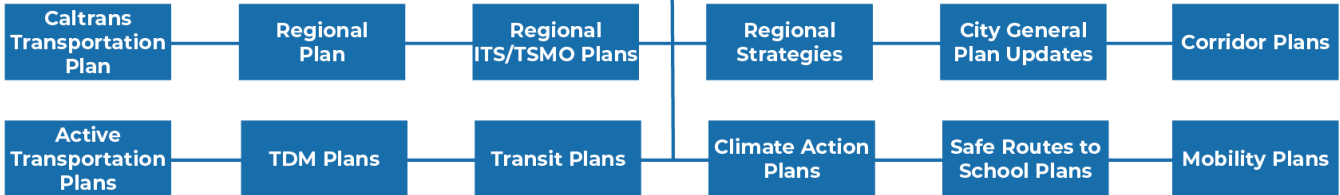
A suite of mobility solutions, strategies and policies to meet state, region and project-specific goals while increasing connectivity, mobility, and quality of life



### Implementation

A decision-making framework for turning mobility vision into action by prioritizing projects that have a higher contribution to state, regional and project-specific goals

## State, Regional, Local Transit Agency and City Plans and Policies



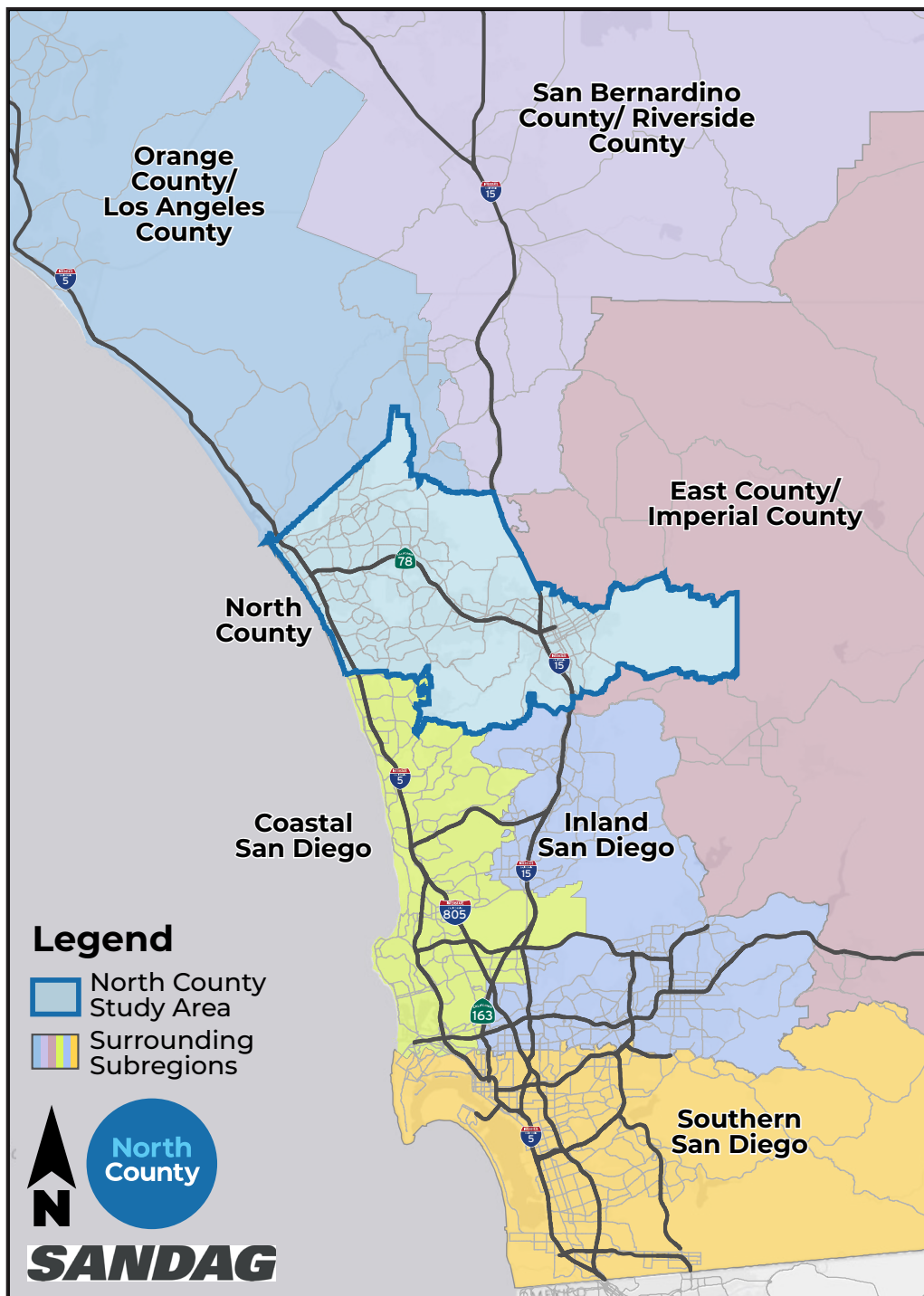
**North County CMP aligns local general plans and initiatives with state and regional goals and prioritizes integrated transportation planning and implementation – allowing for transportation and mobility improvements to function well across jurisdictions, communities, users, and markets.** It does this by analyzing transportation holistically and prioritizing collaboration among agencies to develop a multimodal system that meet user needs across jurisdictions. The North County CMCP connects the plans, policies, and programs of multiple cities and local transit agencies to identify and advance multimodal solutions and strategies that work together. All cities and regional/state agencies benefit from individual mobility plans and strategies—the North County CMCP integrates and builds upon them at a subregional level for the benefit of local communities.



## Why North County Needs a CMCP?

The North County CMCP Study Area (shown in **Figure 1-1**) is located in the center of a mega region comprised of the transportation corridors connecting the counties of San Diego, Orange, and Riverside. In many ways, North County is the gateway between regional destinations in San Diego County and the communities to the north—especially communities in southern Riverside County.

Figure 1-1: North County and Surrounding Mega Region





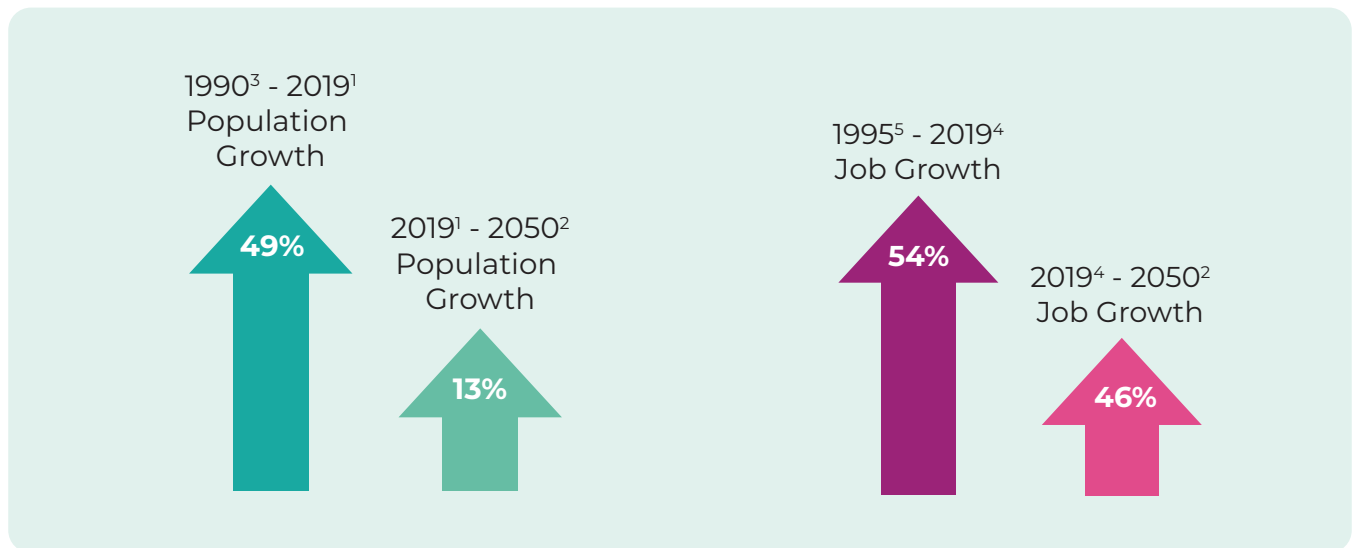
## Strained system

The transportation system in North County influences individuals' and families' decisions on where to live, work, shop, go to school, recreate, and how to move around safely within the community. North County's rapid growth in population and employment over the last 20 years has strained the existing transportation system. The increased demand and mobility needs are either misaligned with existing transportation services or have outpaced the available capacity—making North County travelers experience congestion, delay, inconsistent travel times, and safety risks.

## Continued growth

North County experienced rapid growth in the last 20 years and is expected to experience growth but at a slower rate. Between 1990 and 2019, the population in the subregion grew by 49 percent. Between 1995 and 2019, the number of jobs in the subregion grew by 54 percent. By 2050, 83,000 more people and 115,000 new jobs are projected – an increase of 13% and 45%, respectively. Growth in the number of people living and work presents opportunities and challenges for the transportation network.

Figure 1-2: Population and Job Trends in North County CMCP Study Area



Sources: (1) American Community Survey (ACS) 2019 5-Year Estimate, (2) SANDAG DS39 Forecast Estimates (2021), (3) IPUMS NHGIS (1990), (4) LEHD LODES Workplace Area Characteristics (2019), and (5) SANDAG Estimates (2020)

## The Need to Adapt and Be Resilient

North County's transportation system will need to provide near-term solutions to provide relief from existing constraints and be adaptable and resilient to the future changes that are unpredictable. A few examples include:

- ✓ Serve the continued growth defined above through mobility options while acknowledging limited opportunities to add "traditional" forms of capacity (i.e., continuous widening of roads)
- ✓ Adapt to user behavior changes while addressing the impacts due to the lack of housing that is affordable
- ✓ Alleviate existing impacts to quality of life (air quality, loss of time in congestion) while tackling transportation-related climate impacts



# The Opportunity Ahead: Laying the Foundation and Building Upon It

The North County subregion can improve a strained transportation network steadily implementing integrated mobility options. This is an opportunity to transform the transportation system into a competitive advantage for North County. This CMCP will utilize the information readily available today and transportation owner/user experience to establish a path forward-starting by laying a foundation for improving multimodal mobility and accessibility across North County communities.

Based on up-to-date information and conditions, the North County CMCP will provide transportation strategies, programs, and projects that will allow North County to recognize the need for immediate improvements in multimodal mobility while providing an adaptable approach for future implementation of infrastructure. As part of Chapters 5 and 6, this CMCP will provide a North County tailored, implementation phasing to meet the changes in North County population and employment, new tools and technologies, and available funding sources (public and private).

Figure 1-3: Transportation Planning and Implementation Process

## How Does the Process Work?

This CMCP builds on previous and current regional and local efforts to create a comprehensive transportation network that sets the foundation for enhancing multimodal connectivity throughout the North County subregion. Planning documents the CMCP builds off of include the SANDAG 2021 Regional Plan, known as “San Diego Forward”, the California Transportation Plan 2050, Caltrans CMCP Guidelines and other plans from municipalities within the CMCP boundaries. After a CMCP is approved, individual projects, programs, and policies outlined in the document can apply for various federal, state, and local funding opportunities such as SB 1 funding. Ordinarily, a package of projects does not receive funding all at the same time; rather funding for individual solutions are received over the course of multiple legislative sessions. Once funding is secured, the project(s) will be added to the Regional Transportation Improvement Program (RTIP), a multi-billion-dollar, five-year program of major transportation projects with secured funding from federal, state, and local governments.

### Transportation Planning

#### Regional Plan and Vision:

Sets a blueprint, complies with laws, high-level



#### California Transportation 2050



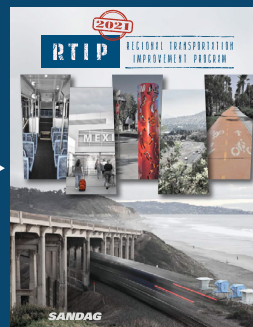
Please see **Appendix A** for an additional details regarding this plan.

North County

CMCP Document: More in-depth solutions

#### Secure Funding

SB1 and Infrastructure Investment and Jobs Act programs and other federal, state and local sources



Environmental Documents

Design

Construction

Consistent with SANDAG’s federal congestion management process (CMP), the CMP network is monitored through regular State of the Commute reports. Projects that add single occupancy vehicle (SOV) capacity are evaluated for non-SOV inducing alternatives prior to programming. Known bottlenecks and areas of safety concern are exempt from this review requirement.

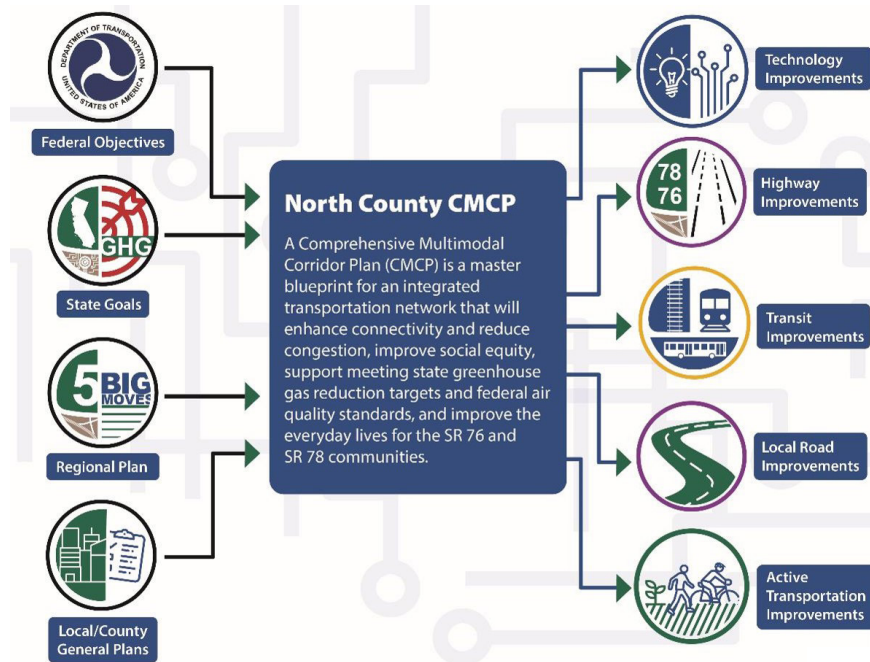




## Fitting into the Larger Context

The North County CMCP aligns and integrates state, regional policies with local planning efforts—allowing for North County sub-regional needs to be reflected within a single document. The planning efforts and initiatives on the state, regional, and local level have guided transportation choices and catalyzed changes on how to plan and think about transportation.

Figure 1-4: North County CMCP Relationship with Other Planning Efforts and Policies



In the past, transportation planning was “siloe” where individual cities, regional, and state agencies developed individual planning efforts that were “coordinated” across agencies. The CMCP framework supports the transition from “siloe” modes and jurisdictions to an “integrated” system approach.

This CMCP process develops a balanced, multimodal system aligning local, regional, state, and federal initiatives through a collaborative process that respects each entity’s goals, needs, and planning efforts. The North County CMCP aligns these planning efforts and bridges the gap between local planning and state/regional planning efforts—focusing on the sub-regional needs between North County cities and communities and the neighboring subregions.


The CMCP framework helps the vision and goals in state, regional and local efforts meet to address the traveling needs of North County.

The following regional, state, and local initiatives guide the CMCP process:

- 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

*This North County CMCP develops a balanced, multimodal system aligning local, regional, state, and federal initiatives through a collaborative process that respects each initiative’s goals, needs, and planning efforts.*

*The North County CMCP is where local and North County needs meets the policy frameworks defined by the State’s CTP and the Regional Plan.*





## State and Regional Initiatives

State and regional transportation planning initiatives provide the strategic policy and funding priorities within the State of California and San Diego Region—providing a focus on the implementation of transportation at a macroscopic level. For successful implementation of projects across multiple jurisdictions, North County agencies, operators, and stakeholders need to be in alignment with state and regional initiatives. In other words, **CMCPs provide the framework for sub-regionally driven solutions at the local and subregional levels to promote state and regional initiatives.** CMCP alignment therefore demonstrates agency partnership across stakeholders and jurisdictions, proactive preparation for funding and implementation opportunities, and a transportation system plan that balances the policies and priorities across all parties.

The state and regional initiatives guiding the state and regional perspectives in the CMCP process include the California Transportation Plan 2050, Climate Action Plan, the Regional Plan, Regional Transportation Improvement Plan, and regional strategies such as the Regional Military Multimodal Access Strategy.

## California Transportation Plan 2050

The California Transportation Plan (CTP) 2050<sup>1</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 to make effective, transparent, and transformative transportation decisions in California. No projects are included in the CTP 2050, but it does provide **people-focused policies, strategies, and investments that close the gap between the goals in regional transportation plans (RTP) and the following state goals:**

- Safety**  
Provide a safe and secure transportation system
- Climate**  
Achieve statewide GHG emissions reduction targets and increase resilience to climate change
- Equity**  
Eliminate transportation burdens for low-income communities, communities of color, people with disabilities, and other disadvantaged groups
- Accessibility**  
Improve multimodal mobility and access to destinations for all users
- Quality of Life & Public Health**  
Enable vibrant, healthy communities
- Economy**  
Support a vibrant, resilient economy
- Environment**  
Enhance environmental health and reduce negative transportation impacts
- Infrastructure**  
Maintain a high-quality, resilient transportation system


<sup>1</sup> <https://dot.ca.gov/programs/transportation-planning/state-planning/california-transportation-plan>



## Climate Action Plan for Transportation Infrastructure (CAPTI)

In July 2021, the California State Transportation Agency (CalSTA) adopted its Climate Action Plan for Transportation Infrastructure (CAPTI)<sup>1</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 North County CMCP:

In addition to these Guiding Principles for funding, CAPTI has four strategies pertinent to North County CMCP:

-  Building toward an integrated, statewide rail and transit network
-  Investing in networks of safe and accessible bicycle and pedestrian infrastructure
-  Including investments in light, medium, and heavy-duty zero-emission vehicle (ZEV) infrastructure
-  Strengthening our commitment to social and racial equity by reducing public health and economic harms and maximizing community benefits
-  Making safety improvements to reduce fatalities and severe injuries of all users towards zero
-  Assessing physical climate risk
-  Promoting projects that do not significantly increase passenger vehicle travel
-  Promoting compact infill development while protecting residents and businesses from displacement
-  Developing a zero-emission freight transportation system
-  Protecting natural and working lands

- 1** *Cultivate and Accelerate Sustainable Transportation Innovation by Leading with State Investments* by promoting innovative sustainable transportation solutions in Solutions for Congested Corridor Programs (SCCP) Projects by requiring multimodal corridor plans.
- 2** *Support a Robust Economic Recovery by Revitalizing Transit, Supporting ZEV Deployment, and Expanding Active Transportation Investments* including increasing funding for Active Transportation Projects.
- 3** *Support Local and Regional Innovation to Advance Sustainable Mobility* through new mechanisms to mitigate increases in VMT from transportation projects. and convene discussions regarding sustainable rural transportation solutions.
- 4** *Strengthen Transportation and Land Use Connections* by leveraging transportation investments to incentivize infill housing and explore “highways to boulevards” conversion pilot program.

<sup>1</sup> <https://calsta.ca.gov/-/media/calsta-media/documents/capti-july-2021-a11y.pdf>



## Caltrans Smart Mobility Framework

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 North County CMCP – 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.
- 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.



## 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 1-5**, are the moves and their associated descriptions. The Regional Plan utilizes the above 5 Big Moves to develop programs, projects, and implementation actions within North County phased between 2021 and 2050.

Figure 1-5: 2021 Regional Plan's 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.



### 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.

### 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.

### 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.



## Regional Transportation Improvement Plan

The 2021 Regional Transportation Improvement Plan (RTIP) represents the next five fiscal years (2021 through 2025) transportation improvements for the San Diego region—it is the “next step” of implementation from the revenue constrained RTP. Projects seeking funding must be included in the Regional Plan to be able to program funds in the RTIP. The 2021 RTIP can be seen here:

[https://www.sandag.org/uploads/publicationid/publicationid\\_4747\\_28774.pdf](https://www.sandag.org/uploads/publicationid/publicationid_4747_28774.pdf).

## + Additional Regional Initiatives

The North County CMCP also considered the following regional documents and planning efforts:

- ↘ [Regional Transportation System Management and Operations](#)
- ↘ [Regional ITS Architecture](#)
- ↘ [Regional Multimodal Military Access Strategy](#)
- ↘ [Intraregional Tribal Transportation Strategy](#)
- ↘ [Regional Bike Plan](#)

*The North County CMCP includes the programs and projects in North County from the 2021 Regional Plan, Regional Transportation Improvement Plan, and the additional regional initiatives list above to ensure consistency between the CMCP and regional efforts. Appendix B provides additional information about the projects and programs in North County from the 2021 Regional Plan.*



## Local Initiatives

The North County CMCP leverages the work that partners in North County have completed and undertaken—relying upon the local planning efforts previously completed by North County cities and communities as a springboard to documenting local access needs into the sub-regional context of North County. The CMCP will integrate the needs and projects identified where they align with sub-regional and regional transportation needs to reinforce the integrated system approach to meeting the diverse demands of North County’s communities.

The North County CMCP process builds upon the opportunity to collaborate with current local agency initiatives critical to North County, including general plan updates, arterial/corridor plans, and local development projects/programs expanding existing activity centers or creating new destinations. The following were guiding documents for local improvements prioritized within North County:

- City of Oceanside General Plan – Circulation Element
- City of Oceanside General Plan Update
- City of Oceanside Safe Routes to School Plan
- City of Oceanside Smart and Sustainable Corridors Plan
- City of Oceanside Bicycle Master Plan
- City of Carlsbad General Plan – Mobility Element
- City of Carlsbad Sustainable Mobility Plan
- City of Carlsbad Citywide Transportation Demand Management Plan
- City of Carlsbad Trails Master Plan
- City of Vista General Plan
- City of Vista Bicycle Master Plan
- Vista Safe Routes to School Master Plan
- City of Vista Traffic Congestion Management Plan
- City of Vista Emerald Drive Corridor Study
- City of Vista Roadway Safety Plan
- City of San Marcos General Plan
- City of San Marcos General Plan Update
- City of San Marcos Active Transportation Plan
- City of San Marcos Bicycle and Pedestrian Master Plan
- City of Escondido General Plan
- City of Escondido Bicycle Master Plan
- Caltrans SR-78 Managed Lanes Project Study Report-Project Development Support
- Caltrans I-5/SR-78 Project Study Report-Project Development Support
- Caltrans SR-78 DRAFT Transportation Concept Report
- Caltrans I-5/SR-78 Interchange Preliminary Engineering Studies
- SANDAG State Route 78 Corridor Study
- SANDAG Military Multimodal Access Strategy: Briefing Book (Camp Pendleton)
- North County Transit District Land Use and Transit Integration Study
- North County Transit District Strategic Multimodal Transit Implementation Plan
- North County Transit District SPRINTER Station Access Study
- County of San Diego Mobility Element
- County of San Diego Active Transportation Plan



## Collaborative Project Engagement

**Successful CMCP development and implementation requires alignment across transportation owners/operators and North County’s diverse stakeholders.** To achieve this alignment, the CMCP process listened to stakeholder history/experiences, leveraged the knowledge of Cities/communities, and collaborated on the development of implementable strategies, programs, and projects.

The project engagement was performed with four levels of collaboration to provide an interactive and iterative process between agencies and stakeholders. The four levels allowed for participants to provide their lessons learned, insights on the transportation system, and gradually work towards alignment on the CMCP. Below are the four levels involved with the development of the North County CMCP:

- City Management Staff
- Technical Working Group
- Stakeholder Working Group
- Community Members and General Public

A summary of the engagement performed with the Technical Working Group and Stakeholder Working Group can be found in **Appendix C**. A summary of the outreach performed for the CMCP can be found in **Appendix I**.



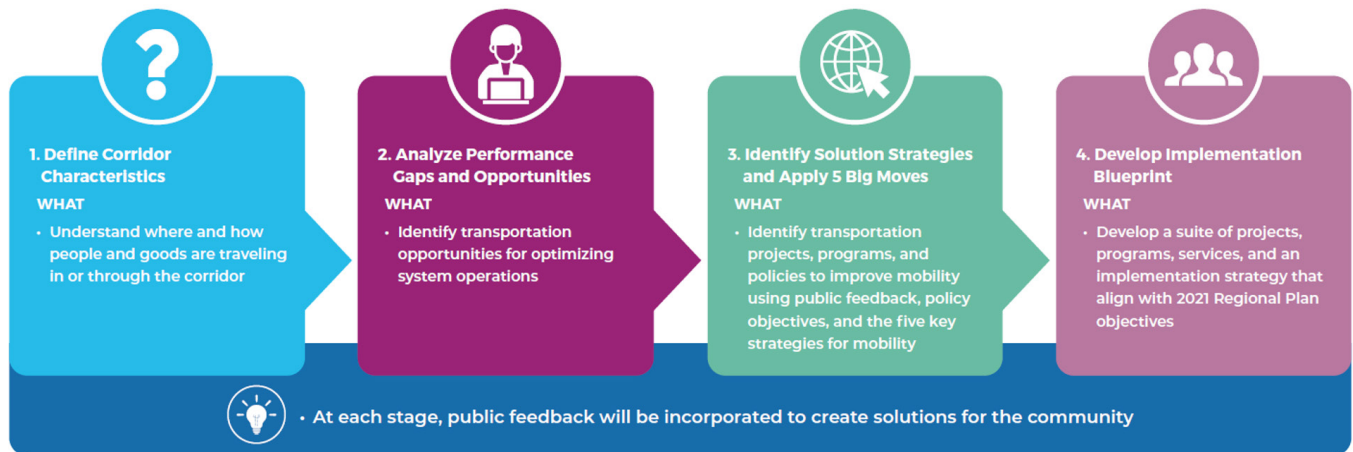




## CMCP Process: Creating the North County CMCP

The purpose of the North County CMCP is to develop a balanced and integrated transportation network in North County that gives travelers efficient and easy to use travel choices. The CMCP is informed by travel behavior data, existing infrastructure, and future community growth to identify, evaluate, and propose improvements—to improve mobility, community, and equity within North County. The CMCP process aims to understand Corridor characteristics and identify needs through extensive public involvement to create equitable transportation solutions. The overall CMCP process is shown in **Figure 1-6** and the key steps are described in this section.

Figure 1-6: North County CMCP Process





## What is Included in the North County CMCP?

The North County CMCP includes the following subsequent chapters:

### › Chapter 2: Corridor Context

Defines the study area for the North County subregion and provides a description of the study area's demographics, land use patterns, and travel patterns

### › Chapter 3: Mobility Assessment

Describes the causes and effects of the subregion's transportation network deficiencies and the framework to develop and assess mobility solutions and strategies for the CMCP

### › Chapter 4: Values, Goals, and Objectives

Outlines the goals and objectives to guide the identification, prioritization, and funding of mobility improvements

### › Chapter 5: Mobility Solution

Identifies a balanced, integrated 30-year network comprised of projects, programs, and services

### › Chapter 6: Performance Assessment and Plan Phasing

Outlines answers to fundamental questions regarding the proposed Mobility Solution

### › Chapter 7: CMCP Implementation Blueprint

Provides recommendations on next steps for the agency partners in the corridor focusing near term implementation

# 2

## CORRIDOR CONTEXT

*Chapter 2 will bring into focus the historical context of transportation, the current state of land use, and the key conditions of the North County region influencing the development of the CMCP.*

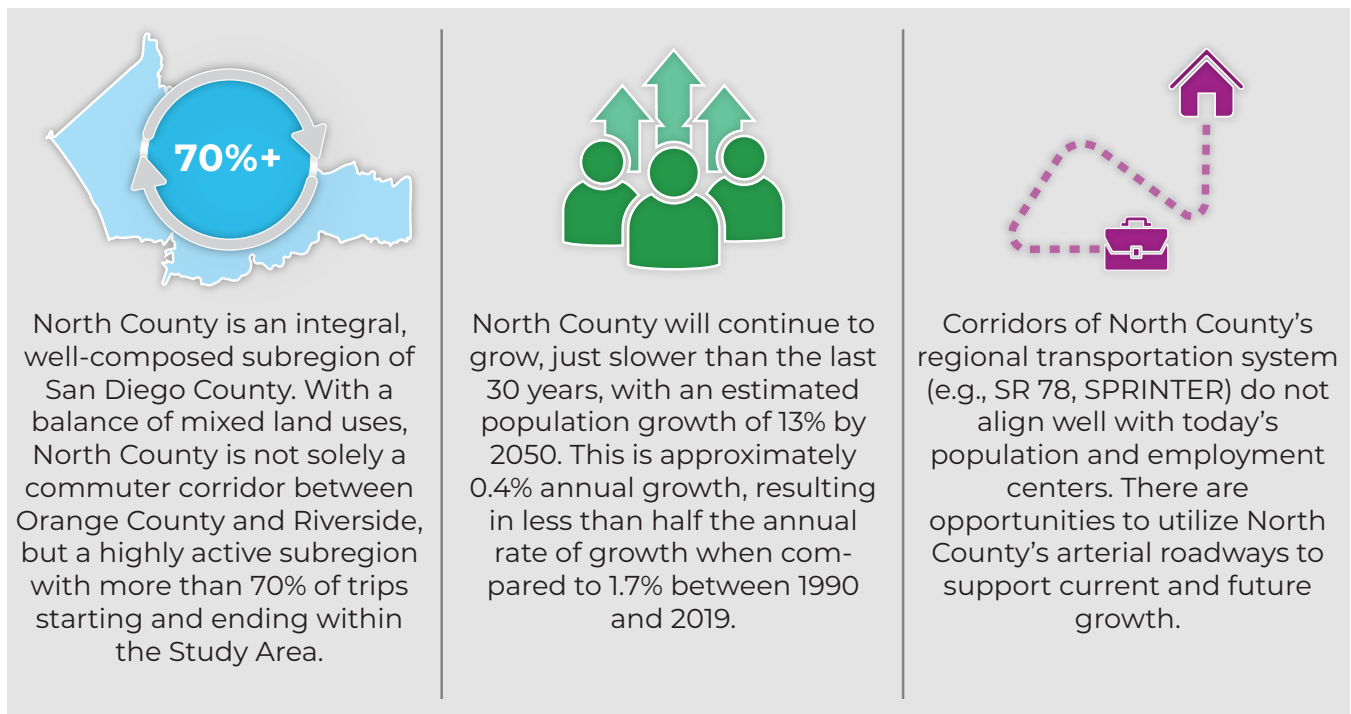


## 2 CORRIDOR CONTEXT

Chapter 2 provides context regarding North County’s demographics, land use, and the transportation system using North County data to understand underlying conditions. The corridor’s demographics and travel patterns inform the existing mobility needs and will help identify future opportunities to develop an adaptive and resilient transportation system for North County. This chapter is organized as follows:

- **Defining North County’s Study Area** provides an overview of the study area’s geographic scope and regional context.
- **North County’s Topography and Transportation** discusses North County’s unique natural topography and how it has shaped the existing transportation network.
- **North County’s Overall Population and Job Trends** presents information on North County’s existing and projected population and employment.
- **Where People Live and Work in North County** explores the relationship between employment and housing as it relates to the transportation system.
- **North County’s People and Communities** provides an overview of the North County community and highlights underrepresented populations and populations with unique mobility challenges.
- **Understanding North County Travel Patterns** discusses travel patterns into, out of, and within the study area.
- **Conclusion and Takeaways** highlights key points identified in the corridor characteristics assessment.

Figure 2-1: Chapter 2 Key Takeaways

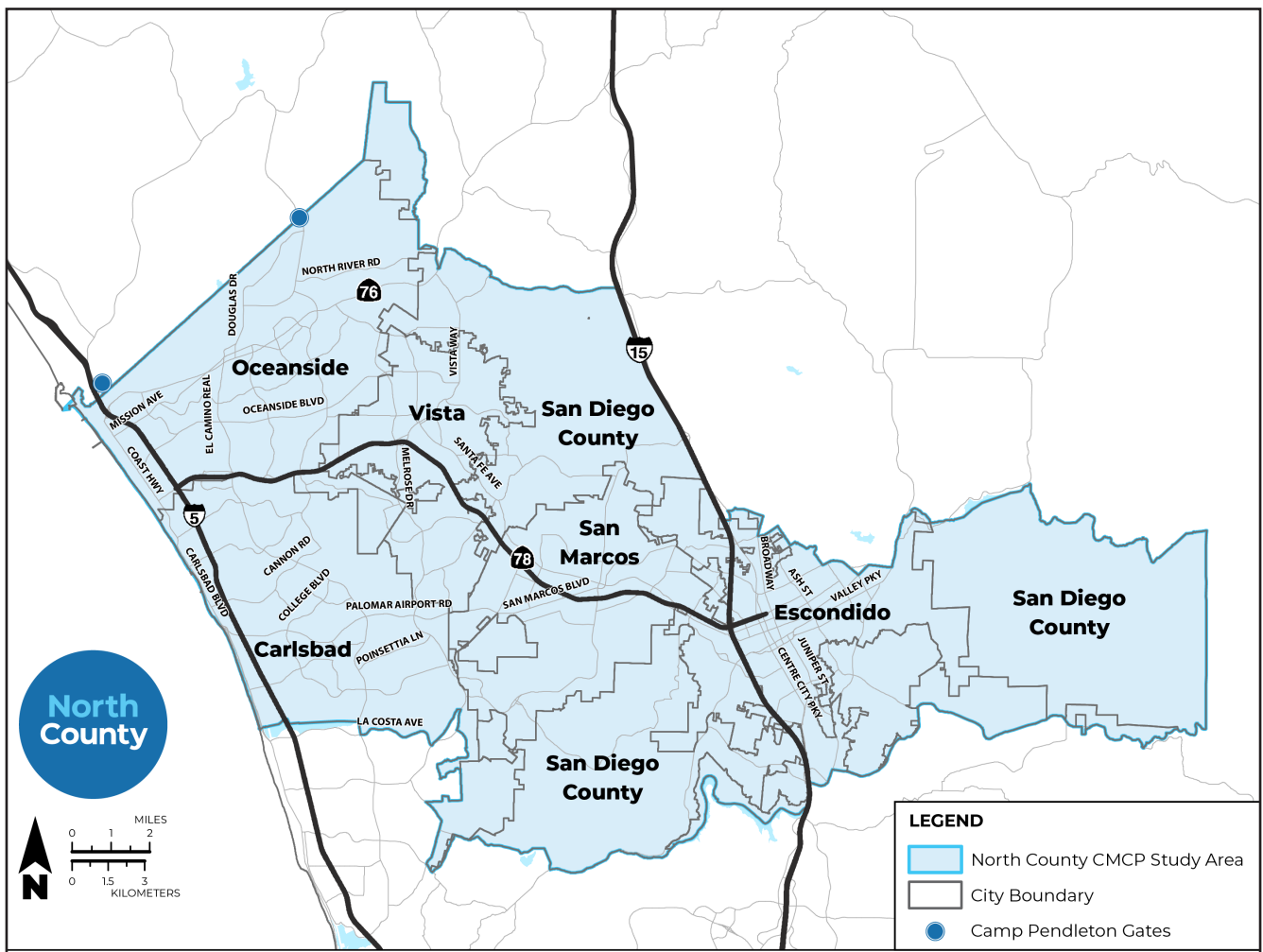


# Defining North County's Study Area

North County is unique in having five different contexts: coastal communities generally associated with the coastline and Interstate 5 (I-5); inland communities associated with State Route 78 (SR 78) or State Route 76 (SR 76); rural communities to the east and north typically associated with Valley Parkway and SR 78; Marine Corps Base Camp Pendleton and its reliance on regional access; and as a gateway region between the San Diego region to the south/east and Orange and Riverside Counties to the north via LOSSAN, I-5, and I-15. While Marine Corps Base Camp Pendleton is important to consider due to its driver as a major employer in the region, access to the base needs to be addressed at the federal level.






To focus the efforts of the CMCP, the North County study area was generally defined as the cities of Oceanside, Carlsbad, Vista, San Marcos, and Escondido as well as adjacent communities in unincorporated San Diego County as defined in **Figure 2-2**. Information regarding the development of the study area shape can be found in **Appendix H**.

Figure 2-2: North County CMCP Study Area





A combination of the following was utilized to develop the study area:

	<b>City limits/ boundaries</b>		<b>Census block group boundaries</b> (for data compatibility)		<b>Activity centers</b>
	<b>Forecasted population/ employment</b>		<b>Natural geographical constraints</b> (i.e., Pacific Ocean to the west, mountain ridges to the south, north, and east)		

Preliminary origin destination data shows that more than 70% of the trips that start within the study area end within the study area. For trips that start within the study area, 80% also end within the study area. The high number of internal trips reinforces the defined boundaries of the North County CMCP for more detailed analysis. Utilizing the defined study area, the North County CMCP focuses on the travel behaviors and patterns for residents and employees, communities in unincorporated San Diego County, and access to Camp Pendleton’s gates. The Travel Patterns section of this chapter will discuss the North County travel patterns observed in greater detail. As we explore the population, employment, and activity characteristics of North County, we’ll observe how North County is demographically representative of the greater San Diego region within its smaller subregion.

*The North County study area is a well-defined subregion that: captures 70% of the trips starting or ending within North County, and resembles the greater San Diego region—urban, suburban, and rural communities.*



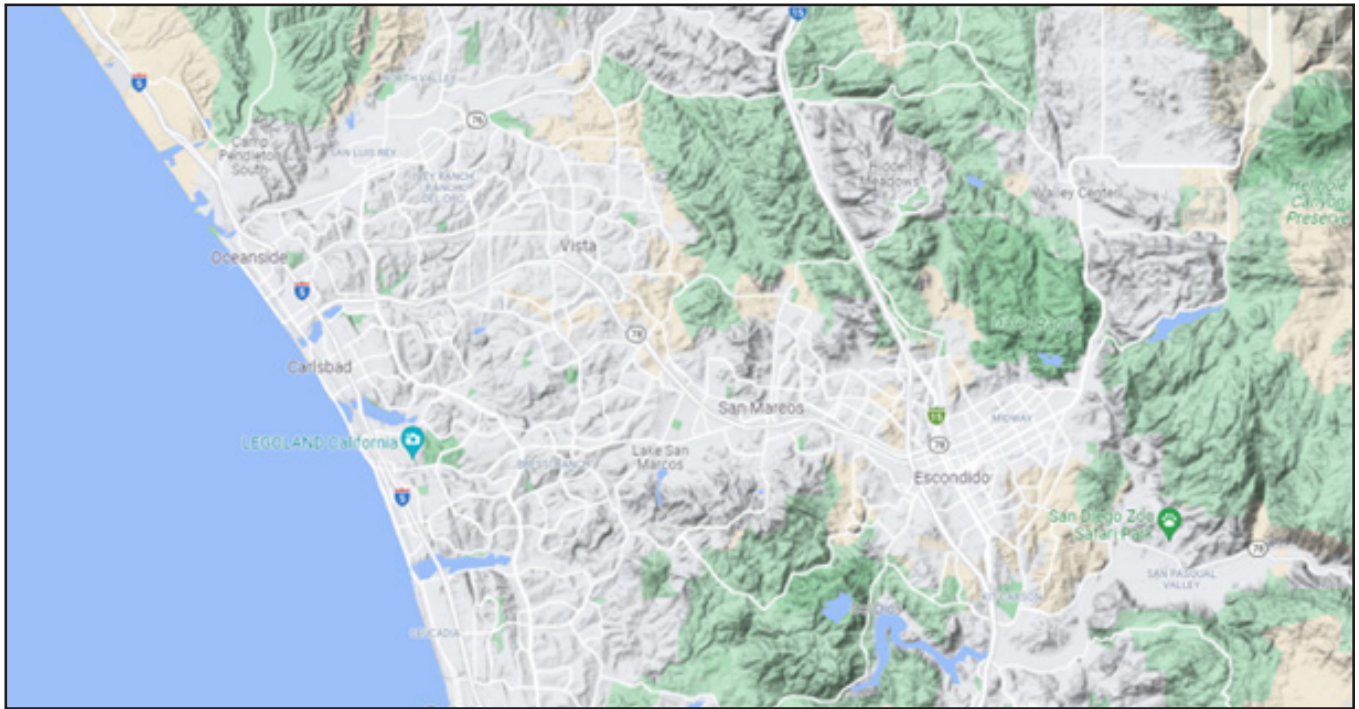
## Topography and Transportation

The hills, ridges, and valleys of North County have influenced its development. These North County topographic features have presented great recreational opportunities for hiking, mountain biking, equestrianism, rock climbing, and many other outdoor activities that draw people to North County—however, the topography has also presented challenging terrain for construction and operations of the transportation system.

North County’s topographic features weaved the Escondido rail subdivision and the old “Cannon Ball Express” in 1888 along North County’s creeks and in between the ridges to the north and south connecting a series of small, narrow valleys between Oceanside and Escondido. These low-lying areas along the rail were the industrial and commercial spine of North County’s commerce including agriculture and manufacturing. Now, the Escondido rail subdivision serves as one of North County’s regional corridors with the SPRINTER rail service.

Similarly, the portions of SR 78 located within the study area started as a regional road between Oceanside and Escondido—effectively connecting the transportation system of the day: the US 101 (now I-5) and US 395 (now I-15). Starting in 1931 through 1990, SR 78 changed from a two-lane highway to a multi-lane expressway, and eventually to a freeway allowing for the development of new interchanges. The SR 78 was designed to traverse North County as easily as possible across narrow valleys and adjacent to steep elevations.

Figure 2-3: Topographical Map of North County



Source: Google Maps

Today, the North County hills, avoided during the early development of rail and highway corridors, provide the elevation and vistas for terraced development with steep roads and have created a curvilinear grid of arterials to traverse steep slopes between employment centers, community centers, and neighborhoods. The topography will continue to shape the way North County develops for housing and employment and how the transportation system can serve future North County communities.



## North County's Overall Population and Job Trends

North County's population and job trends have influenced how investment in transportation has occurred over the decades. These transportation investments, in turn, influence the quality of life for North County's resident population by shaping access to jobs, education, housing, and recreational opportunities. The following explores historic and projected population and employment trends as they relate to how people move in, out, and through the North County study area.

### Population and Employment Trends

#### Existing Population

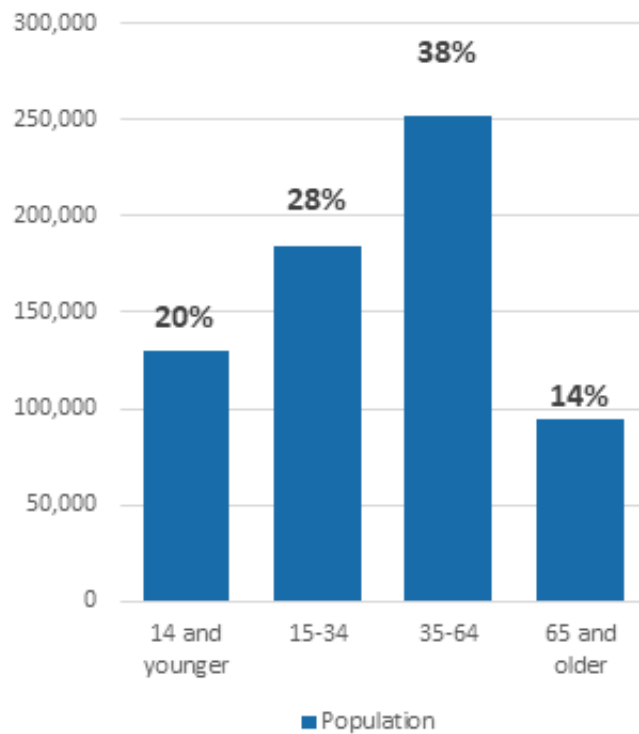
From 1990 to 2019, North County communities experienced significant growth in population (approximately 49%)—an estimated annual growth of 1.7% per year<sup>4</sup>. In 2019, approximately 661,000 people were living within the study area, accounting for 1 in 5 people (or 20% of the population) within the San Diego region<sup>5</sup>.

New housing opportunities for students, families, and new residents has kept North County's population relatively young with 2 in 3 people in the study area being between the ages of 15 and 64 (66%).

*Almost half of North County's population is younger than 35. Education and job growth opportunities will be important for the next generation to affordably live and work within North County over the next 30 years.*



Figure 2-4: Age Distribution of North County CMCP Study Area



Source: American Community Survey (ACS) 2019 5-Year Estimates

#### Existing Employment

Regarding employment, from 1995 to 2018, the number of North County jobs increased by 54%<sup>6</sup>. Today, there are approximately 260,000 jobs within the study area, accounting for approximately 18% of the jobs within the San Diego region. There are diverse industries throughout the North County study area, all of which have unique transportation needs.

<sup>4</sup> Source: IPUMS NHGIS (1990)/American Community Survey (ACS) 2019 5-year Estimate

<sup>5</sup> Source: American Community Survey (ACS) 2019 5-Year Estimate

<sup>6</sup> Source: SANDAG Estimates (2020)/LEHD LODES Workplace Area Characteristics (2019)





## Projected Population and Employment Growth

Over the next 30 years, North County and its neighboring communities (including southwest Riverside County) are expected to grow in both population and employment. North County's population is expected to reach approximately 744,000 by 2050<sup>7</sup>—about 13% growth between 2019 and 2050 (see **Figure 2-5**). Most of the growth is estimated to occur in the cities of Oceanside, Escondido, Vista, and San Marcos—with modest growth in Carlsbad and the unincorporated areas of San Diego County.

**Figure 2-5** shows that North County is projected to experience more modest population growth from 2019 to 2050 than from 1990 to 2019. The figure also shows that job growth will be slightly slower than previously experienced. Between 1995 and 2019, the study area experienced job growth of 54%, while between 2019 and 2050, job growth of 46% is anticipated. The number of new jobs anticipated for each city in the study area will vary by 2050:

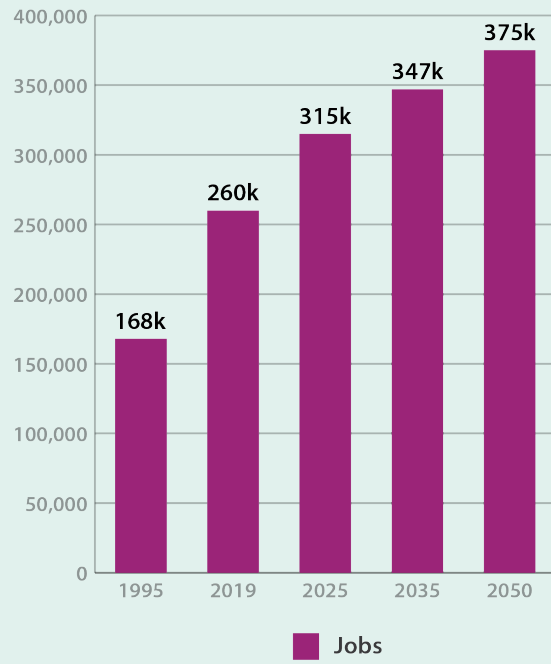
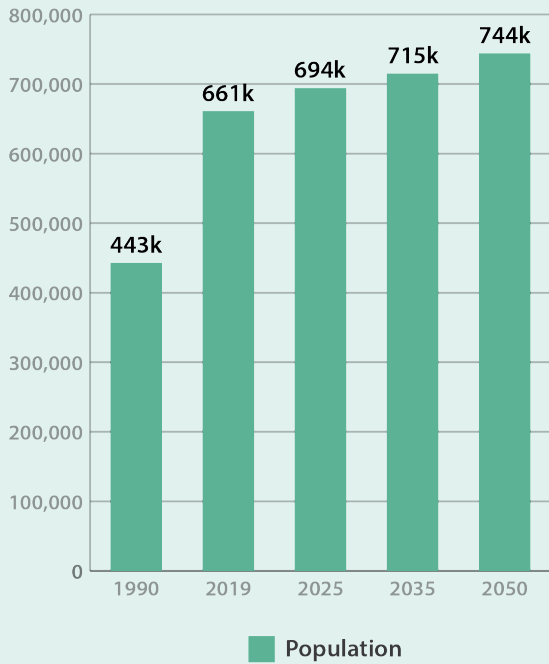
- 10-12% job growth in Carlsbad, Escondido, and Oceanside
- 20% job growth in Vista
- 40% job growth in San Marcos

Details on where these jobs are located and their influence on North County's transportation system are included in the subsequent section. Additional details about the community context of the North County subregion can be found also in **Appendix D**.

<sup>7</sup>Source: SANDAG DS39 Forecast Estimates (2021)



Figure 2-5: Population and Job Trends in North County CMCP Study Area



### Population



**2019<sup>1</sup>**  
**660,700** North County Population  
**19.9%** of Regional Population

**2050<sup>2</sup>**  
**744,000** North County Population  
**20.1%** of Regional Population

1990<sup>3</sup> - 2019<sup>1</sup>  
 Population Growth



2019<sup>1</sup> - 2050<sup>2</sup>  
 Population Growth



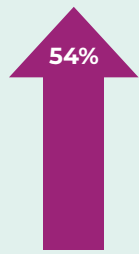
### Jobs



**2019<sup>4</sup>**  
**259,700** North County Jobs  
**17.9%** of Regional Jobs

**2050<sup>2</sup>**  
**375,300** North County Jobs  
**17.9%** of Regional Jobs

1995<sup>5</sup> - 2019<sup>4</sup>  
 Job Growth



2019<sup>4</sup> - 2050<sup>2</sup>  
 Job Growth



Sources: (1) American Community Survey (ACS) 2019 5-Year Estimate, (2) SANDAG DS39 Forecast Estimates (2021), (3) IPUMS NHGIS (1990), (4) LEHD LODES Workplace Area Characteristics (2019), and SANDAG Estimates (2020)



### Population, Jobs, and Transportation

There are approximately 300,000 jobs reported within the North County study area. In 2019, approximately 61% of the population in North County was employed. In addition to a higher number of employed individuals than jobs available, not all individuals live and work in North County. This highlights the importance of enhancing both local and regional connections between people and jobs.



In addition to projected growth within North County, the neighboring subregion of southwest Riverside County is expected to continue its aggressive growth in population. The growth surrounding North County will increase the demand for access to employment and education destinations within and from North County resulting in the need for a more efficient regional transportation network.

## Where People Live and Work in North County

Land use and the transportation network are intrinsically linked and influence each other as they develop. Transportation investments can affect land use patterns, urban density, and housing prices while land use can influence how people travel. The subsequent section provides the following context:

- Where people live, work, and travel based on North County's land use patterns and key activity centers
- Planned growth hotspots anticipated by 2050
- How the combination of existing and future growth will define the activity centers and destinations that need to be served by North County's transportation system.

### Existing Land Use Patterns Within North County

Existing land use patterns reflect substantial growth in residential and commercial development across all five cities and the unincorporated County over the last 30 years (see **Appendix F**).

