

Appendix E: Existing Transportation Network

To: San Diego Association of Governments and Caltrans District 11

From: North County Comprehensive Multimodal Corridor Plan (CMCP) Project Team

Date: October 2022

Subject: North County Comprehensive Multimodal Corridor Plan (CMCP) – Existing Transportation Network

Overview

The North County Comprehensive Multimodal Corridor Plan (CMCP) will identify integrated transportation solutions that enhance the way people travel throughout North County.

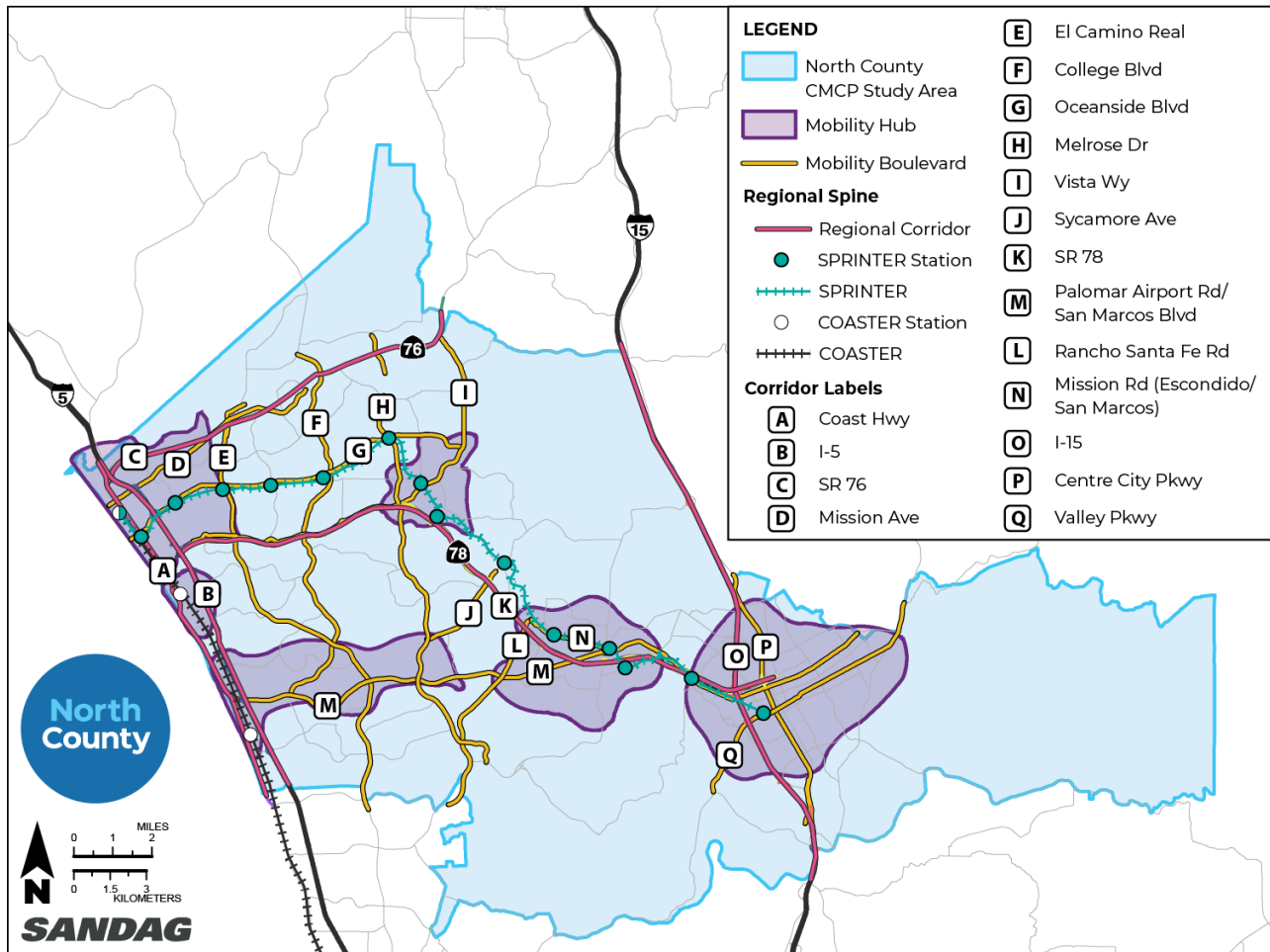
This memo documents the existing transportation system within the North County CMCP including the arterial and state highway network, the active transportation network, and the transit network. It also discusses the current state of Intelligent Transportation Systems (ITS) and Transportation Systems Management and Operations (TSMO). In addition, a brief overview of the plan for each of these networks is included.