**Figure 2-6** shows the current land uses within the North County study area. The top land use categories (as a percentage of acres within the study area) are residential (33.1%), open space preserve/parks (22.3%), undeveloped (15.6%, not including roadway/utility infrastructure), and agriculture (8.7%).

Approximately 15% of the North County study area is currently vacant or undeveloped. Vacant or undeveloped land within activity centers and a half-mile of a SPRINTER station/transit stop provides an opportunity to link future development to transit services such as BREEZE, Rapid, and FLEX routes.



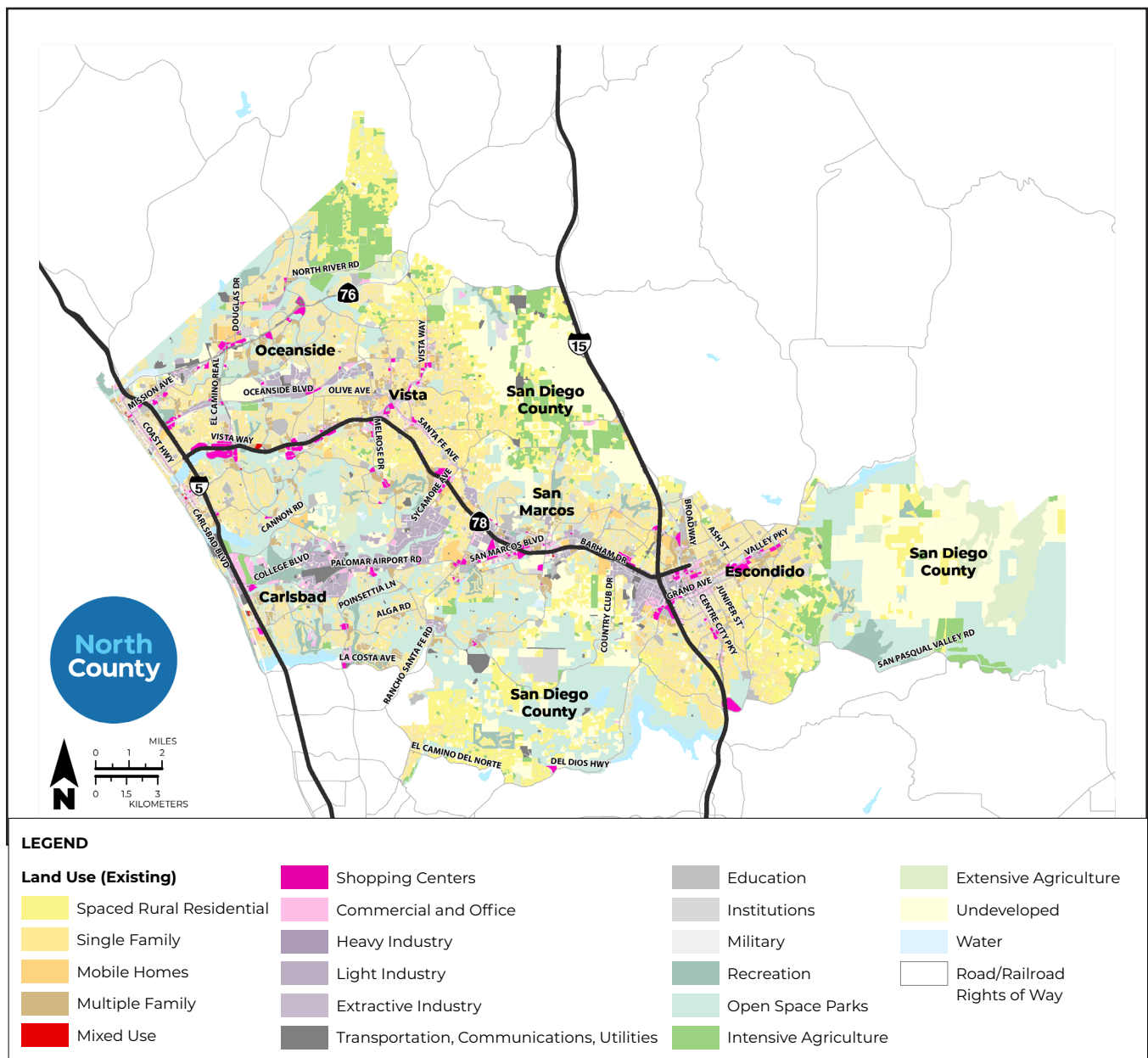
Table 2-1: Transit Oriented Development Opportunities

AREA	UNDEVELOPED/VACANT LAND (ACRES)	PERCENT OF UNDEVELOPED/VACANT LAND IN STUDY AREA
Half Mile of SPRINTER Stations	562	2%
Half Mile of Study Area Transit Stops	3,600	14%
Within Activity Centers <sup>8</sup>	1,900	7%
Study Area		25,800

<sup>8</sup> Activity Centers are areas with concentrated activity such as housing, employment, and/or retail.

North County has developed predominantly around single-family and spaced rural residential to keep up with housing demand over the last 30 years—creating the perception of North County being a series of “suburban” or “bedroom” communities. While housing developments have grown, North County has been successful in: 1) preserving recreation and open space parks that has reinforced its positive reputation for outdoor activities near neighborhoods; and 2) complementing housing growth with high employment development in Industrial, shopping centers, and retail/office commercial. Additional information about the land use in the subregion can be found in **Appendix F**.

Figure 2-6: Existing Land Uses



Source: SANGIS Land Use Current Shapefile (Accessed February 2021)



The CMCP assessed two complementary data points important to transportation: housing and jobs. Today, the North County study area has approximately 253,000 housing units distributed across North County and accounts for 19.4% of housing in the San Diego region. With employment, there are 256,000 jobs predominantly in concentrated areas in North County accounting for about 18% of the jobs within the region.

The industrial/manufacturing centers of the last century were located in the narrow valleys of North County. The resulting spatial misalignment between the transportation network, housing, and jobs observed today is a result of historic industrial/manufacturing center locations. The existing housing and job centers are clustered along or near North County's major arterials such as Valley Parkway, Centre City Parkway, Palomar Airport Road, San Marcos Boulevard, Vista Way, Oceanside Boulevard, Mission Avenue, Coast Highway, and Carlsbad Boulevard. **Figure 2-7** shows the existing concentration of housing and jobs employing a dot density map where each dot represents 50 housing units or 50 jobs.

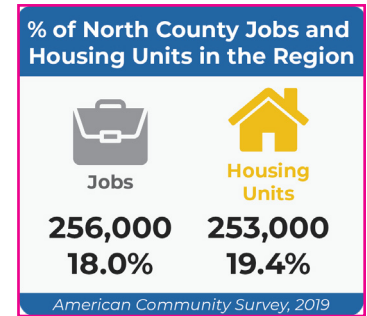
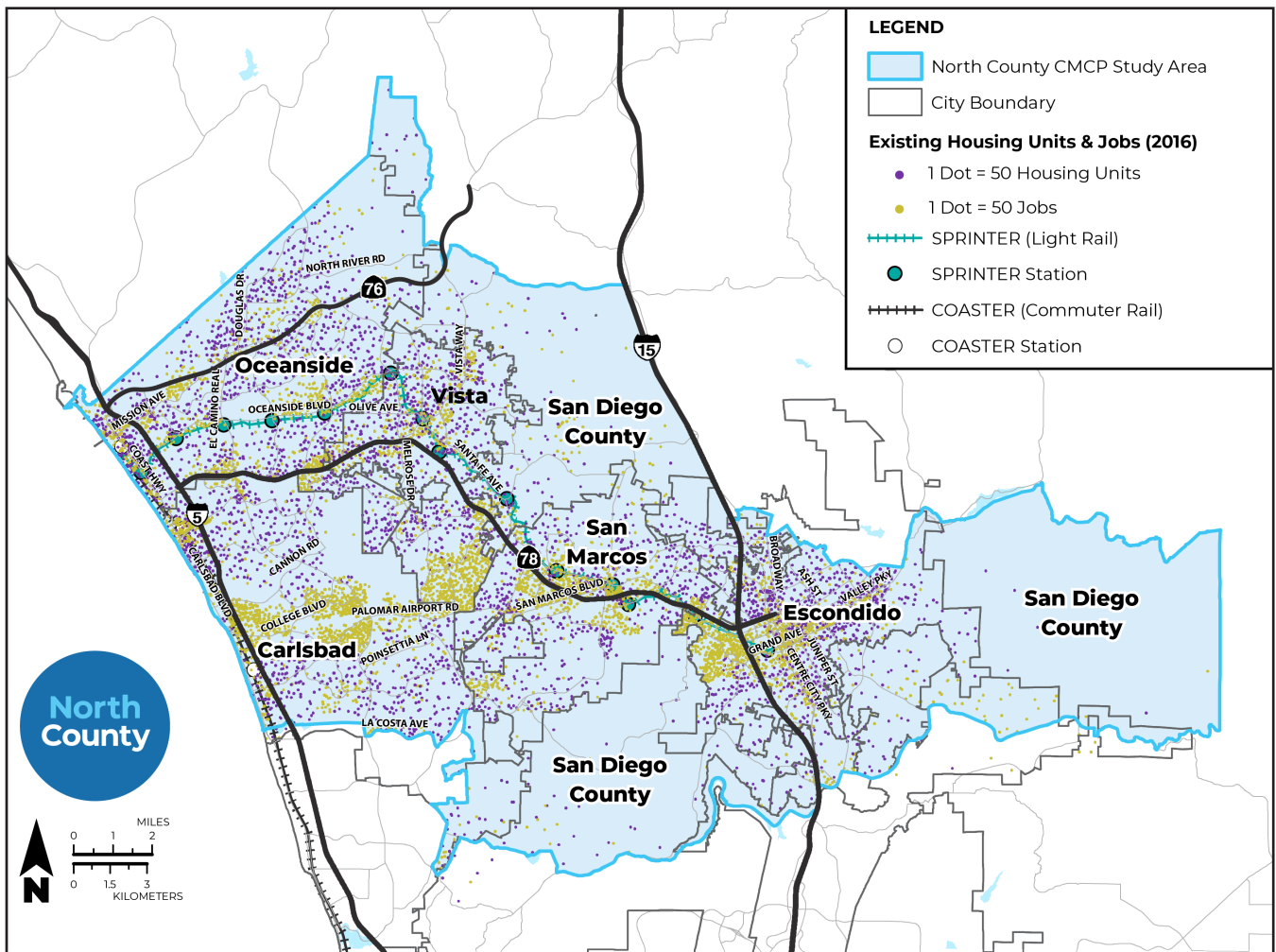


Figure 2-7: Existing Housing Units and Jobs (2016)



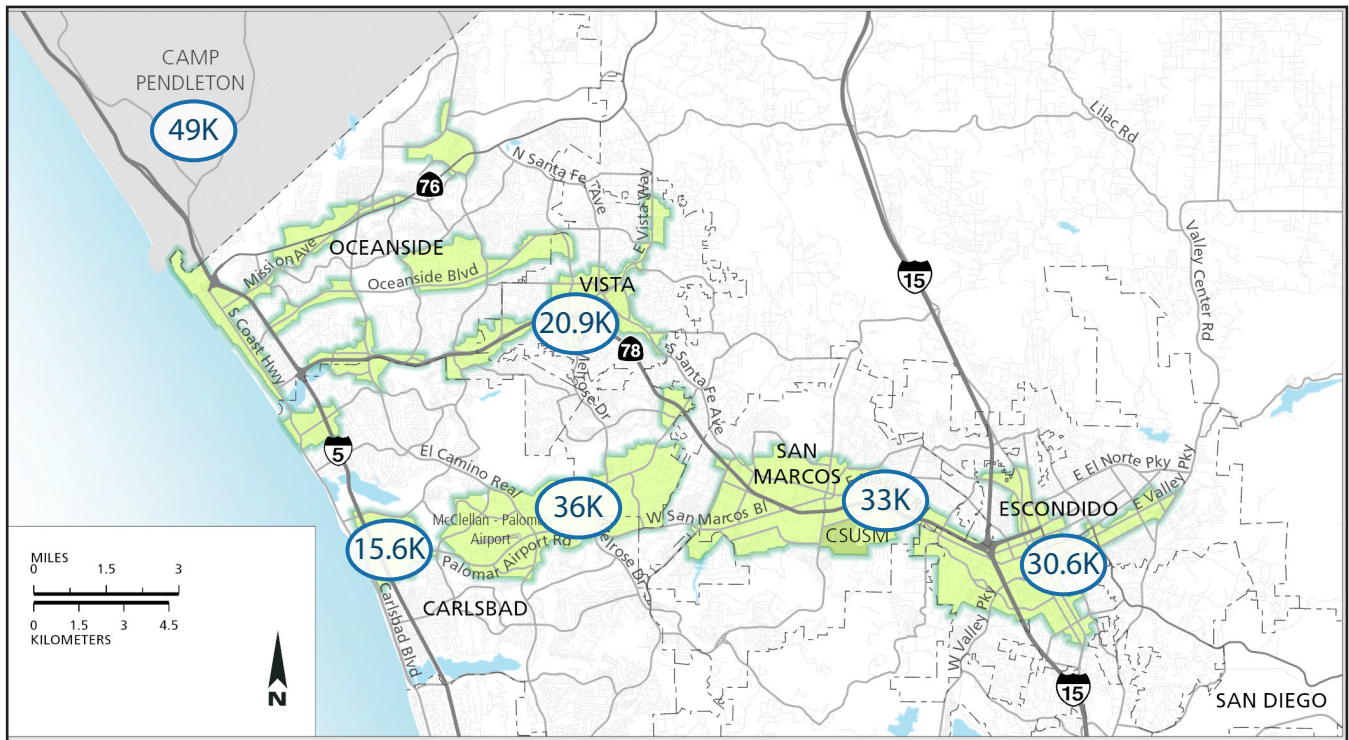
Source: SANDAG DS39 Forecast Estimates (2021)



Existing high density job centers developed over the last 30 years are not clustered around SR 78 and SPRINTER. Instead, older (less dense) developments neighbor the two corridors providing an opportunity for infill mixed-use development.

The concentrations of employment within the study area is represented by the employment centers shown in **Figure 2-8**. The key job centers show that the largest employment centers by number of employees in the study area are located in Carlsbad, San Marcos, and Escondido. These employment centers are anticipated to continue growing. Additional information about employment centers can be found in **Appendix G**.

Figure 2-8: North County Employment Centers



Source: SANDAG Employment Estimates, 2016



## Projected Growth: Where Will People Live and Work By 2050?

### Housing Considerations

North County is looking to not only incorporate more housing to accommodate projected population growth but provide housing options that promote affordability and home ownership. The cities in the study area are required to update their General Plans, housing elements, and zoning codes to accommodate the region’s housing unit allocation as indicated in **Table 2-2**. There are 31,300 housing units allocated to the communities in North County between 2021 and 2029. Approximately 31% (or 9,600) housing units are allocated within Escondido.

Jurisdictions in the study area are encouraged to consider the proximity of transit and jobs when identifying proposed housing sites. Housing sites located near transit and jobs can create an opportunity for residents to take more trips by bus, light rail, or train and/or live closer to where they work. This can create a shift in how people travel to their everyday destinations, opting for alternative transportation modes, and ultimately, reducing vehicle miles traveled (VMT) and GHG emissions.

*The North County cities and unincorporated county are planning for an additional 25,000 to 30,000 dwelling units within the study area. Placement of these dwelling units will influence where population growth is likely to occur within the study area.*



Table 2-2: 6th Cycle (2021-2029) RHNA Allocation for Jurisdictions in Study Area

JURISDICTION	VERY LOW-INCOME <sup>9</sup> UNITS	LOW-INCOME UNITS	MODERATE INCOME UNITS	ABOVE MODERATE INCOME UNITS	TOTAL UNITS	PERCENT OF STUDY AREA
Carlsbad	1,300	780	750	1,000	3,900	12.4%
Escondido	1,900	1,200	1,500	5,000	9,600	30.7%
Oceanside	1,300	720	880	2,600	5,400	17.4%
San Marcos	730	530	540	1,300	3,100	10.0%
Unincorporated County <sup>(1)</sup>	1,800	990	1,200	2,700	6,700	21.4%
Vista	520	320	370	1,400	2,600	8.2%
<b>(Totals)</b>	<b>7,520</b>	<b>4,600</b>	<b>5,200</b>	<b>14,000</b>	<b>31,300</b>	<b>100.0%</b>
Region (Totals)	42,300	26,600	29,700	73,000	171,700	--
Percent of Region	16.0%	15.3%	15.8%	17.3%	16.4%	--

Notes: (1) Unincorporated County numbers include areas outside of the study area boundaries as the County’s Housing Element has not been finalized as of September 2021.

Source: SANDAG 6th Cycle Regional Housing Needs Assessment Plan<sup>10</sup>

<sup>9</sup> Very Low, Low, Moderate, and Above Moderate Income is based on the County’s Average Median Income for Housing.

<sup>10</sup> <https://www.sandag.org/index.asp?projectid=189&fuseaction=projects.detail>

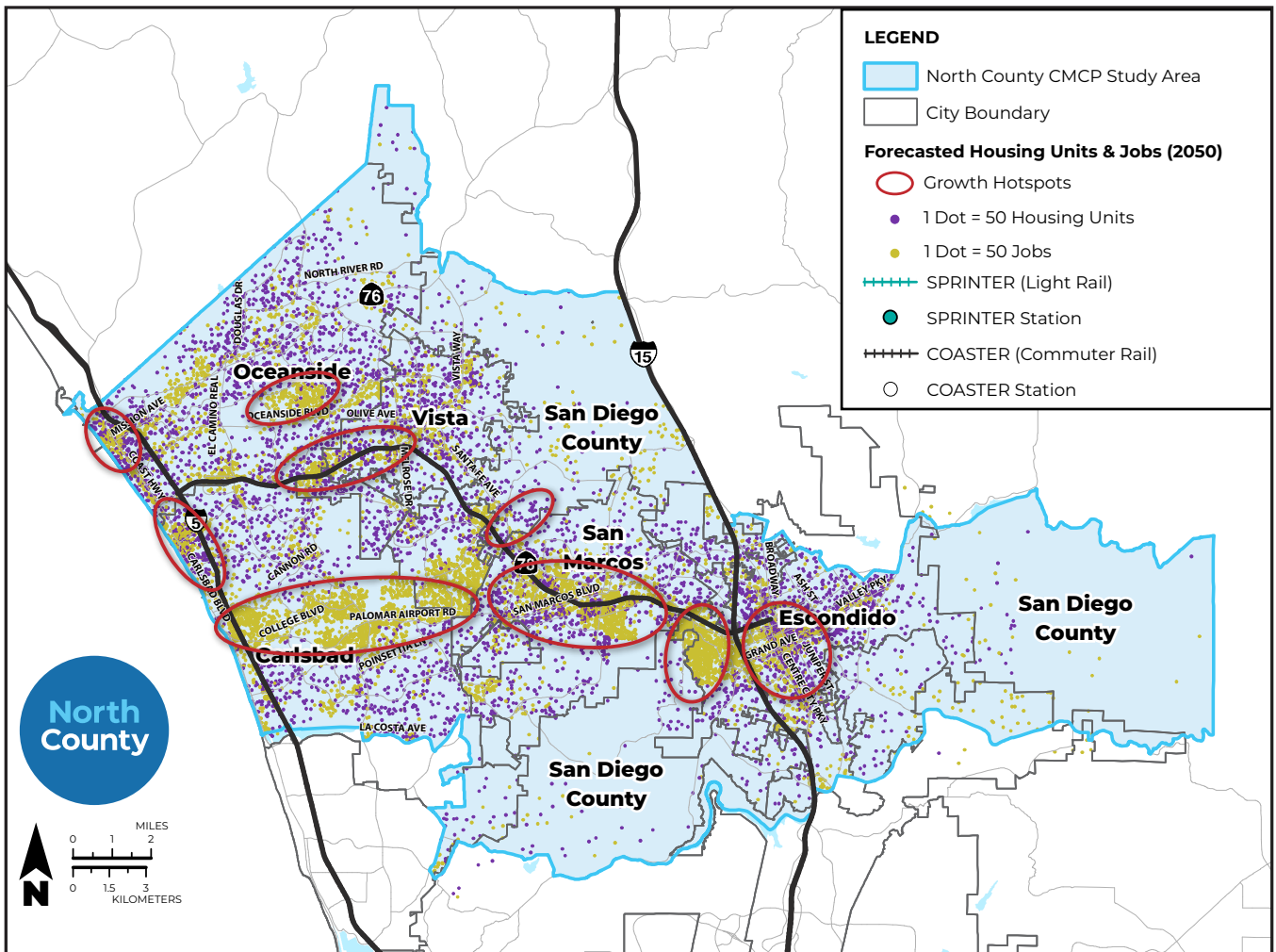
**Figure 2-9** maps where growth is anticipated to occur for both population and employment. Looking at where growth is anticipated, “hotspots” have can be identified. These hotspots are expected to occur within three types of corridors:

- In proximity to SR 78 (e.g., San Marcos)
- Adjacent to SPRINTER stations (e.g., Oceanside, San Marcos, Escondido)
- Along North County’s major arterials (across all five cities)

In San Marcos and Escondido, many of the older commercial/industrial/shopping sites (many developed pre-1990s) are beginning to see redevelopment to support mixed-uses and integration with the transportation system—including sites adjacent to employment centers and educational institutions like California State University San Marcos (CSUSM).

**Figure 2-9** shows the locations of planned housing units and jobs anticipated by 2050. This shows that there are concentrations of land use and activity in focused areas in Oceanside, Vista, San Marcos, and Escondido as well as the employment centers in Carlsbad. These concentrations (or activity centers) align with existing and planned mixed-use, shopping centers, commercial and office, and housing land uses. The more concentrated the housing/jobs are the greater need for mobility options and connections to sustain growth.

*Figure 2-9: Planned Housing Units and Jobs by 2050*







The combination of existing and future housing and employment concentrations will likely be along major arterials such as Valley Parkway, Centre City Parkway, Palomar Airport Road, San Marcos Boulevard, Vista Way, Oceanside Boulevard, Mission Avenue, Coast Highway, and Carlsbad Boulevard.

### Planning for Adaptability and Change

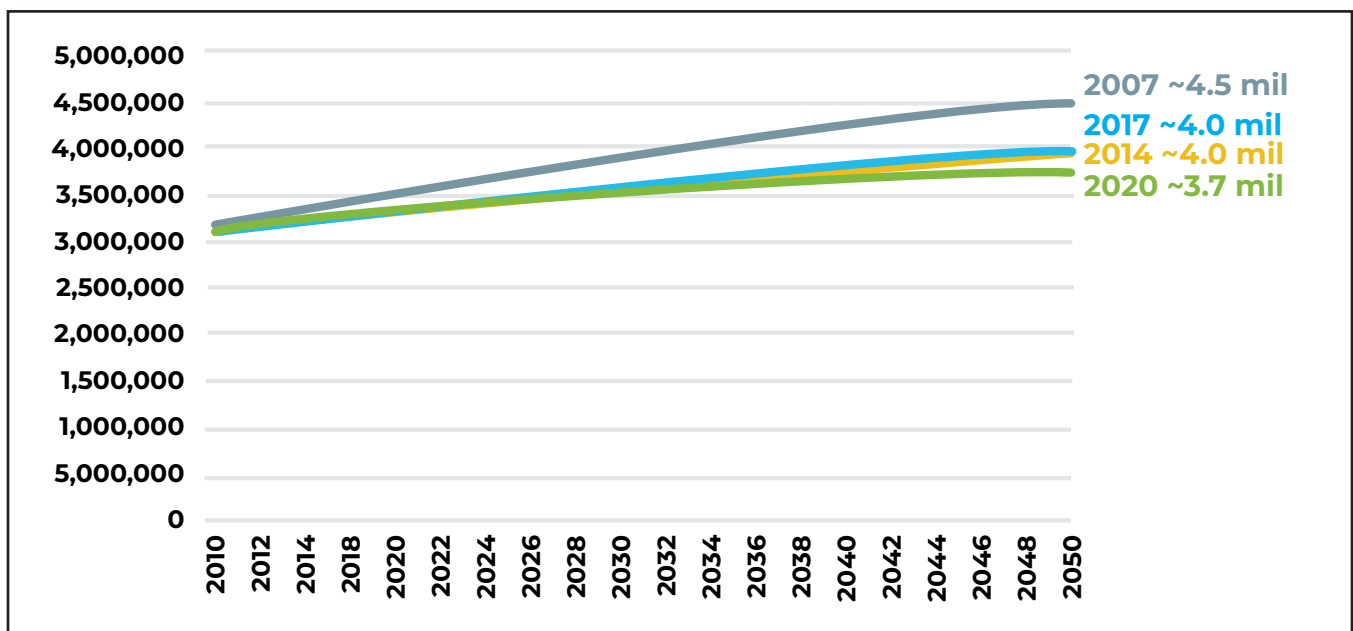
As discussed throughout this chapter, population is one of the primary drivers of travel demand within North County. Over the last 30 years, the changes in population and development patterns have driven many transportation investments by local, regional, and state agencies. These investments include the implementation of interchanges, managed lanes, Inland Rail Trail, and SPRINTER. Future implementation of transportation investments will continue to accompany housing and job development within North County.

As North County’s population continues to grow, the relationship between land use and transportation planning will become increasingly vital. Investments in a transportation network will need to support projected population growth but must plan for adaptability should population growth occur in areas that are not identified as growth hotspots or should growth occur at a faster or slower pace than projected. Building adaptability into the system so that the transportation network can support surrounding land uses will allow for communities to grow while supporting active transportation safety, increasing mobility, enhancing transportation services, and improving connectivity.

Key events can also drastically change projected population growth. The Department of Finance’s 2050 population estimates for the region have been reduced 14% from 4.3 million (2007 estimate) to 3.7 million (2020 estimate). Plans such as this CMCP will need to be continuously evaluated and adapted, to address the changing inputs like population, housing, and economic projections. Figure 2-14 highlights the changes in population projections from the CA DOF.



Figure 2-10: San Diego County Population Projections (CA Department of Finance)



## North County’s People and Communities

North County’s transportation system influences the quality of life for residents and employees (both inside and outside of the study area) by shaping access to jobs, education, housing, and recreational opportunities.



*San Marcos Farmer’s Market (San Marcos Farmer’s Market)*

Understanding corridor travel types and behaviors based on the available system is fundamental to understanding the mobility challenges within North County (mobility challenges are discussed further in **Chapter 3**). Pairing travel behavior with land use trends will define the mobility patterns and improvement strategies that can be successful in meeting current and future needs. This section will provide key contexts of the study area’s demographics and trends that will affect how people will live and move in North County.

## Social Equity Focus Communities Of North County

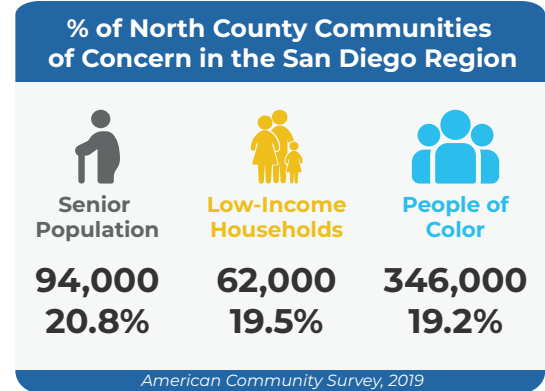
Vulnerable and underserved communities (social equity focus communities), defined as low-income, People of Color, or 75 years and older<sup>11</sup> are stakeholders and traveling users that need focused infrastructure and services within North County. Understanding how many people are identified within social equity focus communities provides necessary context for equitable transportation investments.

<sup>11</sup> The North County CMCP also looked at the population 65 years and older to better understand the population that will be a social equity focus community in the future.



There are about 661,000 people living within the study area. Social equity focus communities make up a significant portion of the current population and will continue to grow throughout the region. Over half of the population is defined as People of Color population and this percentage is expected to grow to 67% by 2050. The senior population will also increase to 46% by 2050. Low-income households currently make up 28% of the total population and are expected to decrease by 7% by 2050.

By 2050, 31% of the total population in the corridor will live within a half-mile of high frequency transit. Social equity focus communities will also increasingly live near transit by 2050. By 2050, 44% of seniors, 40% of low-income households, and 46% of People of Color population will live within a half mile of high frequency transit. Housing units within a half mile of high frequency transit are expected to jump to 77% by 2050. As of 2016, there are 16,391 housing units (23%) within a ½ mile of high frequency transit. This number is expected to increase significantly to 79,000 housing units (77%) located in close proximity to transit by 2050.



## Underserved/Historically Excluded Communities

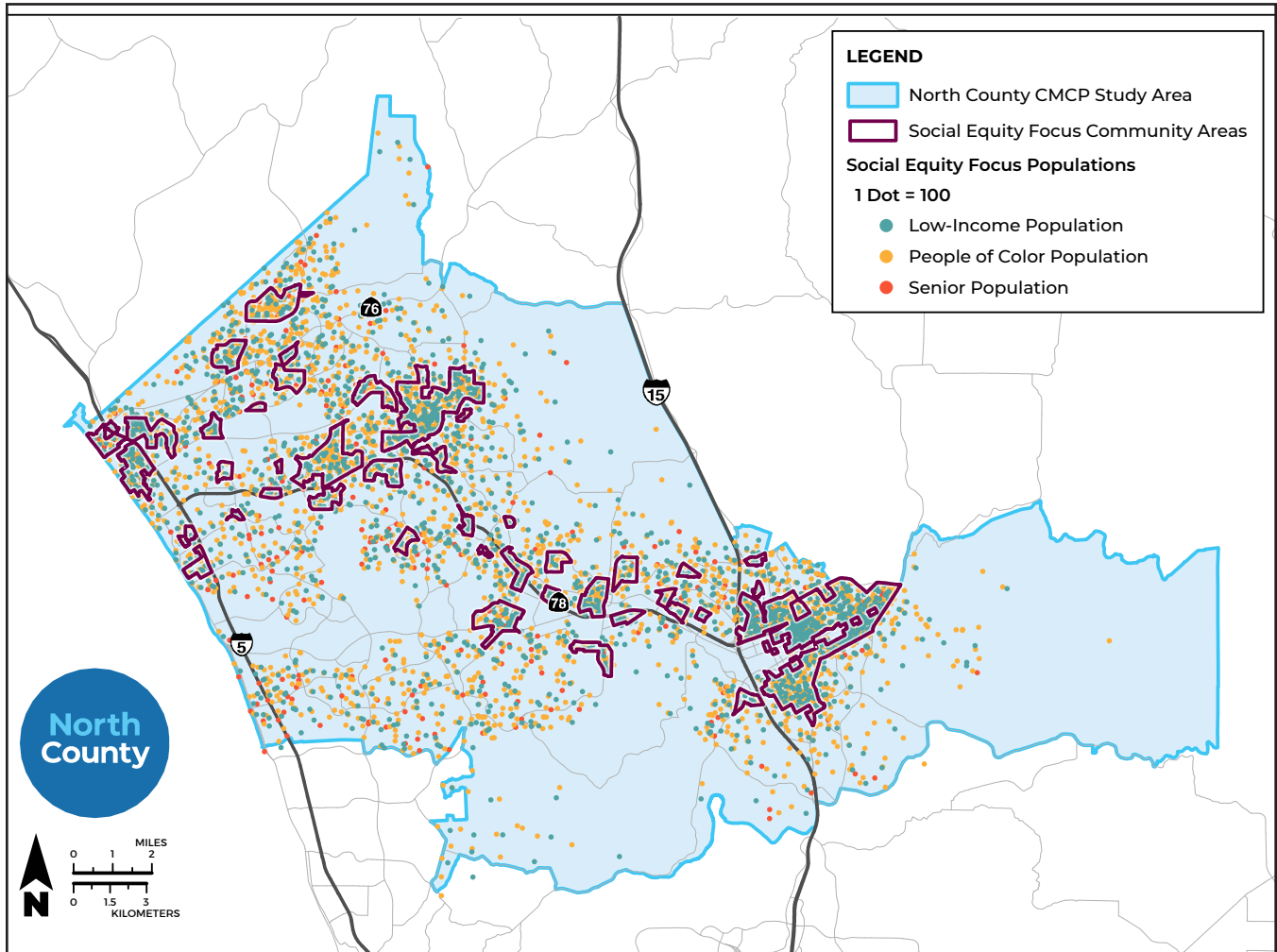
There are several metrics that can be used to measure underserved and historically excluded communities. For the purposes of this CMCP, the study area has been analyzed through the following lenses to identify communities that may be underrepresented in various factors that can be impacted by transportation investments:

- **Healthy Places Index** provides an index score based on economic, education, transportation, social, neighborhood, housing, clean environment, and healthcare indicators that quantifies factors that shape health.
- **SB 535 Disadvantaged Communities** shows the 25% highest scoring census tracts in the CalEnviroScreen as well as other areas with high amounts of pollution and low population. CalEnviroScreen uses environmental, health, and socioeconomic data to identify California communities that are most affected by pollution and experience adverse public health effects.
- **Low-Income Communities and Cities** is measured by members of the population who report an income less than 200 percent of the Federal Poverty Level and is consistent with the SANDAG policy definition of “low-income.”
- **Affordability of Housing** is defined by a threshold designated as low-income by the California Department of Housing and Community Development’s (HCD’s) State Income Limits. The HCD State Income Limits vary by household size for each county and provide income thresholds for extremely low, very low, low, median, moderate, and above moderate-income categories. AB 1550 defines low-income as 80% of the County of San Diego’s Area Median Income (AMI).

A more detailed summary of these metrics is found in **Appendix J**.

The social equity focus community (SEFC) areas of the subregion are shown in **Figure 2-11**. The SEFC areas represent the top 25 percent most dense areas where social equity focus populations including low-income population, People of Color population, and senior population reside.

*Figure 2-11: Social Equity Focus Community (SEFC) Areas of North County*

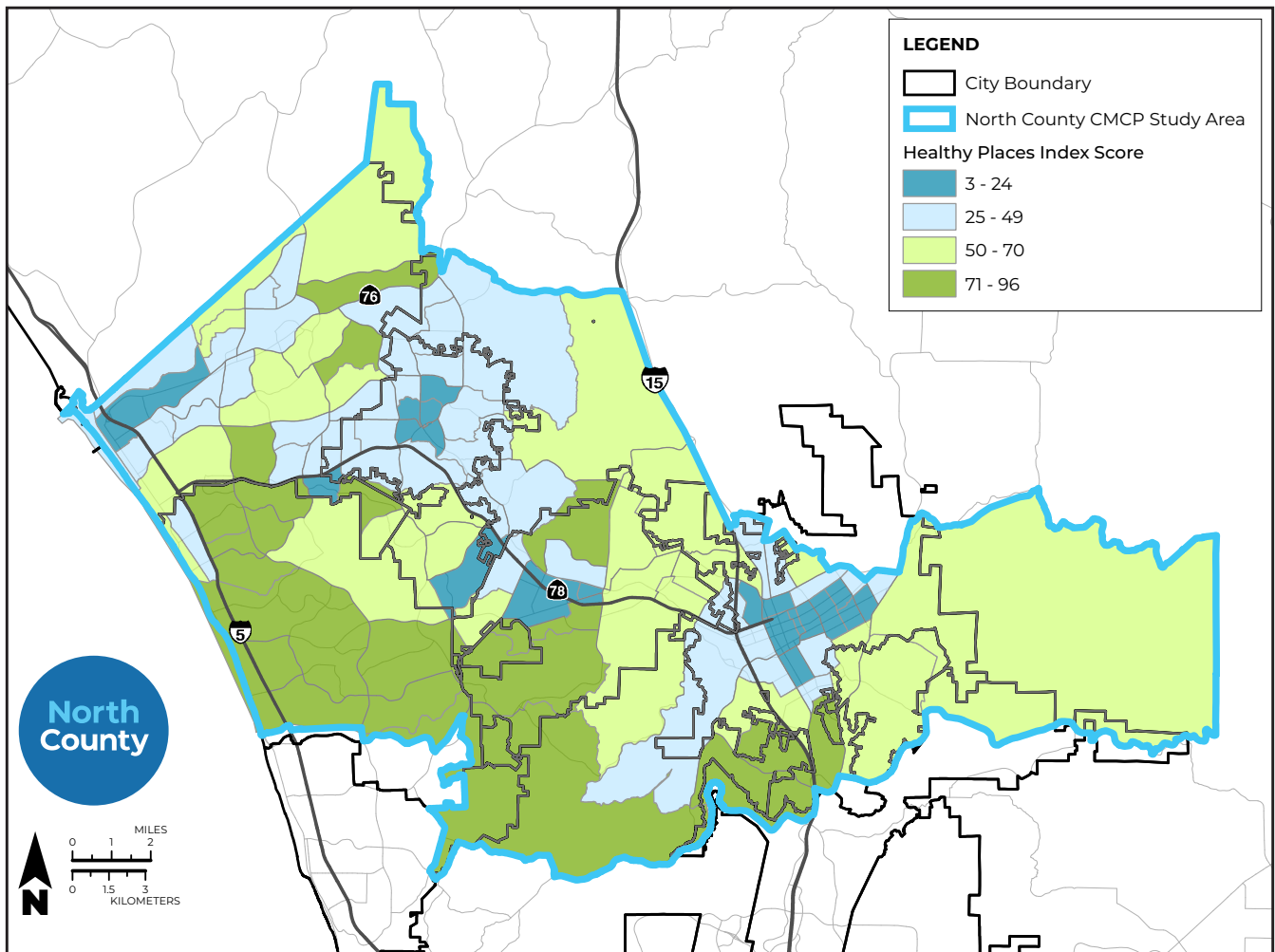


## Healthy Places Index

The index score is a compilation 25 community characteristics to inform health equity within a community. The index is used to support equitable investments, programs, and policies. **Figure 2-12** below shows that the North County study area generally scores high on the Healthy Places Index indicating that North County is a relatively healthy community with factors that support a higher predicted life expectancy.

However, there are areas of Escondido, Vista, San Marcos and Oceanside with significantly lower scores—generally located in more urban, low-income communities. As the transportation network continues to develop, it will be important to understand the built environment, socioeconomic factors, and community factors that contributed to the score in these areas to ensure that the implementation of programs identified in the CMCP do not adversely impact the North County communities, but rather improves the health and wellbeing in these lower-scoring areas.

Figure 2-12: Healthy Places Index Score for North County CMCP



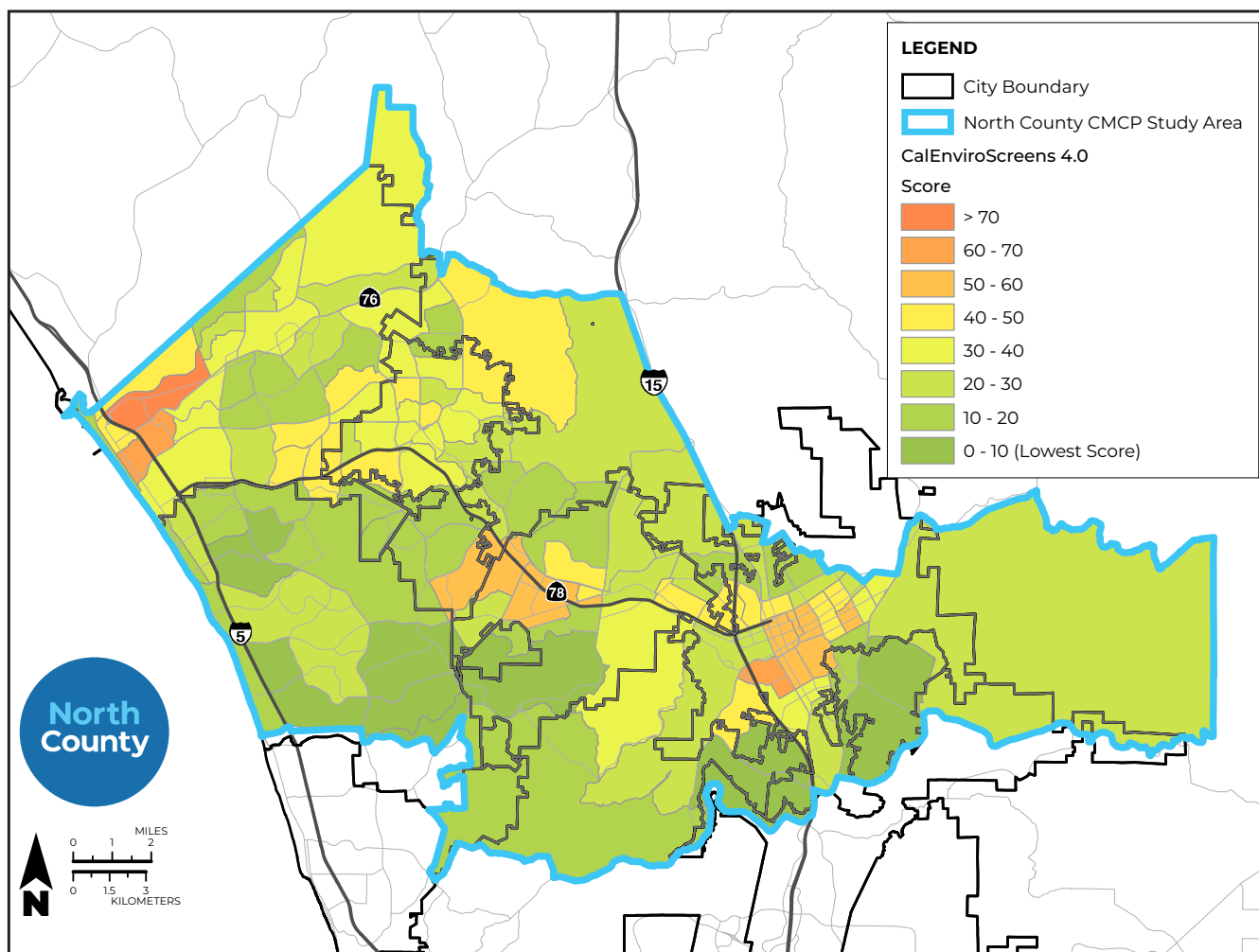
## SB 535 and CalEnviro Screen

For the purpose of SB 535, disadvantaged communities are areas that represent the 25% highest scoring census tracts in CalEnviroScreen 4.0, census tracts previously identified in the top 25% in CalEnviroScreen 3.0, census tracts with high amounts of pollution and low populations, and federally recognized tribal areas as identified by the Census in the 2021 American Indian Areas Related National Geodatabase.

Using SB 535, there are no communities identified as disadvantaged within the Study area. Also, there are no census tracts that score in the top 25% of CalEnviroScreen 4.0—criteria for a tract to be identified as disadvantaged.

However, **Figure 2-13** shows that downtown Escondido and Oceanside score higher than the surrounding communities indicating higher cumulative impacts as a result of pollution exposure.

Figure 2-13: CalEnviroScreen 4.0 Score for North County CMCP

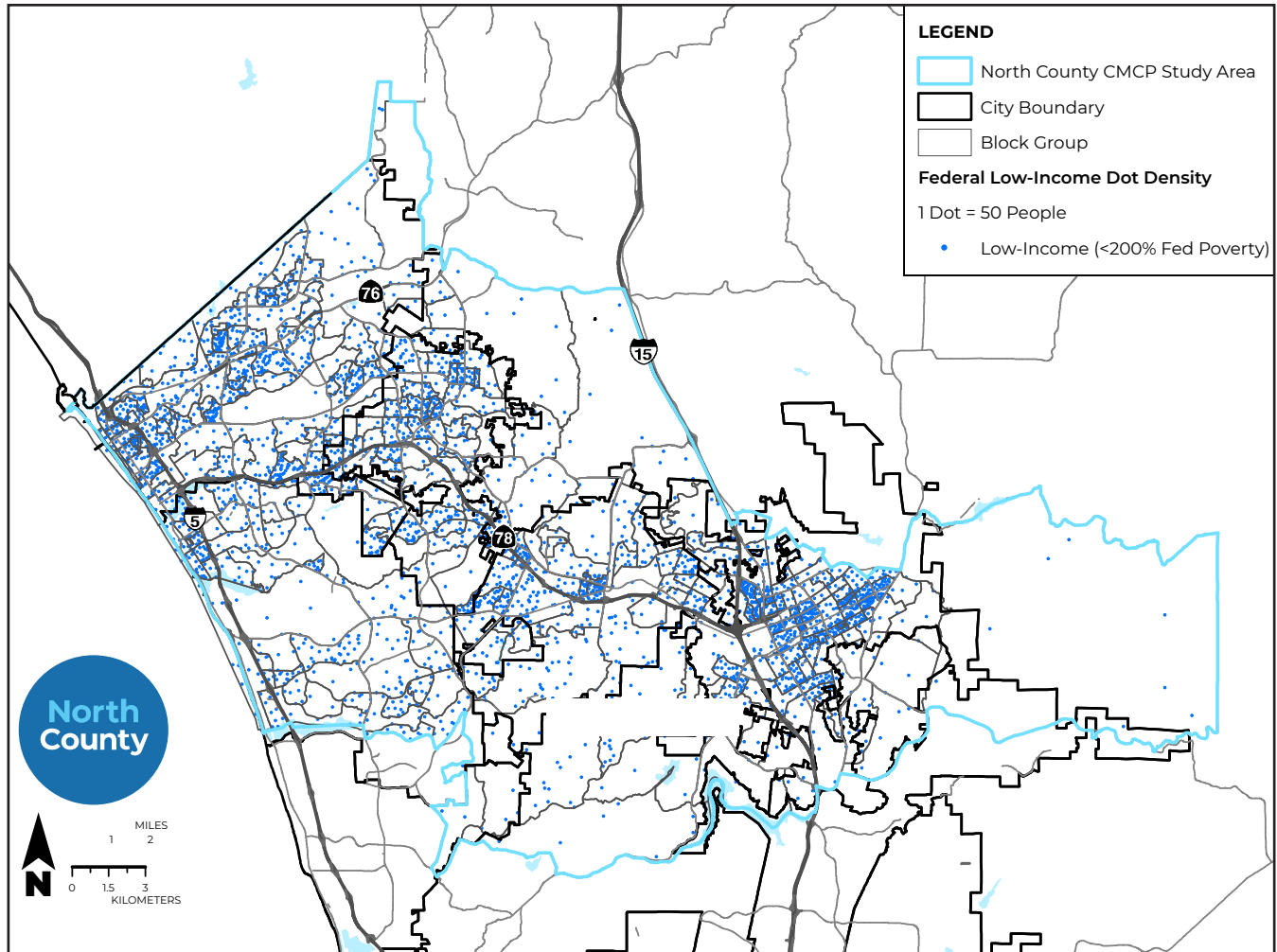


## Low-Income Communities

### Low-Income Defined by Poverty

Through the lens of low-income, for a family of four in North County, the threshold for “low-income” cannot exceed 200% of \$26,500 (i.e., \$53,000). The low-income population is based on reported incomes of 200% of the Federal Poverty Level. A substantial portion of the study area is considered low-income (28%). There are concentrations of low-income households in the cities of Oceanside, Vista, San Marcos, and Escondido (see **Figure 2-14**).

Figure 2-14: Federal Low-Income Population (2019)

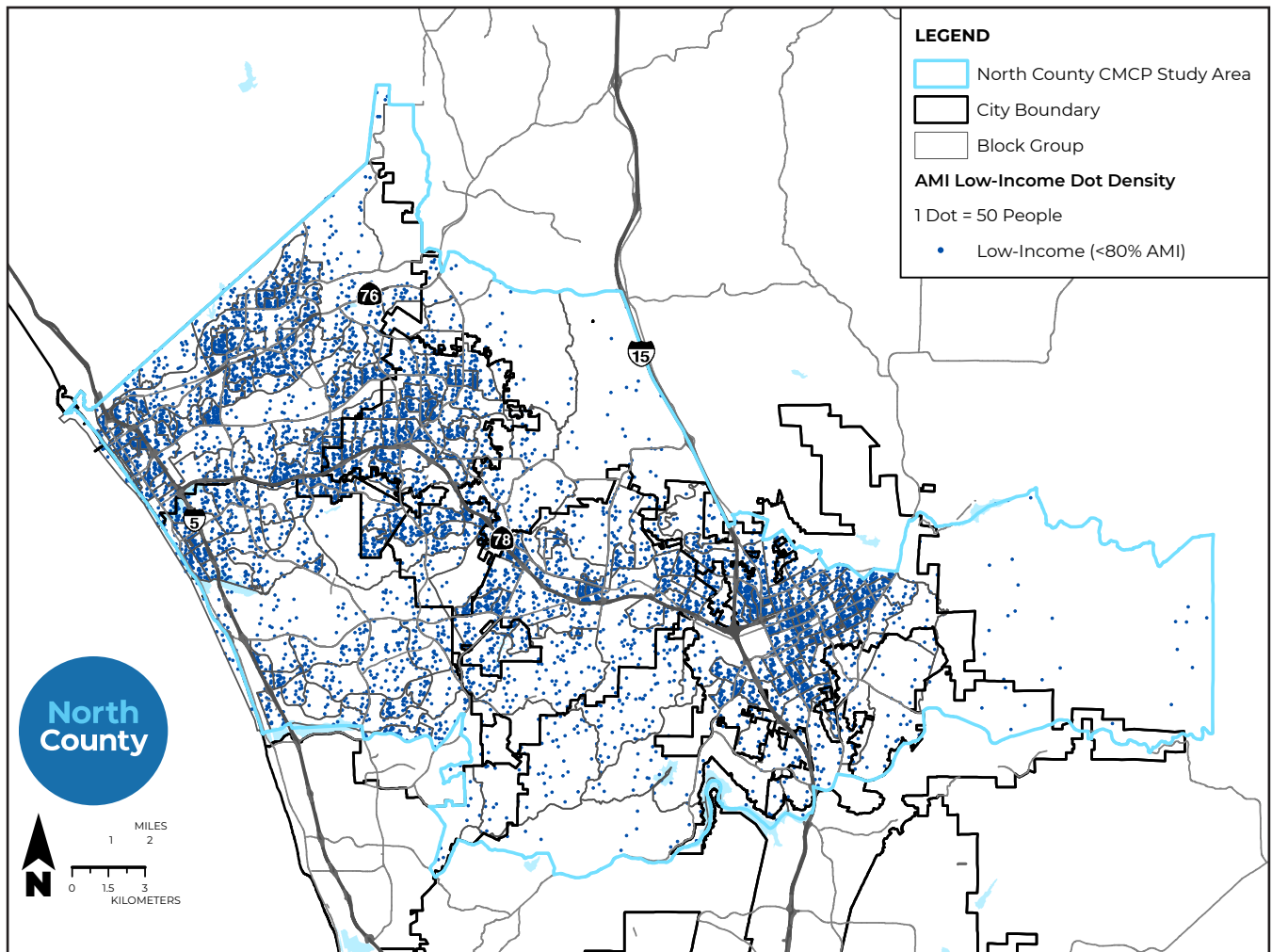


## Low-Income Defined by Affordability of Housing

The second definition of low-income is on the threshold designated by HCD’s State Income Limits. The HCD State Income Limits vary by household size for each county and provide income thresholds for “Extremely Low,” “Very Low,” “Low,” “Median,” and “Moderate” income categories. AB 1550 refers to the “Low” income thresholds (80% of County of San Diego AMI) within this dataset.