Arterial and State Highway Network

Arterials and major roads are critical components to the study area's transportation system. These roadways provide important connections within and between local communities, as well as through the subregion of southern California. Arterials act as major people movers but can also adapt to the characteristics of the local community, helping to create a sense of place.

The arterials (corridors) that are subregionally significant for the North County CMCP are shown in **Figure 1**. These arterials were identified based on stakeholder and public feedback as serving as links to major activity centers and have the potential to be more multimodal. These arterials are pillars of the transportation system and will be a key focus for mobility improvements through this CMCP.

Figure 1. Corridors of Subregional Significance in Study Area



EXISTING NETWORK

The North County CMCP study area includes about 221 miles of regional significant arterials including about 96 miles of state highways. **Table 1** below describe the corridors of subregional significance by vehicles miles traveled and **Table 2** notes of existing transit and bicycles facilities on arterials of subregional significance.

Figure 2 displays the network of arterials and collectors within the study area. A majority of the arterials have a posted speed of 45 MPH as shown in **Figure 3**. Vehicle miles traveled (VMT) for the current network is presented in **Figure 4**. About 14,873,000 24-hour Daily VMT is estimated for the study area. The arterials with the highest estimated VMT are SR 78, I-15, and I-5, making up about 42 percent of the study area's total VMT.

Table 1: Corridors of Subregional Significance VMT

Subregional Arterials	Length (miles)	Existing VMT (ABM 2016)	% of Study Area VMT
Mission Ave	6	79,795.5	0.54%
El Camino Real	12.8	432,392.4	2.90%
Oceanside Blvd	7.5	142,279.1	0.96%
College Blvd	9.7	274,912.5	1.85%
Melrose Dr	12	361,619.5	2.43%
Vista Way	9.6	160,604.6	1.08%
Sycamore Ave	2.7	86,439.0	0.58%
Rancho Santa Fe	5.7	211,054.3	1.42%
Mission Rd – Escondido	4.7	68,216	0.46%
Mission Rd – San Marcos	4.9	76,840.8	0.52%
San Marcos Blvd	4.1	133,693.3	0.90%
Palomar Airport Rd	6.4	238,542.3	1.60%
Centre City Pkwy	12.2	155,587.6	1.04%
Valley Pkwy/ Del Dios Hwy	14.3	36,709.0	1.87%
Coast Hwy	12	110,333.5	0.74%
Subregional Arterials Subtotal	124.6	2,810,085.3	18.87%