**Figure 2-15** demonstrates the larger proportion of North County’s population meeting HCD’s definition of a “low-income” household. This shows that a larger portion of North County’s population is categorized as low-income with regards to housing affordability due to higher housing costs in the region.

*Figure 2-15: Housing-Defined Low-Income Population (2019)*

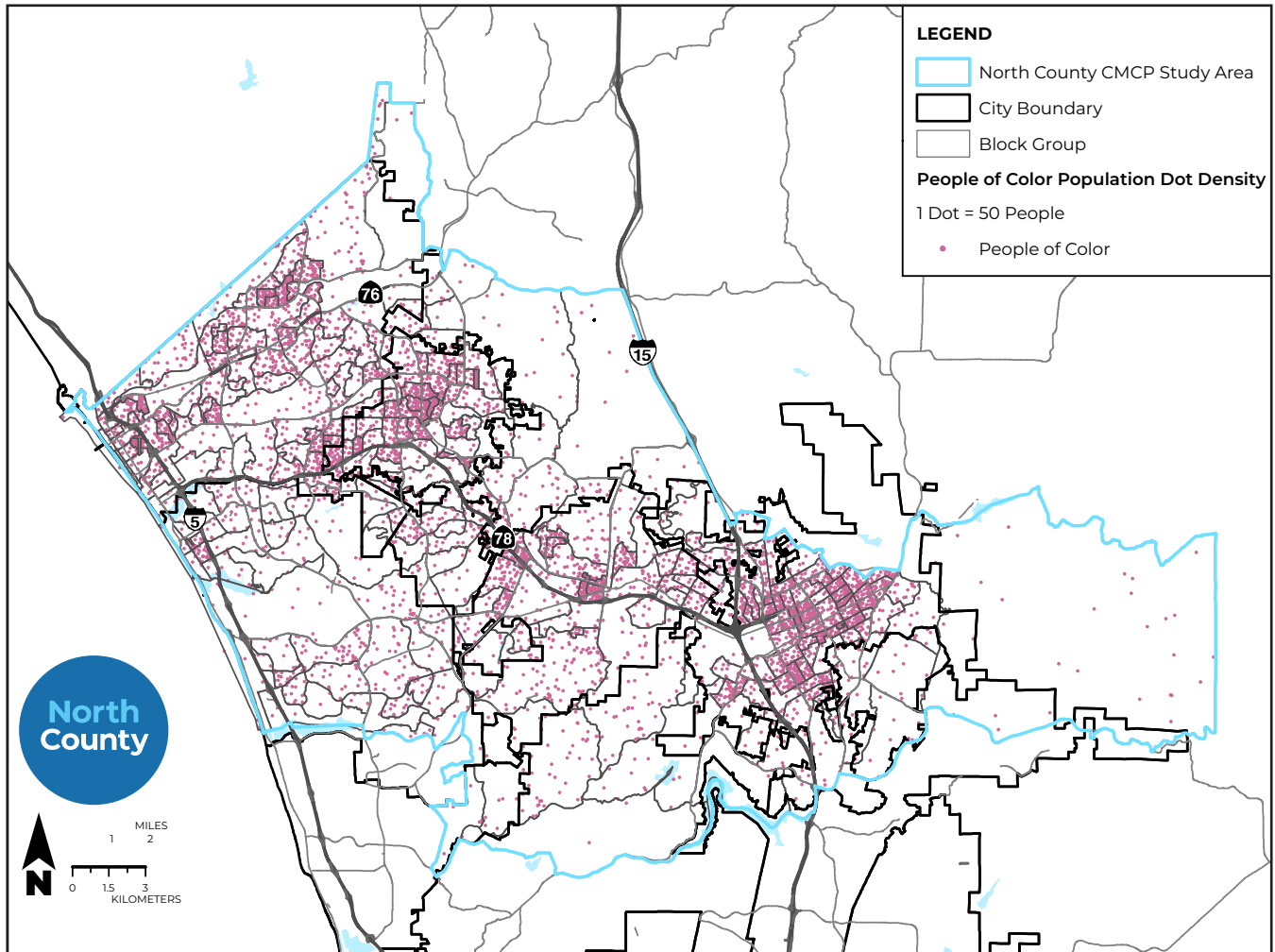




## People of Color

People of Color are persons who identify as non-white or Hispanic. This group has been historically underrepresented in planning processes. Understanding where these populations are concentrated can help to ensure that transportation projects and programs do not impose adverse impacts on People of Color communities, but rather support and better connect them. More than half of the population within the study area identifies as People of Color. There are higher concentrations of People of Color in the cities of Oceanside, Vista, San Marcos, and Escondido (see **Figure 2-16**).

Figure 2-16: People of Color Population(2019)





# North County's Mobility Hubs

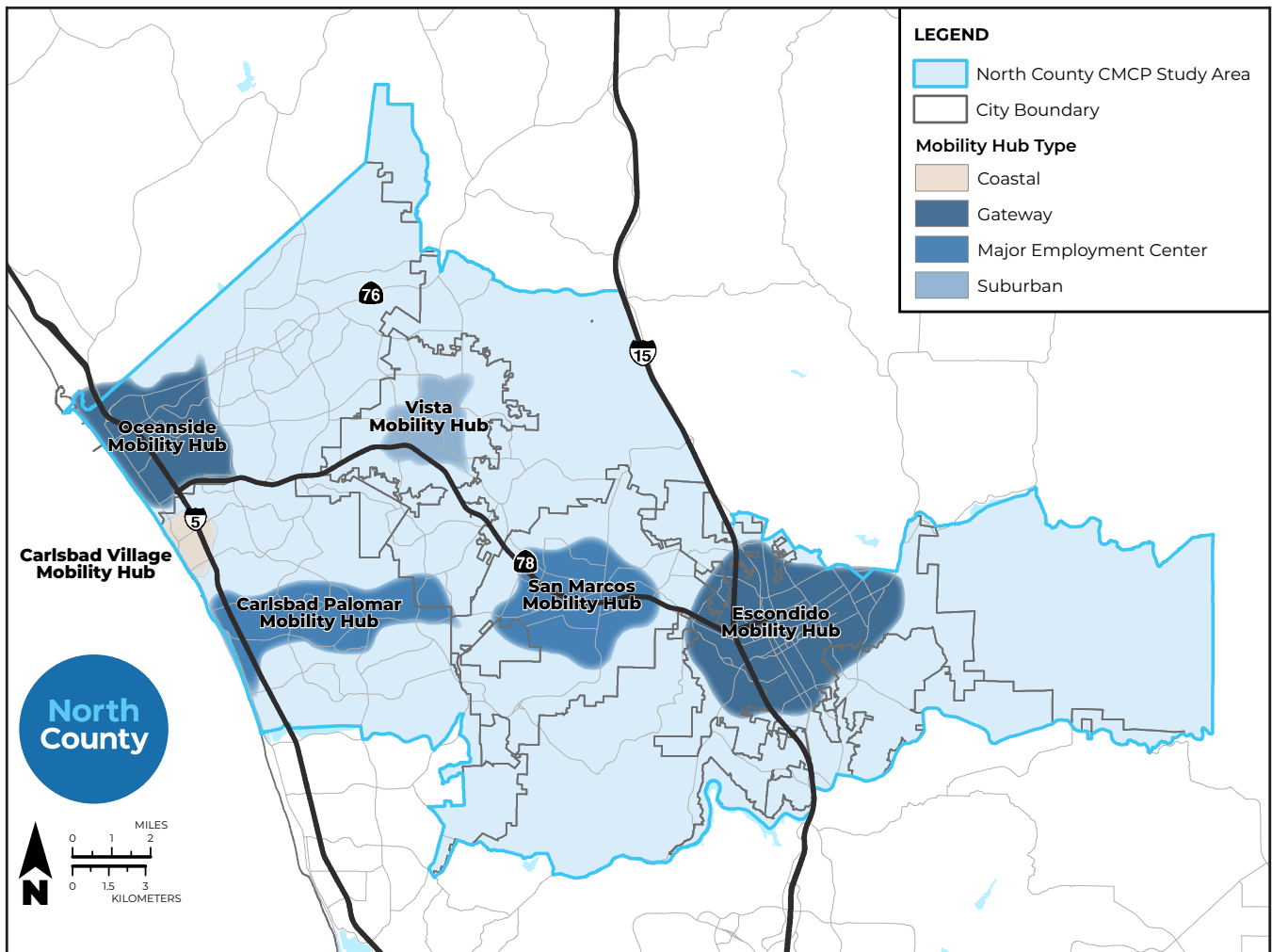
Situated within North County are multiple regional and interregional destinations including job centers, education institutions, recreational destinations, and medical centers. As mentioned above, land development patterns have created pockets and concentrations of industrial/commercial centers throughout the study area. These areas of concentrated activity—housing, employment, key destinations/attractors—represent North County's mobility hubs and potential zones for focused transportation and mobility service improvements.

A large portion of the travel demand within North County is associated with North County's mobility hubs. The following mobility hubs have been identified for North County: Oceanside, Carlsbad Village, Carlsbad Palomar, Vista, San Marcos, and Escondido (Figure 2-17).

*Mobility hubs include places with a high concentration of activity that can serve as points of connection where different travel options come together to provide an integrated suite of mobility services, amenities, and supporting technologies that help users travel between their start and end destinations.*



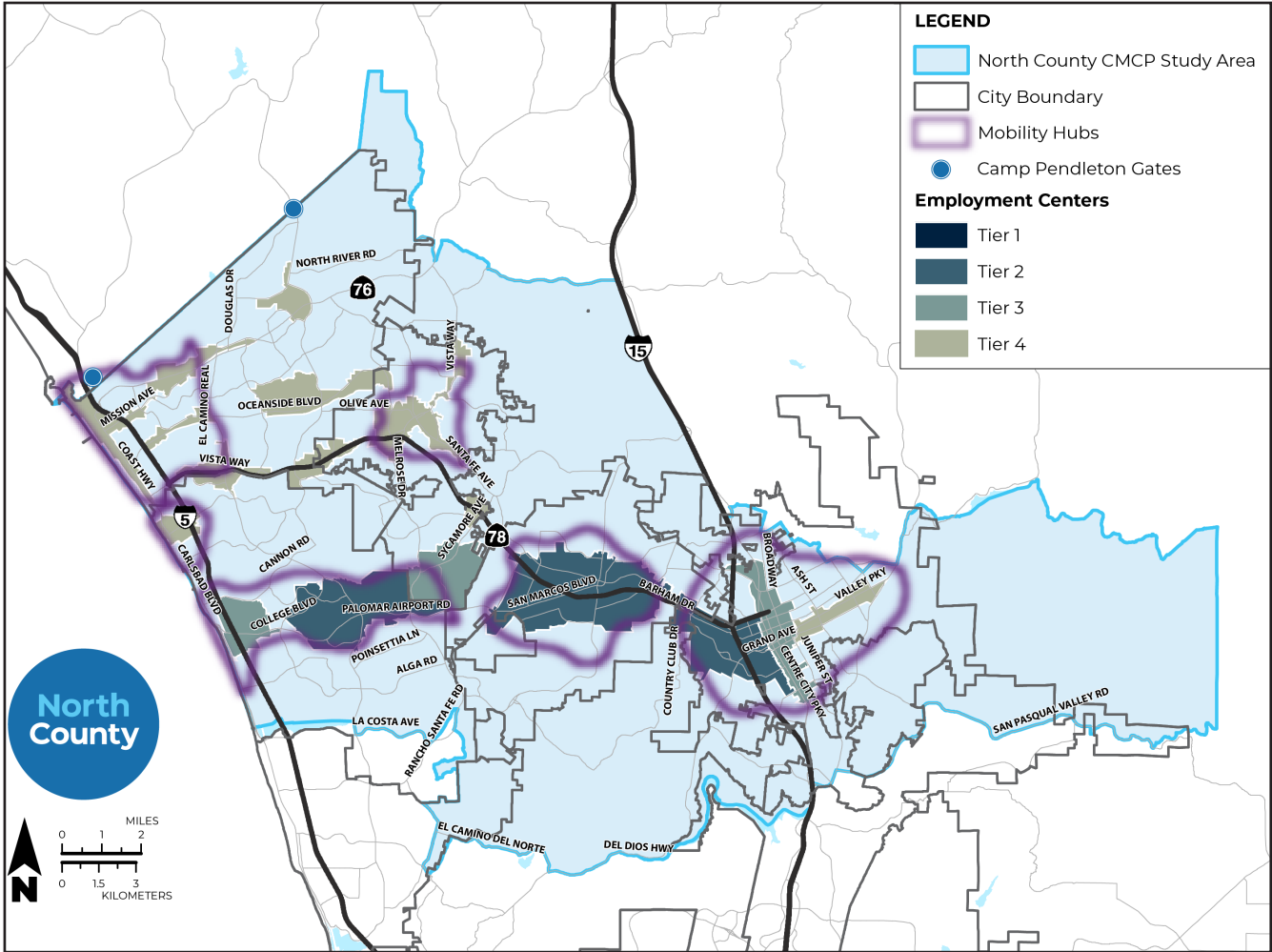
Figure 2-17: North County CMCP Mobility Hubs





North County’s mobility hubs have a high concentration of people and destinations. As part of SANDAG’s 2021 Regional Plan, identified employment centers helped identify North County’s mobility hubs as shown in **Figure 2-18**.

Figure 2-18: SANDAG Employment Tiers in Study Area by Mobility Hubs



Source: SANDAG 2021 Regional Vision – 5 Big Moves



The relatively small land area (20% of North County's land acreage) highlights the efficiency of these activity centers in providing housing and job centers. The six mobility hubs identified above account for 40% of the population and about 66% of jobs in North County. Furthermore, the mobility hubs include a higher proportion of People of Color, low-income, and senior populations. **Table 2-3** below breaks down the different community population numbers of how the mobility hubs influence the North County Study Area.






North County's mobility hubs encompass:

- » 40% of total population
- » 66% of employment
- » 47% of People of Color population
- » 51% of low-income population
- » 35% of 75+-year old senior population



These mobility hubs will be important in leveraging activity for future transportation strategies, planning, and implementation.

Table 2-3: Population Characteristics of Mobility Hubs

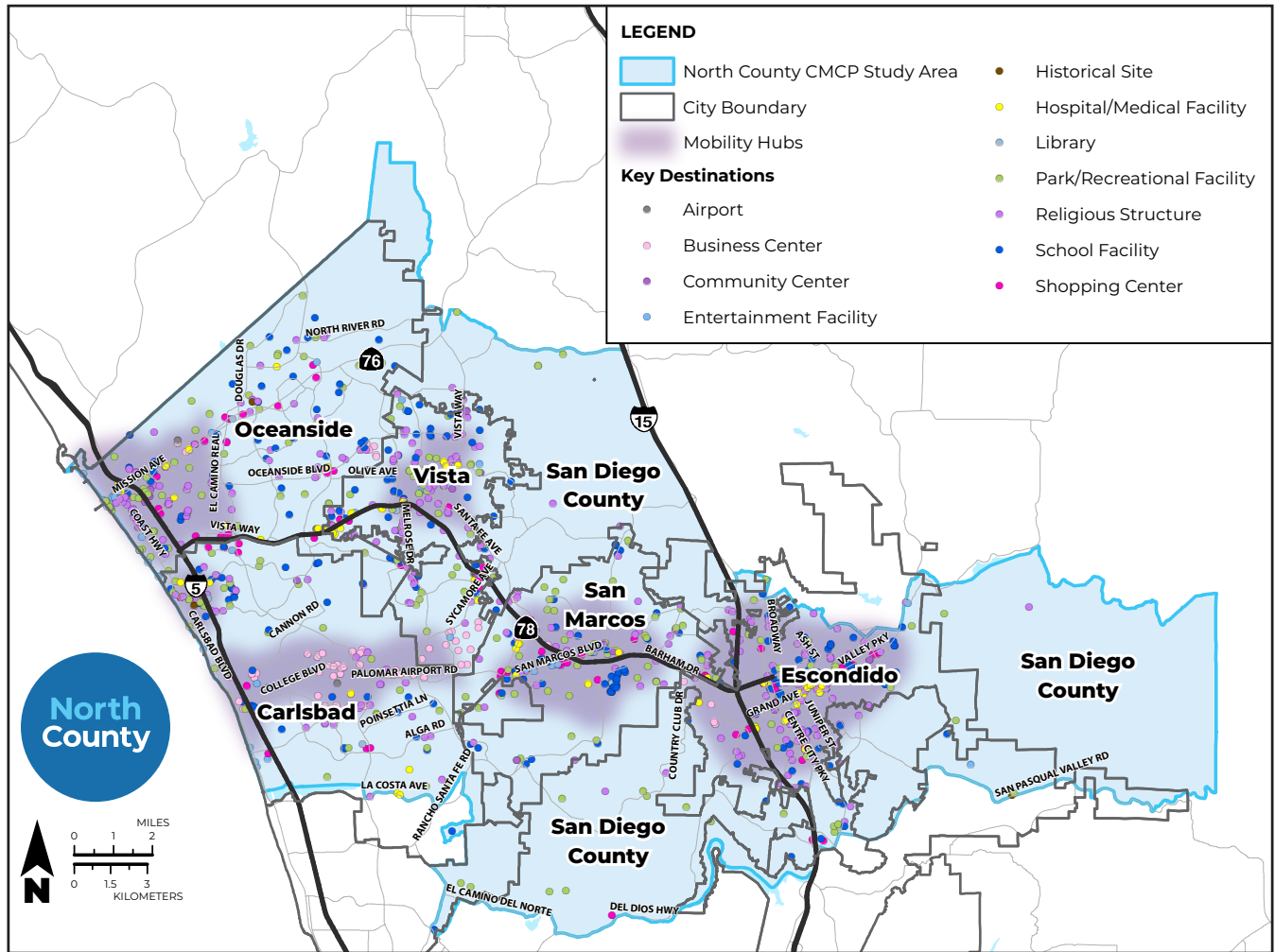
		 Population	 Jobs	 People of Color Population	 Low-Income Population	 Senior Population
2016	Mobility Hubs Influence	262,920	181,215	160,064	111,215	13,984
	Study Area	656,984	274,831	340,750	217,897	40,083
	<b>Mobility Hubs Capture</b>	<b>40%</b>	<b>66%</b>	<b>47%</b>	<b>51%</b>	<b>35%</b>
2050	<b>Mobility Hubs Capture</b>	<b>43%</b>	<b>67%</b>	<b>45%</b>	<b>54%</b>	<b>40%</b>

Source: SANDAG DS39 Forecast Estimates (2021)

The mobility hubs also contain several types of key destinations such as entertainment facilities, community centers, business centers, schools, shopping centers, hospitals/medical facilities, civic facilities, and religious structures (see **Figure 2-19**).



Figure 2-19: Regional Attractions and Destinations





## Understanding North County Travel Patterns

This section will explore how the general North County population travels, and for commuters, depend on the transportation and mobility systems for accessing housing and jobs. This section will include an analysis of where people:

- Live and work/study in North County;
- Live in North County and work outside of North County; and
- Live outside of North County and work in North County.

As noted above, understanding the travel patterns within, into, and out of the study area will identify important origins and destinations, important nodes, and key links.

### NORTH COUNTY TRAVEL PATTERNS

As previously shown in Chapter 1, North County is at the center of a mega region that connects the study area to other parts of the region and adjacent counties. When considering this mega region and trips associated with North County, the following is a breakdown of trips:

- |                                   |       |  |      |
|-----------------------------------|-------|--|------|
| • Within Study Area Only          | 69.2% | • Riverside/San Bernardino County (I-15) | 3.3% |
| • Coastal San Diego (I-5)         | 11.7% | • East County/Imperial County            | 2.5% |
| • Inland San Diego (I-15)         | 6.1%  | • Southern San Diego                     | 2.3% |
| • Orange/Los Angeles County (I-5) | 4.8%  |  |      |

Analyzing travel patterns associated with North County shows that a majority of trips that occur are internal to the study area. This highlights the importance of enhancing the transportation network within North County.



Average commute trip length is 10.0 miles.

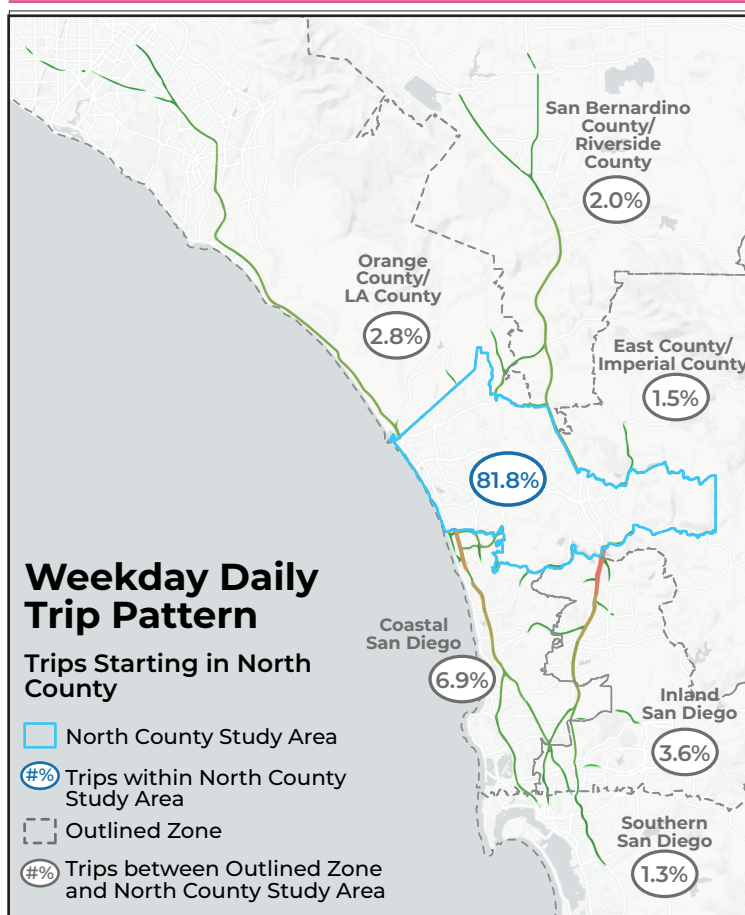


Approximately 70% of all weekday trips associated with North County (either origin or destination), start and end in North County while 15% of trips begin in or end within North County. Of the total weekday trips, approximately 20% of the trips are commute trips. Of the 20% commute trips, 60% of trips occur within the study area while 20% of trips flow into and/or out of the study area. Of the 80% non-commute trips, 70% of trips occur within the study area while 15% of trips flow into and/or out of the study area. For both commute and non-commute trips, a significant majority of trips begin and end within the study area.

**Commute Only Trip**

<b>All Day</b>	<b>Peak AM</b>
<b>1 in 5</b>	<b>1 in 3</b>
of total weekday trips during 24 hours	of total weekday trips during 6am-10am

Figure 2-20: Weekday Daily Trip Pattern for Trips that Start in North County



Source: 2019 Streetlight Analytics

Figure 2-20 shows the total trips within the North County Study Area, and total trips that end in the various regions surrounding North County. When trips start in North County, 82% end within North County. This is followed by Coastal San Diego at 6.9%, the I-15 Corridor (San Diego) at 3.7%, and Orange County at 2.8%.

**Weekday Statistics**

Average of **2.3M trips per day**



**Average Trip Lengths**

Trip Starts or Ends in North County: 11.6 miles

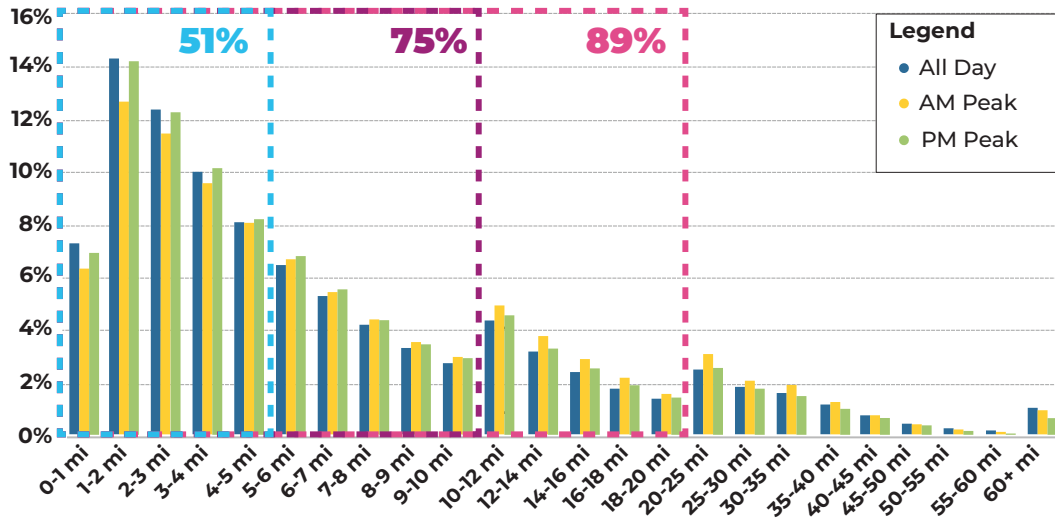
Internal Study Area Trips: 5.3 miles

External Study Area Trips: 25.6

The majority of trips are less than 10 miles, reinforcing that a majority of trips are contained within the study area. About 75% of trips are less than 10 miles, and about 51% of trips are less than 5 miles (see Figure 2-21). The high number of short trips highlights the need for improving local arterials and the active transportation network to provide an opportunity for a modal shift and increasing the efficiency of the transportation network.



Figure 2-21: Travel Shed Weekday Trip Length



Source: 2018 Streetlight Analytics

The majority of trips within North County are to neighboring community demand instead of end-to-end. There are strong connections between the following city pairs:

- Carlsbad and Oceanside
- San Marcos and Escondido
- Vista and Oceanside
- San Marcos and unincorporated San Diego County
- Vista and unincorporated San Diego County

Additional information about the travel patterns in North County can be found in **Appendix R**.

## TRAVEL FROM OUTSIDE OF NORTH COUNTY

Due to its location at the center of a mega region, it is important to also understand travel from other regions into North County.

As the region surrounding North County continues to grow, North County's position as a thoroughway from between the San Diego, Riverside, and Orange counties could become more prominent, thereby increasing the need for more efficient regional transportation through the study area.

For work-based trips:

- » 49% of study area jobs are filled | by people who live outside the study area



*2019 Location Based Service (LBS) transportation data focused on work based travel*

- » 52% percent of North County residents work outside of the study area

*2019 Location Based Service (LBS) transportation data focused on work based travel*



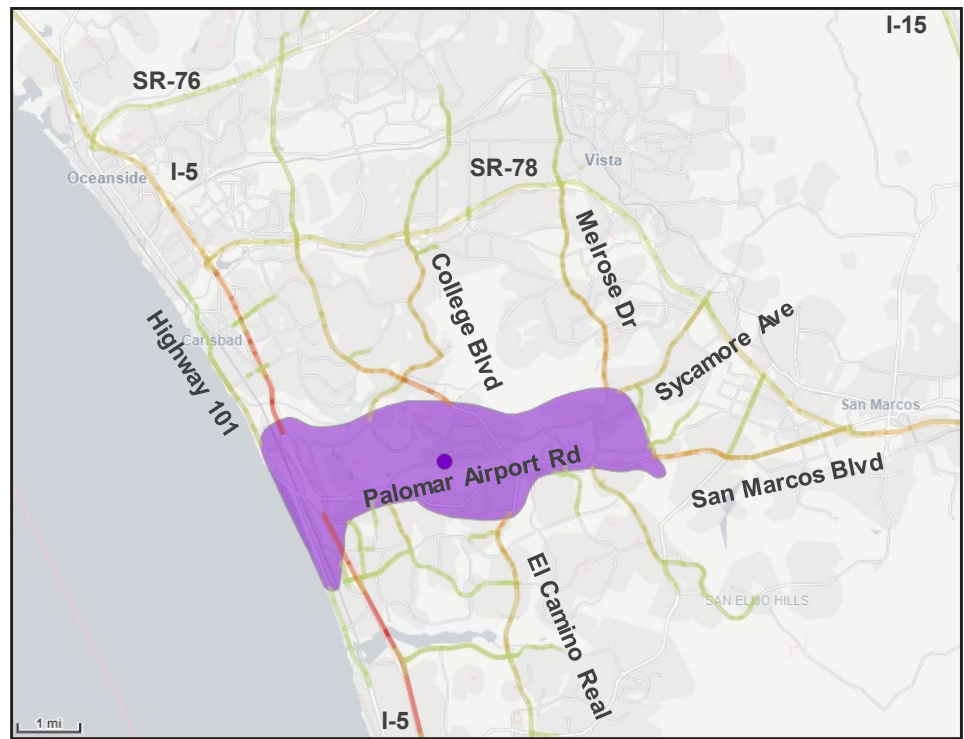
## North County's Mobility Hub Travel Patterns

The following mobility hubs have been identified as important areas in the community with regards to both activity and connectivity. The following is a review of mobility hub “Carlsbad Palomar Mobility Hub” in the North County community and describes the travel demand and top paths to and from the mobility hubs. The travel demand represents the total daily trips to, from, and within the mobility hub. The top corridor paths to and from the mobility hub have also been highlighted to show the roads most heavily used and can provide insight on where access could be improved.

### Carlsbad Palomar Mobility Hub

Carlsbad Palomar is designated as a Tier 2 Employment Center due to its industrial area and the McClellan-Palomar Airport. Additional activity generators in this area include the Legoland Resort and Theme Park. Transit connects in this area via the Coaster Station located along the oceanfront.

Figure 2-22: Top Routes To and From Carlsbad Palomar Mobility Hub



Source: 2018 Streetlight Analytics

Table 2-4: Travel Patterns of Carlsbad Palomar Mobility Hub

CARLSBAD PALOMAR MOBILITY HUB TRAVEL DEMAND		TOP CORRIDOR PATHS TO AND FROM THE CARLSBAD PALOMAR MOBILITY HUB:
Within Mobility Hub	16.8%	<ul style="list-style-type: none"> <li>• I-5</li> <li>• SR 78</li> <li>• El Camino Real</li> <li>• College Boulevard</li> <li>• Palomar Airport Road</li> <li>• Melrose Drive</li> <li>• San Marcos Boulevard</li> <li>• Sycamore Avenue</li> </ul>
Within Study Area	62.5%	
Inland San Diego	5.7%	
Coastal San Diego	19.6%	
Southern San Diego	3.7%	
Riverside County/San Bernardino County	3.0%	
Imperial County/East County	0.6%	
Orange County/LA County	4.9%	

Source: 2018 Streetlight Analytics



## Key Takeaways

The assessment of corridor characteristics can be summarized in the following key takeaways:

- ▲ **Housing, Jobs, and Transportation Network Alignment:** The current housing and job distribution do not align with the key regional transportation network (SR 78 and SPRINTER); instead, they are aligned with North County's arterial network.
- ▲ **Anticipated Growth:** The number of people and jobs within the study area will continue to grow. While the transportation network must be improved to support projected growth, it must also be planned for adaptability should growth occur at a faster pace or in areas not identified as growth hotspots.
- ▲ **Building a Relationship between Land Use and Transportation:** The five cities of North County have already started to mix land uses and activities in concentrated areas (i.e., North County's mobility hubs), where growth hotspots in housing and jobs are anticipated over the next 30 years. By 2050, the concentration of activity and planned future activity in North County's mobility hubs will house 43% of North County's population, continue to site two-thirds (67%) of jobs, and will experience an increase in low-income (54%) and senior (40%) populations.
- ▲ **Predominant Travel within Study Area:** The analysis of travel patterns in the study area shows that a majority of trips that start in North County also end in North County highlighting the need to improve the transportation network within the study area.

North County will have challenges in the future as the population continues to grow not solely related to commuter travel. In fact, the data shows that the majority of trips within and through North County are not related to commute travel. The North County transportation network needs to serve a variety of trip types that include, but are not limited to, commute trips, recreation/social trips, and other family/personal errands. North County's transportation system will need multiple solutions to serve the diverse needs within the community. The high percentage of total trips that occur within the study area and the alignment of North County's arterial network present an opportunity for mobility investments along these corridors to improve efficiency in moving high volumes of people within North County and to the regional rail and highway corridors.

# 3 MOBILITY ASSESSMENT

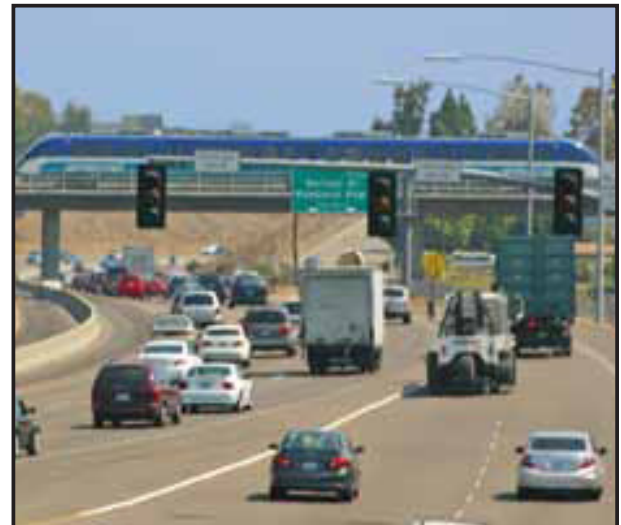
*Chapter 3 assesses the transportation system deficiencies and their influence on mobility within the subregion. Combining regional/state goals, corridor context, and assessment of the network helps define North County's key opportunities and constraints related to improving quality of life and meeting the mobility needs of the communities in the subregion.*



### 3 MOBILITY ASSESSMENT

North County’s Mobility Assessment begins with understanding two underlying challenges of the transportation network in the subregion: **connectivity** and **land use patterns**. These two challenges impact users, communities, and local jurisdictions throughout the subregion by creating longer travel times, gaps in modal networks, the need for single-occupancy travel, congested facilities, unreliable transit, and limited travel choices to access North County’s key destinations.

This chapter will detail the impacts of connectivity and land use patterns on the transportation network to inform strategies that will address the needs of the subregion. Additional information about the existing transportation network can be found in **Appendix E**.



SR 78 Freeway

Source: City of San Marcos' Mobility Element

The Mobility Assessment is organized as follows:

#### User Experience



Feedback and results from the engagement and collaboration process defined in Chapter 1 including:

- Anecdotal experiences identifying a symptom or series of symptoms resulting from key underlying challenges of the transportation network
- Technical and stakeholder feedback on transportation and mobility needs

#### Transportation System Assessment



There are two underpinning areas of function and policy that contribute directly to how the transportation system ultimately performs: connectivity and land use patterns. These two areas are where the challenges of the transportation system exist and create resulting outcomes on the transportation network.

This portion of the chapter focuses on the technical review of existing evidence on the performance of the system—based on inputs from both the engagement and assessment practices.

## User Experiences in North County

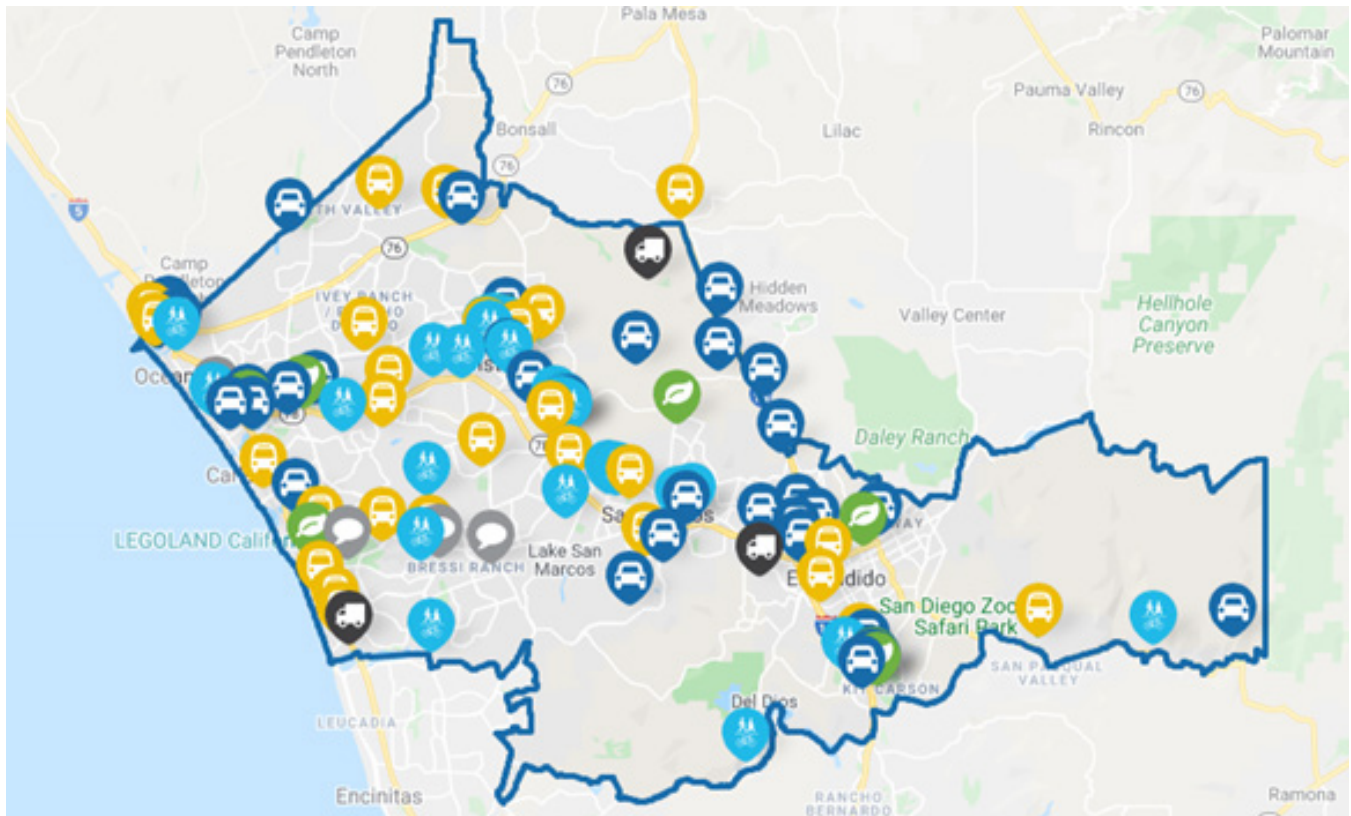
User experience starts with the users themselves. **Anecdotes and experiences were shared by North County users throughout the development of the CMCP**—stakeholder meetings, public meetings, Social Pinpoint website, and online surveys created to gather input on transportation concerns, priorities, and ideas for North County.

This section explores the input and feedback provided by North County users across the study area’s communities and the variety of transportation experiences.

**An Engaged North County**

North County’s CMCP received over 1,000 survey responses were received or from people/community members throughout the subregion.

Figure 3-1: Interactive Map on North County CMCP Social Pinpoint Virtual Engagement Hub



Participants and respondents noted their experience with transportation in North County through the virtual engagement hub. Below are the key themes identified from the responses.

- Major interchanges are congested and noisy
- Residential and employment centers are dispersed across North County
- Short distance trips are difficult to make around the major roads and freeways
- Access to transit stations and stops is difficult
- Lack of east-west transit routes and unreliable (low-frequency) service
- Connections across freeway and railroads are difficult for people who walk or bike
- Congested street and highway networks
- Limited choices for different users (e.g., seniors, students)



## Public Responses and Experiences

Below are some key insights from the public regarding the range of transportation challenges, concerns, and needs—including infrastructure, process, and resources issues.

“Congestion in both directions for SR 78 between the SR 78/I-15 interchange and Rancho Santa Fe Road exists consistently... this is one of the worst stretches of freeway in the country.”

“COASTER and BREEZE service needs to run more often...catching the train or bus becomes a major project rather than providing freedom of movement.”

“76 is the main route for Southern Riverside County workers to get to San Diego jobs.”

“I live 0.6 miles from a shopping center and there is no safe, reasonable way to walk there.”

“Take into account retirees' use, which is different from commuter use. Older adults will continue to drive if there are no other options...”

“One huge priority to me has been able to have some type of bench and shade at our bus stops. And also have some type of night light stop locations at for safety of the community.”

“Streets are designed for minimal walkability and are auto-centric.”“Destinations are too far apart.”

“I would love to see faster/more frequent SPRINTER service. I live within walking distance of a Sprinter station but never use it because it only runs every 30 minutes and does not serve Downtown Carlsbad.”

“I work in this industrial park and I take the bus to the Coaster station. It is really dangerous that there are no sidewalks on any of the streets around North County.”

It does rain in San Diego County. There are few transit stops with overhead protection.

“Congestion is the #1 reason I do not shop or engage in local community/most of the county. It simply takes way too long to get anywhere and it's not pleasant. Not worth leaving home.”

“Too many delays.”

“The westbound SR 78 to I-5 southbound is difficult to get through and needs to have a completed interchange.”



## STAKEHOLDER AND TECHNICAL WORKING GROUPS: EXPERIENCES AND CONCERNS

The working groups communicated their insights regarding the range of transportation challenges, concerns, and needs—including infrastructure, process, and resources issues:

Existing land use adjacent to transit limits effective access and ridership

Leveraging agency resources/efforts to support future city developments

Preparing for evolving vehicle (Bus and SOV) fleet technology

Balance of long/mid-term planning and short-term operations given limited resources

Preparing for future growth and development

Barrier type impacts of I-5, SR 78, I-15 LOSSAN and Sprinter corridors

Improvements for shorter internal trips

Limited or unavailable first- and last-mile connectivity solutions to transit Gaps and barriers as modes come together – in a disjointed, chaotic manner Weak timely east-west alternatives – competitive to vehicles

Complete Inland Rail Trail

Limited connectivity options to Valley Center

Safe and comfortable Active Transportation

Impacts of Riverside to Western side of North County traffic flow on communities

Congestion on SR 78 and SR 76

Competitive access to employment/education and health destinations for social equity focus communities

Technology upgrades and cross agency integration of technology

Regional traffic impacting local communities (at modal interfaces)

Improving connectivity to key local and regional destinations (such as Camp Pendleton, coastal destinations in Oceanside/Carlsbad, Cal State San Marcos)

Support for mobility zone improvements and/or evolving corridors such as Coast Highway, Oceanside Boulevard and Centre City Parkway



## Corridor Performance Assessment and Related Outcomes

The North County corridor performance assessment intends to determine the magnitude of the transportation and mobility challenges for North County’s users through a technical review of transportation data. Where subsequent sections explore the nuances as to how and why the conditions of North County led to deficiencies in the system, this section focuses on the principal metrics that directly relate to transportation system performance:

- **Safety**
- **Travel Time**
- **Mode Share**
- **Vehicle Miles Traveled**
- **Reliability**

### PERFORMANCE ASSESSMENT: SAFETY

Over the last 10 years, there have been more than 50,000 documented collisions in the subregion, resulting in 390 fatalities and over 1,000 serious injuries. Analyzing the collisions that resulted in fatalities and serious injuries in more depth demonstrate that:

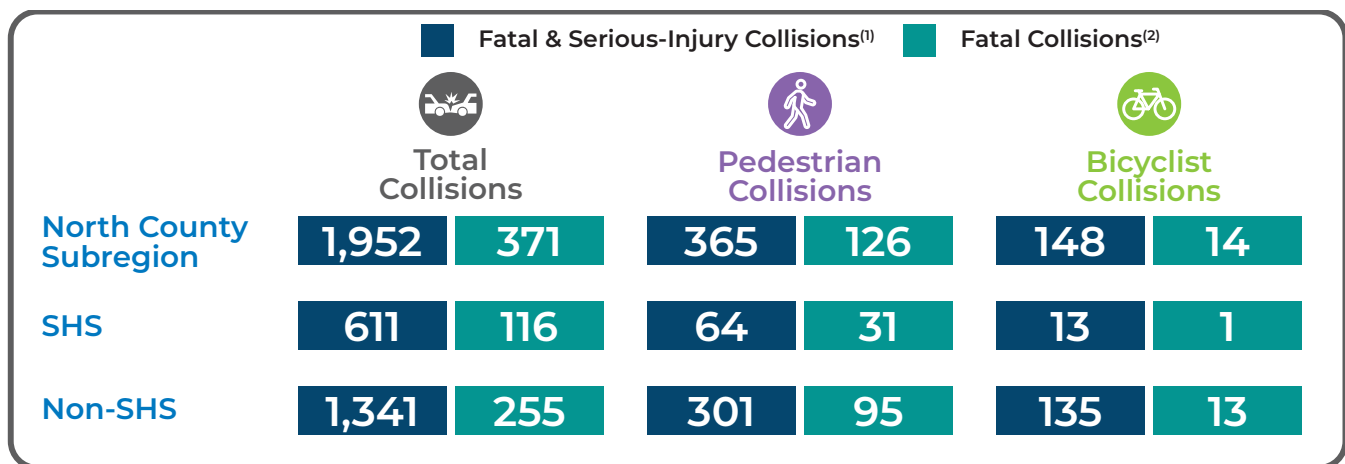
- Despite recent advances in vehicle technology, fatal and serious-injury accidents have not decreased due to several factors, including increase in distracted drivers or more frequent interaction between vehicles and cyclists/pedestrians;
- Unprotected users—pedestrians, bicyclists, and scooters—account for approximately 38% of the fatal collisions in the study area; and
- Despite the freeway system (State Highway System [SHS]) carrying large volumes of users at high speeds, almost 70% of the serious collisions occurred on city streets and 30% of those occurred in intersections.

**Collisions affect all road users, those involved in the collision and the other road users delayed. Improved safety will mean an improved transportation experience for all users of the transportation system.**



Additional information regarding the safety analysis results can be found **Appendix M**.

Figure 3-2: Study Area Collision Summary for Serious and Fatal Collisions

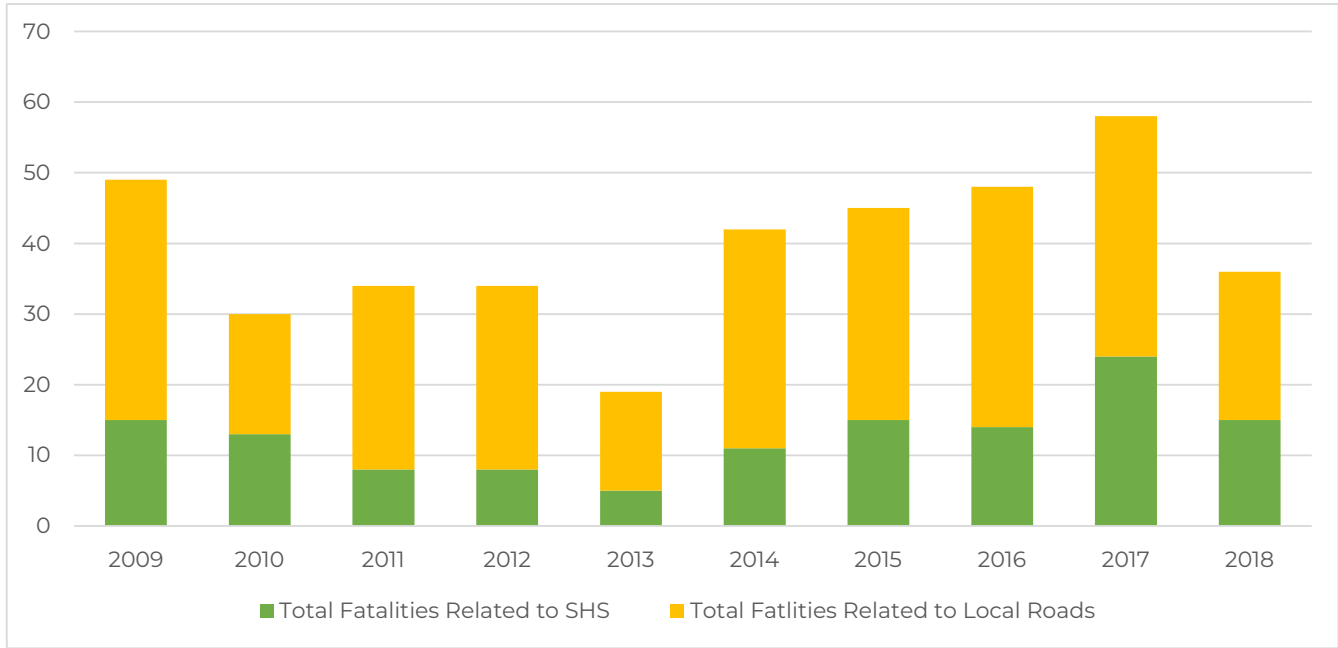


Source: (1) Transportation Injury Mapping System (TIMS) 2009-2018 (2) FARS 2009-2018



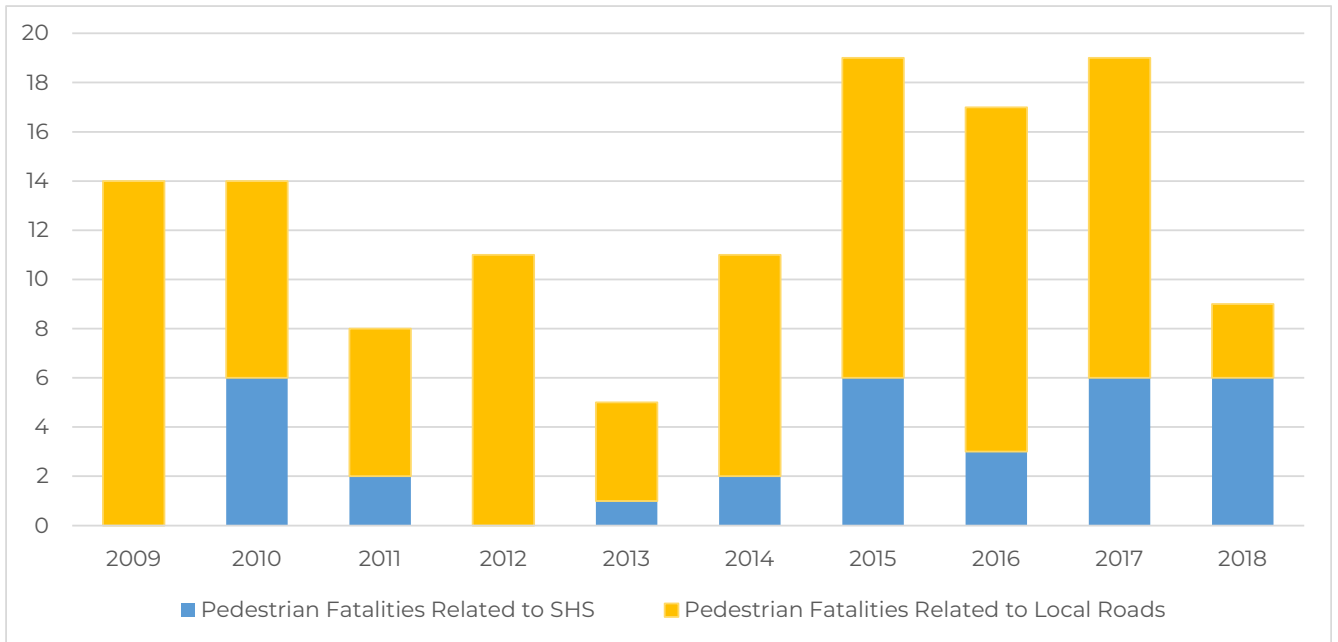


Figure 3-3: Fatalities Related to State Highway System (SHS) and Local Roads in Study Area



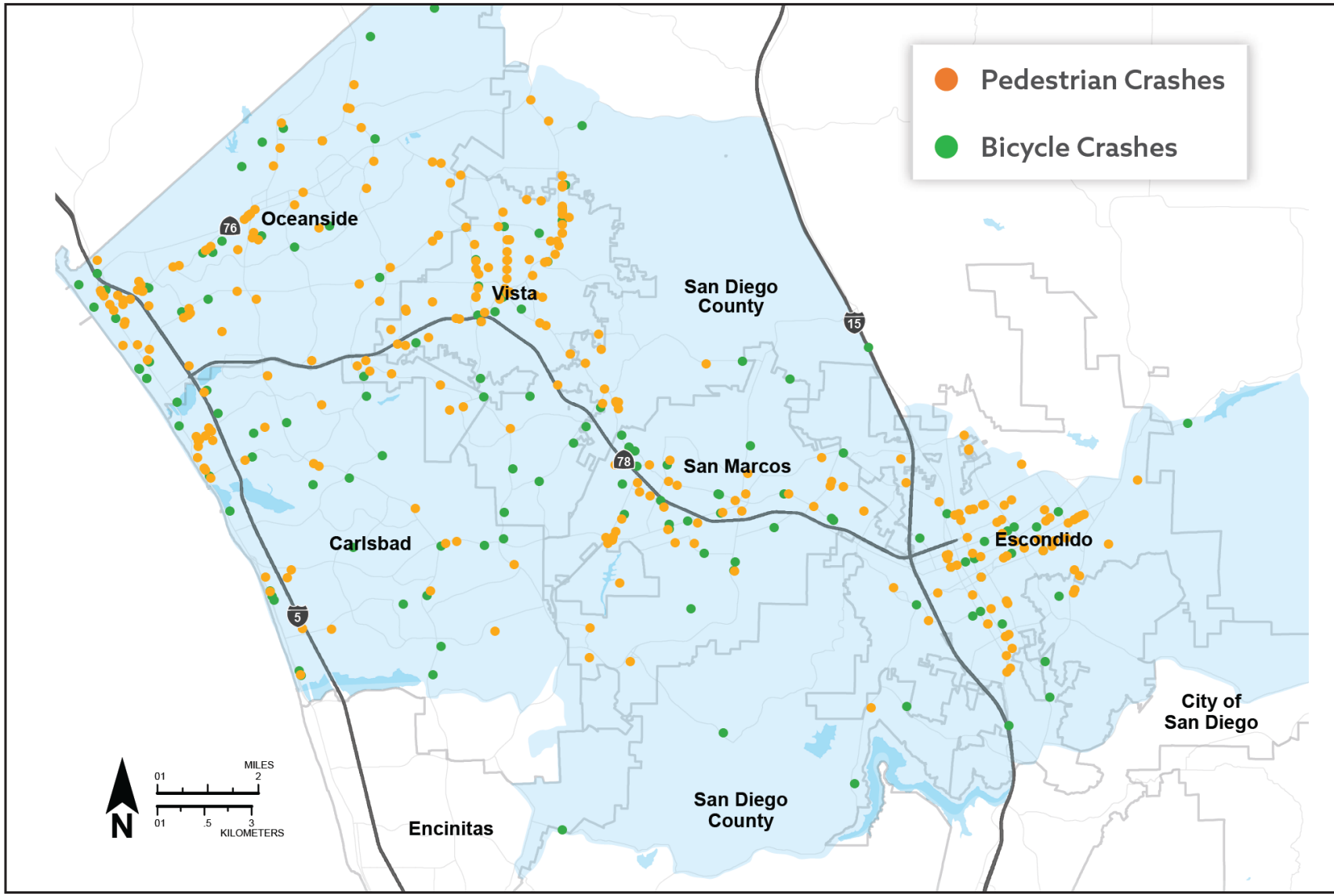
Source: Fatality Analysis Reporting System (FARS) 2009-2018

Figure 3-4: Pedestrian Fatalities Related to State Highway System (SHS) and Local Roads in Study Area



Source: FARS (2009-2018)

Figure 3-5: Study Area Local Roads Fatal and Serious Injury Collision (Pedestrians and Bicycle)



Source: TIMS (2009-2018)



## PERFORMANCE ASSESSMENT: TRAVEL TIME

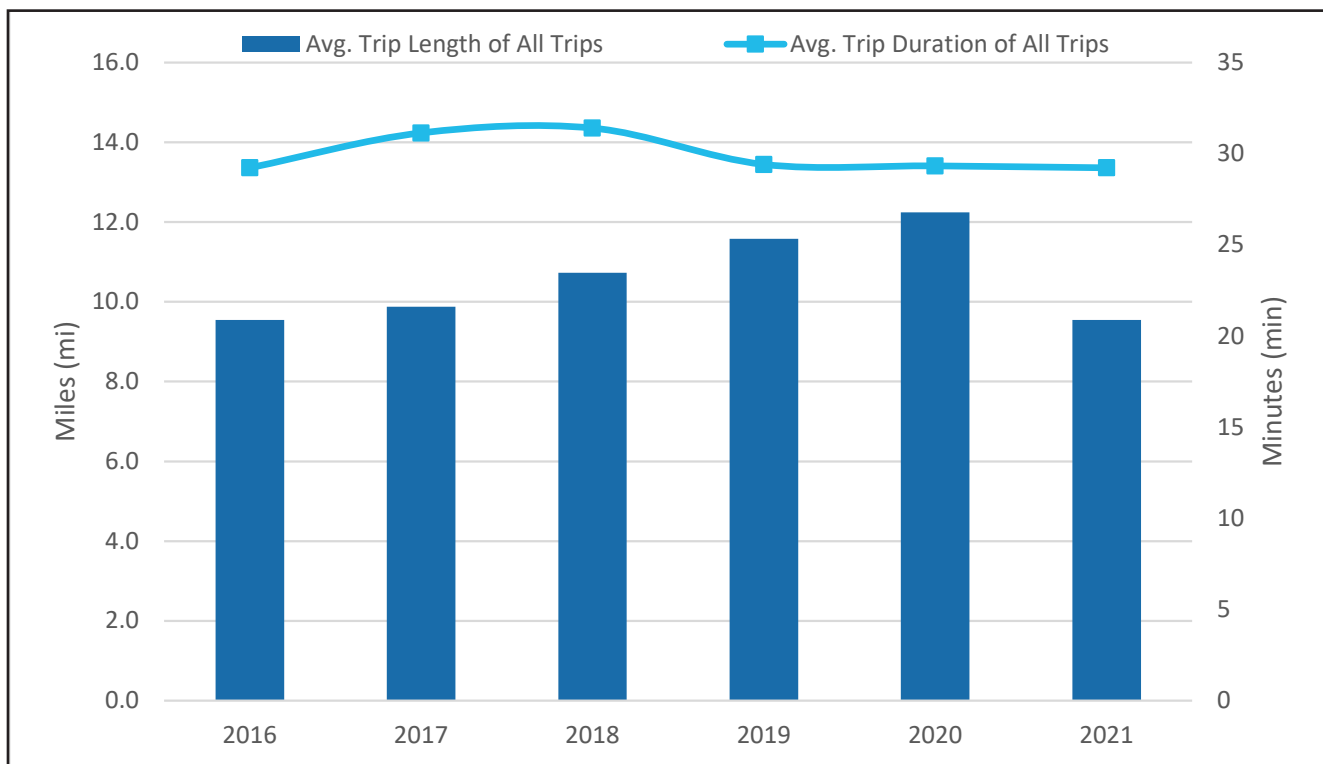
Total travel time is a key performance metric that captures the total “door-to-door” time spent traveling to work, school, shopping, and recreation. Travel time is a metric that can compare the competitiveness of various modes and the impact transportation has on a community’s quality of life. Additional information about travel time in the subregion can be found in **Appendix T**.

Travel time is influenced by a range of factors including:

- Length of trip
- Frequency of travel
- Congestion
- Transit frequency
- System reliability
- First and last mile accessibility

For trips starting and ending in the North County subregion, travelers spend 1.3M hours travelling a day—this equates to two (2) hours per capita. Prior to COVID, **trips to and from work were approximately 15 miles long and 30 minutes in duration**. While trip length and duration has decreased since the onset of the pandemic due to new trends, such as working remotely, it is still to be seen whether trip lengths and durations will return or even outgrow trips taken prior to COVID-19. For example, there are several studies showing that there is more trips being taken at peak times because people working from home are taking more trips and doing so at rush hour times, thereby leading to more congestion. The growth in North County has increased the demand on the transportation system and resulted in congestion. Between 2015 and 2019, North County trips had an average increase of two minutes in travel time. Congestion hot spots are highlighted in **Figure 3-6** and detailed in **Appendix P**.

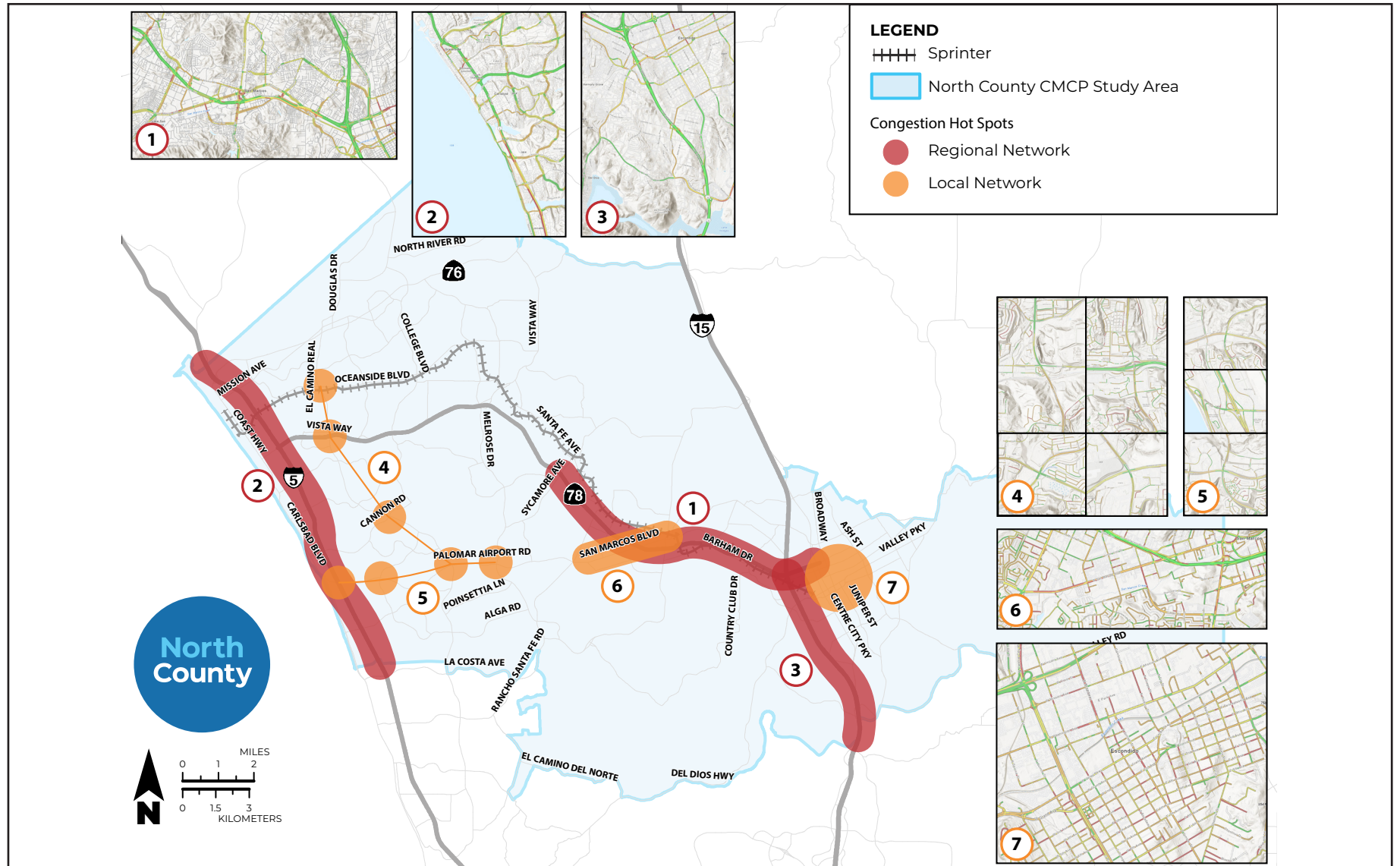
Figure 3-6: Annual Estimated Trip Length and Trip Duration



Source: Streetlight Analytics



Figure 3-7: North County's Congestion Hot Spots (March 2019)



Source: HERE, Esri; Caltrans District 11 Mobility Performance Report (Quarterly Reports, 2019-2022)



## PERFORMANCE ASSESSMENT: MODE SHARE

The predominant mobility option in the study area used to commute to work<sup>12</sup> is driving alone (Figure 3-8). Approximately 79% of residents reported driving alone as their commute method for work, followed by carpooling (8 percent), and working from home (7%). Active transportation and transit comprise about 4% of people’s commute choice, demonstrating that these options are not competitive with driving alone. For all day trips, Figure 3-9 shows the mode split where driving is the preferred mode but distributed: 47% driving alone, 44% carpooling, with active transportation and transit comprising of 8%. A summary of mode share data be found in Appendix O.

Figure 3-8: Mode Distribution – Means of Transportation to Work (2019)

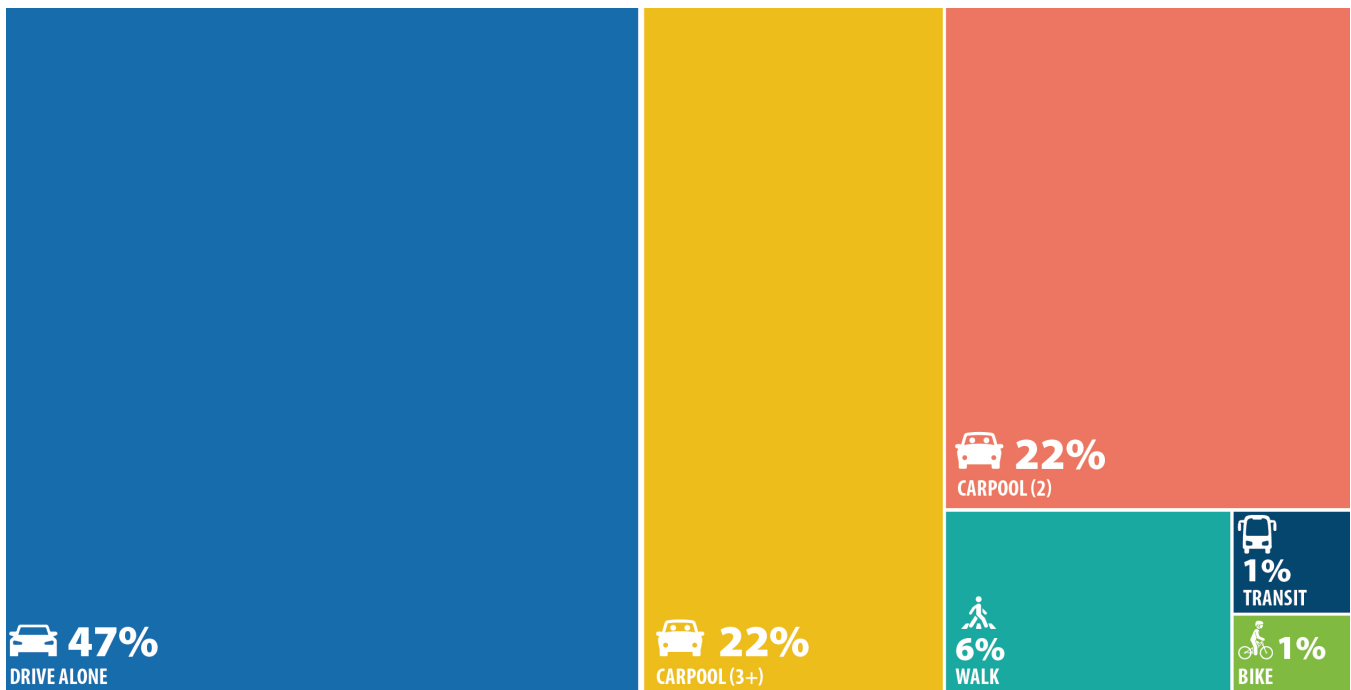


Source: American Community Survey (ACS) 2019 5-Year Estimates

<sup>12</sup> Forecasted mode share will include commute and all-day mode splits.



Figure 3-9: Mode Distribution – Means of Transportation for All Trips (2016)



Source: SANDAG Regional Model, DS 39 Model Estimates

In terms of daily trip volume, below are a few examples of key corridors/services within North County from 2019:

**Highways**

- SR 78 – 140,000 trips
- SR 76 – 47,000 trips
- I-5 – 220,000 trips

**Arterials**

- Palomar Airport Road – 60,000 trips
- El Camino Real – 56,000 trips

**Transit**

- COASTER – 5,100 Boardings
- SPRINTER – 7,800 Boardings
- Breeze Route 301 – 2,300 Boardings
- Breeze Route 303 – 3,100 Boardings
- Rapid 235 – 5,800 Boardings



## Performance Assessment: Vehicle Miles Traveled (VMT) Growth

VMT can be calculated and monitored using two methods—each providing insights on how infrastructure and operational improvement influence North County.

- » **Trip Origin/Destination Based** – Sums total lengths for trips starting or ending within a study area. This method includes distance traveled outside of study area but does not account for trips going “through” the study area.

*Will be used as the primary method throughout the CMCP with the exception of greenhouse gas emissions.*

- » **Trip Segment Based** – Sums the lengths of trip segments within study area boundaries. This method does not include distance traveled outside of study area but does account for trips going “through” the study area.

*Was used in this CMCP to assess greenhouse gas emissions.*

For the existing transportation system, prior to the COVID pandemic, North County saw daily vehicle miles traveled (VMT) of 26.6 million. North County’s VMT dipped to 21.1 million in 2020 before rebounding to 24 million in 2021. Analyzing in more depth North County’s 2019 trips VMT data<sup>13</sup> revealed the following:

- Trips entirely within North County account for a smaller share (30%) of the VMT when compared to the share (70%) **of trips starting or ending within the study area.**
- Trips from the neighboring regions of Coastal San Diego, Inland San Diego, Orange/Los Angeles, and Riverside/San Bernardino contributed more than 66% of the VMT.
- Emerging from the pandemic, the share of VMT from longer distance trips from outside San Diego County dropped by almost 45% (i.e., trip accounted for ±26% of VMT in 2018 to ±14.5% in 2021)—most likely due to jobs changes, retirements, and work from home options.
- By 2050, VMT will increase. This shows economic growth happening within the area and subregions to North County.

*VMT is affected by mode split, length of trips, and frequency of travel. VMT can be reduced by **improving the competitiveness of alternative modes and by better aligning housing, employment, and other key destinations.***

*More opportunities to live and work within North County reduce trip length and consequently reduce VMT.*



Additional information about the VMT analysis performed for the subregion can be found in **Appendix Q**.

<sup>13</sup> Total VMT includes all miles for the vehicle-based trips—both outside and within study area boundaries—and does not include transit or active transportation trips.




### VMT by Internal vs. External Trip Types

With North County performing better than expected, the next step is understanding how different types of trips contribute to VMT performance and identify the markets/trips that can help reduce VMT per capita today and as the subregion grows into the future.

*Internal Trips 70% of Trips | 30% of VMT → Shorter trips and lower VMT*

*External Trips 30% of Trips | 70% of VMT → Five times longer than internal trips*



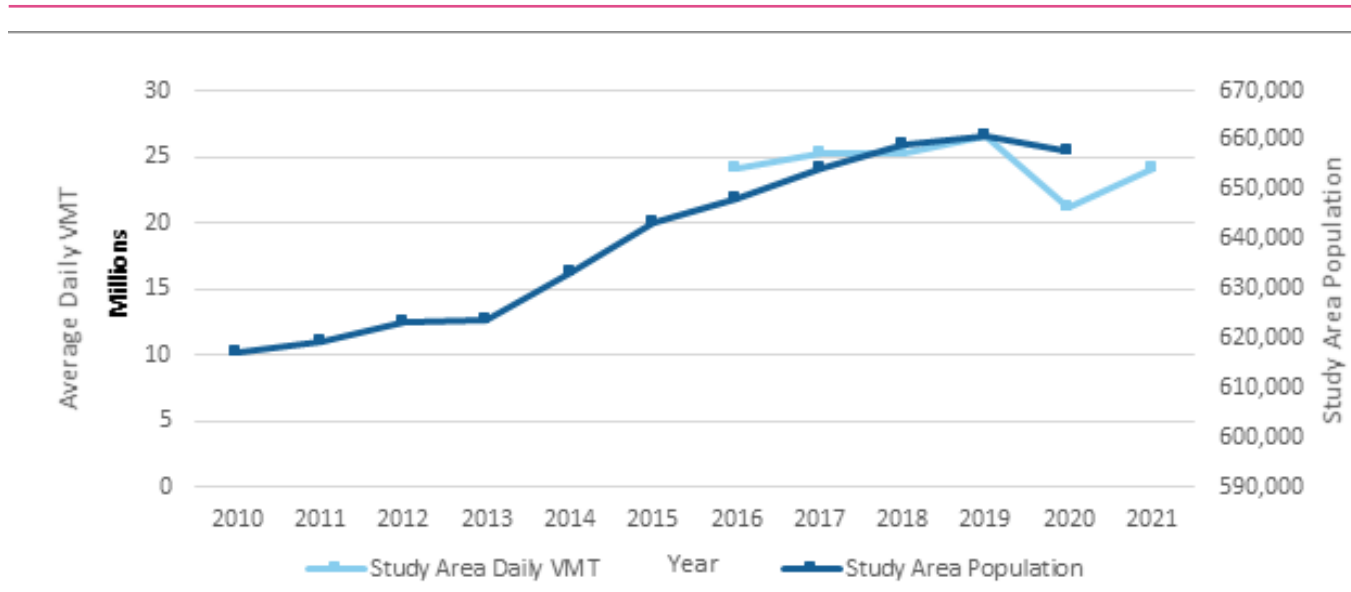
With external trips on average being five times longer the internal trips, the following can be inferred on trip length alone:

- External trips have the “higher” opportunity to reduce per capita VMT today when switching to other modes
- The percentage of internal trips needs to increase higher than 70% needs to grow higher than 70% to reduce average trip lengths and have more multimodal options to travel

### VMT, Population, and Employment

**VMT can be paired with total person trips, population or employment growth to ensure that VMT is placed into the larger subregional context.** Having lower VMT alone isn't a positive indicator—for example, lower VMT could be a result of fewer trips due to a pandemic, economic recession, or other macro-level influences. However, if VMT is lower and total person trips are higher, this can be indication of a more efficient travel (e.g., shorter trips, improved mode share) or other factors leading to fewer vehicular trips. below is an example of how daily VMT can be tracked with population over time—along with a graph on how total trips along SR 78 compares to population.

Figure 3-10: Daily VMT and Population Over Time (2010 – 2019)



Source: Streetlight Analytics





**Figure 3-11** and **Figure 3-12** represent the average employee and resident (respectively), non-commercial, vehicle travel made on an average weekday. Both figures show in shades of green locations (i.e., census tracts) where the VMT is 50-85% of the Regional Mean—a large portion North of SR 78 and in Escondido. For North County residents, the areas shaded in green coincide with North County’s activity centers and the region’s potential mobility hubs/zones. These figures illustrate how North County performs better than the region for VMT per employee and similarly to the region for VMT per capita.

North County having lower VMT per capita and per employee, is consistent with subregional context characteristics: a well-contained area with all types of development—urban, suburban, and rural—providing shorter distance travel than the greater San Diego Region. The improved balance between housing and employment over the last 20 years results in improved VMT performance of North County.

Figure 3-11: SB 743 Maps by Employee

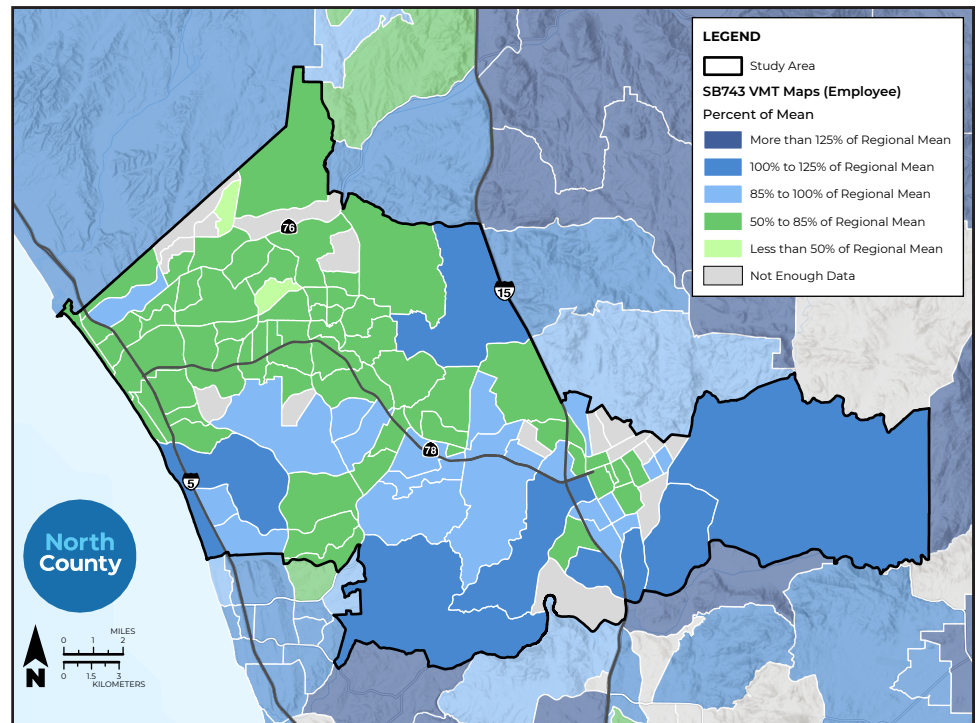
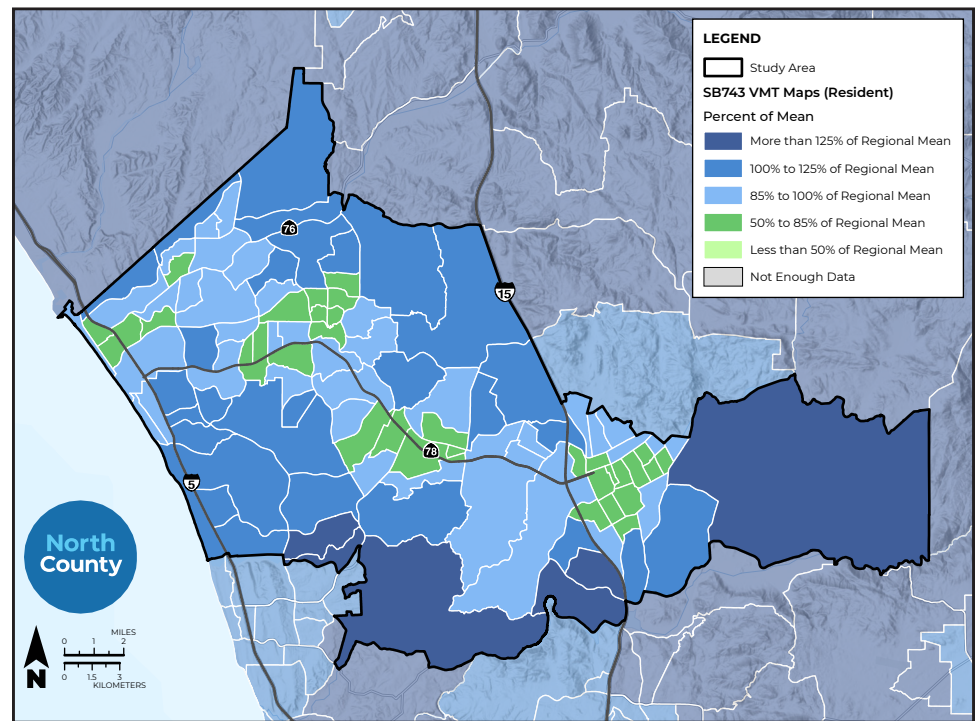


Figure 3-12: SB 743 Maps per Capita





## PERFORMANCE ASSESSMENT: SYSTEM RELIABILITY

Travelers build buffer time into their total trip time (“planned trip time”) to account for disruptions like roadway conditions, weather, construction, crashes, special events, and unexpected traffic. Consistent travel time can be planned for travelers by adjusting their departure times for trips that may take longer than usual—creating greater assurance of on-time arrivals.

If traffic conditions are volatile (or transit times are perceived to have poor on-time performance and travel time), travelers will budget even more time to their trip—taking away from other priorities—or not take the trip at all. The inability to rely on the transportation system for consistent travel creates an unreliable and untenable transportation network.

Long travel times, indirect bus routes, and delays, coupled with the limited and indirect transit routes, create a perception of unreliability of the existing transit system. These inconsistent roadway conditions affect NCTD’s Breeze bus service where on-time performance was 88% in 2019—further limiting the effectiveness of transit as a reliable option.

On the other hand, SPRINTER has a great on-time performance of 98% in 2019; however, the service is limited by single-track rail for over half of the corridor. The lack of two tracks across SPRINTER results in lower frequency and thereby longer door-to-door travel times.

Transit service is generally reliable, but with lower service frequency; therefore, users may spend more time waiting if transit schedules do not match their departure/arrival times. This is in contrast to users’ experience with freeways—where travelers can access the freeways whenever they like but high traffic volumes and collisions can lead to unpredictable, unreliable travel times requiring more “planned travel time.”

*On SR 78 and major arterials, travel times can vary by almost twice the “free flow” conditions.*



### Reliability Example: Travel from downtown San Marcos to downtown Escondido

- » Via SR 78 can take 12-24 minutes in the afternoon rush hour—requiring a planning time of at least 25 minutes
- » SPRINTER can take 15 minutes reliably (with 98% on-time arrival) but has only 30-minute frequency—therefore planning time for the trip would be at least 30 minutes





## Structural Challenges and Observations

The performance assessments above highlight the range of current performance in the corridor. The transportation system challenges are not limited to a single facility, a single mode, traveler types, or specific communities; root causes are not isolated to any one issue. It is a combination of interrelated factors that lead to the the mobility experience of North County's communities and users.

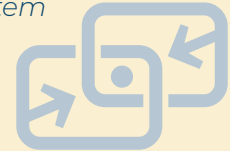
From the above performance assessments, this CMCP has the following observations:

- **Users Spend Too Much Time Traveling** – Longer trips, congestion hot spots, and traffic spillover contribute to longer travel times.
- **Improved Facilities and Operations Management are Needed to Reduce Collisions** – North County needs transportation facilities that are safe for all users to travel on to reduce collisions (and their severity) on highways and arterials.
- **Current Transportation System is Unreliable** – Users see the transportation system being unreliable because of inconsistent service, congestion, and unpredictable travel times.

The underlying infrastructure challenges that directly influence the transportation and mobility outcomes in the North County corridor can be summarized:

- **Challenge #1 - Land Use Patterns** – Due to significant growth over the past 30 years and previous General Plan land use practices, much of the development (commercial and residential) was unmixed/separated creating the need for longer trips on North County's roadways.
- **Challenge #2 - Regional Facilities are Not Aligned with Major Employment Centers** – Many large employment centers are miles away from regional transportation facilities further exacerbating network congestion.
- **Challenge #3 - Connectivity Gaps/Barriers in the Transportation Network Means Less Choices for Traveling** – Gaps in the transportation network (infrastructure or service) leads to diverted trips to other facilities.
- **Challenge #4 - Transit is Difficult to Access and Use in North County** – Hard-to-access or declining transit services limit the potential for transit to play a larger role in improving mobility for North County.
- **Challenge #5 - Major Arterials Serve More Trips Because of Limited North-South Regional Options** – Arterials provide critical connections both east-west and north-south. With only the I-5, I-15, and Coaster/Amtrak providing north-south regional travel options, major arterials provide the conduit of services to connect travelers to their end destination within and outside of North County.

**Land Use and Connectivity** are the underlying infrastructure challenges that contribute to the transportation experience in North County. The interplay between the two influence how the entire transportation system performs and successfully meets the future needs of the subregion.





## CHALLENGE #1: *LAND USE PATTERNS*

There is a unique relationship between transportation and the built environment. Where connectivity is the relative location of a person or user to a destination, land use patterns facilitate:

- Proximity of trip origin and destination
- Ease of accessing transportation options

Density, clustering, mix, and size of land use types determine where people travel and the number of trips (short and long) they are likely to make. In turn, the design and function of the transportation system affects the ease of mobility for neighborhoods and communities throughout the subregion. The relationship between land use and transportation impacts preferred travel options to get to work, school, the coast, recreational opportunities, and other key destinations as well as future development and growth. For example, low-density of land use activity (i.e., residents and jobs) make it difficult to efficiently operate high-frequency transit to serve the low-density land use.

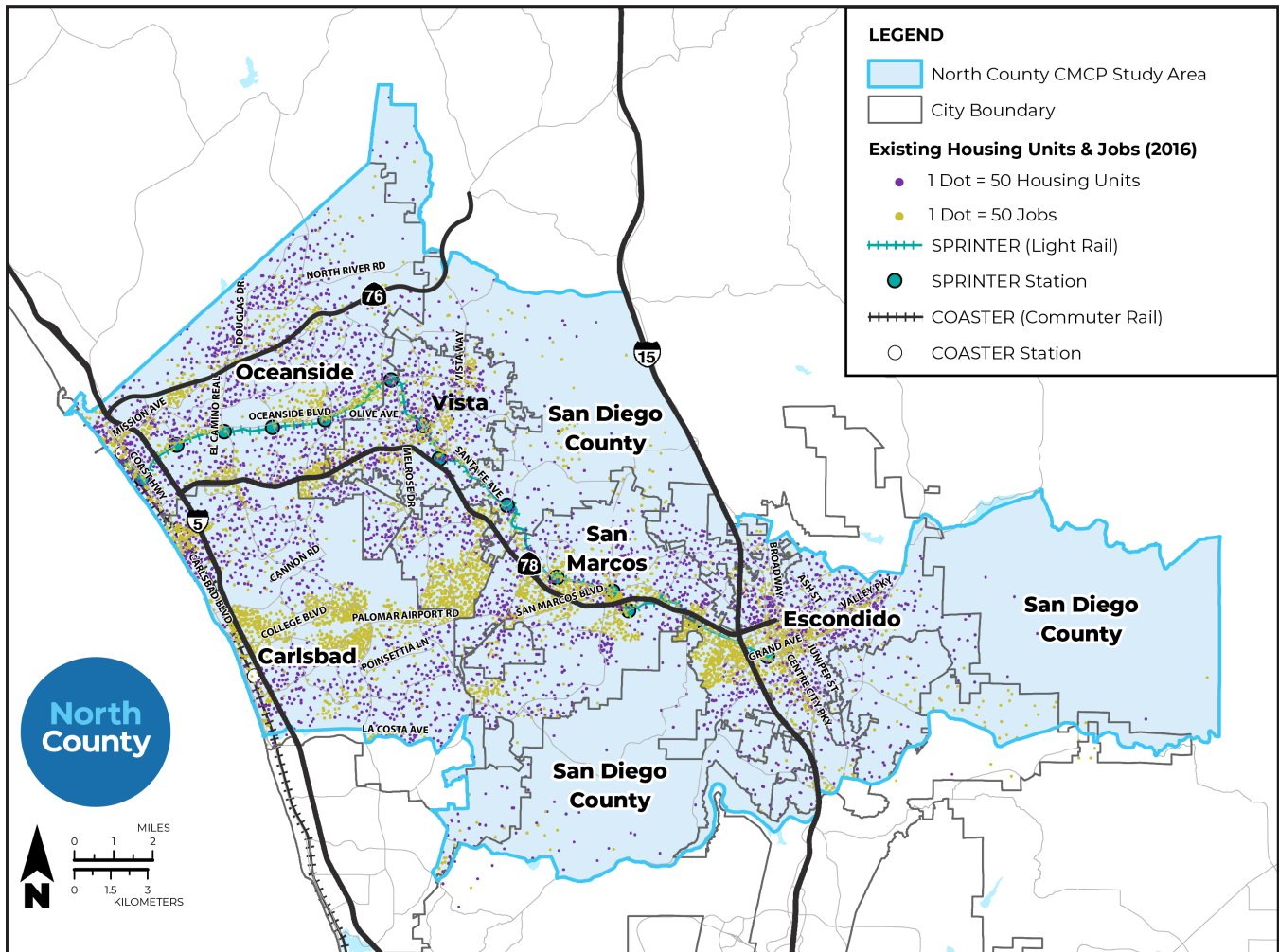
Two key factors regarding land use's influence on transportation are:

- Need for more housing types, affordability, and availability
- Increasingly specialized workforce requiring matching opportunities

North County's transportation system symptoms and deficiencies are intensified by the subregion's significant growth (49% increase in population) over the past 30 years. Development of employment centers and communities were unmixed—and accelerated to keep pace with the growing demand. The resulting land use patterns produced an increasing demand on transportation facilities and longer trips.

**Figure 3-13** shows existing housing units and jobs in the subregion. There are large concentrations of jobs in certain areas while housing units are distributed across the subregion. This highlights that housing is physically separated from jobs, making it more difficult to promote walking and biking to and from work.

Figure 3-13: Existing Housing and Jobs Dot Density



Source: SANDAG DS39 Forecast Estimates (2021)

The subregion developed in a suburban manner between 1990 and 2010 resulting in **single-family residential units, commercial strips, and business parks**. Over the last 10 years, North County has seen more transit oriented, mixed-used developments.

Over the last 30 years, the transportation network was localized (adjacent to development) to support the growing land use activity and implemented “immediately” while larger infrastructure required more time to be implemented and utilized by travelers. As mentioned above, the results are the transportation symptoms experienced by users today.

The following factors seen in land use influence the transportation performance experienced today:

- Lower-density development
- Separation of land use types (e.g., residential homes being separated from employment centers)
- Lack of widely available alternative work schedules, telework, and remote work options
- Lack of affordable housing
- Fragmented planning and project coordination across agencies and modes
- Specialized, centralized employment areas in the region



## Affordability in Housing Land Use

Travel demands and patterns are influenced by where people choose to live; however, that choice is greatly influenced by housing affordability<sup>14</sup>, followed by the proximity of jobs and destinations and transportation costs. As the areas near transit and employment areas become higher in demand and less affordable, many people are compelled to move further away from employment centers and transit-rich areas. When this occurs, people encounter higher transportation costs and longer commutes, resulting in increased VMT.

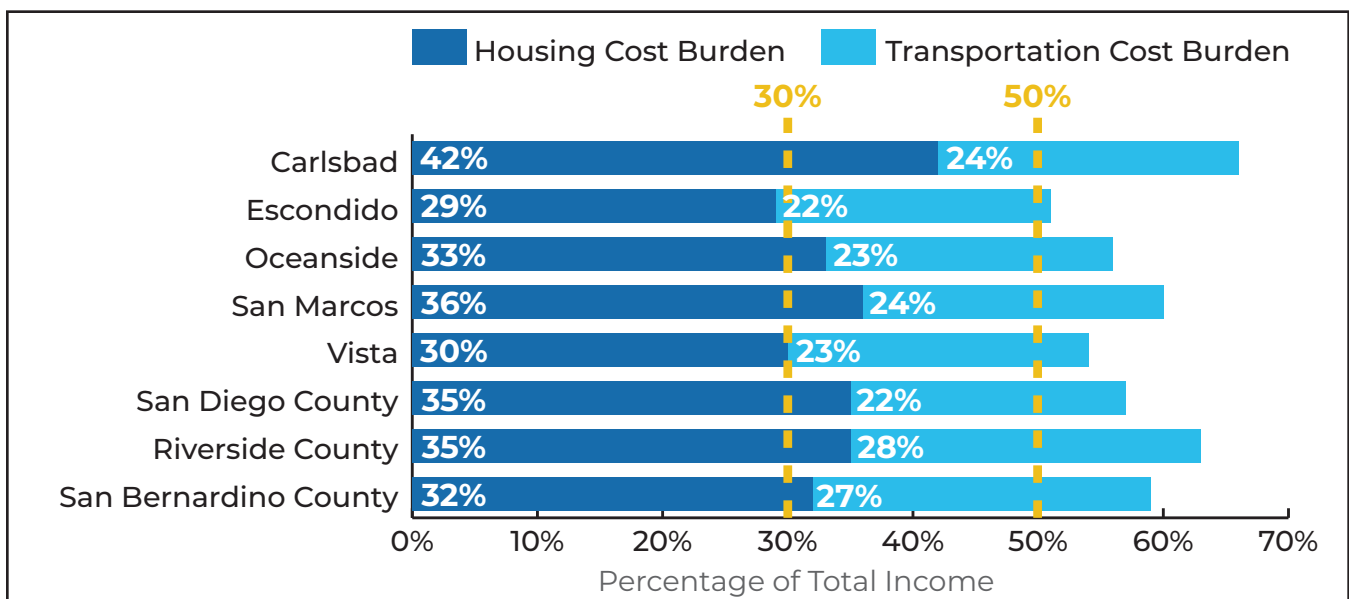
**Figure 3-14** shows both a 30% and 50% threshold to demonstrate the average housing and transportation cost burden of cities in the subregion compared to the counties of San Diego, Riverside, and San Bernardino. Only Escondido has a housing cost burden below 30% of income in the subregion. Combined with transportation cost burdens, none of the areas are below the 50% threshold. Housing costs and supply particularly affect underserved communities and population groups such as low-income households and seniors.

The market is seeing many residents moving to more inland areas of San Diego County and even relocating to Riverside County and Mexico for more affordable housing sales.



The lack of affordable housing choices can lead to over-commuting due to households moving further from job centers and transit-rich areas in search of lower housing costs.

Figure 3-14: Average Housing and Transportation Cost Burdens



Source: Center for Neighborhood Technology (CNT), Housing and Transportation Affordability Index

As stated by San Diego Urban Land Institute in their 2022 Real Estate Trends Report<sup>15</sup> :

*“Traffic congestion eased in the San Diego region due to employees working at home during COVID-19 but have returned to pre-pandemic levels, and acceptable commutes will again dictate where housing is needed. Many San Diegans opt to relocate to Riverside County and Mexico for more affordable for-sale housing options.”*

<sup>14</sup> Housing affordability is widely accepted as paying no more than 30 percent of income towards housing costs. However, there is no official affordability definition for housing and transportation costs combined.

<sup>15</sup> <https://sandiego-tijuana.uli.org/resources/regional-trends-report/>



## CHALLENGE #2: REGIONAL FACILITIES ARE NOT ALIGNED WITH MAJOR EMPLOYMENT CENTERS

Several regional transportation facilities crisscross the subregion and provide connectivity to areas outside of North County. While North County regional facilities provide connectivity to all cardinal directions through the subregion, they bypass many of the major activity generators that attract both local and regional trips. Because of this misalignment, local arterials are required to provide the connectivity between regional transportation and regional activity centers. Users then experience challenges—congestion, limited transit, uncomfortable walking environments—along North County's arterials which arise from the lack of person throughput (from services or infrastructure) to effectively connect regional transportation facilities to employment and housing.

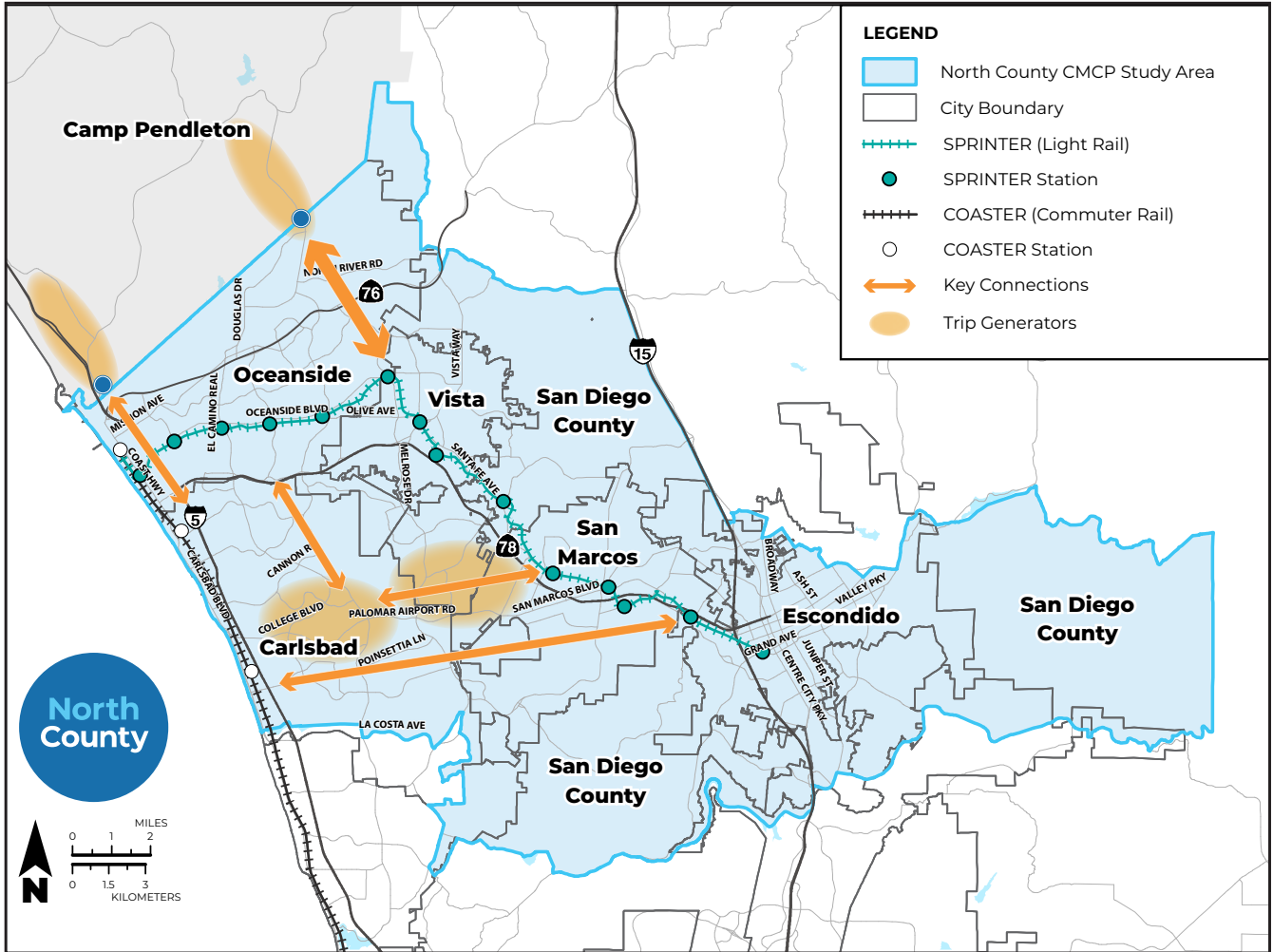
For regional trips from I-5 and I-15, **50% exit within three miles of entering SR 78 to access key destinations** via North County arterials.

**3**  
Miles

NCTD's SPRINTER alignment encourages rail trips between adjacent communities (e.g., Vista to Oceanside, Escondido to San Marcos) and growing employment centers (e.g., CSU San Marcos, western Escondido). The existing SPRINTER alignment does not facilitate trips to current major employment centers (e.g., Camp Pendleton, Carlsbad/Vista Business Parks), and thus, needs to be supported by first and last mile connections such as BREEZE routes and flex routes/microtransit to make SPRINTER a regional commuter alternative.

- Regional connectivity is provided by the North/South I-5 and I-15 corridors at western and eastern gateways of North County along with transit running parallel between or along the interstates. Travel east-west through North County is usually limited to SR 78 and to a lesser extent, SR 76. Major activity centers that are immediately adjacent to these freeways are reasonably well-served due to the cross-regional trips they generate. In North County, however, there are several major generators including the Palomar Airport Business Park and Camp Pendleton Gates that are miles away from the regional transportation system (**Figure 3-15**).
- Users must traverse the limited east-west connections to complete their trips—often requiring out of direction travel and utilization of local arterials. North County's local arterials, while capable of serving high volumes of local traffic, are constrained to meet the needs of all trip types (i.e., local, subregional, and regional). Because the local arterials are often pressed into service as workhorse connections, they have become congested and are limited in providing an efficient flow of people across North County.

Figure 3-15: Connections Needed between Trip Generators and the Regional Transportation Network







### CHALLENGE #3: **CONNECTIVITY IN THE NETWORK**

Connectivity is the relative means and ease of a person trip between an origin and a destination. Connectivity is influenced by the physical roadway, transit, and active transportation networks, the integration of those transportation options with land use, along with the following:

- Natural geographic barriers (e.g., topography and slopes)
- Limited connection points to the I-5 and I-15 corridors
- SHS and rail corridors (SPRINTER and LOSSAN) are barriers for other methods of travel
- Limited north-south travel options
- Limited transit service options and frequency between key origin-destination pairs
- Limited or unavailable first- and last-mile solutions to transit, particularly the lack of basic active transportation facilities
- Less opportunities to access key destinations and activity centers from the SHS and major corridors due to distance, directness of travel, or the availability, quality, and affordability of travel options
- Physical gaps in the transportation network (e.g., incomplete arterials and active transportation network)

The subregion's transportation network evolved to consist of large, curvilinear arterials (e.g., El Camino Real, College Boulevard). These arterials were built further apart to conform to the rolling terrain while accommodating the growing trip demand. These larger distances between arterials have led to:

- Gaps in the network (due to terrain)
- Fewer alternative routes
- Uninviting pedestrian paths with limited street crossing opportunities
- Limited options to crossing the highways and railroads
- Concentrated traffic (and thereby congestion) at freeway interchanges and major intersections

Challenging the connectivity between key origins and destinations within North County's transportation network are the lower frequencies, shorter spans of service, and difficulty accessing bus stops and rail stations. These attributes limit transit services as a competitive travel option.