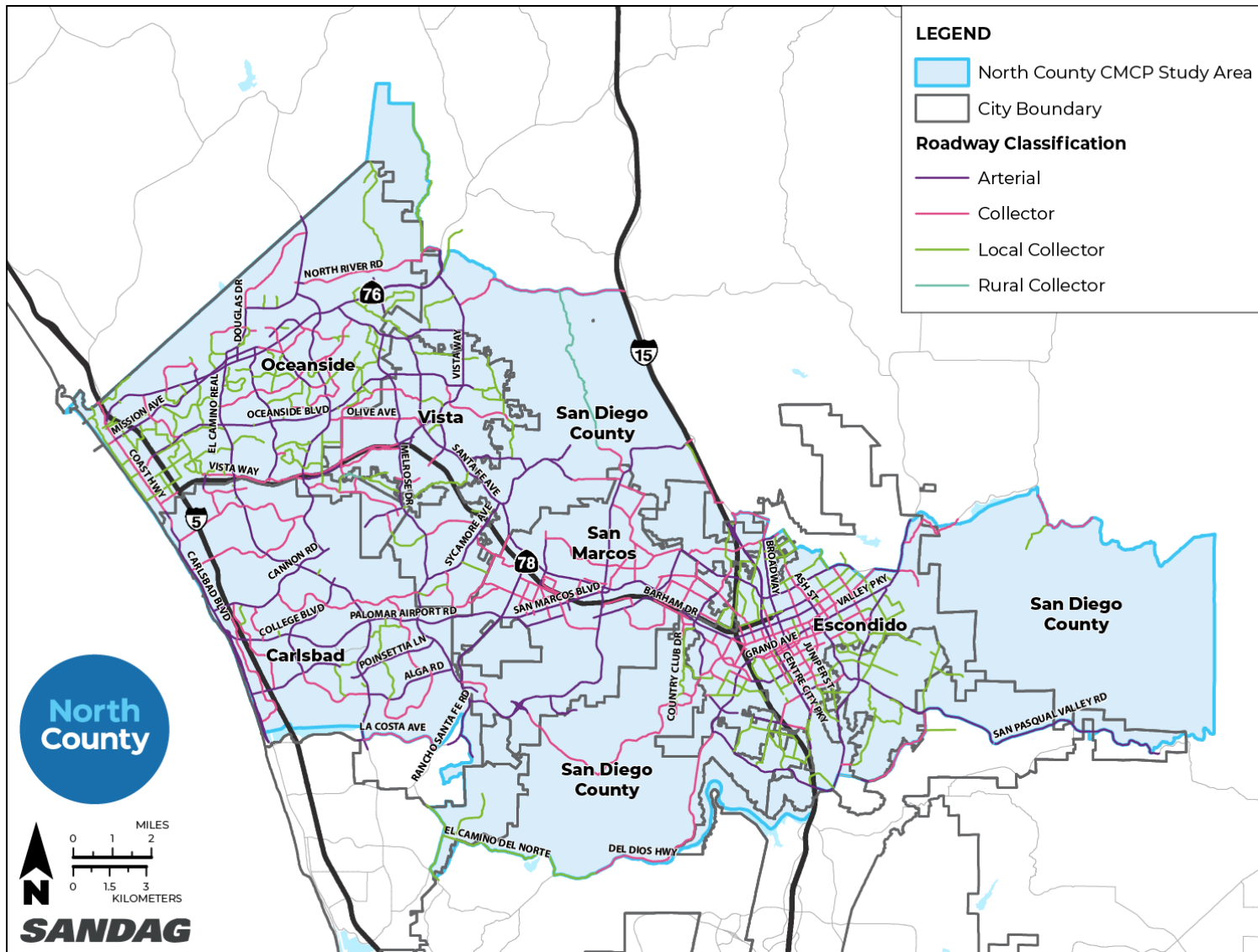
State Highway System (Study Area Corridors)	Length (miles)	Existing VMT (ABM 2016)	% of Study Area VMT
SR 78	35.2	2,308,078.6	15.5%
SR 76	5.8	190,798.6	1.28%
SHS Subtotal	40.9	2,498,877.2	16.78%
Other Street Categories	Length (miles)	Existing VMT (ABM 2016)	% of Study Area VMT
Collector	170.7	1,450,877.9	13.25%
Local Collector	155.3	601,319.3	5.49%
Rural Collector	5.1	15,282.8	0.14%
Other Subtotal	331.1	2,067,480.0	18.89%

Note: Totals for State Highway System exclude I-15 and I-5.

Table 2. Existing Transit Services and Bike Facilities for Subregional Arterials

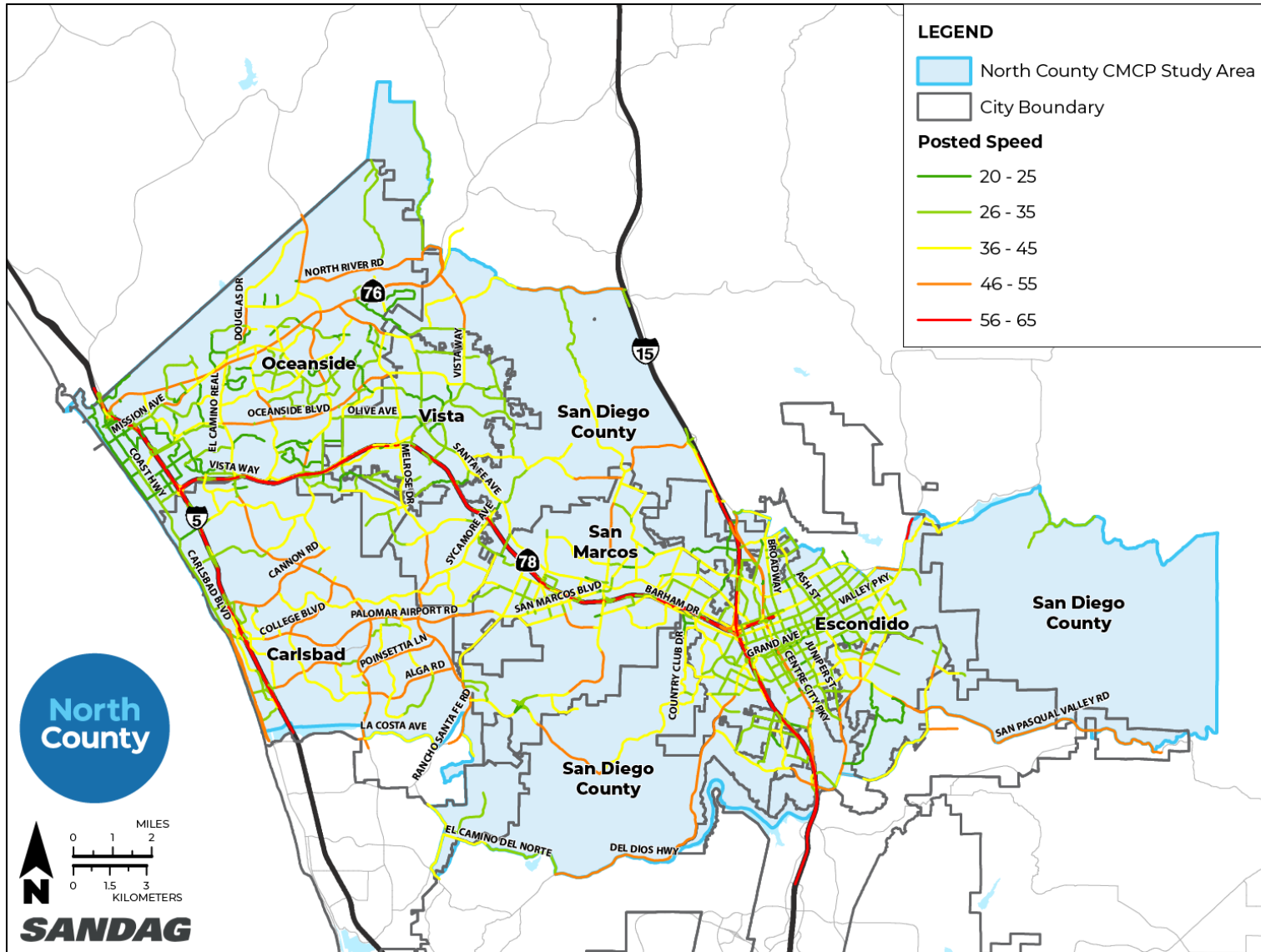
Subregional Arterials	Transit Service	Bike Facility
Mission Ave	Yes	Yes
El Camino Real	Yes	Yes
Oceanside Blvd	Yes	Yes
College Blvd	Partial	Partial
Melrose Dr	Yes	Yes
Vista Way	Yes	Partial
Sycamore Ave	Partial	Yes
Rancho Santa Fe	Yes	Partial
Mission Rd – Escondido	Yes	None
Mission Rd – San Marcos	Yes	Yes
San Marcos Blvd	Partial	Yes
Palomar Airport Rd	Yes	Yes
Centre City Pkwy	Partial	Yes
Valley Pkwy/ Del Dios Hwy	Yes	Partial
Coast Hwy	Yes	Yes