*Stations need a strong sense of place within the surrounding community. Surrounding land use and access to transit (i.e., the first-/last-mile of trips) have a significant impact on the success of transit as a North County service.*



## Gaps and Barriers in the Transportation Network

Gaps and barriers in the transportation system reduce path choices and force travelers onto out-of-direction, inefficient, and—in some cases—less safe routes. Within North County, there are several types of gap/barriers influencing travel in North County:

- Lack of low-stress active transportation facilities and services across freeways, railroads, and high-speed arterials
- Gaps in low-stress active transportation facilities along arterials and near transit stations/stops
- Incomplete, not well-connected grid, including arterial gaps (e.g., College Blvd)

### Transportation Gaps and Barriers

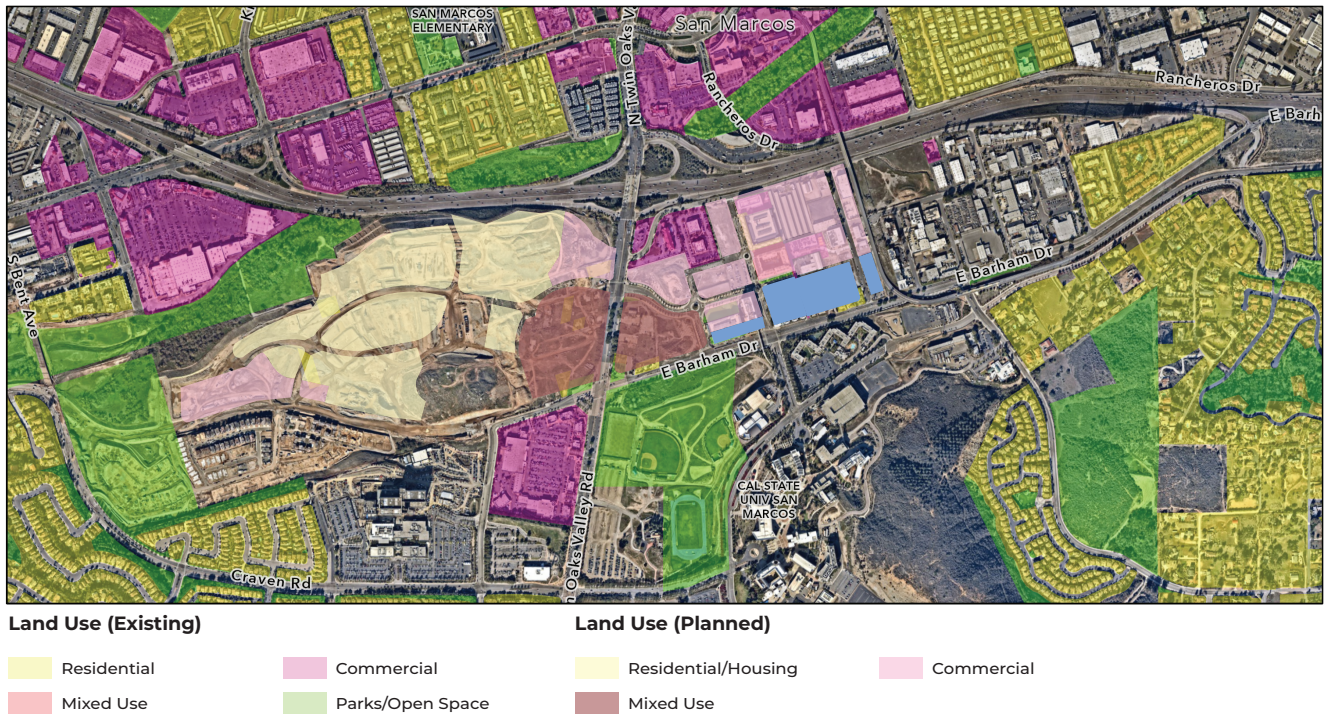
There are 80+ points of existing and proposed crossings that can be improved to provide better connections across:



- » Interstate 5
- » Interstate 15
- » SR 78
- » SR 76
- » LOSSAN Railroad
- » SPRINTER Railroad
- » Major Arterials

A common theme shared by agencies, stakeholders, and the public was the imposing nature of regional transportation facilities on surrounding communities and the lack of low-stress crossings. **Figure 3-16** highlights how SR 78 sits in-between growing communities within the City of San Marcos.

Figure 3-16: Confluence of Barriers in San Marcos

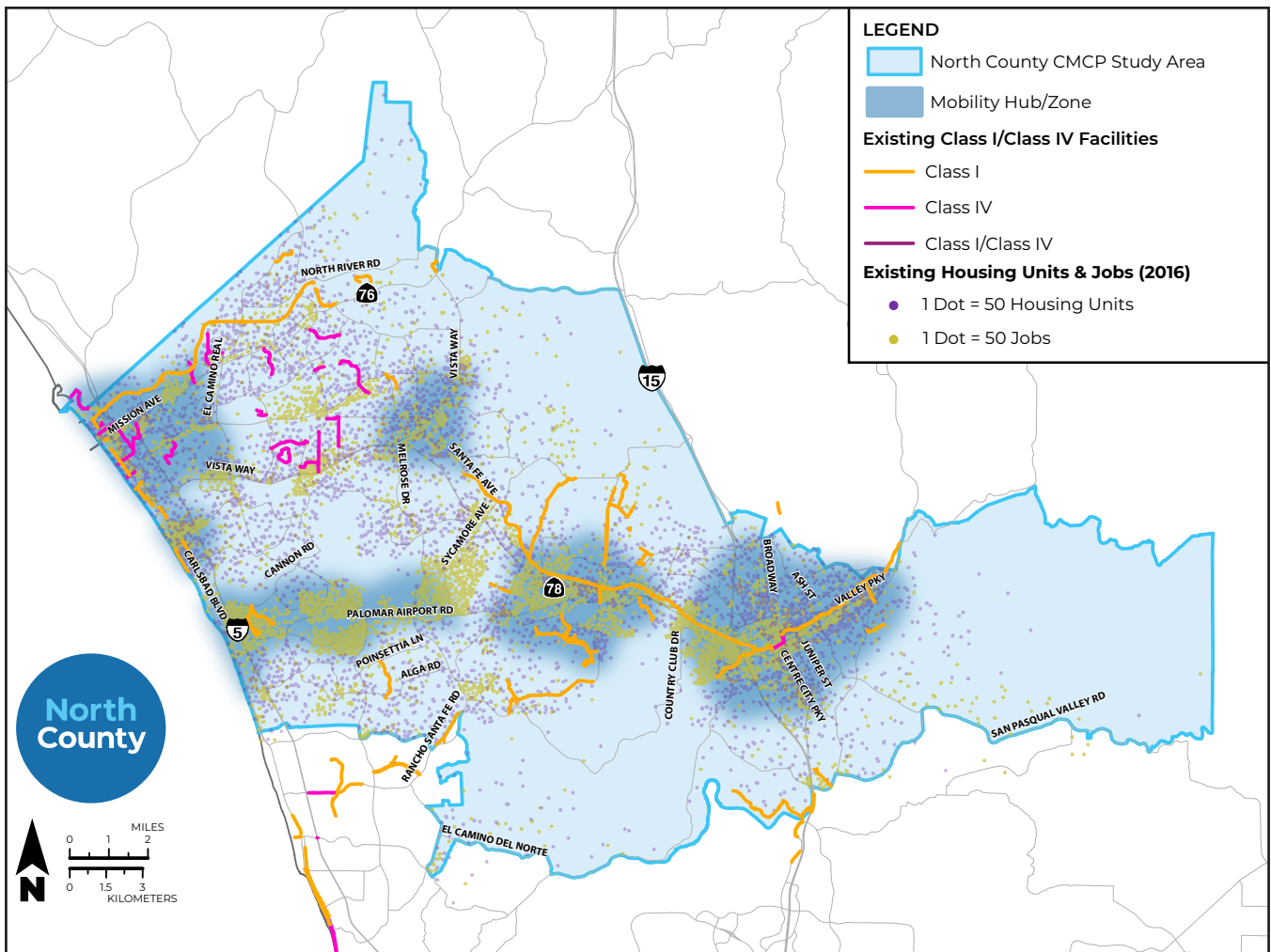


Note: The City of San Marcos adopted an amendment to the University District Specific Plan (UDSP) in 2022, which results in a different street alignment for the UDSP area west of Twin Oaks Valley Road. The UDSP amendment closed vehicular access on segments of Mid City Lane on the east side of Twin Oaks Valley Road. In addition, the footprint of UDSP incorporated additional property on the east side of Twin Oaks Valley Road. Additional information about the UDSP can be found [here](#).

## Incomplete, but Growing, Active Transportation Network

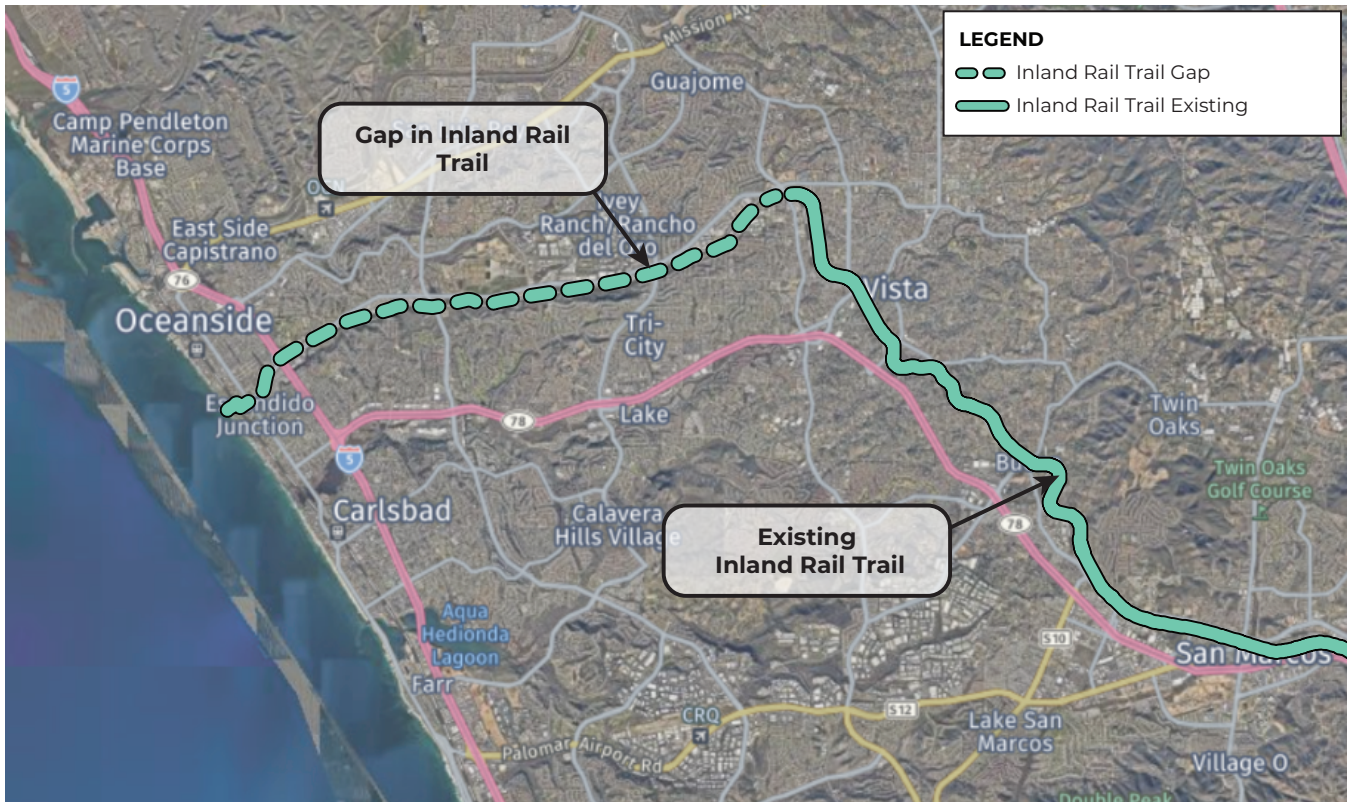
North County cities and SANDAG have been implementing more active transportation projects to create protected active transportation facilities. Currently, there is a lack of a complete network of high-quality, low-stress facilities that provide robust connectivity and accessibility. The existing multi-use paths and on-street protected bike facilities in the subregion are not continuous between mobility hubs or consistently found throughout a mobility hub. For example, where the Inland Rail Trail (IRT) is available, few facilities connect to the IRT from key destinations such as CSU San Marcos. **Figure 3-17** displays the existing Class I and IV facilities in North County and the incomplete nature of a protected network.

Figure 3-17: Existing Class I and Class IV Bicycle Facilities within the North County Study Area



**Inland Rail Trail – A prominent transportation network gap** currently exists, between Melrose Avenue and the coast (i.e., Coastal Rail Trail), in providing a key access corridor to coastal resources and activity centers. This premium North County bike facility has the capability to improve regional and subregional active transportation connections between communities and destinations.

Figure 3-18: Gap in Inland Rail Trail



### Challenging Access to Education

With the lack of school busing and safe routes to school in the subregion, the cost/challenges of transportation to/from schools is effectively passed on to family households. In particular, the lack of school busing affects families of low-income households who can least afford getting their children to school across freeways and railroads.

The lack of school busing gave rise to a private network of drivers—friends and acquaintances of student families—to help provide rides to and from school for children, but at a cost. For example, according to parents in the City of Oceanside, many of whom are employed in industries with low pay and minimum wages, they struggle to budget the cost of transporting their children to school despite living in a more urban environment. Being close to one’s destination does not necessarily alleviate the transportation issue since the North County’s geography is challenging and publicly available transportation options are not effective or convenient for students and families.

*Transportation is seen as an obstacle to the classroom, especially for students of color who are more likely to have an unexcused absence on their record.*



## CHALLENGE #4: LIMITED FREQUENCY AND LACK OF STATION ACCESS INFRASTRUCTURE

Access to transit (i.e., the first-/last-mile of trips) has a significant impact on the success of transit as a North County service. For a user, a transit trip includes more than traveling from station to station or stop to stop; to complete a "door-to-door" trip, a user's trip typically includes walking, biking, or driving to the stations. If access to transit and the surrounding environment is disorienting, challenging, or unpleasant, people will choose to drive or utilize another mode of transportation<sup>16</sup>.

NCTD had a daily ridership of 38,000 in October 2019—26,000 on BREEZE/FLEX services, 9,100 on SPRINTER, and 4,600 on COASTER. Currently, there are **several practical obstacles impeding travel via transit for North County users**: infrequent and slow transit service; difficult-to-access stops/stations; gaps or missing links in active transportation facilities; and lack of neighborhood/district shuttle services to commercial centers.

These obstacles impose a limit on choices available to travelers as well as the potential success of those choices. While it is possible to use alternative mobility options such as transit, biking, or walking, doing so is inconvenient due to infrequent service, the need for multiple connections, unprotected intersections and streets, and/or undesirable paths. The following inhibits transit as a successful element of a balanced transportation system:

- Only one route in NCTD's service is provided at high frequency meaning the user may have to wait up to 30-60 minutes for the next bus or train.
- Users do not see the available alternative mobility options as viable commute options due to inconvenience, reliability, and lack of competitiveness.
- Access to transit in North County is unfamiliar, inconvenient, or uncomfortable for users.

*Accessibility, availability, comfort, convenience, cost, and safety influence how people choose to travel to, from, and within the subregion.*

*"I can only take transit and I don't have a safe and comfortable path to the station."*

*"I spend 15-30 minutes waiting for the bus or train."*

*"Bus is too slow."*

*"I can't access the SPRINTER station by walking and biking."*



<sup>16</sup> <https://portal.nctd.org/web/0/edoc/135800/010%20Complete%20Streets%20and%20Walking%20Paths%20-%20OCT.pdf>



## Transit Frequency

The lack of frequency creates a service-based barrier to using transit. Users must account for the longer wait times between buses and trains in traveling to their destination (e.g., having to arrive 10 minutes early to avoid a 30-minute wait for missing the bus). **The lack of high-frequency services limits the opportunity for larger, mixed-use activity centers and development from taking immediate advantage of the rail service destinations.**

- Only Breeze 350 between Escondido and Westfield North County Mall is a high-frequency service of at least 15-minute frequency. No other NCTD service operates more frequently than 30 minutes—due to many factors including lack of infrastructure or supportive land use. This means the only stations or stops with high-frequency service are Escondido Transit Center and Del Lago Transit Center, both serviced by NCTD's BREEZE 350 and San Diego Metropolitan Transit Service (MTS) Rapid 235.
- NCTD's service levels are half the standard for what travelers and transit providers consider "high frequency"<sup>17</sup>.
- For the population of more than one million people living in the NCTD service area (approximately 700,000 within the study area), NCTD operates 203 transit vehicles (buses and trains) at maximum service<sup>18</sup>. Normalized by population, MTS operates twice that many vehicles at maximum service<sup>19</sup>.

Current track infrastructure limits the SPRINTER service improvements; additional double-tracking investment is required for the SPRINTER service to improve from 30-minute frequency to at least 15-minute frequencies. The inability to increase service frequency on the SPRINTER reduces the attractiveness of the rail service as a viable transportation option for many trips.

## Transit Access

As an east-west spine, SPRINTER can have a large influence on how North County travels. However, stakeholders reported that SPRINTER was hard to access by walking and biking—as well as not competitive enough to driving.

**Even at a lower frequency and difficulties with wayfinding/access, SPRINTER more than doubled its ridership between 2012 (3,600) and 2018<sup>20</sup> (8,500).** Continued growth of transit ridership on the SPRINTER is constrained by:

- Low frequency in service
- Station parking
- Lack of pedestrian and bicycle facilities
- Difficult wayfinding
- Unrealized transit-oriented development surrounding the stations'

### Conditions Needed for Transit to Thrive



- » Amount and density of activity (residential, employment, commercial, institutional) within proximity
- » Activities and land uses that generate all-day trip making demand—not just during the peak hour
- » Local connectivity by walking (quarter- to half-mile) and biking (two to three miles)
- » Connectivity to high-demand activity centers

<sup>17</sup>High-frequency is commonly defined as 15-minute (or better) service—a bus or train arriving every 15 minutes

<sup>18</sup> [https://www7.fta.dot.gov/sites/fta.dot.gov/files/transit\\_agency\\_profile\\_doc/2019/90030.pdf](https://www7.fta.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2019/90030.pdf)

<sup>19</sup> [https://www7.fta.dot.gov/sites/fta.dot.gov/files/transit\\_agency\\_profile\\_doc/2019/90026.pdf](https://www7.fta.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2019/90026.pdf)

<sup>20</sup> SPRINTER celebrated its 10-year anniversary serving North County in 2018



Several factors discourage potential customers from using SPRINTER. With improved SPRINTER frequencies, stations will need the supporting development and comfortable access to infrastructure for SPRINTER’s (and the subregion’s) long-term success. The following are density benchmarks reviewed by Puget Sound Regional Council in the Pacific Northwest in evaluating transit-supportive densities<sup>21</sup>:

Table 3-1: Densities Summary for Existing Transit Services

	LIGHT RAIL (EX: SPRINTER)	COMMUTER RAIL (COASTER) / EXPRESS BUS (MTS ROUTE 280)	BUS RAPID TRANSIT/ ALL-DAY FREQUENT BUS (MTS ROUTE 235)
<b>Walk Distance</b>	½ mile	½ mile	¼ mile
<b>Residential Density</b>	16-67+ residents per gross acre	n/a	7-8+ housing units per gross acre
<b>Employment</b>	100,000-150,000+ jobs in employment center	Central Business District(s)	n/a
<b>Activity Units</b>	56-116+ residents and jobs per gross acre	n/a	17 ± residents and jobs per gross acre

### Providing Equitable Access to Transit

Many underserved communities depend on transit for traveling to work, school, groceries, and other day-to-day needs. About 13% of the North County population lives within a half-mile of a high-frequency transit stop. Currently, there is a small percentage of population from social equity focus communities that live near high-frequency transit; however, these numbers are projected to grow by 2050. In 2016, the total study area population within a half-mile of high-frequency transit was 12.8%; of the senior population 11%; 16% of low-income; and 16% of People of Color population. The percentages are expected to increase in 2050 to 41%, 53%, and 46%, respectively. **Table 3-2** summarizes information for transit proximity for communities of concern within the subregion.

**Over 20% of people who travel to work by transit have no automobile access**

79% of people traveling to work by transit travel 30 minutes or longer, with the median transit trip approaching an hour (51 minutes)



Table 3-2: Percentage (%) of Population Groups within ½ Mile of High Frequency Transit Stop (2016)

POPULATION GROUP	PERCENT OF POPULATION GROUP
North County Study Area	12.8%
Senior Population (75 years of age and older)	11.2%
Low-Income (200% of Federal Poverty Level)	15.6%
People of Color Population (Non-White, Hispanic)	15.6%

Source: SANDAG DS39 Estimates (2021)

<sup>21</sup> <https://www.psrc.org/sites/default/files/tsdluguidancepaper.pdf>



## Destination Accessibility via Transit

Destination accessibility was assessed via an isochrone analysis—an analysis that provides a quantitative and visual representation on how far existing users can travel within a given time frame. These analyses show how many destinations, housing units, and jobs are within a certain travel time (e.g., 30 minutes). Isochrones can help identify how accessible (or inaccessible) destinations are in the network. **Appendix K** details the methodology and analysis of 13 isochrone origins in the North County study area.

A series of 30-minute and 60-minute isochrone sheds were developed and analyzed for the North County Study Area during the PM peak; **Figure 3-19**, shown on the next page, is an example isochrone travel shed. The isochrone analysis helps illustrate what is accessible to existing users when traveling by transit. Accessibility (as analyzed by these isochrones) is influenced by three factors:

- **Land Use Proximity to Station**—better proximity, shorter access time
- **Concentration of Services and Frequency** – more services or frequency, means short waiting times and more directions to travel
- **In-Route Travel Time** – the faster the service, the more destinations can be reached

Table 3-3: Existing Access Summary for Transit and Auto

Based on today's NCTD network of services the following have the most access within 30 minutes

LOCATION	TRANSIT ACCESS	AUTO COMPARISON
<b>Vista Village</b>	140 Points of Interest 17,100 Housing Units 15,100 Jobs	1,100 Point of Interest 287,800 Housing Units 357,800 Jobs
<b>Downtown Escondido (Maple and Grand)</b>	140 Points of Interest 21,000 Housing Units 27,000 Jobs	2,100 Point of Interest 460,500 Housing Units 795,100 Jobs
<b>Faraday Avenue and El Camino Real</b>	40 Points of Interest 1,400 Housing Units 22,900 Jobs	1,500 Point of Interest 310,400 Housing Units 494,400 Jobs
<b>Downtown Oceanside (Wisconsin and Coast Highway)</b>	120 Points of Interest 14,000 Housing Units 20,000 Jobs	1,200 Point of Interest 257,400 Housing Units 418,200 Jobs

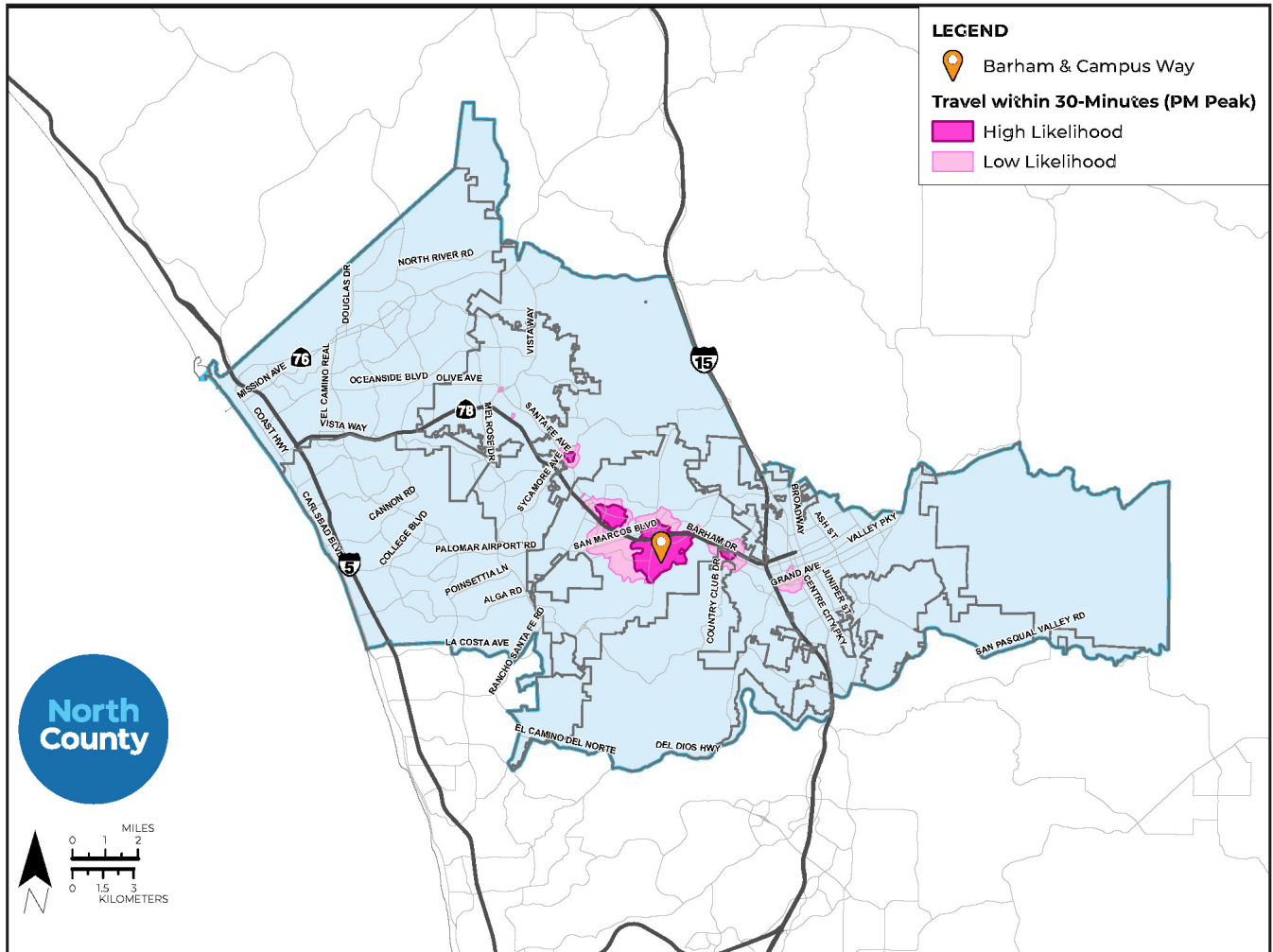
The following 13 locations were identified as representative points within North County for performing the isochrone analyses (see **Appendix K**):

- *Barham Drive and Campus Way*
- *Camp Pendleton Gate (Vandergrift)*
- *Carlsbad Boulevard and Carlsbad Village Drive*
- *College Boulevard and SR 76*
- *Faraday Avenue and El Camino Real*
- *Felicita Avenue and Centre City Parkway*
- *Maple Street and W Grand Avenue*
- *Oceanside Boulevard and Avenida del Oro*
- *Poinsettia Avenue and Business Park Drive*
- *Via Vera Cruz and San Marcos Boulevard*
- *Vista Village Drive and Santa Fe Avenue*
- *West Lake Drive and San Marcos Boulevard*
- *Wisconsin Avenue and Coast Highway*

Intersections within low-income communities are italicized.



Figure 3-19: Barham Dr and Campus Way, 30-Minute Travel Sheds at PM Peak

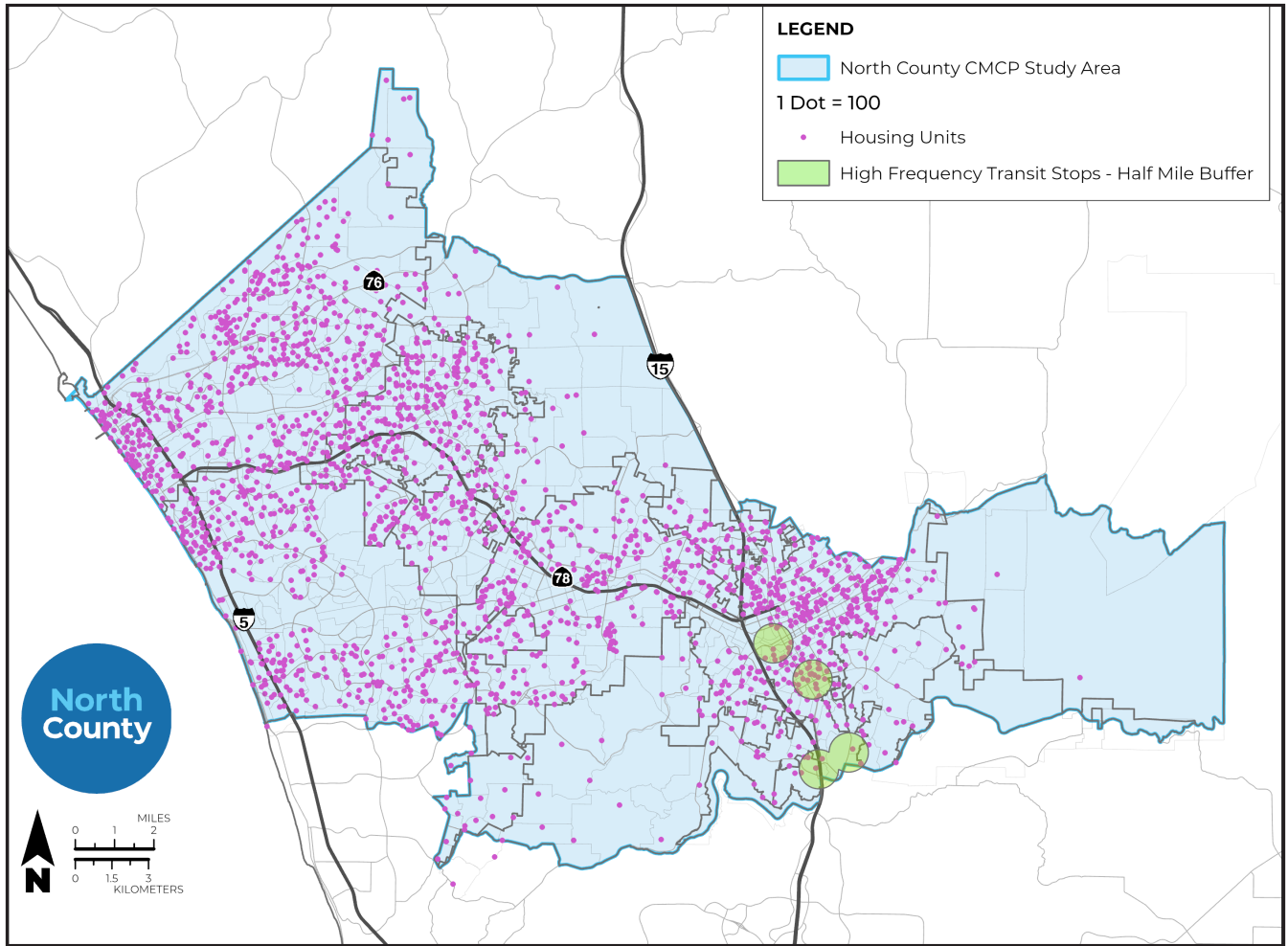


On average, the 13 representative points have a high likelihood of accessing within 30 minutes: 63 destinations, 7,400 housing units, and 15,100 jobs. The following were key insights from the isochrones:

- Vista Village Drive and Santa Fe Avenue (Vista Village) was the most accessible with access to 139 destinations, while Camp Pendleton Gate (Vandergrift) was the least accessible point with three destinations.
- Maple Street and W Grand Avenue (Downtown Escondido) provided the most access to housing units (21,000), while Faraday Avenue and El Camino Real was the least accessible (via transit) with fewer than 1,400 housing units.
- Maple Street and W Grand Avenue and Faraday Avenue and El Camino Real provided the most access to jobs (more than 20,000), while Camp Pendleton (Vandergrift) provided the least access outside of military-based jobs with approximately 1,000 jobs.

Camp Pendleton (Vandergrift) is the gateway to one of the largest employment centers in North County and on-base housing. Nevertheless, it is one of (if not the) least accessible location in North County via transit.

Figure 3-20: Existing Housing Units within High-Frequency Transit Stops





### CHALLENGE #5: MAJOR ARTERIALS ARE NORTH COUNTY'S WORKHORSES

North County's major arterials (13 corridors) provide the critical connectivity that exists today for those traveling within North County. **Major arterials provide the connection to both regional transportation facilities and local/subregional connections between housing, employment, and day-to-day needs.** Figure 3-21 spotlights how these major arterials are fundamental to providing access to North County's large mobility hubs with two examples on the western end of the study area (see Chapter 2 for a list of mobility hubs).

#### North County's 13 Major Arterials



- » 1,300+ roadway miles
- » 20% of the study area's VMT, approximately the same as SR 78 (21%)
- » Provide connections between activity centers/communities and regional transportation

Figure 3-21: Highlighting the Importance of Arterials to North County (Examples: Oceanside and Carlsbad Mobility Hubs)



Source: Streetlight Analytics

In providing the “connective” elements for all types of travel, major arterials account for 20% of VMT in the study area which is effectively the same amount of VMT observed for SR 78 within the study area. **Today's performance of major arterials highlights the importance of providing a system or network approach to leverage major arterials to improve mobility and meet North County's needs.**

Major arterials are integral to providing and will continue to provide:

- Increased, efficient person throughput
- Complete street experience to provide mobility to all users
- Connections between key activity centers
- Future multimodal travel
- Travel time and reliability
- Safe travel environments
- Support to economic development lack of “high frequency services.”

## Connecting to North-South Regional Facilities

North County's major arterials provide the critical connections between the primary north-south regional facilities (i.e., I-5 and I-15) to the destinations within North County. **Figure 3-22** displays the eastbound traffic exit distribution within three miles of the I-5 interchange while **Figure 3-23** displays the westbound traffic exit distribution within three miles of the I-15 interchange.

Figure 3-22: SR 78 Eastbound Traffic Exit Distribution From I-5

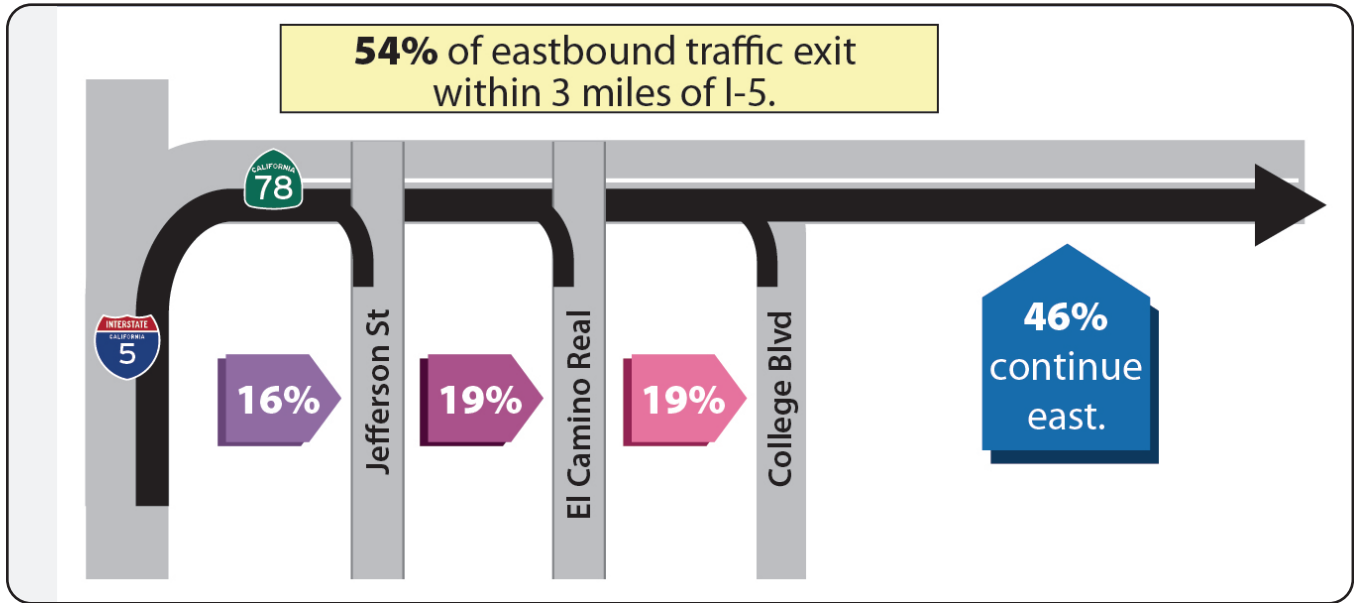
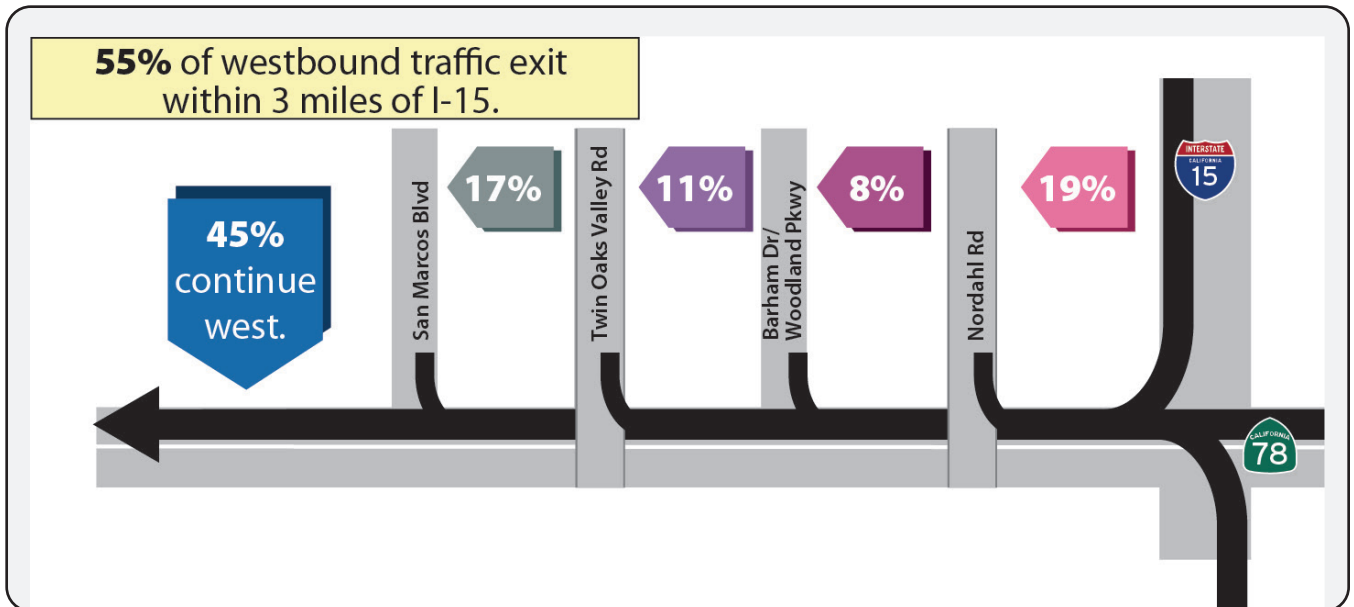


Figure 3-23: SR 78 Westbound Traffic Exit Distribution From I-15





## Key Takeaways

The Mobility Assessment reveals there are many relationships between the challenges of the transportation network and the resulting outcomes experienced by users.

The underlying challenges and resulting system deficiencies affect how agencies and jurisdictions plan, build, and operate the transportation systems. Utilizing the transportation system deficiencies defined above, combined with the elements learned in Chapter 1 (Purpose of the CMPC) and Chapter 2 (Corridor Context), the following predominant subregional mobility opportunities and constraints were identified:



### KEY OPPORTUNITIES

*North County provides the following opportunities:*

- A cohesive, self-contained subregion provides an opportunity for focused mobility improvements for future economic growth
- Local cities and agency partners strongly support change and innovation in the transportation network
- Alignment between regional mobility hubs and general plans creates land use synergy with improvement opportunities in the transportation network



### KEY CONSTRAINTS

*A sustainable transportation network for North County is impeded by:*

- Lack of connectivity to the regional transportation network (transit or highway) from large employment centers and the regional transportation network
- Topography and current land use intensity and providing transportation service/ infrastructure improvements (e.g., rail on steep terrain)
- Lack of larger north-south transportation alternatives requiring North County's major arterials to carry more of the person-throughput and provide regional connectivity

# 4

## VALUES, GOALS, AND OBJECTIVES

*A CMCP requires clear goals and objectives to guide the identification, prioritization and funding of improvements. Goals and Objectives work in tandem to define for the public, stakeholders, and policy makers what success of a program will look like; providing focus and help measure how actions lead toward the desired success.*



## 4 VALUES, GOALS, AND OBJECTIVES

The development of the Values, Goals, and Objectives presented in this chapter represent a coming together of Regional and State transportation goals with the mobility needs and constraints specific to the North County subregion. Developing a common Vision, Values, Goals, and Objectives addresses the challenge of coordinating across a subregion with diverse communities, jurisdictions, and agency planning efforts—to create a cohesive, overarching transportation strategy. These Values, Goals, and Objectives are used to guide the development of the integrated multimodal investment strategy presented in **Chapter 5**.





## North County Transportation Vision

The CMCP vision was developed in collaboration with the local jurisdictions. The process began by developing an understanding of user experiences, challenges, and opportunities described in **Chapter 3** to develop a vision that would address North County's needs and meet state and regional goals and objectives.

### VISION

**The North County CMCP will create a comprehensive transportation and mobility system for San Diego County's northernmost communities that:**

- ✓ **Improves quality of life for residents and supports economic prosperity in this vibrant subregion**
- ✓ **Provides sustainable solutions leading to the reduction of vehicle miles traveled**
- ✓ **Improves safety for all users of the transportation system**
- ✓ **Connects North County communities**
- ✓ **Fosters equitable access to opportunities for all users**
- ✓ **Provides a foundation for future opportunities—promoting mobility innovation and resiliency**

The above vision incorporates the fundamental beliefs that shape all aspects of the North County CMCP plan. It will serve as the guiding principle representing the characteristics and aspirations of the transportation system in North County. This vision reflects the input from stakeholders, residents, and employees of North County.





## Objectives

While goals are the outcomes the plan intends to achieve, objectives are the specific steps needed to achieve these goals. The plan objectives are organized in two categories:



**Customer objectives represent outcomes designed to meet the mobility needs of the users**



**Policy objectives are the principles and framework necessary to meet both the customer objectives and the state and regional program goals.**

### Customer Objectives

1. Spend less time traveling
2. Reduce distance traveled
3. Improve system reliability
4. Reduce fatal and severe collisions
5. Reduce impacts of regional transportation on communities
6. Increase the accessibility to regional and North County employment centers



### Policy Outcome Objectives

1. Align mobility services with (existing and potential) activity centers and underserved communities
2. Improve multimodal choices in the corridor to support a significant increase in carpool, bike, transit, and walking trip percentages
3. Provide improved trip options for trips less than three miles
4. Better manage transportation connections across cities, public agencies, and private partners
5. Support population and job growth within focused areas
6. Improve connectivity between communities
7. Improve connectivity to the regional system



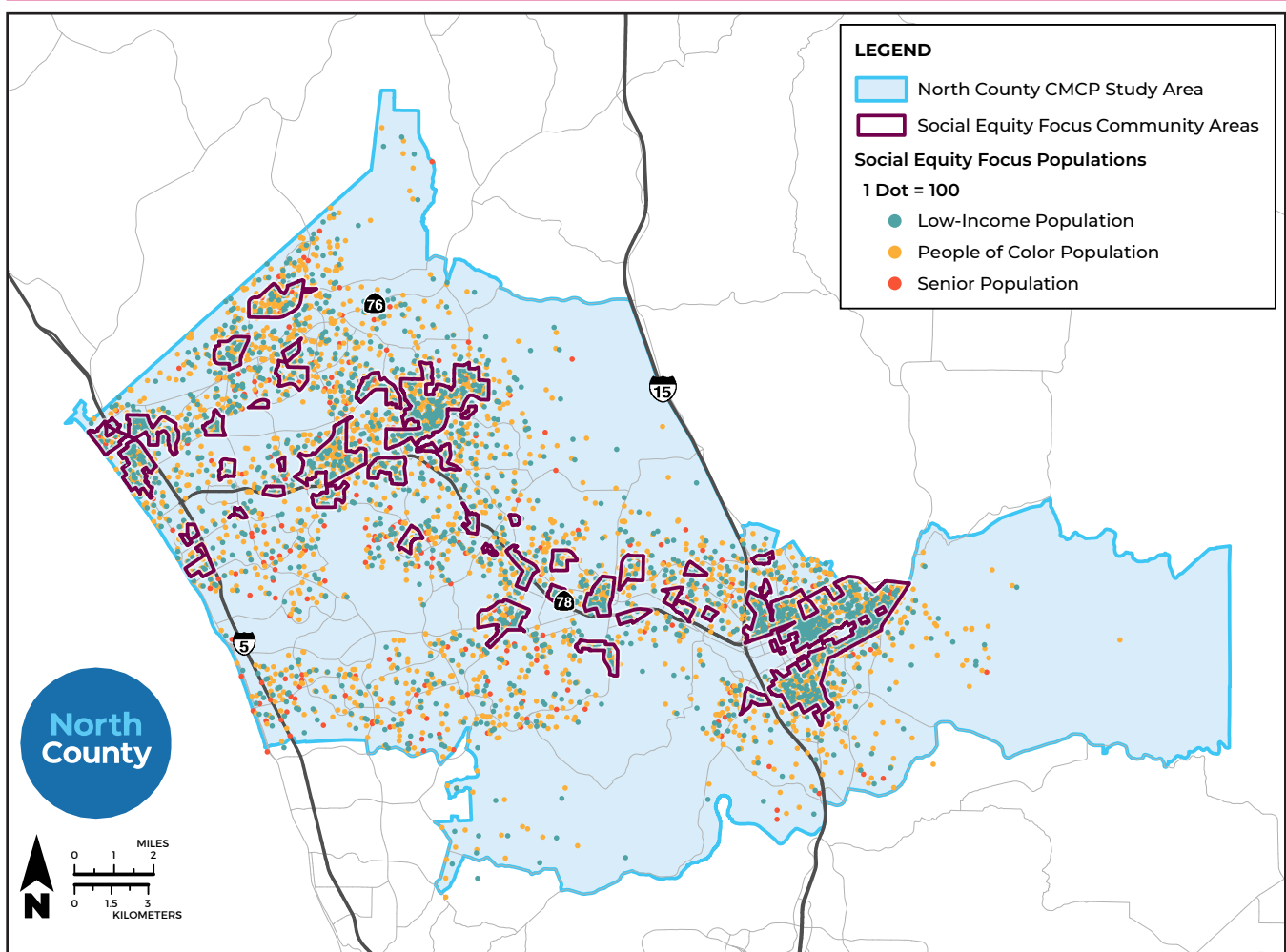
## Performance Metrics

Performance measures are a key component of an effective transportation planning and implementation process. Performance targets provide numerical benchmarks to assess how well the plan is achieving the vision, goals, and objectives.

Historically, performance measures were siloed by mode and agency (freeway travel time, traffic counts, level of service). Unfortunately, this approach does not measure services from the user's perspective of overall quality of mobility and access. As transportation planning has evolved to be a more "systems-based, multimodal, multiagency" approach, metrics need to also change to focus on evaluating the customer's experience. To avoid an overwhelming number of performance measures and to focus the assessment on key observations and conclusions, a performance framework was developed to drill down from agency-level goals to program level objectives to project-level performance metrics. This multiagency framework allows a programmatic perspective for the Regional Plan while providing a more focused perspective for a subregion in the CMCP – while maintaining connection to an overarching set of goals and objectives.

Social equity focus metrics have been identified for the CMCP to ensure progress for all users, especially for social equity focus communities (SEFC)<sup>1</sup>. This allows the CMCP's proposed transportation solutions to be reviewed an equity perspective.

Figure 4-1: Social Equity Focus Community Areas





## Regional Plan-Based Performance Measures

Regional performance measures within the Regional Plan provided the countywide context for monitoring performance. These measures align developing performance metrics/indicators for North County. From the regional performance measures, CMCP-specific metrics were developed to assess and monitor how North County’s transportation network is meeting the CMCP Values, Goals, and Objectives.

Below are the regionally oriented performance metrics for consistency with San Diego’s Regional Plan:

Multimodal focus	Mode Share (commute trips, all trips)
	Percent change in mode share (commute trips, all trips)
	Mode share for short trips (3 miles or less for all trip types)
	Person Trips (commute trips, all trips)
	Person Trips for short trips (3 miles or less for all trip types)
Economic development and goods movement	Percent of residents that can access tier 1 and 2 employment centers or higher education within 30 and 45 minutes (social equity analysis)
	Freight - average amount of time in congestion
System operations and congestion relief	Daily vehicle hour delay by vehicle class
	Daily vehicle hour delay by vehicle class
Low-income and social equity focus community focus	Percentage of population within 0.5 miles of high frequency transit stop
	Accessible investments in social equity focus communities
Reduce greenhouse gas emissions and vehicle miles traveled	Daily VMT
	Greenhouse gas (GHG) emissions
Improve air quality and public health	On-road smog-forming pollutants (pounds/day) per capita (ROG, NOx) (summer)
	Average PM 2.5 exposure
	Near-roadway population exposure (social equity analysis)
Active transportation and micromobility	Bicycle and pedestrian miles traveled
	Percent of the population engaged in 20 minutes or more of transportation related physical activity
Improve jobs-housing balance	Population in multifamily residences within 0.25 miles of a transit stop
	Average peak commute time to work (min)
Increase supply of affordable housing	Multifamily housing within 0.5 miles of high frequency transit
System operations and congestion relief	Corridor total person throughput
	System completeness for top OD pairs connected by multiple modal options

Performance metrics are first applied (where possible) to the existing transportation network—to provide context on how the system is supporting the goals and objectives and to set a “baseline” for future monitoring and comparison. A baseline performance assessment can be found in **Appendix L**.

## CMCP PERFORMANCE MEASURES

CMCP performance measures were developed to:



Evaluate the future effect of proposed projects, programs, and strategies relative to the plan's goals and objectives. This is done through the use of forecasted information and transportation models.



Monitor trends in transportation system performance over time through the use of observed existing data.

The following outlines and organizes North County's key performance metrics as the primary measures to be monitored throughout the implementation of the CMCP.