Figure 2. CMCP Network Capacity/Roadway Classifications



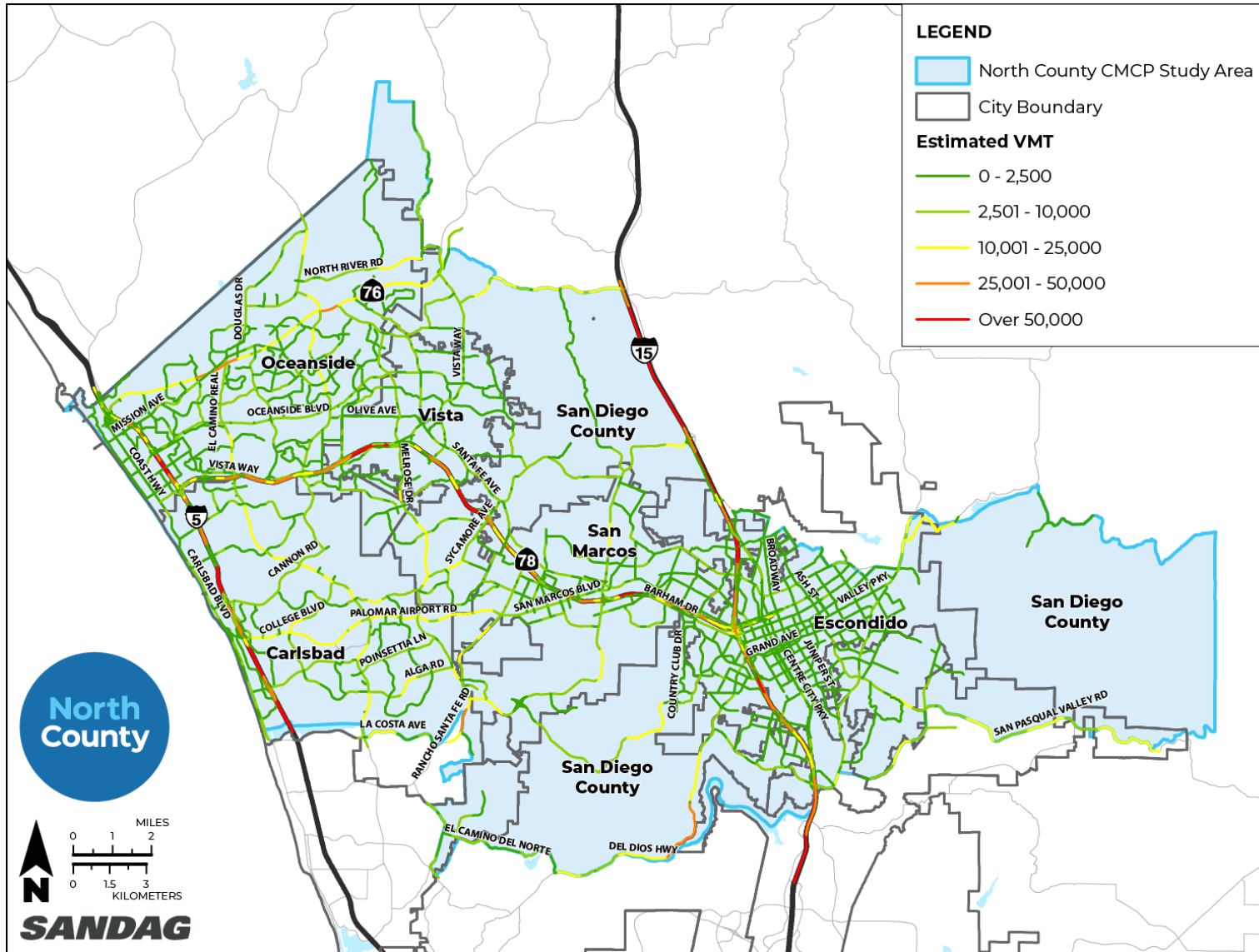
Source: ABM 2016 Base Year Data

Figure 3. Network Posted Speed Limits



Source: ABM 2016 Base Year Data

Figure 4. CMCP 24-Hour Forecasted VMT



Source: ABM 2016 Base Year Data

PLANNED NETWORK

The SANDAG 2050 Regional Transportation Plan identifies a highway network for the entire region, outlining planned managed lanes, transit lanes, general purpose lanes, and toll lanes. Within the study area, this plan identified managed lanes, toll lanes, and general-purpose lanes as shown in **Figure 5**.