	OBSERVED (TRACKED)	MODELED (FORECASTED)
<b>REGIONAL CONTEXT</b>		
Percentage of regional population	✓	✓
Percentage of regional employment	✓	✓
North County percentage of regional VMT	✓	✓
North County internal and external trip split	✓	✓
Number of jobs in North County	✓	✓
Number of residents in North County	✓	✓
<b>IMPROVE EXPERIENCE FOR ALL</b>		
<b>Spend Less Time Traveling</b>		
Daily person hours traveled per capita and per employee	✓	✓
<b>Reduce Fatal and Severe Collisions</b>		
Annual number of fatal and severe incidents	✓	
<b>Improved Travel Reliability</b>		
Planning time index (95th percent peak period travel time compared to average peak period travel time)	✓	
<b>BUILD A FOUNDATION FOR FUTURE POSSIBILITIES</b>		
Number of jobs (and jobs per gross acre) within Mobility Zones	✓	✓
Number of residents (and residents per gross acre) within Mobility Zones	✓	✓

	OBSERVED (TRACKED)	MODELED (FORECASTED)
<b>SHIFT TOWARDS CLEANER, TRANSFORMATIVE TRANSPORTATION</b>		
<b>Travel Cleaner</b>		
Non SOV modal share	✓*	✓
Non SOV modal share for trips less than 3 and 5 miles		✓
SPRINTER ridership	✓	✓
Bus ridership	✓	✓
<b>Travel Less</b>		
Average daily vehicle miles traveled in North County	✓	✓
Average daily vehicle miles traveled in North County per capita and per employee	✓	✓
Percentage of short trips (less than 3 miles)	✓*	✓
<b>PROVIDING CHOICES TAILORED TO NEEDS AND IMPROVING COMMUNITY CONNECTIONS</b>		
<b>Increase Access to Jobs and Destinations</b>		
Percent of residents within 0.5 miles of high frequency transit stops	✓	✓
Percent of Tier 1 and Tier 2 jobs within 0.5 miles of high frequency transit stops	✓	✓
<b>Improve Mobility for Social Equity Focus Populations</b>		
Percent of social equity focus community population within 0.5 miles of high frequency transit stops	✓	✓

\*Measure is approximated from model results



## North County's Existing Performance

To understand future performance, a “baseline” is required—for the North County CMCP, 2016 was used as the “baseline” year. Utilizing both SANDAG’s Regional Activity Based Model and data from various sources (e.g., Streetlight, American Communities Survey), values were developed for each of the performance metrics to gauge North County’s performance based on the values, goals, and objectives above.

Below are the CMCP-oriented performance metrics for the Existing Conditions (2016):

Performance Metrics	
<b>Regional Context</b>	
Percentage of Regional Population <sup>(1)</sup>	20%
Percentage of Regional Employment <sup>(1)</sup>	18%
North County Percentage (Trip-based) of regional VMT <sup>(1)</sup>	10%
North County Percentage (Segment-based) of regional VMT <sup>(2)</sup>	18%
Number of Jobs in North County <sup>(1)</sup>	259,700
Number of Residents in North County <sup>(1)</sup>	660,700
<b>Goals Metrics</b>	
<b>Improved Experience for All</b>	
Daily Person Hours Traveled Per Resident <sup>(1)</sup>	2.00
Daily Person Hours Traveled Per Employee <sup>(1)</sup>	2.56
Annual Number of Fatal and Severe Incidents <sup>(1)</sup>	209
Planning Time Index (1.0 = No Delay) <sup>(3)</sup>	2.17
<b>Building a Foundation for Future Possibilities</b>	
Number of Jobs within Mobility Hubs <sup>(1)</sup>	161,500 (62%)
Number of Residents within Mobility Hub <sup>(1)</sup>	263,100 (40%)
<b>Shift Towards Cleaner, Transformative Transportation</b>	
Non-SOV Modal Share for all Trips <sup>(2)</sup>	
Shared Ride 2	22%
Shared Ride 3+	22%
Transit	1%
Bike	1%
Walk	6%

<sup>1</sup> Observed/Collected Value

<sup>2</sup> Modelled Value

<sup>3</sup> Showing planning time index for El Camino Real



Performance Metrics	
Shift Towards Cleaner, Transformative Transportation (cont.)	
Non-SOV Modal Share for Trips Less Than 3 Miles <sup>(2)</sup>	
<i>Shared Ride 2</i>	22%
<i>Shared Ride 3+</i>	23%
<i>Transit</i>	1%
<i>Bike</i>	2%
<i>Walk</i>	14%
SPRINTER Average Weekday Ridership <sup>(1)</sup>	9,100
BREEZE Average Weekday Ridership <sup>(1)</sup>	26,000
Average Daily Vehicle Miles Traveled in North County <sup>(2)</sup>	15,061,000
Average Daily Vehicle Miles Traveled in North County per Capita <sup>(2)</sup>	18.58
Average Daily Vehicle Miles Traveled in North County per Employee <sup>(2)</sup>	25.08
Percentage of Short Trips (3 miles or less) <sup>(2)</sup>	40%
Providing Choices Tailored to Needs and Improving Community Connections	
Percent of North County Residents Within 0.5 Miles of High Frequency Transit Stops <sup>(2)</sup>	12%
Percent of Jobs within 0.5 Miles of High Frequency Transit Stops <sup>(2)</sup>	3%
Percent of North County Social Equity Focus Community Population within 0.5 Miles of High Frequency Transit Stops <sup>(2)</sup>	7%

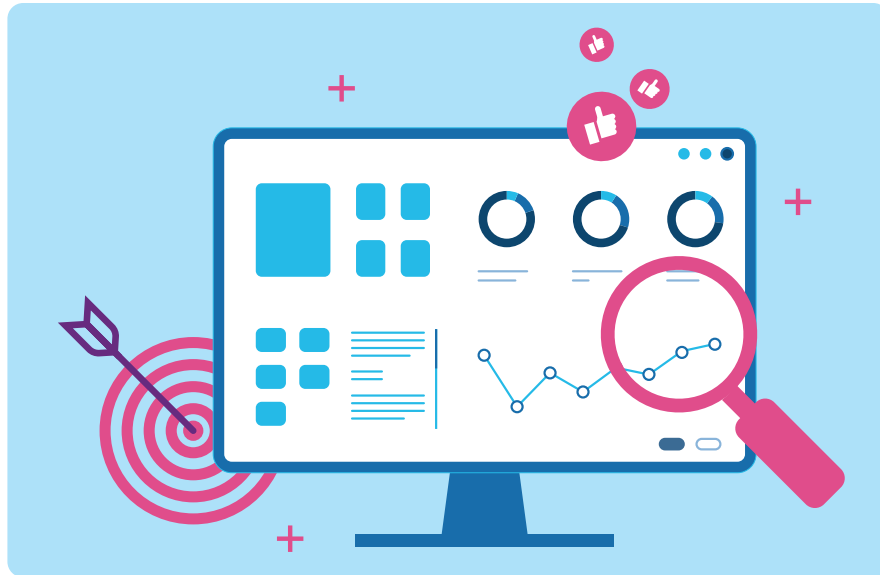
<sup>1</sup> Observed/Collected Value

<sup>2</sup> Modelled Value

<sup>3</sup> Showing planning time index for El Camino Real

## Performance Dashboard

Using several of the performance metrics identified to quantify the potential success of the transportation network, a performance dashboard has been prepared to provide a preliminary understanding of how the existing transportation system currently performs. This provides an understanding of what performance measures could be targeted for improvement when developing the proposed transportation strategies. It also helps identify specific areas and locations in the subregion to focus on when developing potential transportation solutions. Additional information about the performance dashboard can be found in **Appendix V**.



## REGIONAL CONTEXT



### Jobs

259,700 North County Jobs  
17.9% of Regional Jobs



### Population

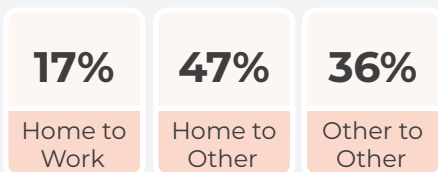
660,700 North County Population  
19.9% of Regional Population



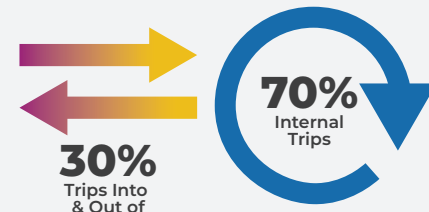
### Vehicle Miles Traveled (VMT)

8,480,000 North County VMT  
10% of Regional VMT

### VMT Distribution by Trip Purpose



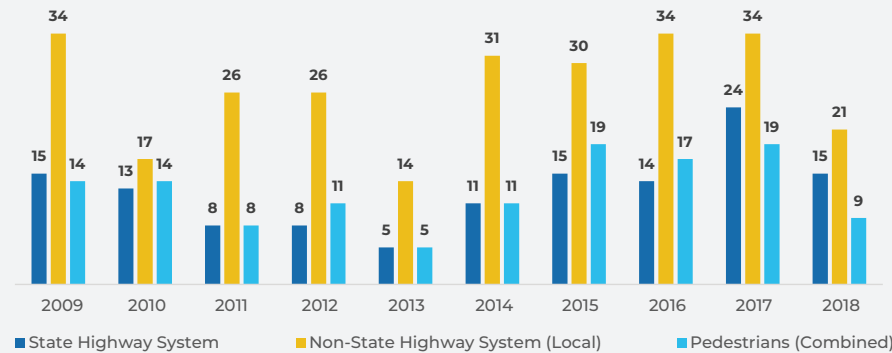
### North County Travel Patterns



Source: ACS 2019 5-Year Estimates, LEHD LODES Workplace Area Characteristics (2019), Streetlight 2019

## IMPROVE THE TRANSPORTATION EXPERIENCE FOR ALL

### Fatal Collisions



### Daily Trip Hours Traveled

1.00 per resident  
2.56 per employee

Source: SWITRS (2010-2018), 2019 ACS 5-Year Estimates, LEHD LODES Workplace Area Characteristics (2019), Streetlight 2019

## PROVIDING CHOICES TAILORED TO NEED, IMPROVING COMMUNITY CONNECTIONS



### Percent of Residents within 0.5 Miles of High Frequency Transit

35,700 North County Residents  
5.4% of North County Residents



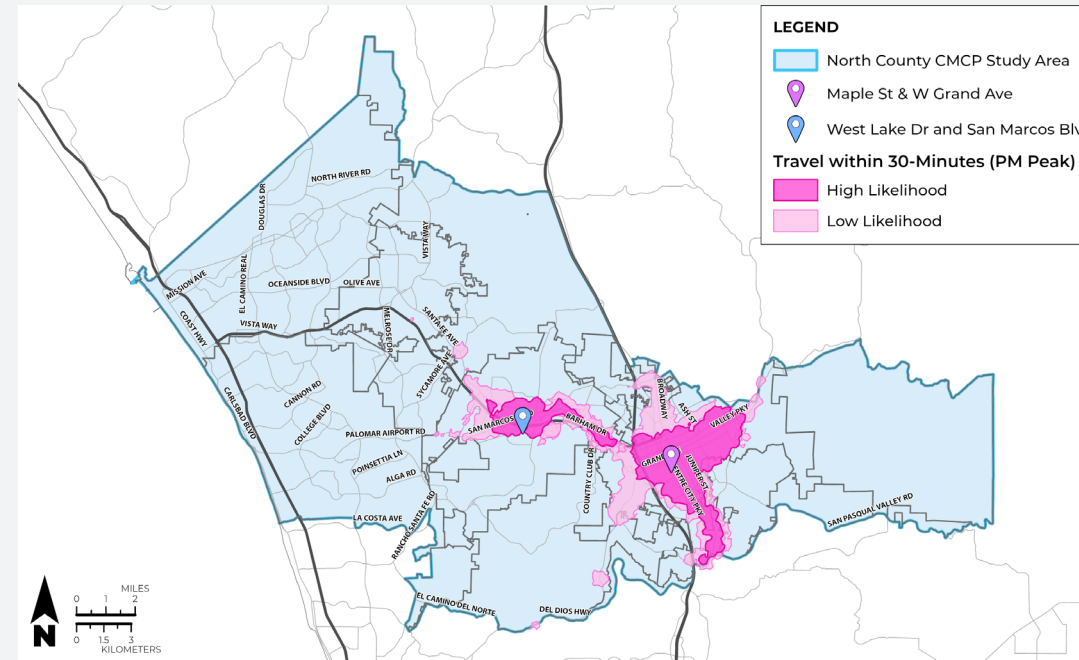
### Percent of Jobs within 0.5 Miles of High Frequency Transit

8,900 North County Jobs  
3.4% of North County Jobs



### Percent of Social Equity Population within 0.5 Miles of High Frequency Transit

17,700 North County Social Equity Focus Population  
4.0% of North County Social Equity Focus Population



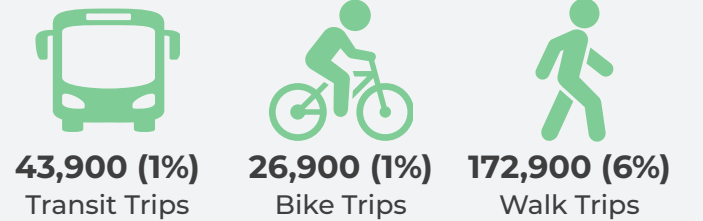
Region	Origin Points	High Likelihood Points of Interest Reached	High Likelihood Jobs Reached	Time Competitiveness: Driving and Transit
South Escondido	Maple St and W Grand Ave	140	26,900	10% of trips are transit competitive
San Marcos	West Lake Dr and San Marcos Blvd	40	16,700	5% of trips are transit competitive

Source: Open Street Map, NCTD GTFS, 2019 ACS 5-Year Estimates, SANDAG DS 39 Forecast Estimates (2021)

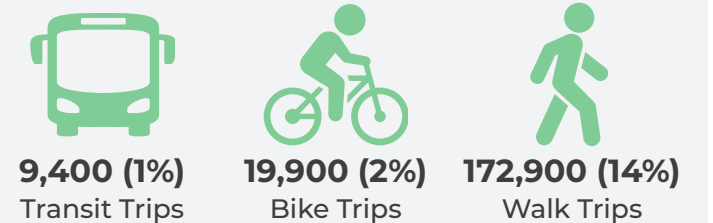
## SHIFT TOWARD CLEANER, TRANSFORMATIVE TRANSPORTATION

### MODE DISTRIBUTION

#### All Trips



#### Local Travel - Short Trips ≤ 3 Miles



### AVERAGE WEEKDAY RIDERSHIP

20,900 BREEZE  
7,700 SPRINTER

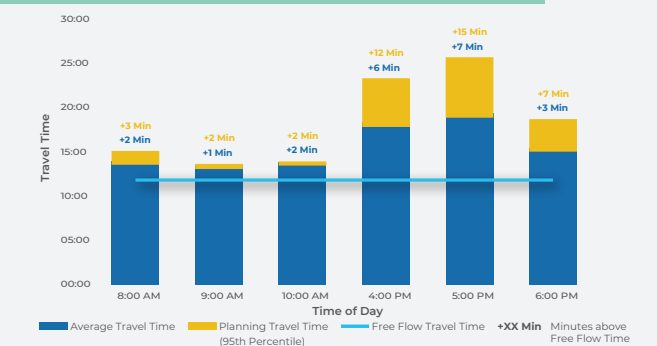
### VMT

12.84 per resident  
32.68 per employee

Source: SANDAG DS39 Forecast Estimates (2021), NCTD Operations Report (Q2, 2019)

## TRAVEL TIME EXPERIENCE

### El Camino Real NB: Poinsettia - SR 78



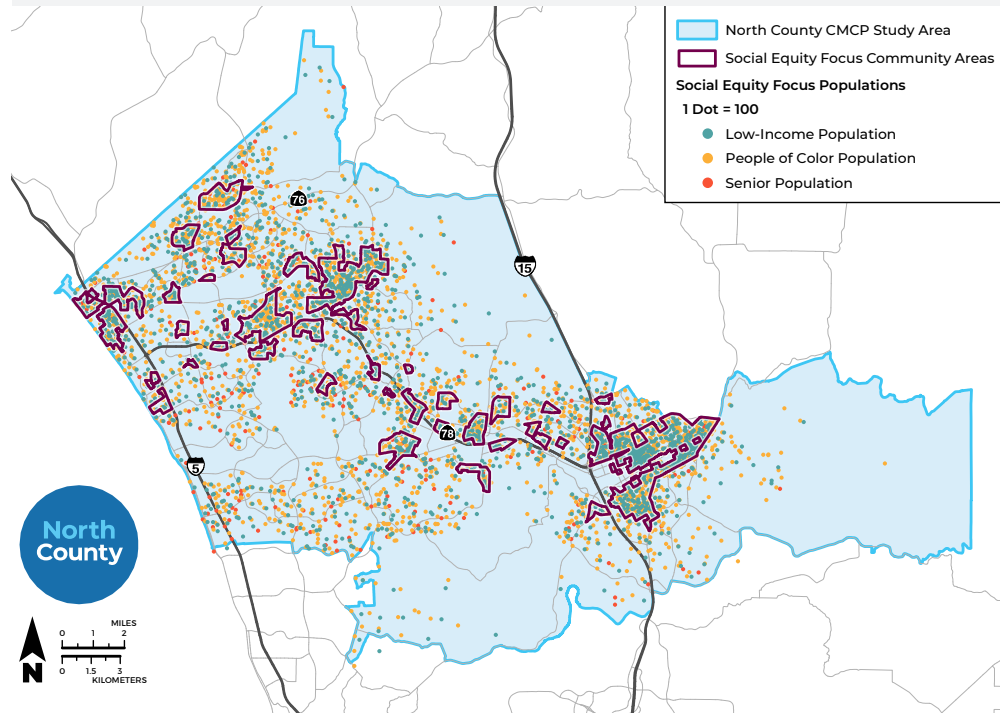
Source: Traction, Google



## SOCIAL EQUITY FOCUS COMMUNITY AREAS

### Social Equity Focus Community Areas

The Social Equity Focus Community (SEFC) Areas shown below were identified as the top 25 percent most dense areas of social equity focus populations.



	Population in SEFC Area	% of SEFC Area Population	% of Study Area Population
Total	257,200	-	39%
Low-Income	115,600	45%	18%
Minority	167,800	65%	26%
Senior	13,600	5%	2%

### Access to Bike Facilities within SEFC Areas

476 Miles of Roads in SEFC Areas

58.1 Miles of Bike Lanes and Off-Street Paths in SEFC areas.

### Collisions within SEFC Areas

183 Bike Collisions  
 35 at Intersections  
 11.7% of Collisions in Study Area

336 Pedestrian Collisions  
 61 at Intersections  
 21.5% of Collisions in Study Area

Source: SANDAG DS39 Forecast Estimates (2021), SANGIS, TIMS (2015 - 2020)

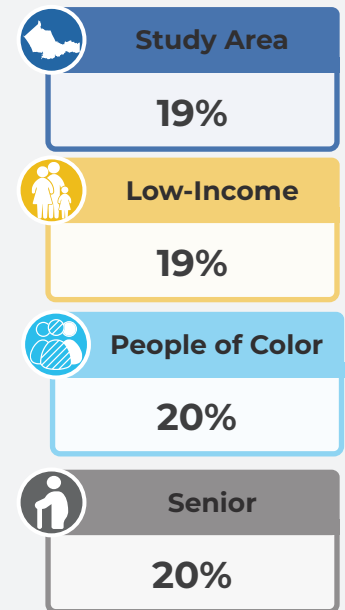
## SOCIAL EQUITY FOCUS POPULATION



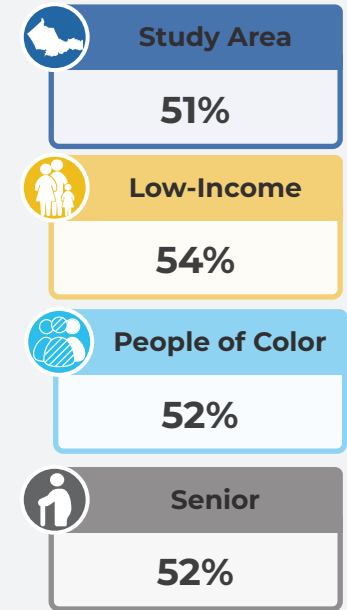
Source: SANDAG DS39 Forecast Estimates (2021)

## ACCESS TO HIGHER EDUCATION

### Percent of Residents Within 30 Minutes Via Transit



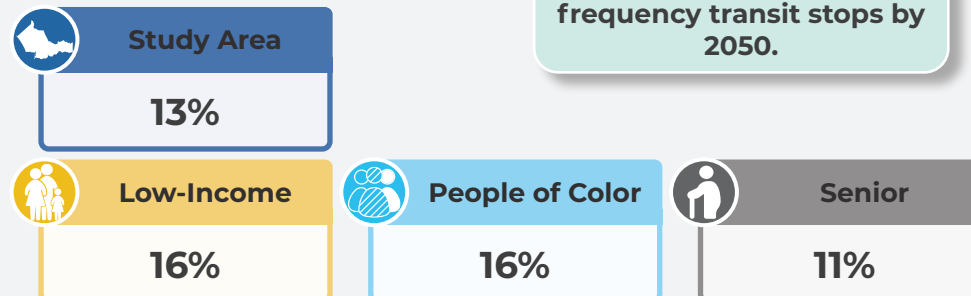
### Percent of Residents Within 30 Minutes Via Automobile



Source: SANDAG DS39 Forecast Estimates (2021)

## ACCESS TO HIGH FREQUENCY TRANSIT

### Percent of Population within 0.5 miles of high frequency transit stops



Approximately 25% of the Study Area population will be able to access high frequency transit stops by 2050.

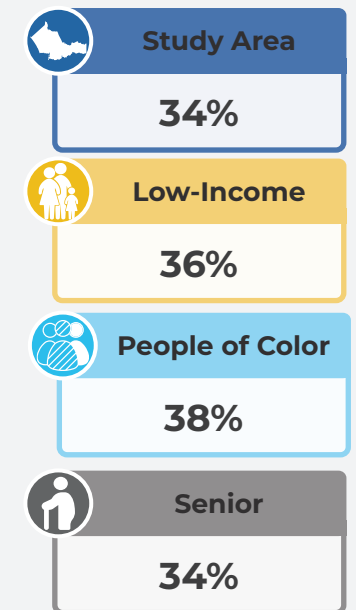
Source: SANDAG DS39 Forecast Estimates (2021)

\*High-frequency transit stops are defined by the combined headway frequency of transit stops on a node, route, direction.

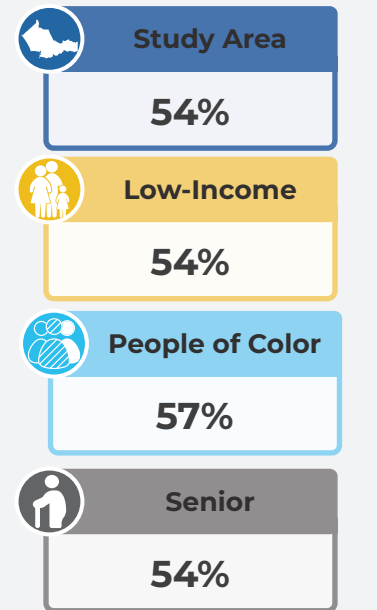
## ACCESS TO EMPLOYMENT

### TIER 1 AND 2 EMPLOYMENT CENTERS

#### Percent of Residents Within 30 Minutes



#### Percent of Residents Within 45 Minutes



Source: SANDAG DS39 Forecast Estimates (2021)



## Supporting North County's Shift to Holistic System

This CMCP will help support the subregion's need to shift towards a holistic, system approach to improving the transportation network. It's an approach guided by stakeholders and community input and arriving at the CMCP Values, Goals, and Objectives. It is the foundation to building the projects and programs for North County and establishing a path towards implementation.

The following chapters will set a path for North County's communities to rely on customer experiences, utilize observed data, and maintain focus on the CMCP objectives to guide the steps to come. The more the above Vision, Goals, and Objectives are embraced, the more likely North County communities will achieve the desired results and achieve those results more quickly.

# 5 MOBILITY SOLUTION

*The aim of the CMCP is to create and present a balanced and integrated transportation system that meets community priorities now and into the future. The North County CMCP's 30-year mobility solution comprised composed of projects, programs, and services focuses on addressing the subregion's current and anticipated future mobility needs identified in **Chapter 3**, guided by the Values, Goals, and Objectives in **Chapter 4**.*



# 5 MOBILITY SOLUTION

The CMCP mobility solution (or “Plan”) leverages a multi-faceted system approach that utilizes nine transportation strategies and establishes a framework to emphasize service and infrastructure improvements at locations where travelers can be served, providing a better travel experience holistically. The Plan intends to avoid fragmentation by amplifying the transportation network benefits across modes, user types, and communities.

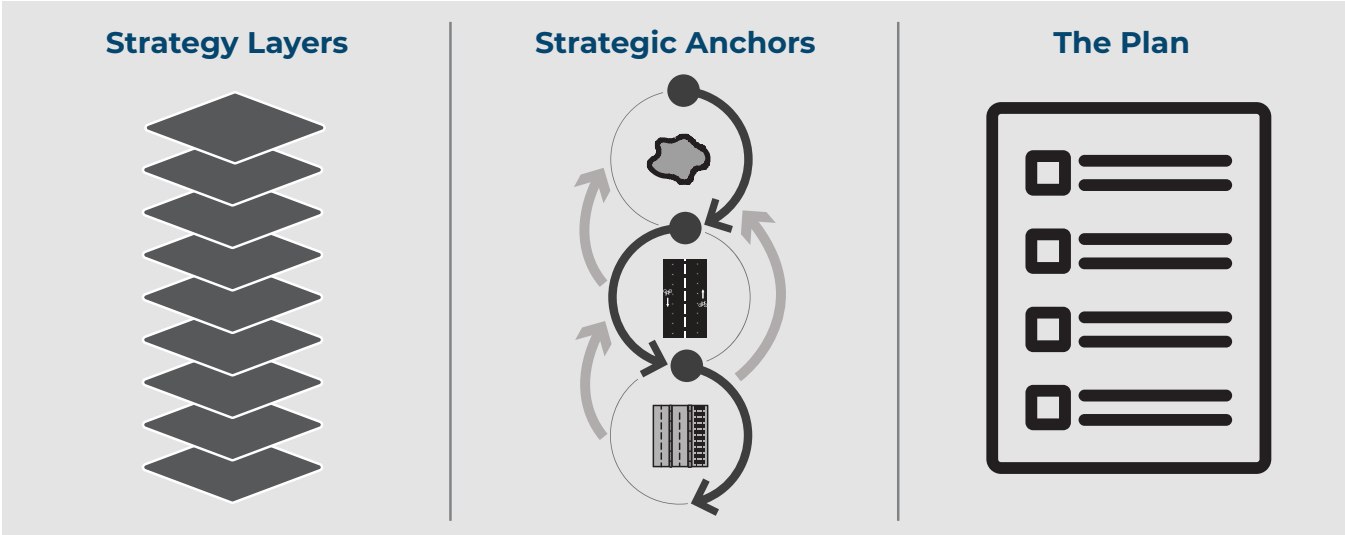
The Plan is organized as follows:

- 1. Strategy Layers** – The transportation “strategy toolbox” of infrastructure, services, and technologies is based on the “Five Big Moves” outlined in the 2021 San Diego Forward Regional Transportation Plan, but tailored to North County’s unique needs and guided by community input, insights, and experiences.
- 2. Strategic Anchors** – The strategy framework used to organize and apply the strategy layers within North County.
- 3. The Plan (Project and Programs)** – The series of projects, programs, and services proposed for implementation over the next 30 years utilizing the application of the strategy layers and strategic anchors. **Chapters 6** and **7** will evaluate and present near-term opportunities in the Plan.

*There is no single strategy that will address North County’s mobility needs; instead, it is the layering of the strategies and the application within strategic anchors that provides a nimble and adaptable transportation solution for North County.*



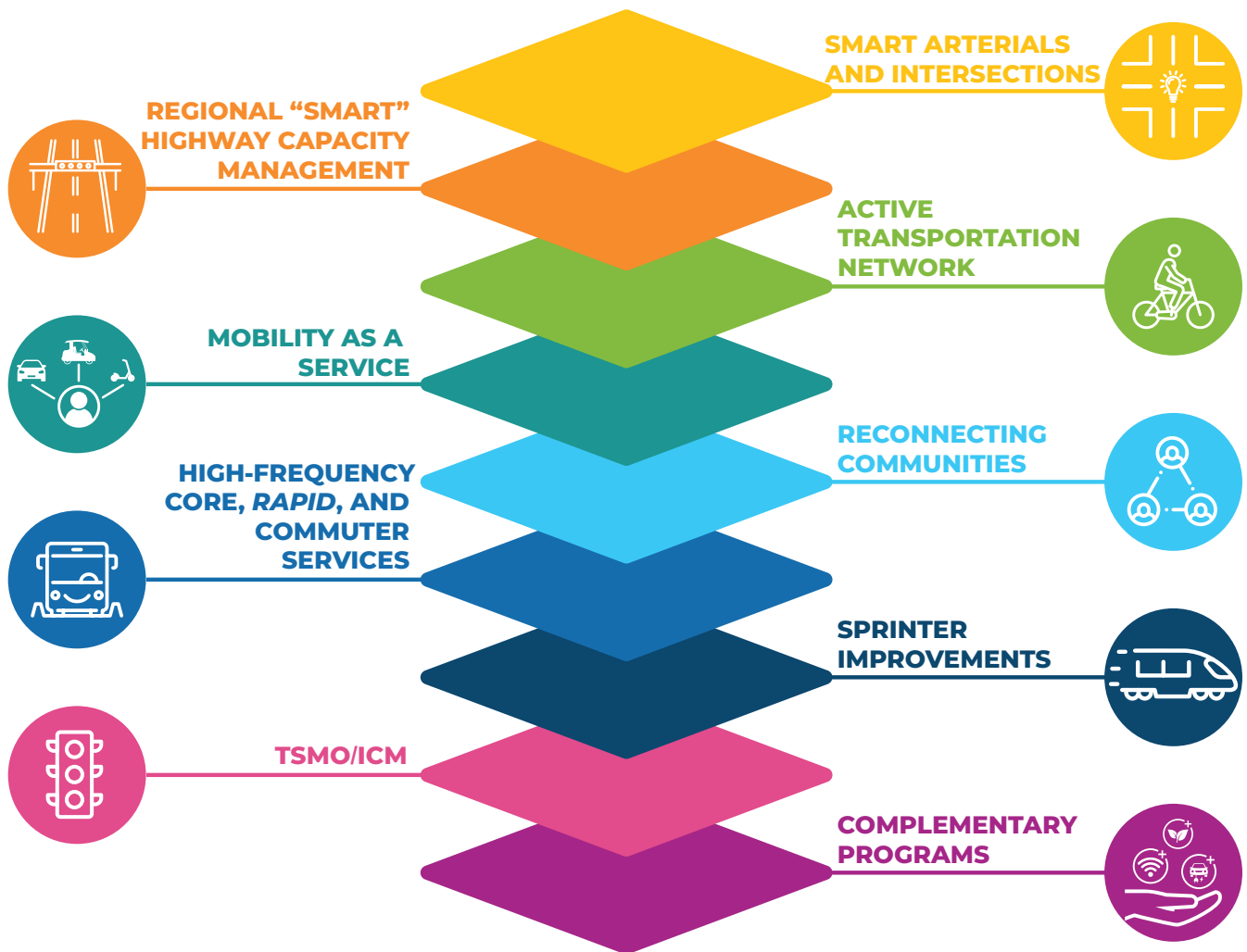
Figure 5-1: The Multi-Faceted System Approach to Develop The Plan



# The Strategy Layers

The CMCP Mobility Solution starts with transportation and mobility strategies organized into nine “layers.” The layers were derived from the regional vision statement included in the 2021 San Diego Forward Regional Plan and understanding North County’s needs and challenges, mobility best practices, and emerging transportation tools shown in **Figure 5-2**.

Each strategy represents a list of projects and services; not simply to be piled on top of another but layered and integrated to be mutually beneficial to create adaptable, resilient transportation systems.





# REGIONAL “SMART” HIGHWAY CAPACITY MANAGEMENT

## STRATEGY

*Integrate infrastructure and services along the State Highway System (SHS) for real-time traffic management and operations.*

### Example Projects

- Fiber/Wi-Fi Communications to Traffic Management Center
- Connected Ramp Meters
- Closing Connector Gaps Across Interchanges
- Cellular Vehicle-to-Everything (C-V2X) Deployments
- Direct Access Ramps
- Dynamic Lanes (e.g., HOV, Connected Vehicles/Autonomous Vehicles)
- Managed/Express Lanes
- Speed Harmonization and Management

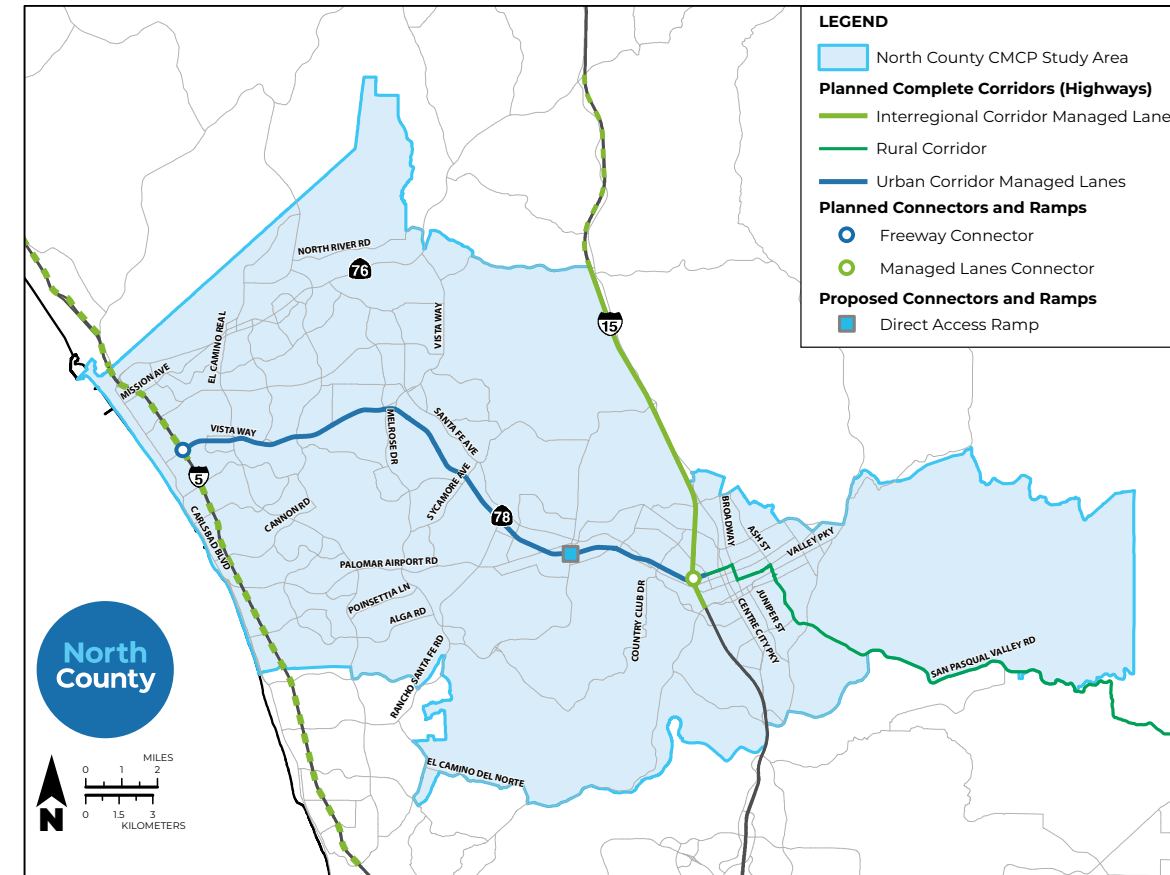
### What It Means for North County

- Improved safety, mobility, and efficiency for all users
- Ability to actively manage traffic operations and adjust control mechanisms (e.g., traffic lights, freeway on-ramp meters, highway messages boards, and speed limits)
- Ability to dynamically direct traffic flow and direction in response to accidents, queuing, and congestion
- Improved connectivity and traffic flow between local roads and SHS
- Increased person-throughput and reduce vehicle miles traveled (VMT)
- Increased mode share of carpool, rideshare, and transit

### What It Means for Users

- Improved travel times between home and key destinations such as work
- More consistent travel times
- Safer travel along local streets and SHS corridors
- Decreased noise from highway traffic
- Cleaner air from reduced greenhouse gas (GHG) emissions
- More options for carpool, rideshare, and transit travelers

## Regional SMART Highway Capacity Management



STRATEGY APPLICATION	Amount
Urban Corridor Managed Lanes	17 miles
Rural Corridor	13 miles
Interregional Corridor Managed Lanes	14 miles
Direct Access Ramp	1
Freeway Connector	1
Managed Lanes/Express Lanes Connector	2

# SMART ARTERIALS AND INTERSECTIONS

## STRATEGY

Optimize arterial performance and safety by utilizing a SMART-Signal system to collect traffic data and generate real-time conditions.

### Example Projects

- Fiber/Wi-Fi Communications to Traffic Management Centers
- Intersection CCTV cameras
- Adaptive Signal Control
- Intersection Coordination with Connected Ramp Meters
- Signal Coordination with At-Grade Transit Guideway Crossings
- Transit Queue Jumps and Signal Priority
- Flex/Dynamic Lane Assignment
- Passive Pedestrian/Bicyclist Detection
- Advance Pedestrian Phase
- Bicycle and Right Turn Lane Conflict Improvements
- Traffic Calming (e.g., Roundabouts, Traffic Circles, and Other Intersection Designs)

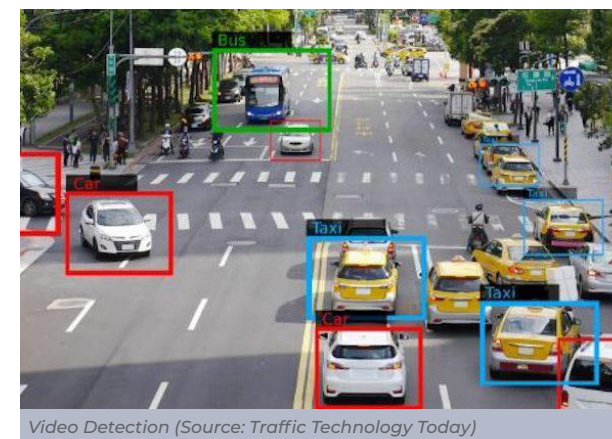
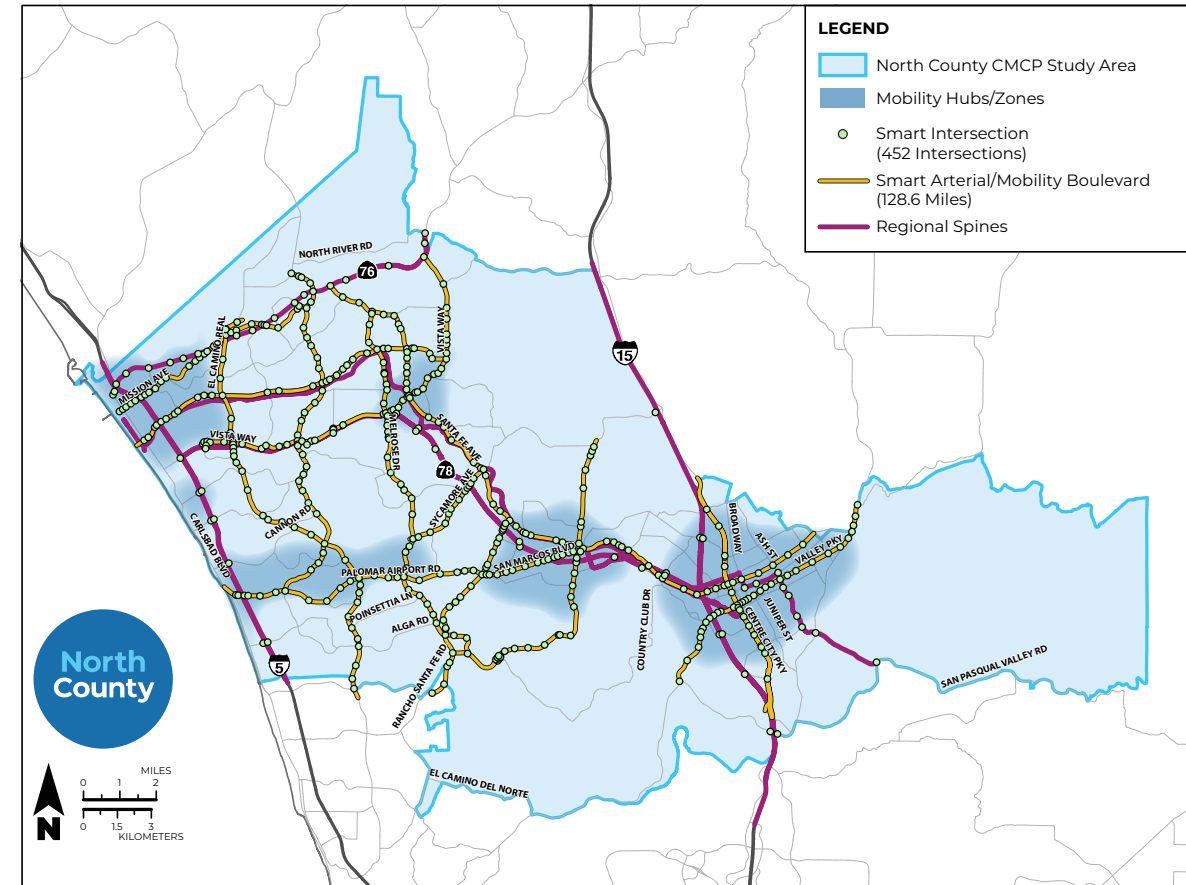
### What It Means for North County

- Improved day-to-day traffic operations to move more people and goods to their destination efficiently and safely, while maximizing the limited space on roads through technology applications
- Real-time system operational awareness of the locations of transit vehicles, personal vehicles, pedestrians, and bicyclists
- Manage congestion along key streets in high demand by monitoring queue lengths and travel times
- Improved corridor signal progression
- Reduced delay and greenhouse gas (GHG) emissions, especially in areas with high concentrations of social equity focus communities
- Dynamic signal operations to adjust signal timing and traffic flow to reflect real-time traffic conditions

### What It Means for Users

- Safer crossings for bikers and pedestrians
- Lower travel times and variability
- Cleaner air from reduced GHG emissions

## Smart Arterials and Intersections



Video Detection (Source: Traffic Technology Today)

STRATEGY APPLICATION	Number of Intersections
Study Area	452
Mobility Boulevard	392
Regional Spine	85
Mobility Hub	69
Mobility Boulevard and Regional Spine	240
Mobility Boulevard and Mobility Hub	207
3 Strategic Anchors	49





# ACTIVE TRANSPORTATION NETWORK

## STRATEGY

Expand the active transportation network to safely connect people walking and biking to their desired destinations through enhanced and protected facilities.

### Example Projects

- Completed Gaps in Network
- Protected Bicycle Facilities along Mobility Boulevards
- Improved Pedestrian and Bike Crossing at Signalized Intersections along Mobility Boulevards (e.g., Intersection Clearance Detection)
- Advance Bicycle Detection
- Bicycle and Right-Turn Lane Conflict Improvements
- Two-Stage Left Turn Facilities
- Conversion of Class II Facilities to Protected Class IV Lanes at Intersection Approaches along Mobility Boulevards
- Provide Connections between Mobility Boulevards to the Inland Rail Trail and Other Major Trails
- Engineering feasibility studies to identify alternatives and constraints for proposed bikeway corridors

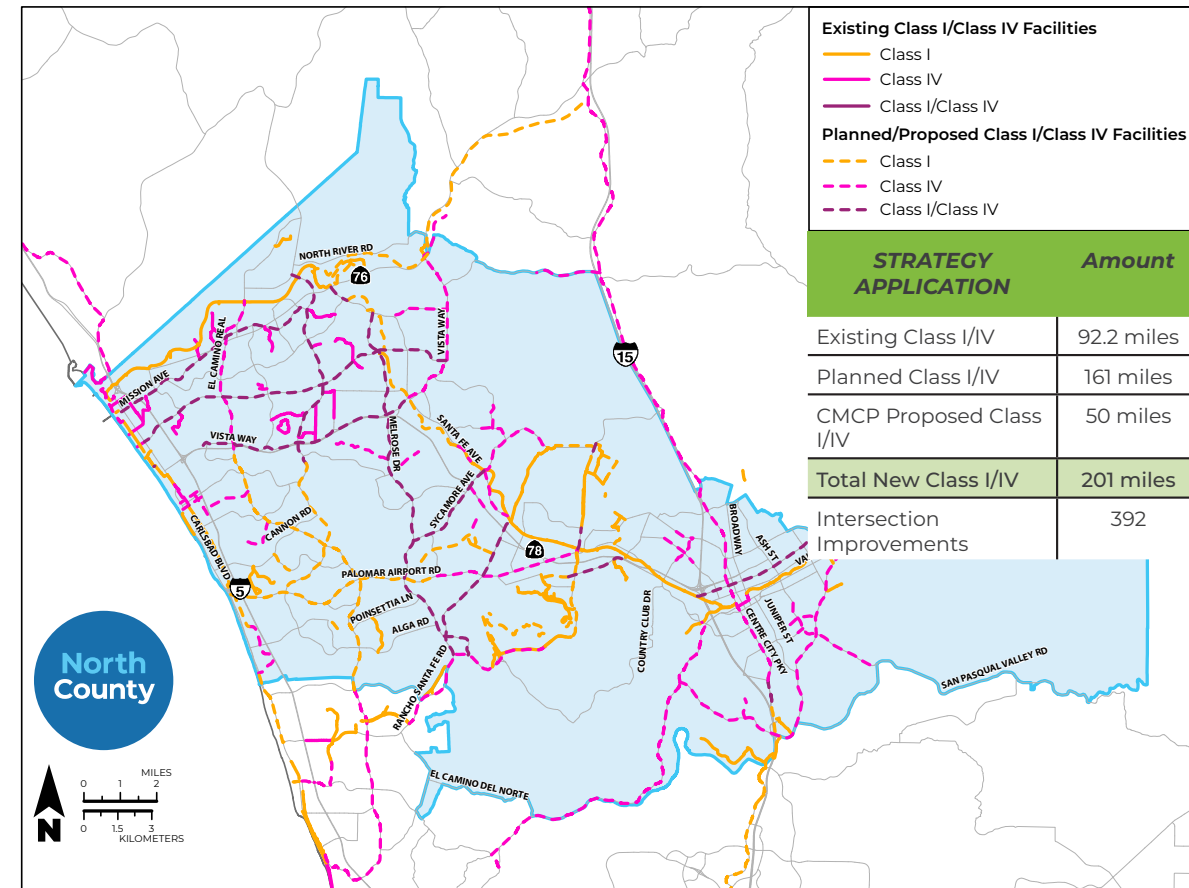
### What It Means for North County

- Safer facilities and intersections for the transportation system's most vulnerable users (e.g., people who walk or bike)
- Reduction in conflicts and collisions between vehicles and people walking or biking
- Enhanced transportation network that provides a safe, convenient option for people who cannot drive or do not own a vehicle to get around
- Reduced air pollution and greenhouse gas (GHG) emissions
- Completed gaps for active transportation infrastructure along key local roads

### What It Means for Users

- Shorter distances to walk and bike to destinations
- Safer travel crossings at intersections
- Opportunity to live a more active lifestyle
- Better access to transit stations and bus stops
- More low-cost options

## Active Transportation



Bike Box in City of National City



Two-Way Cycle Bikeway (Source: NACTO)



# RECONNECTING COMMUNITIES

## STRATEGY

Provide a seamless transportation experience across agency boundaries and infrastructure (e.g., railroads, highways, overpasses/underpasses, and major arterials) for users.

### Example Projects

- Closing Active Transportation Gaps across Interchanges and Crossings
- Improve Safety Devices/Design at Railroad Crossings
- Coordination across Freeway Interchanges (see TSMO Strategy)
- Intersection-to-Intersection Communication (between multiple agencies) (see TSMO Strategy)
- Arterial Coordination with Connected Ramp Meters (see TSMO Strategy)
- Signal Coordination with At-Grade Transit Guideway Crossings (see TSMO Strategy)

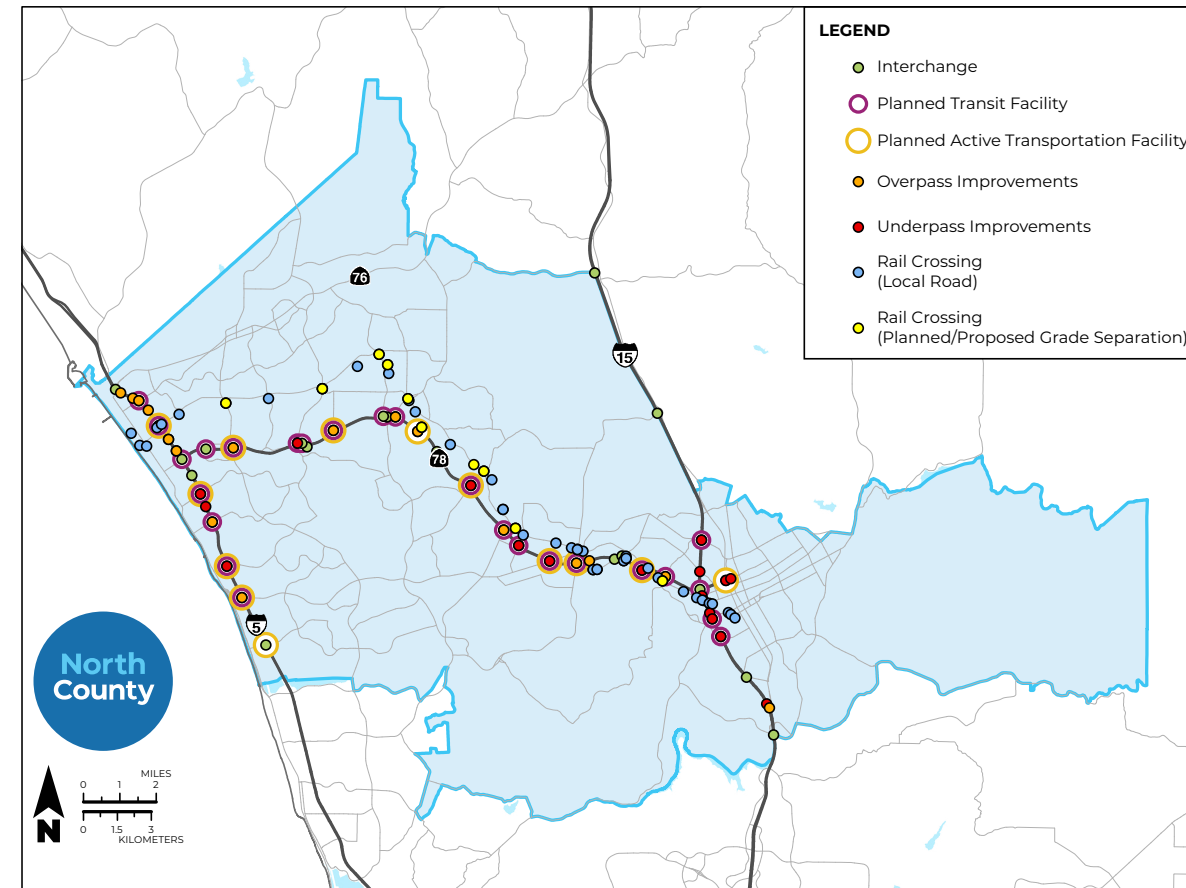
### What It Means for North County

- Enhanced travel between communities at existing infrastructure that presents barriers and constraints (e.g., railroads, highways, and wide arterials) to all modes
- Interconnected system across agencies to create a seamless travel experience across agency boundaries
- Safer streets and intersections between State Highway System (SHS) and local roads

### What It Means for Users

- Enhanced travel experience at railroad crossings, interchanges, and overpasses/underpasses
- Improved safety for all users at on/off-ramps, especially for people walking and biking
- Improved safety at rail crossings
- Minimized delay and congestion at on/off-ramps accessing the SHS
- Improved neighborhood connectivity, especially in areas with high concentrations of social equity focus communities
- Cleaner air from reduced greenhouse (GHG) emissions

## Reconnecting Communities



Santa Fe Drive Underpass (Source: Google Maps)

STRATEGY APPLICATION	Number of Intersections
Interchange Improvements	23
Overpass Improvements	19
Underpass Improvements	23
Rail Crossings	38
Rail Crossings with Planned/Proposed Grade Separations	10

# SPRINTER

## STRATEGY

Increase use of SPRINTER by reducing or eliminating barriers to service and build out double-track in phases. Double track the SPRINTER corridor to the maximum extent possible to provide resiliency, operational flexibility and maximize reductions in headway times.

### Example Projects

- Phased Double Tracking of SPRINTER Alignment
- Increased frequency between San Marcos and Escondido
- Increased frequency between Oceanside and Vista
- SPRINTER extension between Escondido and southern Escondido (Felicita Ave)
- Grade Separation with Intersection Improvements for Other Mobility Modes (see Reconnecting Communities Strategy)

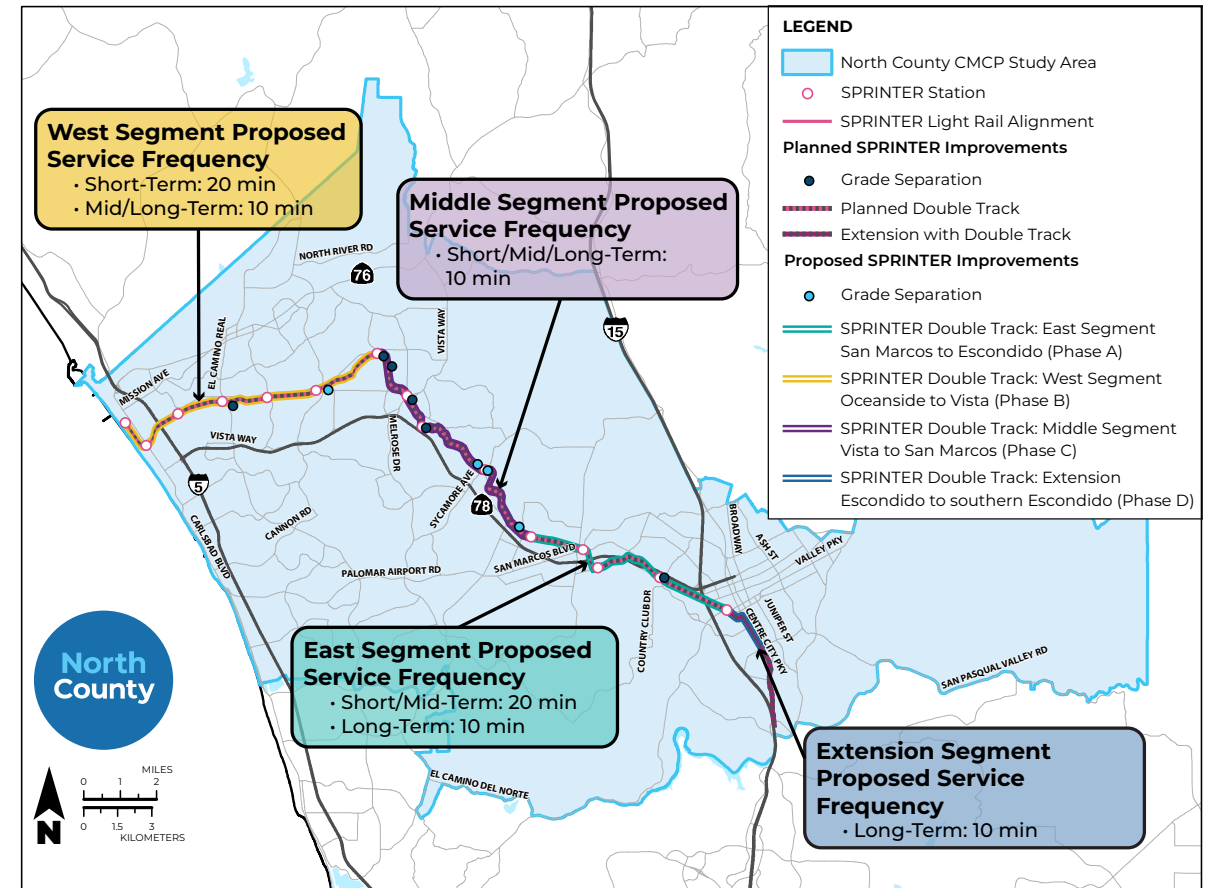
### What It Means for North County

- Meet user demand and improve service frequency
- Phased improvements to align with anticipated development
- More seamless transition between modes
- Reduced conflict between modes at intersections

### What It Means for Users

- More useful and convenient service
- Wider range of accessible destinations
- More reliable and reduced travel times
- A competitive travel option
- Improved safety at key intersections

## SPRINTER



STRATEGY APPLICATION	Amount
Grade Separation (Planned)	6
Grade Separation (Proposed)	4
East Segment San Marcos to Escondido (Phase A)	6.5 miles
West Segment Oceanside to Vista (Phase B)	8 miles
Middle Segment Vista to San Marcos (Phase C)	7 miles
Extension Escondido to southern Escondido (Phase D)	3 miles



# HIGH FREQUENCY CORE, RAPID, AND COMMUTER SERVICES

**STRATEGY**

Build upon NCTD's BREEZE core network to provide high-frequency, limited stop transit services to connect the community to key destinations within North County while creating a "grid" around SPRINTER and COASTER rail lines.

### Example Projects

- Corridor Service Consolidation (from Mobility Boulevards)
- Rapid Style Stations
- Transit Queue Jumps and Signal Priority
- Direct Access Ramp(s) to Managed Lanes
- Night-bus network
- Transit Bypass Lanes
- Bus/Bike Lanes

### What It Means for North County

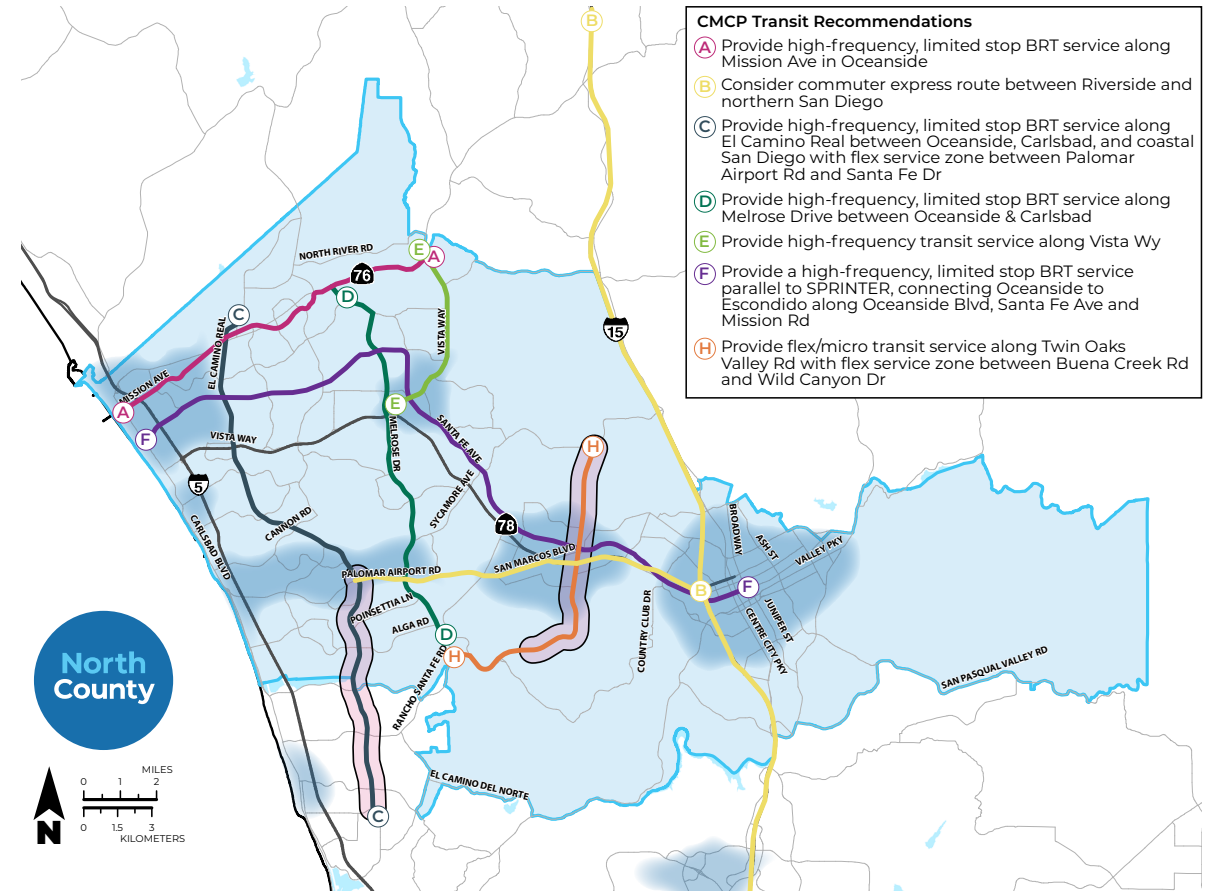
- Inter-connected transit service that serves all major corridors throughout North County CMCP study area (from inland communities to communities along the coast)
- Increased efficiency of bus travel through intersections with traffic signals that can adapt to changing conditions in real-time and prioritize transit services
- Reduced conflict between other modes with designated space for specific modes
- Increased person-throughput and reduce vehicle miles traveled (VMT) by making transit more convenient and attractive with more frequent service and reliable travel times
- Reduced delay of transit services

### What It Means for Users

- Enhanced travel experience
- More reliable and on-time bus arrivals
- Faster bus trips
- Access to more jobs and opportunities
- Safer streets
- Increased options for high-speed transit services

To help inform this strategy, a transit demand and market analysis was completed. Details about the approach of the analysis can be found in **Appendix S**.

## High Frequency Core, Rapid, and Commute Services



STRATEGY APPLICATION	Amount
BRT Services	4 routes
Commuter Services	2 routes
Frequent Transit Services	1 route
Flex Services	4 routes

# TSMO/ICM

## STRATEGY

Coordinate and manage traffic operations for multiple modes within, across, and between agency boundaries of North County.

### Example Projects

- Fiber/Wi-Fi Communications (with redundant paths) to Traffic Management Centers (TMCs)
- Integrated Corridor Management
- Traffic Incident Management
- Traffic Signal/Ramp Metering Improvements and Coordination
- Integrated Traveler Information at Mobility Hubs (i.e., shops, destinations), along Mobility Boulevards, and Regional Spines
- Operations and TMCs Coordination between and across Agency Boundaries
- See Regional “SMART” Highway Capacity Management and Smart Arterials and Intersection Sheets for more examples

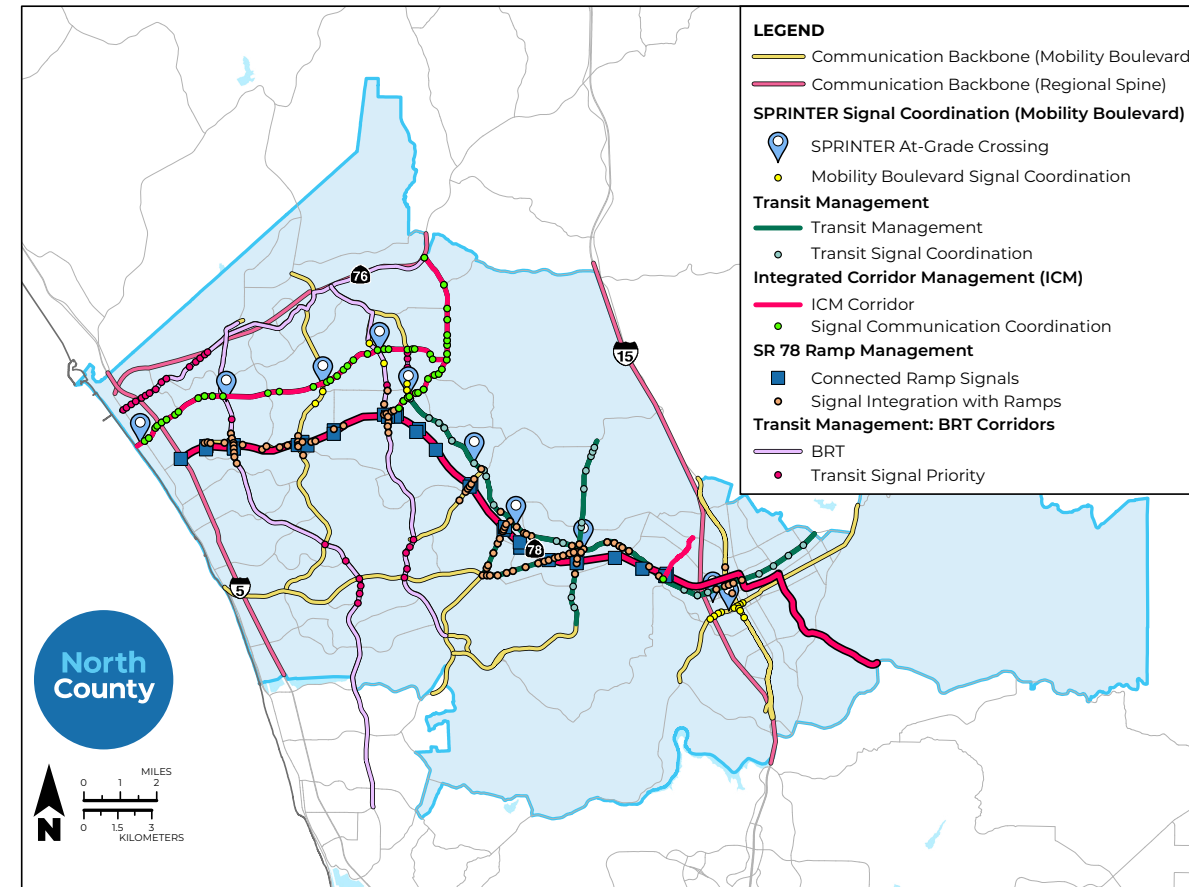
### What It Means for North County

- Improved connectivity and traffic flow on and between State Highway System (SHS) and mobility boulevards
- Maximize the performance of the transportation system through flexible solutions to meet changing user needs and expectations in a cost-effective way
- Reduce impact of unexpected events (e.g., crashes, bad weather, work zones, and special events)
- More efficient and effective use of the existing capacity
- Increase person-throughput and reduce vehicle miles traveled (VMT)
- Intersection-to-intersection communication (between multiple agencies) to alleviate bottlenecks and optimize capacity through traffic operations
- Safer system for travelers and responders to traffic incidents
- Data collected to support traffic operations and inform performance management programs

### What It Means for Users

- Reduced delay in trips, helping reach destinations on time regardless of the mode of travel
- More reliable service and travel time for people in carpools, rideshare, and transit
- Faster and less congested travel between home and work
- Safer streets and intersections

# TSMO/ICM



STRATEGY APPLICATION	Amount
Communication Backbone	193 miles
SPRINTER At-Grade Crossing and Mobility Boulevard Signal Coordination	10 crossings 66 signals
Transit Signal Coordination	100 signals
Signal Coordination along ICM Corridors	51 signals
Connected Ramp/Signal Integration	30 ramps 102 signals
Transit Signal Priority	87 signals

# MOBILITY AS A SERVICE (MAAS)

## STRATEGY

Integration of various on-demand transportation services that facilitate a wide range of mobility options such as transit, carshare, rideshare, and micromobility.

### Example Projects and Programs

- Peer-to-peer rental services (e.g., GoGet, FlexiCar)
- Jump Bike)
- Rideshare apps (e.g., Uber, Lyft)
- Micromobility services (e.g., Bird Scooters,

### What It Means for North County

- Flexibility to efficiently adjust to changing commuter needs
- Reduced need for personal vehicles and thus, reducing the number of vehicles across communities
- Repurposed parking spaces for development such as businesses and housing
- Service for hard-to-access geographies
- Public-private partnerships
- Cost effective operations

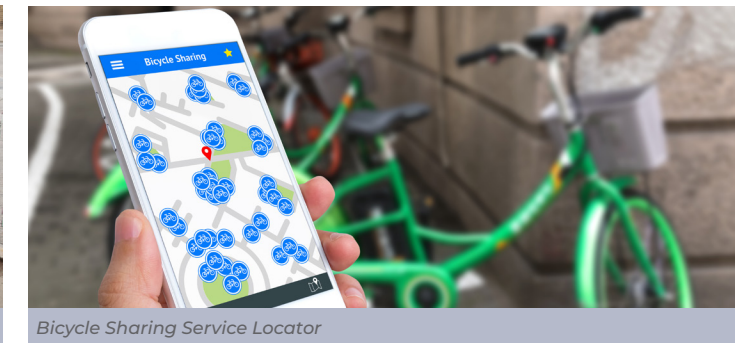
### What It Means for Users

- Personalized mobility solutions
- Integrated transportation services, real-time information, payment, and ticketing
- Increased options for short trips that are affordable and accessible
- Reduced congestion in peak travel times
- Park once or no park trips
- More modal choices
- A more responsive, efficient, and resilient transportation system

## Mobility as a Service



Access to Scooters



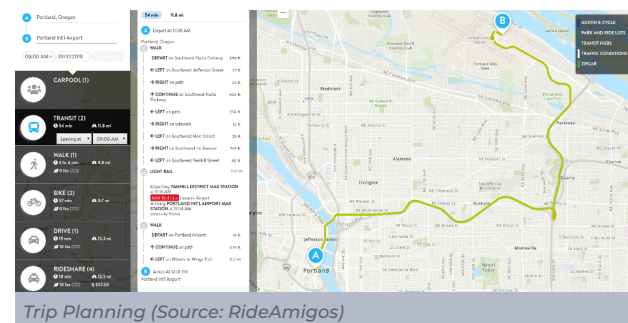
Bicycle Sharing Service Locator



Access to Docked Bike Charging Stations



Car Sharing Application



Trip Planning (Source: RideAmigos)



Transit Tap Card Kiosk



## COMPLEMENTARY PROGRAMS

STRATEGY

Combine flexible mobility programs and complementary infrastructure improvements that amplify the benefits of the various modes.

### Example Projects and Programs

- Telecommuting
- Transportation Demand Management (TDM)
- Electric Vehicle Charging Stations
- Secure Bike Parking
- Broadband Infrastructure
- Digital Wayfinding Kiosks
- Fleet Electrification
- Delivery Lockers
- Reduced Fair Vouchers
- Creek Restoration and Sustainability Program

### What It Means for North County

- Increased access to activity centers, SPRINTER stations, educational institutions, and other key destinations while reducing the number of vehicle miles traveled
- Decreased congestion by encouraging use of shared mobility services
- Support for zero emissions infrastructure and telecommuting
- Intersection-to-intersection communication across communities, facility types, and agencies
- Community partnerships to increase sustainable and equitable transportation options
- More funding for increased zero emissions infrastructure
- Reduced chance of flooding at creeks and increased climate resiliency

### What It Means for Users

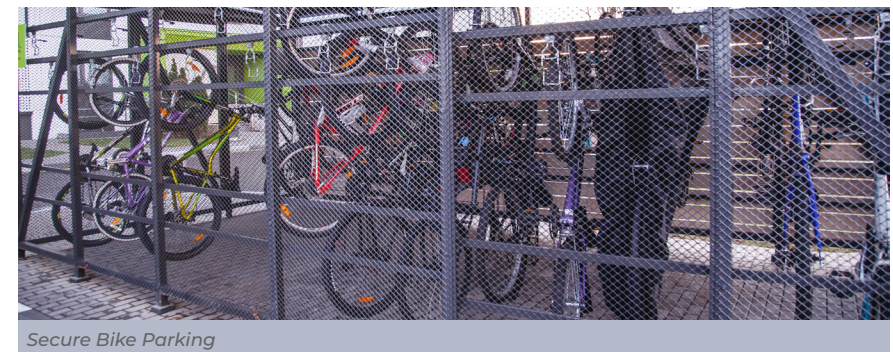
- Increased access to recreation opportunities
- Increased flexibility
- More EV Charging options
- Better local air quality
- Increased access to jobs
- More efficient trips
- Diverse options



## Complementary Programs



Digital Wayfinding Kiosk



Secure Bike Parking



Increased Telecommuting



Specialized Vehicles to Serve All Needs



Electric Vehicle Charging



Broadband Infrastructure

## STRATEGY LAYER APPROACH

The CMCP’s layering approach is a powerful, resilient tool for addressing diverse mobility needs and has the ability to adapt and shift to respond to new or evolving transportation challenges.

Utilizing a layering approach allows development of transportation solutions that effectively advance the vision of mobility for North County travelers by recognizing the interdependence of solutions and taking advantage of the synergy effect of implementing improvements together. **Figure 5-3** to **Figure 5-5** are examples of how the strategies can be layered with one another and complement each other. Each example is organized in the following way: purpose of the strategy layer, how it responds to the subregion’s opportunities and constraints, other strategy layers that support, and the result of applying the combined strategy layers.

Figure 5-3: Strategy Layering Example #1



The **Active Transportation** strategy expands the active transportation network to reinforce connections and provide protected facilities for pedestrians and cyclists. A key opportunity for partnership between and with cities, this strategy was developed in response to observed collisions, growing e-bike and micromobility technology, and the high percentage of short trips (less than 3 miles) within North County. Active transportation improvements in combination with other strategies, such as **Transportation Interfaces** and **Smart Arterials and Intersections**, can facilitate safety improvements such as safer access to destinations/safe routes to school, and encourage the comfortable use of micromobility modes for shorter trips within North County communities.



Figure 5-4: Strategy Layering Example #2



The **SPRINTER** strategy is a targeted approach to implementing higher-frequency, faster, and more reliable SPRINTER service across North County. The SPRINTER serves several key destinations within North County with a high on-time performance; however, while on-time performance is high, the service is not reliably convenient due to lower frequency of service and difficult station accessibility. SPRINTER can become a more attractive option for users through targeted SPRINTER high frequency improvements (10- or 15-minute frequency) and station mobility and access improvements through the **Reconnecting Communities, Complementary Programs, Mobility as a Service, and Active Transportation** strategies.

Figure 5-5: Strategy Layering Example #3



The **Reconnecting Communities** strategy is focused on providing a seamless customer experience across transportation facilities (e.g., Interstate 5 or State Route 78). This strategy responds to transit station accessibility, the “barrier effect” regional facilities such as SR 78 and SPRINTER can have on communities, and the lack of coordinated door-to-door transportation services. Layering of Transportation Interface improvements with **Smart Arterials and Intersections, Mobility as a Service** and **TSMO/ICM** strategies can provide opportunities to improve user experience, provide consistent travel times, and allow for faster transit service along North County’s major arterials.



## Adapting to Uncertainty and Variability

Planning for unknown variables is an imperative component of the North County CMCP. Unpredictable events will shape the future in ways that cannot be anticipated including:

- **New technology adoption and advancement** – the market penetration and adoption of new technologies such as electric vehicle, connected vehicles, and autonomous vehicles.
- **Population, land use, and job growth** – the rate and density of development for housing and job centers and the location of these developments, impacting the number of people and jobs the transportation system will need to support.
- **Evolving demands and priorities** – the rise of new regional and state policies, regulations, and fees such as the potential of a vehicle miles traveled (VMT) user fee.
- **Macroeconomic changes** – the potential disruption or changes of external economic factors that cannot be controlled.
- **Sustainability and resiliency** – the impacts climate change and sea-level rise are having on transportation infrastructure and the ability for the subregion’s transportation system to move people around in the face of one or more obstacles to normal conditions.
- **Changing demographics and trip patterns**

These uncertainties will present challenges as well as new opportunities. Understanding and accepting this uncertainty requires a transportation system that is nimble and adaptive in the face of challenges. The CMCP provides flexibility for agencies to pivot when more clear information and trends about unknown variables are discovered—allowing transportation solutions to change over time and ensure mobility in the corridor meets the goals and objectives of the CMCP.

*There are projects and programs identified by stakeholders that depend on certain conditions and “what if” scenarios. These are identified to monitor conditions and help elevate projects when the “what if” conditions arise—facilitating a nimble and flexible CMCP for when conditions change.*





## The Strategic Anchors

As described in **Chapters 2** and **3**, North County has significant mobility needs ranging from local community mobility to regional transportation. The CMCP Mobility Solution requires a framework that represents the best opportunity to meet plan goals and objectives to address North County’s mobility needs—and, therefore, priorities for state and regional funding. For North County, this framework is based on “strategic anchors” focused on facilities and travel at the local, subregional, and regional levels.

*The strategic anchors are used to guide strategy, program, and project identification, development, and implementation to accomplish the goals and objectives set out for a successful North County transportation system.*



The strategic anchors framework consists of three categories where each anchor complements the other to provide a balanced and integrated mobility network. The strategic anchors are:



These strategic anchors work in tandem, reinforce the alignment between transportation owners/ stakeholders, and are a means to identify projects and solutions that provide mobility improvements at the local, subregional, and regional levels as well as provide an enhanced travel experience. Additional information about travel time experience can be found in **Appendix T**. They’ll also provide the required organization and guidance to:

- Develop transportation solutions to address and balance local, regional, and state needs across communities and different users’ travel needs, and
- Strategically advance projects and programs emphasizing those that provide the most system benefit.



## MOBILITY HUBS

**Mobility Hubs** are *areas or zones* with a high level of activity with potential to benefit from a greater concentration of mobility options—walking, biking, transit, neighborhood electric vehicles, and shared mobility. Successful mobility hubs are key in addressing affordable housing, better aligning employment with housing and reducing trip lengths. Mobility hubs are a strategic anchor for providing:

- “locally focused mobility solutions” through an integrated suite of mobility services, amenities, and supporting technologies to better connect high-frequency transit to an individual's origin or destination;
- integration between communities and activity centers through on-demand travel choices for short trips (less than 3 miles); and
- the transportation infrastructure and mobility services between 1) *activity centers* and 2) *mobility boulevards/regional spines*.

Mobility hubs are comprised of mobility programs and services focused on local mobility. Mobility hub program sheets (see **Attachment 1**) have been developed for several types of programs that are anticipated to be deployed within mobility hubs.

Within the study area, by 2050 North County mobility hubs/zones will include 320,000 residents and 250,000 employees—encompassing:



- » 67% of employment
- » 43% of population
- » 54% of low-income population
- » 45% of People of Color communities
- » 40% of 75 and older population



Source: City of San Marcos - North City



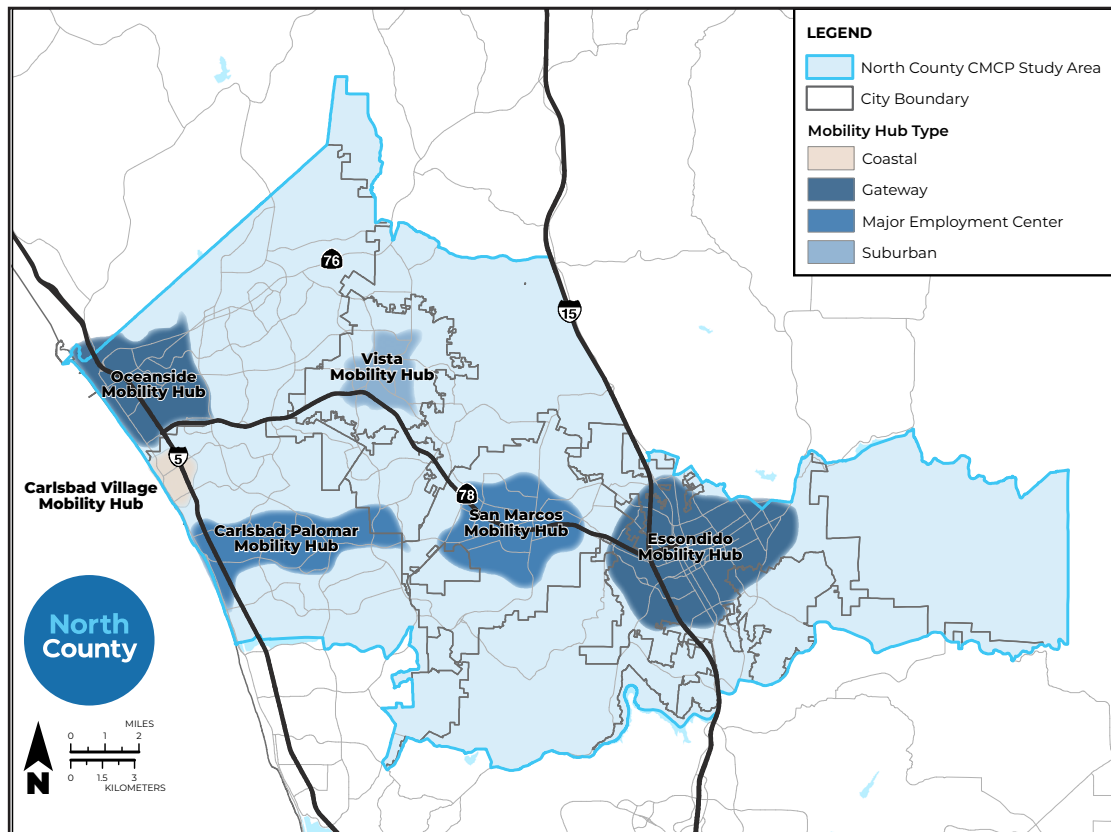
## Identified Mobility Hubs/Zones

SANDAG’s Regional Vision and 2021 Regional Plan identified types of mobility hubs that reflect different geographic, land use, and transportation contexts. The following are the four types of mobility hubs identified in North County:

Table 5-1: Types of Mobility Hubs/Zones

TYPE	DESCRIPTION	LOCATIONS WITHIN NORTH COUNTY
<b>Gateway</b>	Act as an entry point into the regional network. These mobility hubs are geographically near to “gateways” into the region including starting points of high frequency transit services.	Oceanside and Escondido
<b>Major Employment Center</b>	Regionally significant employment centers not in the Gateway hubs.	Carlsbad and San Marcos
<b>Coastal</b>	Located along the coastal areas of the region that are popular seaside and recreational destinations for residents and visitors alike.	Carlsbad Village
<b>Suburban</b>	Primarily residential and serve as large population centers.	Vista

Figure 5-6: Mobility Hubs/Zones in the North County Subregion



## Factors for Success

Mobility Hubs/Zones are most successful when the following conditions are present:

Figure 5-7: Factors for Mobility Hub Success





## Mobility Boulevards - An Element of Complete Corridors

**Mobility Boulevards** are North County’s major arterials that are critical to moving people and goods—especially between regional facilities (i.e., I-5, I-15, SR 78, SPRINTER) and North County’s Mobility Hubs (i.e., major activity centers). Mobility Boulevards provide the web of major roadways needed to provide subregional connectivity and provide the following for the CMCP:

- Focus on “person throughput” rather than vehicle throughput
- Support safety and comfort for all modes of travel while promoting efficient movement
- Expand the function of the street to be more inclusive of various transportation users by allocating safe, comfortable space for walking, biking, and accessing transit
- Transportation options that complement one another, helping move more people and goods seamlessly while providing communities with mobility options

### Identifying Mobility Boulevards

Mobility Boulevards have subregional significance—meaning they are not just local arterials that get people to the state highway system or serve as downtown main streets. They are corridors that carry a large amount of people and vehicles as they connect cities, communities, and major activity centers—approximately 40% of fatal and serious injuries over the last five years occurred along Mobility Boulevards. Mobility Boulevards will continue to serve North County’s multimodal transportation needs into the future.

The following information was utilized when selecting the candidates for Mobility Boulevards:

- Connection to activity centers/communities
- Adjacent land uses (residential, mixed-use, commercial)
- Alternative paths to state highway system
- Top routes of travel for users
- Potential for higher quality investments for pedestrians, bicyclists, and transit
- Estimated vehicle miles traveled (existing and future)
- Estimated existing peak hour volume
- Historic safety data

Additional information about the existing estimated peak hour volume of Mobility Boulevards can be found in **Appendix N**.

**Mobility Boulevard** sheets identify mobility solutions along each Mobility Boulevard to advance the vision, values, and goals set for North County.

Click on one of the Mobility Boulevards below to jump to that specific Concept Sheet in **Attachment 2**:

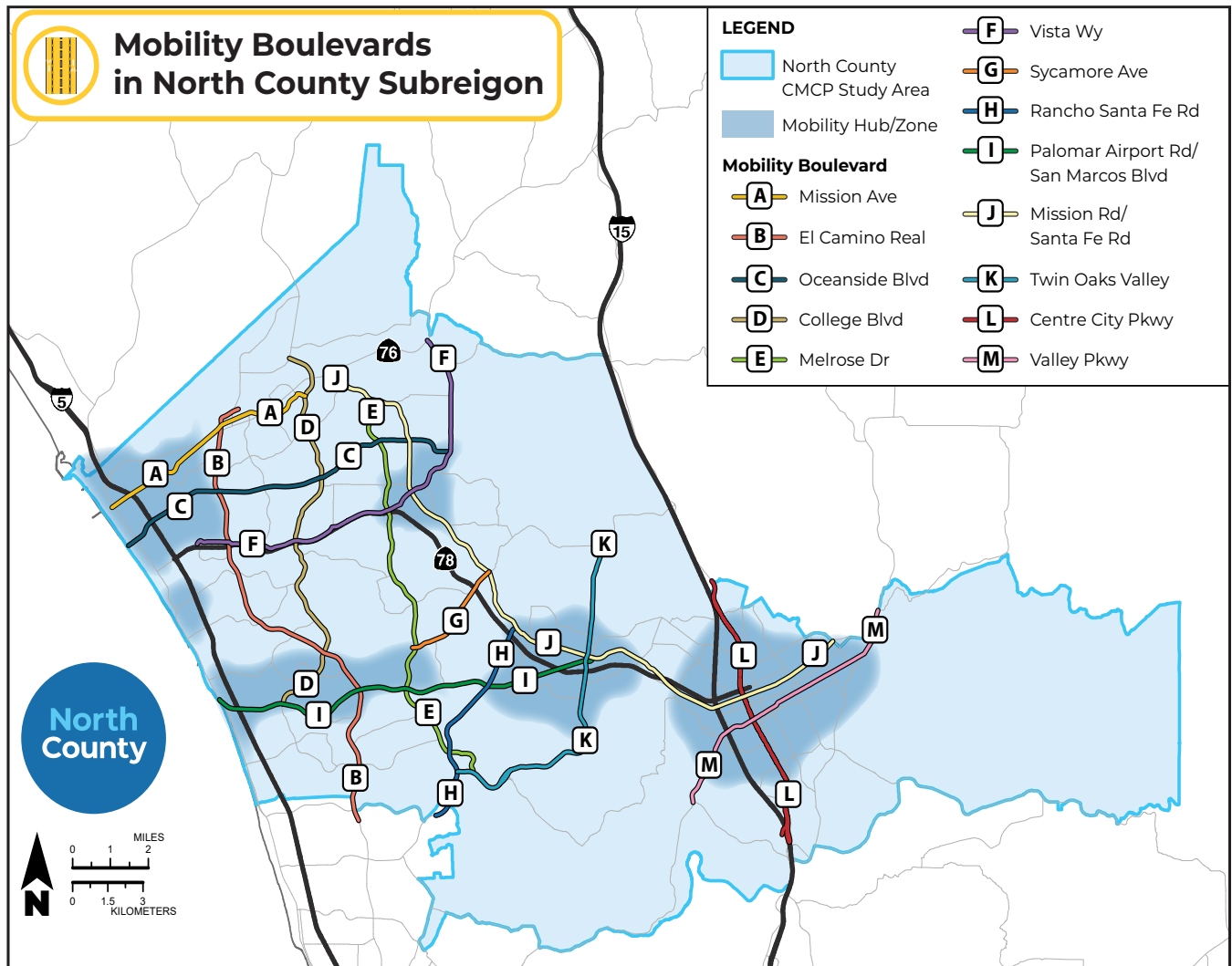
- » Palomar Airport Road/San Marcos Boulevard
- » El Camino Real
- » Melrose Drive
- » Santa Fe Ave/Mission Road
- » Mission Avenue
- » College Boulevard
- » Oceanside Boulevard
- » Vista Way
- » Sycamore Avenue
- » Rancho Santa Fe Road
- » Twin Oaks Valley Road/San Elijo Road
- » Valley Parkway
- » Centre City Parkway





The identified Mobility Boulevards for the subregion are shown in **Figure 5-8**.

Figure 5-8: Mobility Boulevards for the North County CMCP







## Factors for Success

Mobility Boulevards provide multiple benefits for the subregion including:



**Increase person throughput**



**Facilities connections**



**Tailored multimodal travel**



**Improve travel time & reliability**



**Make streets safer**



**Support economic development**

Mobility Boulevards provide an emphasis on multimodal, higher person-throughput and providing a safer environment for walking and biking along and across the boulevards. They are most successful when:

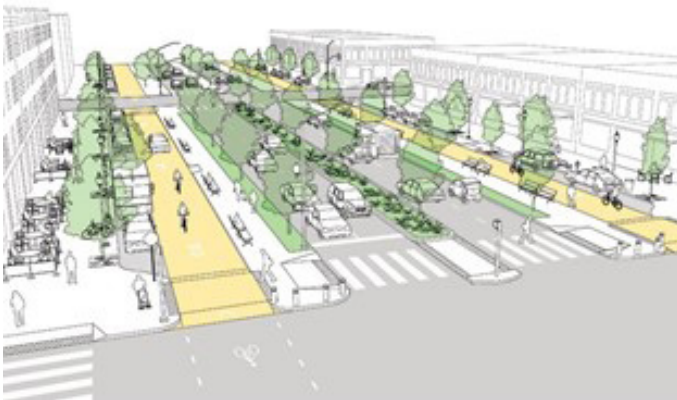
- Smart corridor concepts and technologies are incorporated to support higher person throughput
- Walking is supported with wider sidewalks and enhancements to the public realm within mobility hubs
- Biking is supported through separated facilities (Class IV facilities) that allow safe movement for e-bikes, regular bikes, and other micromobility options
- Transit is more frequent and has faster travel times by integrating flexible lanes (HOV 3+ or transit-only) and upgraded transit stops
- **Table 5-2** below provides examples of how North County travelers can benefit from Mobility Boulevards.

**Table 5-2: Quality Investments for Mobility Boulevards**

INVESTMENT EXAMPLE	MODE SERVED	BENEFITS
Wider Sidewalk	Walking	<ul style="list-style-type: none"> <li>➤ Minimize conflicts between pedestrians and vehicles</li> <li>➤ Improve shopping experience with streets with retail land uses</li> </ul>
Public Realm Enhancements	Walking	<ul style="list-style-type: none"> <li>➤ Buffer and protect pedestrians from roadway traffic</li> <li>➤ Provide comfortable places to sit and rest</li> </ul>
Class IV Separated Bikeways	Biking	<ul style="list-style-type: none"> <li>➤ Provide the safety, comfort, and separation most people want and need to consider bicycling</li> <li>➤ Improve safety for bicyclists, drivers, and pedestrians</li> </ul>
Transit-Only Lanes	Transit	<ul style="list-style-type: none"> <li>➤ Improve on-time performance and transit efficiency, bypassing congestion at intersections</li> </ul>
Upgraded Transit Stops	Transit	<ul style="list-style-type: none"> <li>➤ Provide a comfortable, shaded waiting space</li> <li>➤ Accessible and fast boarding</li> </ul>
Smart Intersections	All	<ul style="list-style-type: none"> <li>➤ Improve person throughput through coordinated signals (both arterial and at freeway ramps) and more efficient signal operations</li> <li>➤ Minimize conflicts between cyclists and vehicles</li> </ul>



Below are illustrative examples of Mobility Boulevards.





## Regional Spines

**Regional Spines** are the regional transportation facilities that connect North County to the neighboring regions in southwest Riverside County, Orange County, and the rest of San Diego County. Regional Spines:

- Focus on “person throughput” rather than vehicle throughput including priority access for transit, carpooling, or vanpooling;
- Are historically high investment corridors that connect the subregion to the rest of the San Diego region and surrounding regions such as the counties of Riverside, San Bernardino, Los Angeles, and Orange. In addition to subregional importance these facilities play a significant role in meeting interregional and interstate mobility needs;
- Contain high capacity infrastructure for medium- to long-distance movement of people and goods;
- Will enable technology to accommodate efficient movement and modify the corridor based on changing traffic conditions; and
- Will utilize high-speed communication networks to allow connected vehicles, smartphones, and smart arterials to share data.

As part of **Attachment 3**, there is a sheet for each Regional Spine identified for the subregion. These sheets identify transportation solutions that can be implemented to improve the way users travel, and enhance the mobility options for these regional corridors, ultimately achieving the vision, values, and goals set for the subregion.

## Identified Regional Spines

The following are corridors considered to be critical to subregional connection internally and to the surrounding regions:

- **SPRINTER** – connecting the North County study area to the COASTER, Metrolink, and Amtrak where users can transfer to commuter and intra-city rail services and travel to coastal cities in San Diego County, downtown San Diego, cities in Los Angeles County and Orange County, and even destinations in Riverside County and San Bernardino County
- **Inland Rail Trail** – part of the regional bike network, connecting the North County study area to other active transportation facilities in the regional bike network such as the Coastal Rail Trail and to SPRINTER stations
- **SR 78** – connecting users to communities throughout the North County study area and to other corridors that are part of the state highway system such as I-5 and I-15 to allow users to connect to surrounding regions
- **SR 76** – connecting users to communities in Riverside County and the northern portion of the North County study area and to Camp Pendleton (a major activity center immediately adjacent to the study area)
- **I-5** – connecting the North County study area to coastal cities in San Diego County as well as destinations in Los Angeles County and Orange County
- **COASTER (LOSSAN<sup>22</sup>) Corridor** – connecting the North County study area to coastal cities in San Diego County via commuter rail.
- **I-15** – connecting the North County study area to inland cities in San Diego County, Riverside County, and San Bernardino County

**Regional Spines** sheets identify mobility and infrastructure solutions along each regional spine.

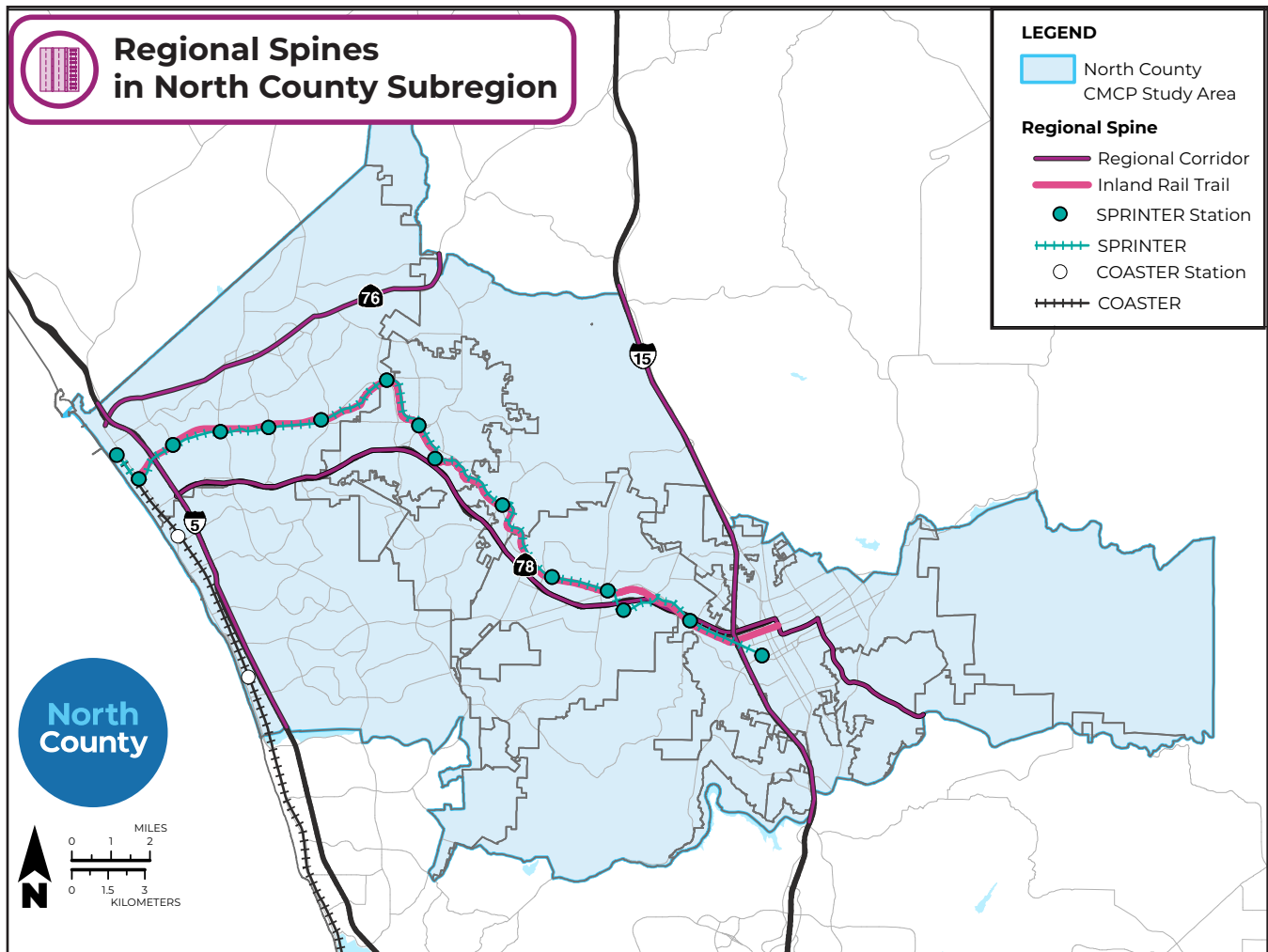
Click on one of the Regional Spine below to jump to that specific Concept Sheets in **Attachment 3**:

- » SPRINTER
- » Inland Rail Trail
- » SR 78
- » SR 76
- » I-5



<sup>22</sup> Los Angeles-San Diego-San Luis Obispo Rail Corridor

Figure 5-9: North County CMCP Regional Spines



## Factors for Success

Regional Spines are successful when:

- Technology (e.g., V2I or dynamic lane management) is embedded into the system to allow transportation operations managers to maximize the movement of people (i.e., person-throughput) by actively monitoring/managing corridor services and lanes based on changing travel conditions and user needs;
- Seamless transitions are available for users as they travel from activity centers (mobility hubs/zones) along main local roads (Mobility Boulevards) to the state highway system, SPRINTER, or Inland Rail Trail; and
- Facility designs address impacts of interregional and interstate transportation on adjacent communities.



## The Plan

Through the strategy layers and framework, the Plan identifies the 48 mobility programs, projects, and services that can cohesively work together as an integrated transportation system and support the existing and future mobility needs of North County residents, employees, businesses, and visitors.

The CMCP is intended to connect the dots between where you are and where you want to go, by providing new or improved travel options in North County. With the CMCP, local communities will be empowered to advance local improvements while advancing North County CMCP values, goals, and objectives. In other words, the CMCP will support the collaboration of North County transportation agencies in developing improvements and implementing projects that reinforce community connectivity, economic vitality, and provide an overall better customer experience.

The following is a summary of the proposed CMCP Plan.



## NORTH COUNTY CMCP SUMMARY



### Regional SMART Highway Capacity Management **\$2,500 M**

Urban Corridor Managed Lanes	17 miles
Rural Corridor (SR 78 to Ramona)	13 miles
Interregional Corridor Managed Lanes	14 miles
Direct Access Ramp	1
Freeway Connector	1
Managed Lanes Connector	2



### Smart Arterials and Intersections **\$100 M**

Study Area Intersections	452
Mobility Boulevard Intersections	392
Regional Spine Intersections	85
Mobility Hub Intersections	69
3 Strategic Anchors Intersections	49



### Reconnecting Communities **\$300 M**

Interchange Improvements	23
Overpass Improvements	19
Underpass Improvements	23
Rail Crossings	38
Rail Crossings with Grade Separations	9



### Complementary Programs **\$250 M** **\$50 M\***

EV Infrastructure	55 EV sites
Passenger Loading Zones	257 PUDOs
Micromobility Charging and Parking	25 charging 189 parking
Interactive Travel Kiosks	110 kiosks
Parcel Delivery Lockers	50 lockers
Carshare Parking	453 stalls
Evacuation Response	1 center 8 units
Supporting Policies and Programs	16 policies/programs

\*Estimated operating costs



### High Frequency Core, Rapid, and Commuter Services **\$270 M** **\$1,300 M\***

BRT Services	4 routes
Commuter Services	2 routes
Frequent Transit Services	1 route
Flex Services	4 routes



### SPRINTER **\$1,400 M** **\$1,300 M\***

Grade Separations	9
East Segment: San Marcos to Escondido	6.5 miles
West Segment: Oceanside to Vista	8 miles
Middle Segment Vista to San Marcos:	7 miles
Extension: Escondido to southern Escondido	2 miles



### TSMO/ICM **\$70 M** **\$50 M\***

Communication Backbone	193 miles
SPRINTER At-Grade Crossings and Mobility Boulevard Signal Coordination	10 crossings 66 signals
Transit Signal Coordination	100 signals
Signal Coordination along ICM Corridors	51 signals
Connected Ramp/Signal Integration	30 ramps 102 signals
Transit Signal Priority	87 signals



### Active Transportation **\$580 M**

Planned Class I/IV Facilities	161 miles
Proposed Class I/IV Facilities	50 miles
Total New Facilities	201 miles
Intersection Improvements	392



### Mobility as a Service **\$50 M** **\$370 m\***

Microtransit Services	1 per hub
Neighborhood Electric Vehicles	1 per hub
Micromobility Fleet	1 per hub



The overall cost of the 48 mobility programs, projects, and services is approximately \$8.5 billion with approximately \$5.5 billion for transportation infrastructure and \$3 billion in operating costs. The breakdown of the overall cost by layer is approximately:

STRATEGY LAYER	CAPITAL COST (MILLIONS)	OPERATING COST (MILLIONS)
Regional Smart Highway Capacity	\$2,500	(1)
Smart Arterials and Intersections	\$100	(1)
Transportation Interfaces	\$300	(1)
Active Transportation	\$580	(1)
Mobility as a Service	\$50	\$370
High Frequency Core, <i>Rapid</i> , and Commuter Services	\$270	\$1,300
SPRINTER	\$1,400	\$1,300
TSMO/ICM	\$70	\$60
Complementary Programs	\$200	\$50

Notes: (1) Incorporated under TSMO/ICM operating costs.

For the compiled list of projects and programs, see **Attachment 4**.



## Mobility Solution Takeaways

There is no single transportation investment that will solve the mobility issues of today and tomorrow. There are several unknowns about the future that need to be monitored to effectively implement the transportation solution strategy. However, through the layering and bundling approach of the Transportation Strategies and Anchors, the CMCP identifies opportunities for mobility investments that align with the North County CMCP vision, goals, and objectives. By using this approach, the transportation solution strategy will perform well to address mobility needs at the local, subregional, and regional levels and make progress towards state and regional goals and policies.

The mobility solution strategy can be summarized with the following:

- ▲ **Think differently about mobility challenges and the potential solutions.** Working towards improving best practices and innovative mobility solutions for different travel patterns guided by the North County CMCP vision, goals, and objectives to ensure community and stakeholder mobility priorities and needs were being addressed.
- ▲ **Nimble framework through layers and anchors.** Utilized the nine strategy layers within the strategic anchors to: address mobility issues in the subregion, support the subregion's vision for mobility, and align with the subregion's goals. The CMCP framework allows for adaptability and resiliency to changing conditions—allowing North County to pivot, as necessary, within and between local (mobility hubs/zones), subregion (mobility boulevards), and regional (regional spines) levels.
- ▲ **Build on today to setup for the future.** Through multiple strategies working together, the CMCP aims to address current deficiencies and concerns in a way that allows for future changes in a variety of possible scenarios.

**Chapter 6** will further explore the performance and program consistency associated with implementing the North County CMCP transportation solution strategy. Through the evaluation of the performance measures and performance indicators, we can understand in the short-, mid-, and long-term:

- How far can we move the needle?
- What would it take to achieve the North County CMCP goals?
- What consequences might arise?



# 6

## PERFORMANCE ASSESSMENT AND PLAN PHASING

*In this Chapter, the CMCP answers fundamental questions regarding the proposed Mobility Solution (i.e., The Plan):*

- *How successful can the Mobility Solution be in achieving North County's and Region's goals and objectives?*
- *How can the Mobility Solution be implemented (i.e., phased) to achieve potential success?*





## 6 PERFORMANCE ASSESSMENT AND PLAN PHASING

### CMCP Forecasted Performance

The development of a well-rounded program of performance measures accomplishes two goals:

- Forecasts the effectiveness of the proposed (CMCP) improvements relative to the existing conditions and the Corridor's Goals and Objectives outlined in Chapter 4
- Provides a framework for monitoring the effectiveness of completed improvements based on actual field conditions. This monitoring will compare actual field conditions to forecasted performance and identifies trends in other external influences that may affect that anticipated performance.

*The CMCP's performance modelling results answers the first fundamental question in the affirmative:*



**Yes, the CMCP is projected to be successful in meeting its objectives** by improving travel times, providing more mobility choices for short trips, and providing mobility access to those who need it the most.

Development of the performance evaluation included adding the new improvements to the SANDAG's ABM model. Note that other than the CMCP modifications, all other inputs to the ABM model remained consistent with the region's 2021 RTP. Based on the updated modeling, the CMCP improvements will provide:

- ✓ Improving multimodal use for all trips and short trips
- ✓ Supports job growth within mobility hubs and improves access to jobs and key destinations
- ✓ Reduces VMT per resident by over two miles
- ✓ Spend less time traveling by reducing vehicle hours traveled per resident and employee
- ✓ Leverage transit services and infrastructure to carry over 130,000 people per day
- ✓ Improve access to transit for future residents through connecting transportation and destinations within mobility hubs



## Estimated 2050 Performance Measures

Table 6-1 below provides a breakdown of the performance metrics provided by the modeling.

Table 6-1: Estimated 2050 Performance Measures

MEASURE	2016 CONDITIONS	2050 ESTIMATE
Percentage of Regional Population	20%	20%
Percentage of Regional Employment	18%	16%
North County percentage of regional VMT <sup>1</sup>	10%	18%
Number of jobs in North County	259,700	336,200
Number of residents in North County	660,700	743,000
Daily Person Hours Traveled Per Capita <sup>(1)</sup>	2.00	0.78
Daily Person Hours Traveled Per Employee	2.56	1.72
Number of Jobs within Mobility Zones	161,500	260,200
Number of Residents within Mobility Zones	263,100	437,300
<b>Non-SOV Modal Share for all trips (±1%)</b>	<b>52%</b>	<b>56%</b>
Shared Ride 2 and 3+	44%	41%
Transit	1%	5%
Active Transportation (Walk and Bike)	7%	10%
<b>Non-SOV Modal Share for trips less than 3 miles (±1%)</b>	<b>62%</b>	<b>64%</b>
Shared Ride 2 and 3+	45%	40%
Transit	1%	3%
Active Transportation (Walk and Bike)	16%	21%
SPRINTER Average Weekday Ridership	9,100	42,600
BREEZE Average Weekday Ridership	26,000	102,100
<b>Average Daily Vehicle Miles Traveled in North County</b>	<b>15,061,000</b>	<b>16,185,830</b>
per capita	18.58	16.03
per employee	25.08	20.51
Percentage of short trips (3 miles or less)	40%	43%
<b>Within 0.5 miles of High-Frequency Transit Stops</b>		
% of North County residents	12%	49.8%
% of North County jobs	3%	87.9%
% of North County SEFC	7%	85.7%

Notes: (1) Developed using "segment-based" analysis, not "trip-based" calculations.



## Improving Destination Accessibility By Transit

As part of Chapter 3, “Destination Accessibility via Transit,” accessibility was assessed via a 30-minute travel analysis (or 30-minute isochrone)—providing a quantitative and visual representation of how far users can travel within a given time frame. A similar analysis was performed for the proposed North County transit network to show how many destinations, housing units, and jobs are within a certain travel time (in this case, 30 minutes). The proposed isochrones help identify how accessibility is improved using the transit network. **Appendix W** details the methodology and analysis of the 13 isochrone origins in the proposed transit network.

A series of 30-minute travel sheds (or isochrones) were developed and analyzed for the North County Study Area during the PM peak; **Figure 6-1** shows an example of a proposed transit network isochrone shed compared to an existing transit network isochrone shed. **Table 6-2** highlights how the proposed transit network would perform in existing and future land uses.

**Table 6-2: Comparison of 30-minute Travel in North County Existing (2016) and Proposed (2050) Transit Networks**

LOCATION	EXISTING TRANSIT ACCESS	PROPOSED TRANSIT COMPARISON (EXISTING LU)	PROPOSED TRANSIT COMPARISON (FUTURE LU)
Vista Village	140 Points of Interest 17,100 Housing Units 15,100 Jobs	200 Point of Interest 21,600 Housing Units 32,600 Jobs	31,400 Housing Units 40,600 Jobs
Downtown Escondido (Maple and Grand)	140 Points of Interest 21,000 Housing Units 26,900 Jobs	150 Point of Interest 20,700 Housing Units 34,200 Jobs	33,100 Housing Units 40,400 Jobs
Faraday Avenue and El Camino Real	40 Points of Interest 1,400 Housing Units 22,900 Jobs	90 Point of Interest 3,600 Housing Units 41,700 Jobs	14,300 Housing Units 53,200 Jobs
Downtown Oceanside (Wisconsin and Coast Highway)	120 Points of Interest 14,000 Housing Units 20,000 Jobs	160 Point of Interest 20,300 Housing Units 28,400 Jobs	32,300 Housing Units 33,400 Jobs
Viva Vera Cruz and San Marcos Blvd.	70 Points of Interest 3,500 Housing Units 16,000 Jobs	370 Point of Interest 33,200 Housing Units 92,300 Jobs	57,200 Housing Units 121,900 Jobs



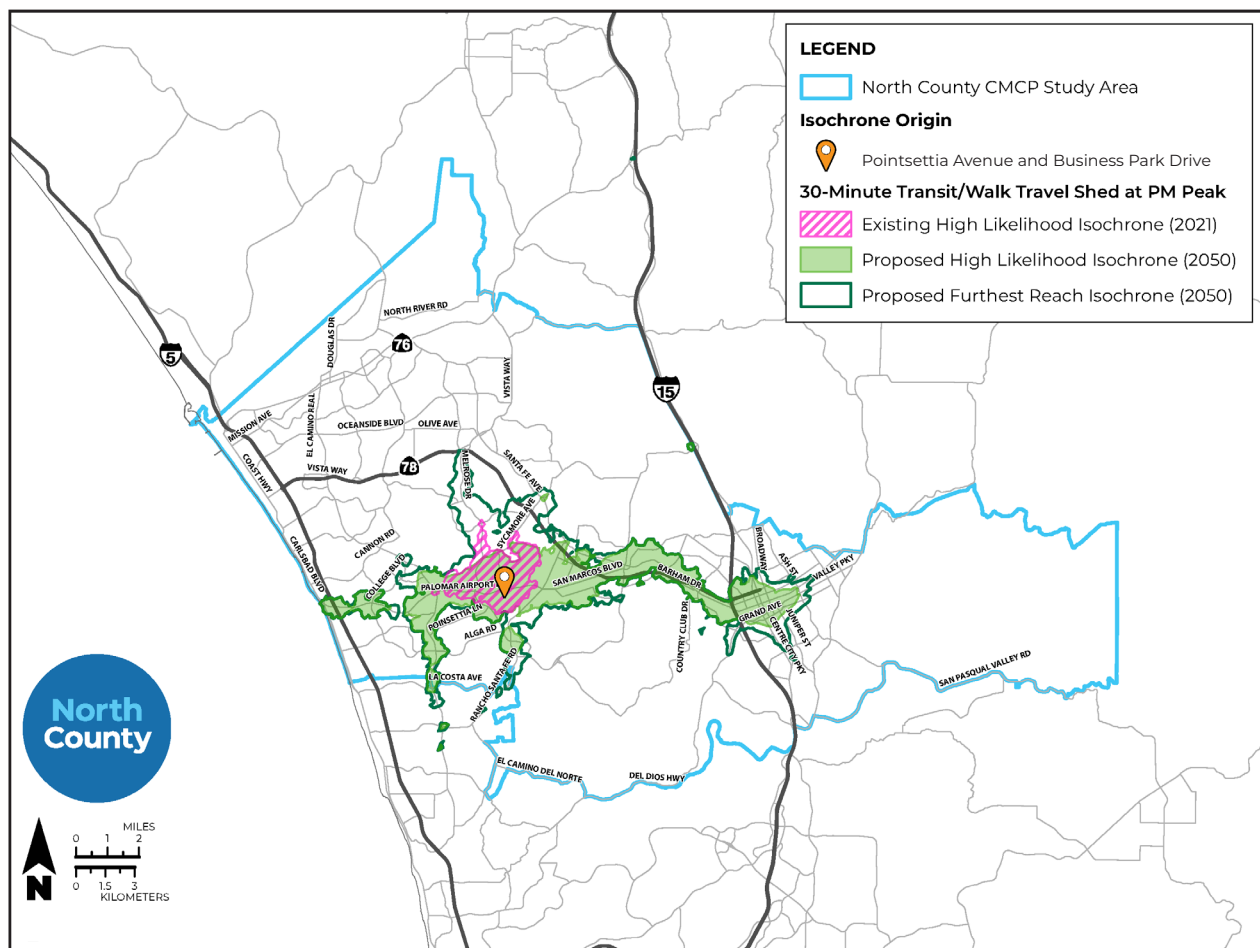
**Most Improved Areas Experiencing Increase in Accessibility**

- ✓ **Faraday Avenue and El Camino Real (Job Center)**  
Improved Access to Housing and Access for Social Equity Focus Communities (SEFC)
- ✓ **Poinsettia Avenue and Business Park Drive (Job Center)**  
Improved Access to Destinations and Access for SEFC
- ✓ **Via Vera Cruz and San Marcos Boulevard (Futured Mixed Use Community)**  
Improved Access Across All Categories
- ✓ **West Lake Drive and San Marcos Boulevard**  
Access for Senior SEFC

The improved accessibility (as analyzed by these isochrones) is influenced by three factors:

- Improved Land Use Proximity to Station— locating housing and employment near high-frequency transit leads to shorter station access; therefore, more opportunity to travel further via the transit vehicle or access more destinations at the other end of travel
- Improved Concentration of Services and Frequency – more services or frequency proposed translates to shorter waiting times and more choices for travel
- Faster In-Route Travel – improved signal coordination and flex lanes allow for faster service, and thereby more destinations can be reached

Figure 6-1: Poinsettia Avenue and Business Park Drive, 30-Minute Travel Sheds at PM Peak



## CMCP Phasing

While all the proposed improvements in the CMCP are important, phasing of the proposed CMCP improvements needs to consider:

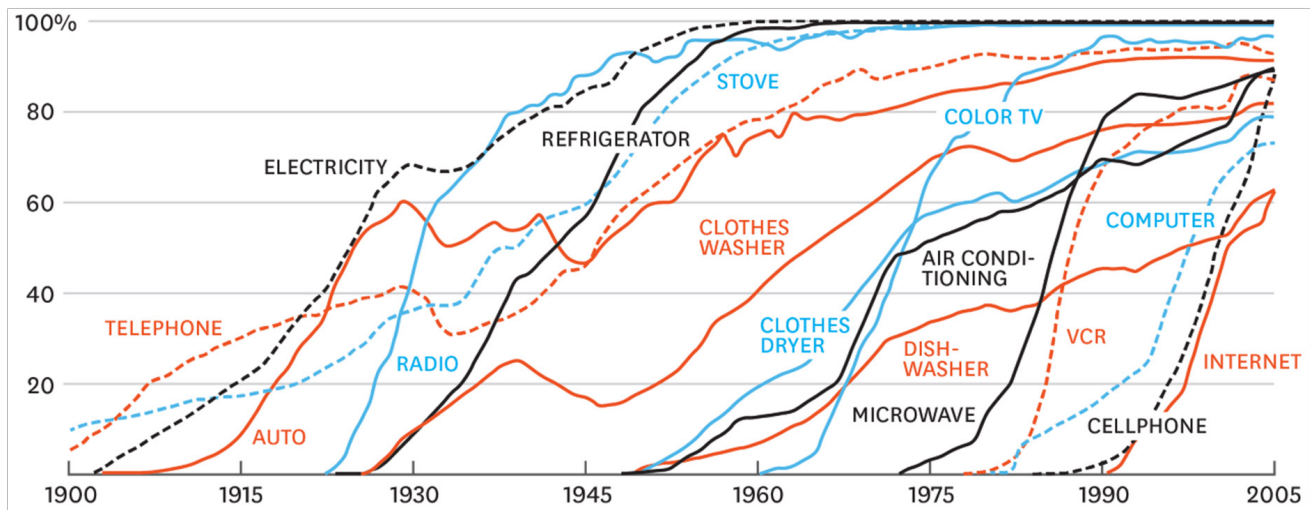
### 1. Evolving Need Affected by Increasing Growth and Changing Land Use, Demographics, and Travel Behavior

In **Chapter 2**, the CMCP highlighted how factors like population, land use, and travel behavior affect travel demand within North County. Although forecasts typically assume these changes occur at a consistent and predictable rate, actual change can occur in a very uneven and disruptive manner due to changes in the economy, legislation, fuel prices, and social trends. While transportation improvements strive to be proactive and supportive where possible, phasing needs to balance this uncertainty with near-term needs and cost-effectiveness.

### 2. Maturing Technology

The CMCP projects and programs are developed to leverage new technologies anticipated to be in place by 2050. Examples include smart streets, connected vehicles, automated vehicles, flexible fleets, and dynamic lane management systems. Unfortunately, the timing of those technologies maturing to a point where they can be effective is difficult to predict—yet this uncertainty is not new regarding technology adoption. **Figure 6-2** displays various integration curves for key technological improvements over the last century. It is anticipated that new transportation technologies will follow rapid integration curves.

Figure 6-2: Consumption Spreads Faster Today – Percent of Household



(Source: Nicholas Felton, NYTimes, HBR.ORG)



The following factors can affect how new technology is integrated into a household:

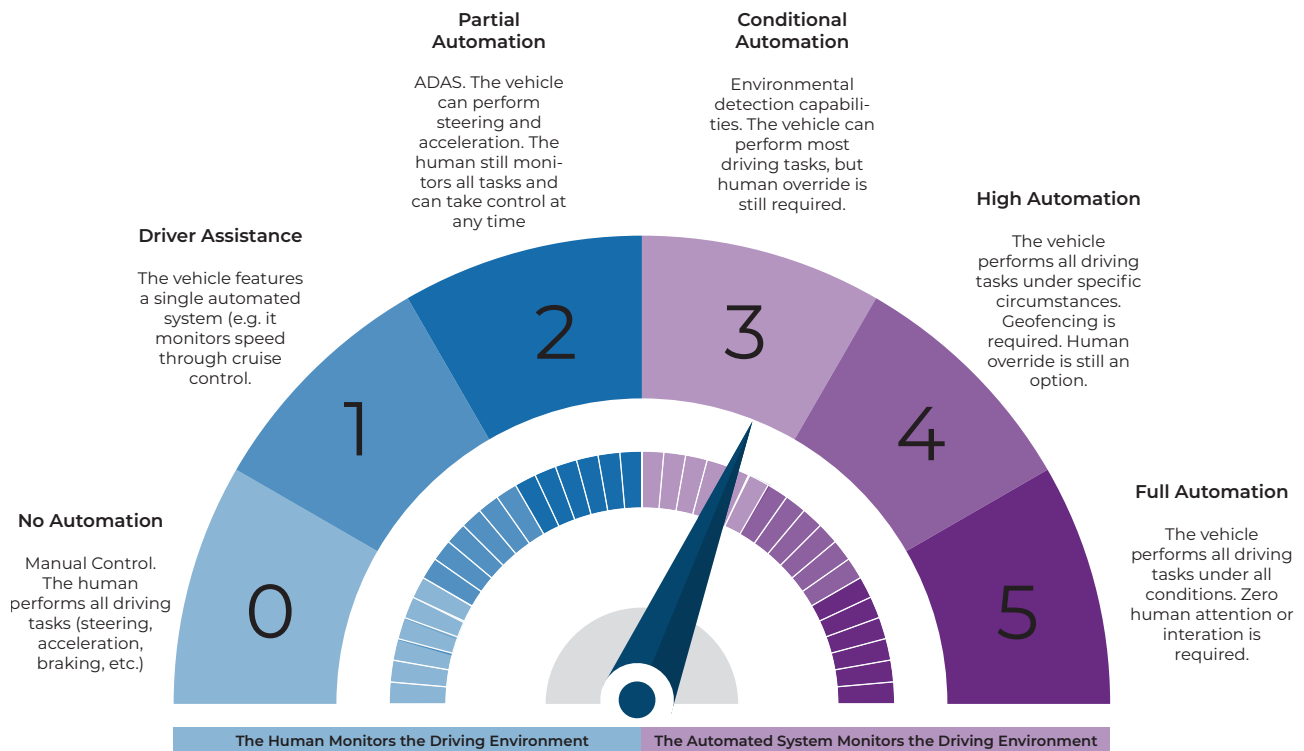
- The pace of the actual innovation
- Public acceptance
- Cost to the household
- Market penetration
- Needed public policy and regulatory changes
- Required network/system infrastructure changes

The evolution of automated vehicles will progress in an incremental manner, as described in

**Figure 6-3**, with six levels of automation. Over time freeway capacity could be expected to change from today's 2,100 vehicles per hour per lane (VPHPL) to ultimately 3,200 VPHPL once Level 5 CV/AV vehicles are fully adopted. While full automation is likely many years away, the transportation network/infrastructure needs to be prepared for and will benefit from these incremental advancements. Additional information can be found in **Appendix U**.



Figure 6-3: The Six Levels of Driving Automation



(Source: SAE J 3016-2021)



### 3. Creating Alignment for Limited Funding

There are many factors that determine how a project or program becomes worthy of funding—especially when there are many needs to be met nationally, statewide, regionally, and locally. CMCP projects/programs can become competitive for limited revenues and funding opportunities by:

1. Aligning improvements and services with federal, state, and regional policies and priorities
2. Following and, when possible, early completion of regulatory requirements (e.g., state, federal)
3. Fostering public and partner agency support for improvements

Funding partners (e.g., US DOT or California Transportation Commission) define their priorities through a scoring rubric (or criteria) so that funding applicants can demonstrate how they are aligned with the funding partner. Additional information about funding opportunities can be found in **Appendix Y**. An example of a scoring rubric for the Solutions for Congested Corridors Program (part of the Road Repair and Accountability Act of 2017)<sup>23</sup> is shown below:

Figure 6-4: North County CMCP Criteria



<sup>23</sup> Solutions for Congested Corridors Program (SCCP): <https://catc.ca.gov/programs/sb1/solutions-for-congested-corridors-program#accordion-2022-Program49006294>



## 2. Additional Criteria

### ECONOMIC DEVELOPMENT AND JOB CREATION/RETENTION

Must address how the proposed project will support economic development and access to employment.

### AIR QUALITY AND GREENHOUSE GASES

Must address how the proposed project will reduce greenhouse gas emissions and criteria pollutants and advance the State’s air quality and climate goals.

### EFFICIENT LAND USE AND HOUSING

Must address how the proposed project will support and advance transportation efficient land-use or Pro housing principles.

### MATCHING FUNDS

Based on the number of matching funds and the source of funds. Priority will be given to projects that have committed discretionary federal funds at the time of project nomination.

### DELIVERABILITY

Priority will be given to projects that have completed the design and rights of way components of the project unless the project is being delivered using the Design-Build method.

### COLLABORATION

Jointly nominated and jointly funded projects are encouraged. For projects that cross jurisdictions, regions may pool their resources to jointly nominate and fund a project. Similarly, regional agencies may pool their resources to jointly nominate and fund projects with Caltrans.

### COST EFFECTIVENESS

Consideration will be given to those projects that provide positive benefits in relation to the project costs.

## 4. Project Dependency

Frequently, CMCP projects require other system improvements to be fully effective. As an example, expansion of the *Rapid* transit system may require Mobility Blvd. improvements to provide desired technology and infrastructure to support service reliability and increased ridership; or improvements to SPRINTER service frequency will likely require concurrent double track and station improvements to achieve both the operational and service access improvements.



## Phasing Approach

To maximize the effectiveness of investments and the competitiveness of projects for funding, the CMCP utilized the following guidelines in developing a phasing plan:

- **Utilize adaptive designs** that can evolve as technology and travel needs change
- **Prioritize safety and intersection control improvements** that reduce fatalities and serious injuries to address the 70% of those collisions that occur along the North County’s major arterials
- **Prepare transportation facilities at all levels for anticipated technology.** Enabling early deployments such as adaptive signals, smart intersections, “plug and play” communication backbone, and V2X applications.
- **Prioritize improvements that link communities and important destinations,** improve mobility options, improve safety and meet VMT goals.
- **Leveraging ongoing efforts in the corridor.** The graphic below displays current projects by local jurisdictions and by transportation agencies aligning with the North County CMCP priorities

<b>Oceanside</b>	<ul style="list-style-type: none"> <li>» Coast Highway Mobility Hub</li> <li>» Inland Rail Trail Gap Closure</li> <li>» Oceanside Boulevard Corridor Improvements</li> </ul>
<b>Carlsbad</b>	<ul style="list-style-type: none"> <li>» Sustainable Mobility Plan</li> <li>» Carlsbad Blvd Improvements</li> <li>» Cross Freeway Improvements</li> <li>» Adaptive Signal Deployments</li> </ul>
<b>Vista</b>	<ul style="list-style-type: none"> <li>» Construction Inland Rail Trail Segment 3 (Mar Vista to Civic Center)</li> <li>» Inland Rail Trail Gap Closure (Civic Center to Melrose)</li> <li>» Vista Village Transit Station</li> </ul>
<b>Vista Mobility Hub</b>	<ul style="list-style-type: none"> <li>» Townsite Complete Street</li> <li>» Emerald Drive Complete Street</li> </ul>
<b>San Marcos</b>	<ul style="list-style-type: none"> <li>» San Marcos Mobility Hub</li> <li>» Woodland/Barham/SR 78 Access Improvements</li> <li>» San Marcos Multi-way Blvd</li> </ul>
<b>Escondido</b>	<ul style="list-style-type: none"> <li>» Grand Avenue</li> <li>» Escondido Transit Station Joint Development with NCTD</li> <li>» City-wide signal upgrade (E-8, E-9, and E-10)</li> </ul>
<b>County of San Diego</b> (within the study area)	<ul style="list-style-type: none"> <li>» Bicycle and pedestrian improvements along SR 78 between Bear Valley and San Pasqual Valley</li> <li>» Transportation safety improvements near Buena Creek SPRINTER Station</li> </ul>
<b>NCTD</b>	<ul style="list-style-type: none"> <li>» SPRINTER Double Track Operational Prioritization and Project Study Report</li> <li>» Fleet conversion to zero-emission vehicles by 2033</li> <li>» Identify and improve services and ridership for the top 10 routes in the regional bus network</li> <li>» TOD Station Sites (starting with OTC and Carlsbad stations)</li> </ul>
<b>SANDAG/Caltrans</b>	<ul style="list-style-type: none"> <li>» North Coast Corridor Public Works Plan</li> <li>» Construction of SR 76 adaptive signals between Rancho del Oro to Melrose Drive</li> <li>» Smart Ramp Meters along SR 78</li> <li>» I-15/SR 78 Connectors and Express Lane Extension</li> <li>» I-5/SR 78 Connectors and Express Lane Extension</li> <li>» Corridor-wide ADA and Signal AT upgrades (SR 78 Asset Management)</li> <li>» Flexible Fleets Pilots</li> </ul>

**Bundle current and proposed projects into a system-based strategy to support emerging mobility hubs and address current mobility needs—i.e., Early Action Bundles.** These Early Action Bundles acknowledge areas of mobility challenges experienced by users and current projects/efforts underway by local jurisdictions and emphasize multi-jurisdictional solutions. Four areas were identified as meeting these criteria. These “early action bundles” are summarized below. A concept sheet is available for each bundle in **Attachment 5**.

- **Coastal Mobility Gateway**

- ↳ Addresses challenges with I-5 and LOSSAN as barriers and focuses on better connecting to and within coastal areas of Oceanside and Carlsbad.

- **Inland Mobility Gateway**

- ↳ Focuses on better connecting east/west and north/south travel.

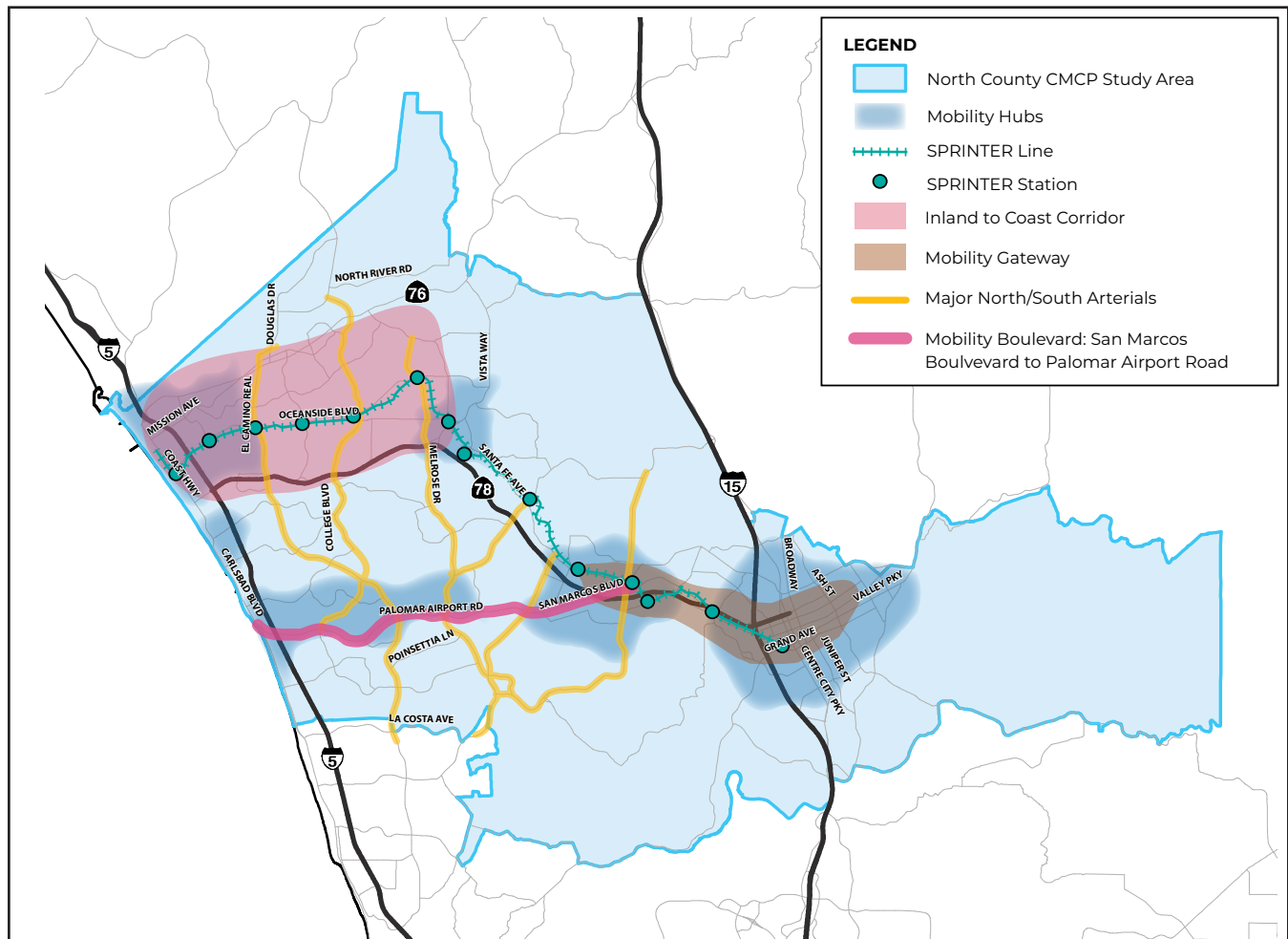
- **Major North/South Arterials**

- ↳ Emphasizes and invests in north/south arterial operations and services.

- **Mobility Boulevard: San Marcos Boulevard to Palomar Airport Road**

- ↳ Recognizes the importance of San Marcos Blvd and Palomar Airport Road in providing additional east-west connections for major employment centers through the southern edge of North County

Figure 6-5: Early Action Bundle Locations

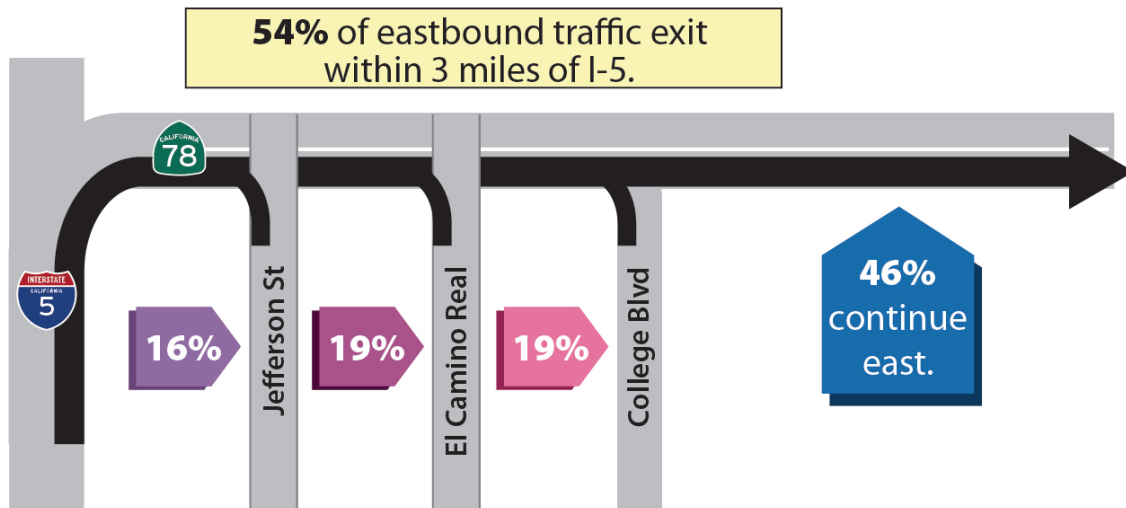




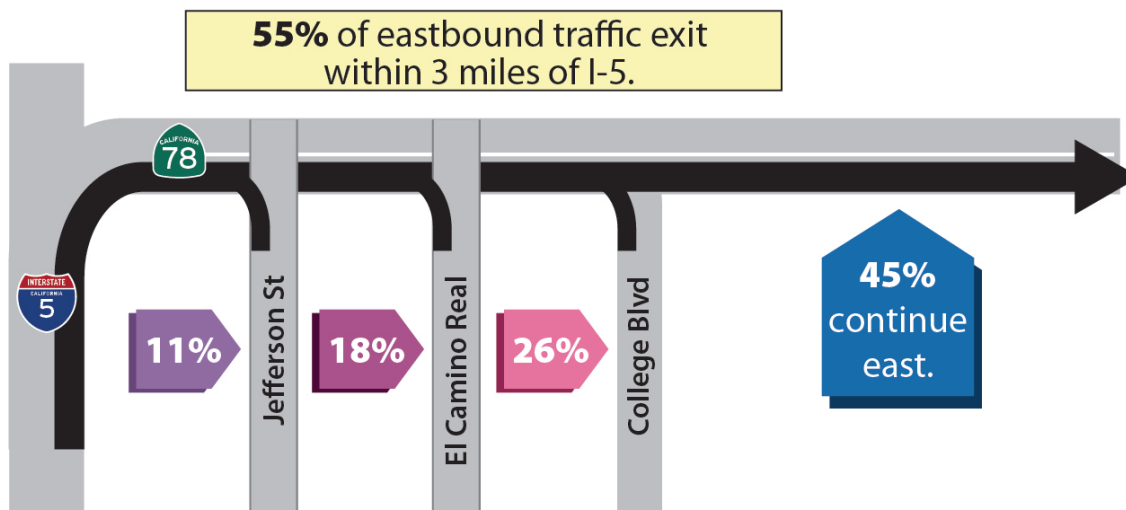
## SR 78 Managed Lanes

As shared in **Chapter 3**, 54% of travelers along eastbound SR 78 (coming from I-5) exit within three miles of the interstate facility. A more detailed assessment of the SR 78 managed lanes was performed to assess the optimal implementation phasing. The analysis concluded extending the managed lanes system from I-5 and I-15 into SR 78 up to four miles on either end captured over 50% of market demand coming from the interstate system. Furthermore, managed lanes in the middle segment should be deferred until later in the program to leverage emerging technology advancements and reduce anticipated costs and impacts to the community associated with the widening of the freeway.

### SR 78 Eastbound Traffic Exit Distribution From I-5 (Weekday All Day)



### SR 78 Eastbound Traffic Exit Distribution From I-5 (Weekday Peak AM)

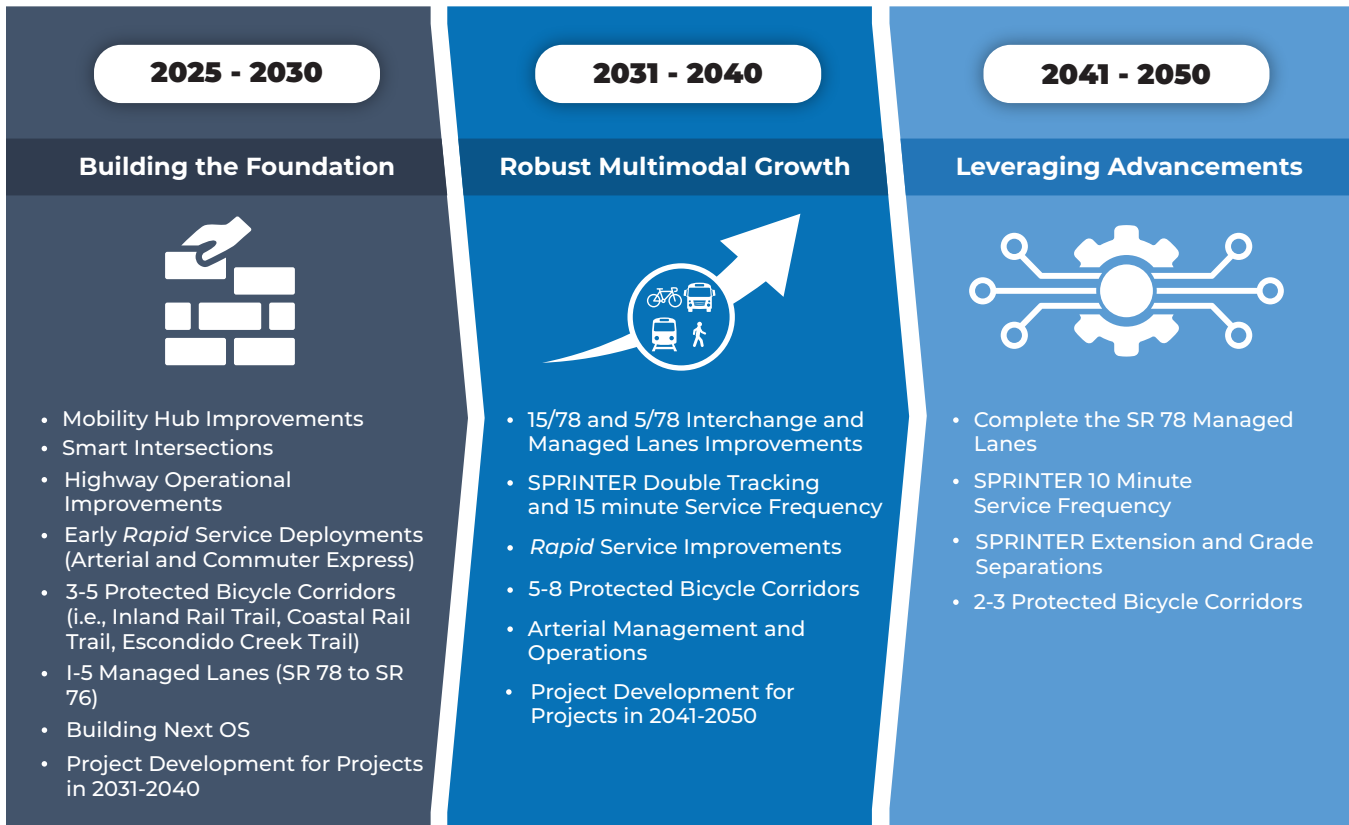




## Resulting CMCP Phasing

Utilizing the above phasing approach allows improvements to build upon each other to help meet the performance measure goals and leverage support for greater investment from state and federal programs, development partners, and private investors. The following approximates how the CMCP can be phased based on the phasing considerations and approach:

Figure 6-6: Proposed Open to Traffic Phasing





## Addressing Key North County Mobility Needs

Performance results and suggested phasing indicate that the CMCP addresses key mobility challenges identified in earlier chapters. Specifically, Early action projects would meet the following needs:

- 1. Challenge:** Approximately 7 in 10 fatal collisions occur on arterials—one-third (1/3) of all fatalities were pedestrians.

**How does the Plan address this challenge?** The CMCP will improve multimodal interactions (e.g., bikes and right-turning vehicles), crossings (e.g., railroad, interchanges/freeways, major intersections), and provide intersection traffic control that reduces speed while maintaining person-throughput (e.g., roundabouts).

- 2. Challenge:** The location of North County's key destinations, combined with limited travel alternatives, leads to operational bottlenecks at the ends of the SR 78 freeway—where it connects with the two interstates (I-5 and I-15).

**How does the Plan address this challenge?** Extends the managed lanes system from I-5 and I-15 into SR 78 up to four miles and provides additional east-west travel options along SPRINTER and major arterials.

- 3. Challenge:** SPRINTER has limited demand for end-to-end trips on the corridor, and North County is seeing a renaissance of smart growth development within mobility hubs (e.g., Vista Village, San Marcos, Escondido).

**How does the Plan address this challenge?** Focus SPRINTER strategy on improving access and experience for short trips between neighboring mobility hubs stations—including multimodal access, safety and security, and station focused customer service.

- 4. Challenge:** 70% of North County study area trips are less than 5 miles. However, 70% of VMT is generated by the remaining 30% of trips. Because of the dispersed nature of regional trips, these longer trips can be challenging in providing competitive multimodal options.

**How does the Plan address this challenge?** Impact on VMT is greatest through land use improvements where policies reduce the distance between housing, employment, and activity centers. The CMCP provides integrated improvements targeted at reducing VMT per capita for both short- and long-distance trips, including: 1) early deployments of mobility hub services such as flexible fleet services (e.g., NEV shuttles, bikeshare); and 2) implementation of commuter services along the I-15 corridor from inland San Diego communities and Riverside County.

- 5. Challenge:** The shed has no north-south regional transportation corridor (i.e., highway) between I-5 and I-15. This requires local arterials to accommodate critical network connections to home, work, and recreational destinations.

**How does the Plan address this challenge?** The CMCP identified key arterials (i.e., Mobility Blvds.) as providing the robust network of multimodal services—including fiber communications, smart intersections, protected bicycle facilities, high-capacity transit, and on-demand flexible services.

- 6. Opportunity:** A key priority of users is improving the connectivity to Regional Spines and other key destinations.

**How does the Plan address this challenge?** The CMCP includes improvements along Mobility Blvds., Mobility Hubs, SPRINTER Stations (e.g., first-mile, last-mile improvements), and flexible fleets services to better connect (or reconnect) communities to regional services.



## Call to Action

North County is ready for robust transportation and mobility investment to address the corridor's current and future needs. The call to action is needed to address the structural challenges within North County's transportation and mobility system—Chapter 7 answers that call to action. Through this chapter, the CMCP demonstrates that the project and programs included in “The Plan” meet the needs of North County users while working towards achieving Local, Regional, State, and Federal goals.

# 7

## CMCP IMPLEMENTATION BLUEPRINT

*This chapter provides recommendations on next steps for the first 10 years of the CMCP focused on three action areas:*

- Prioritize early success through investments aligned with funding opportunities*
- Partner to integrate processes and collaborate across jurisdictions*
- Promote innovation of new tools, techniques, and knowledge for transportation*







## Action Area A - Prioritize Early Success

The North County CMCP includes 48 projects and programs and recommends focusing early investment in four areas—referred to as Early Action Bundles. Efficient delivery of the CMCP will require parallel efforts to implement projects in the near term while advancing the next phase of projects for approval and funding.

Effective alignment of candidate projects with current federal, state, and regional funding priorities will lead to more projects being successfully completed. As described in **Chapter 6**, funding partners established scoring rubrics<sup>1</sup> to help select projects meeting funding criteria and are in a position to successfully deliver. Overlaying those criteria on the current mobility needs of the corridor results in the following recommendations:

- **A1: Expedite safety improvements**

Fast-tracking safety improvements will help North County users—especially vulnerable users such as pedestrians and cyclists—to move within North County safely. Safety improvement programs allowing for all modes will create a better traveling experience.



- **A2: Support emerging mobility hubs and advance VMT reduction improvements**

Investing in flexible fleets (e.g., NEVs) and other strategies that support the growing activity (i.e., residential, retail, and employment), will provide more choices for travel, advance reductions in VMT, reduce greenhouse gas emissions, and facilitate future transportation improvements within North County.

- **A3: Continue implementation of the Inland and Coastal Early Action Bundles**

The Inland and Coastal Early Action Bundles aim to achieve three overarching goals: help connect the inland and coastal communities, provide connections to critical interstate (i.e., I-15/SR 78, I-5/SR 78 Interchanges) and rail services, and support the growing mix of employment and residential centers. This recommendation builds on previously approved projects (e.g., I-5 Managed Lanes) and recognizes the importance of both North County and regional connections.

<sup>1</sup>Examples of scoring rubrics prioritizing transportation investments, including RAISE (US DOT) and SB1 (California Transportation Commission), are included in **Appendix X**.

- A4: Focus on improving Community Connectivity through: SPINTER station access improvements, first and last-mile connections, enhancements to local transit services such as BREEZE, and the infrastructure improvements needed to improve frequency in high-demand segments of the corridor**

SPINTER is an underutilized resource that will benefit from improved station access and focus on serving shorter “community-to-community” trips versus “end-to-end” travel. Increased transit services with BREEZE, flex routes, and microtransit to SPINTER stations can help address station accessibility issues and can help address the first and last-mile gap.



- A5: Invest in key local roads (i.e., Mobility Boulevards) to improve multimodal operations through the Major North/South Arterials and Mobility Boulevard: San Marcos Boulevard to Palomar Airport Road bundles.—including, early implementation of Smart Intersections, Active Transportation, and Rapid “light” services**

Major roads serve critical connections and are the primary paths between communities and destinations. Improving multimodal operations will help better utilize the existing infrastructure while providing more options to travel for both short- and long-distance trips.

- A6: Advance Reconnecting Communities projects**

Local communities are exploring better connections between neighborhoods—especially for those separated by transportation infrastructure (i.e., railroads and freeways). Creating new mobility options to cross railroads and freeways will foster better links between neighborhoods and communities.





## Action Area B - Integrate and Collaborate

A successful North County transportation system requires an integrated systems approach that crosses jurisdictional boundaries. Traditional mode-based planning (typically siloed at the agency level) can lead to inefficient operations, missed opportunities, and poor door-to-door service.

- **B1: Leverage ongoing local efforts and create collaboration opportunities to advance capital and service programs**

North County already has several planning and transportation efforts underway to improve mobility for North County travelers. Cities and the County have limited resources to address mid- and long-term planning actions—e.g., flexible fleets, safety analyses, and integrated corridor management. Local agency partners are interested in exploring new ways to leverage state and regional resources (e.g., local assistance resources, subject matter experts, knowledge database) into North County efforts.

The ongoing efforts are also an excellent launching point for continued collaboration to leverage resources and support for needed transportation infrastructure and services.

- **B2: Integrate the CMCP and local planning and development review processes**

Communities within North County continue to grow and develop: Oceanside and San Marcos, are comprehensively updating their General Plans; and all jurisdictions are working with landowners and the development community to review potential development improvements.

Historically, local and developer funding focused on Level of Service (LOS) based improvements and mitigations. The improvements identified through this approach may no longer align with the improvements and objectives outlined in the CMCP. Several local agencies in the corridor are developing alternative fee structures to better align with the goals of reducing VMT, define the nexus between development and cumulative impacts, and encouraging multimodal solutions outlined in the CMCP.

- **B3: Collaborate to attract new funding sources**

Fostering collaboration and leveraging resources can lead to quicker project and program implementation. Existing and new grant programs are looking for collaborative partnerships amongst local and state agencies—discouraging local competitive behaviors. Many scoring rubrics encourage and reward projects and program applications that emphasize multi-jurisdictional efforts and benefits.

The North County CMCP was developed to align with regional, state, and federal policies and priorities. These policies and priorities guide the funding for state and federal discretionary grant programs anticipated over the next 5-10 years. The alignment of the CMCP to state and federal goals positions North County programs for pursuing funding projects

- **B4: Measure progress of CMCP objectives**

This action focuses on how the CMCP is improving the transportation infrastructure and services—and is intended to provide insights into the experience of users within North County. The development of a Transportation Performance Dashboard for North County based on the measures identified in **Chapter 4** will monitor progress toward the corridor objectives and inform needed adjustments for projects and programs .



## Action Area C - Create an Innovation Testbed

North County can become a premier testbed for developing tools, techniques, management strategies, and technology for delivering the projects and improving the user experience. The subregion has been the home to innovation across many different industries: defense, communication technology, life sciences, education, health, and many more. North County recently innovated in early deployments of adaptive traffic signal control, real-time transit information, and vehicle-to-infrastructure communications. The following actions will continue supporting North County as an innovative provider of transportation services.

- **C1: Utilize smart technology to improve safety and efficiency**

Technology deployments at traffic signals, along corridors, within mobility hubs, and with the traveling public (i.e., cell phones, technology wearables) can proactively reduce fatalities and serious injuries for all users while improving the movement of people and goods. Updated systems that work across jurisdictional boundaries can allow for safety applications (e.g., leading pedestrian/bicycle signals, collision prediction, and avoidance), interagency traffic signal operation that minimizes “stop-and-go” and thereby greenhouse gas emissions, transit signal priority for improved transit travel time, and better information for travelers. Infrastructure that communicates and interacts with travelers, vehicles, and agency operators will be able to immediately manipulate traffic control devices or send alerts when needed.

- **C2: Explore Public-Private partnerships to develop sustainable and innovative transportation solutions**

Innovation includes “what” and “how” CMCP improvements can be implemented in close partnership between public and private entities. This implementation action can help develop research and innovation policies that enable private investment and allow future improvements to be responsive to changes in the many factors that influence transportation (e.g., economics, societal changes). There are many methods for engaging public-private partnerships (e.g., technology development, delivery methods) that need to be explored and evaluated for how they can improve the delivery of projects and programs. Areas to evaluate include the optimization of resources and expertise, overcoming institutional barriers, the scalability of improvements from site to network, and improving shared knowledge across implementing agencies.

- **C3: Prioritize Projects that Reduce VMT to Enable Overall CMCP Delivery**

Early implementation of projects that strategically reduce VMT—advancing regional and state VMT and multi-modal policies. Multimodal project that reduce VMT- provide consistent, well-balanced system improvements beneficial to North County users.



## ATTACHMENTS

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**Attachment 1:** Mobility Hub Sheets

**Attachment 2:** Mobility Boulevard Sheets

**Attachment 3:** Regional Spine Sheets

**Attachment 4:** Project and Program Inventory

**Attachment 5:** Early Action Bundle Sheets

## APPENDICES

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**Appendix A:** Executive Summary of the California Transportation Plan 2050

**Appendix B:** 2021 Regional Plan North County Programs and Projects List

**Appendix C:** TWG and SWG

**Appendix D:** Community Context Analysis

**Appendix E:** Existing Transportation Network

**Appendix F:** Land Use Patterns

**Appendix G:** Employment Centers

**Appendix H:** Travel Shed

**Appendix I:** Public Communications Outreach Summary

**Appendix J:** Social Equity Memorandum

**Appendix K:** Isochrone Methodology and Analysis-Existing Condition (2019)

**Appendix L:** Baseline Performance Assessment

**Appendix M:** Safety Analysis

**Appendix N:** Major Arterials Volume Analysis

**Appendix O:** Mode Share Analysis

**Appendix P:** Congestion Hotspot Analysis

**Appendix Q:** VMT Analysis

**Appendix R:** Travel Patterns

**Appendix S:** Transit Competitiveness

**Appendix T:** Travel Time Experience

**Appendix U:** Sensitivity Analysis

**Appendix V:** Assessment of Performance Metrics (Performance Dashboard)

**Appendix W:** Isochrone Methodology and Analysis-Proposed Condition (2050)

**Appendix X:** Project Scoring Rubric Analysis

**Appendix Y:** Funding Sources

**Appendix Z:** Cost Estimate Methodology

**Appendix AA:** Public Comments for Draft CMCP