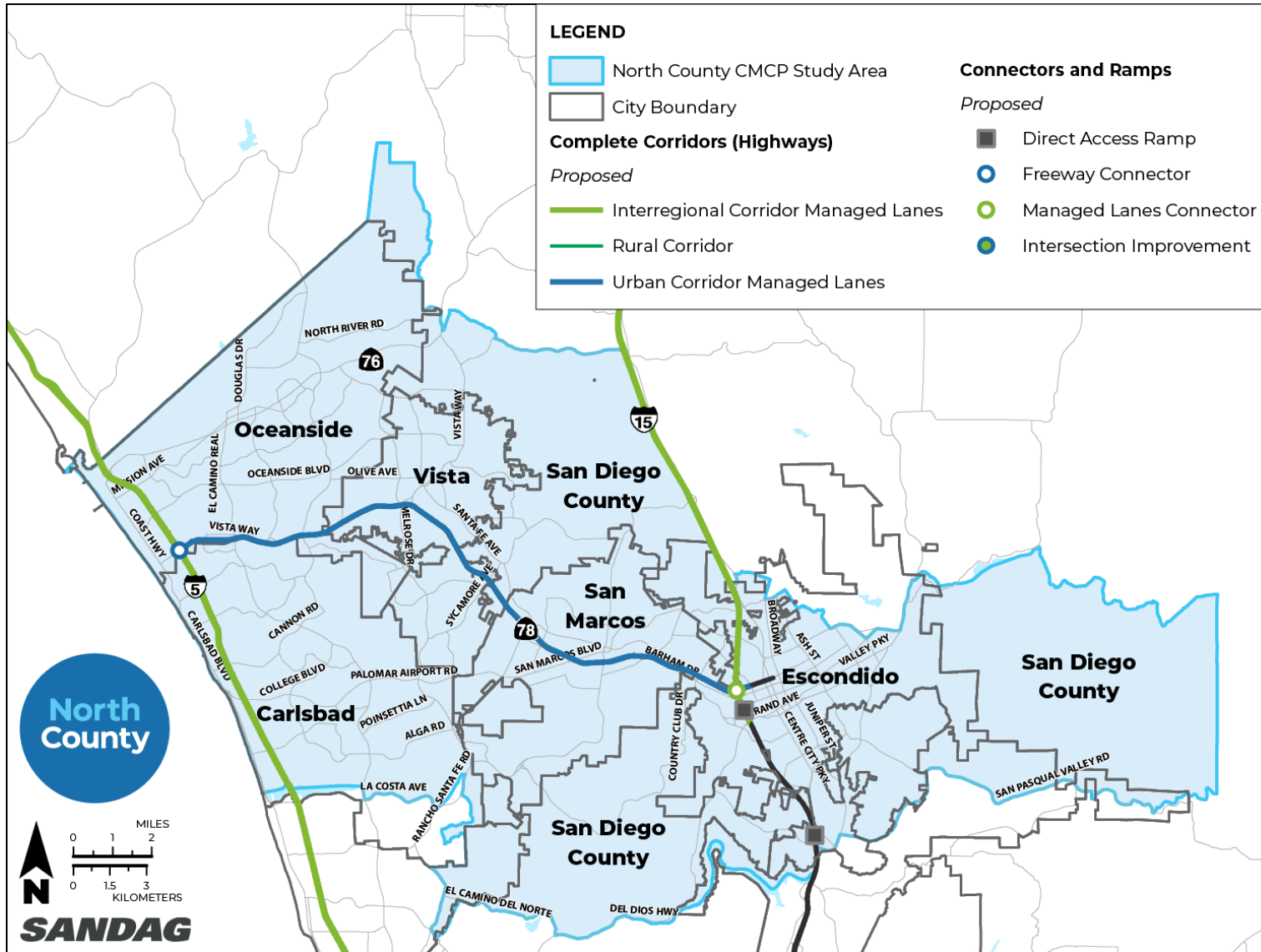
In addition to the regional plan that focuses on the major arterials and connections within the region, each community within the study area has developed plans for their transportation networks at a more detailed level as part of their city master plans.

The plans for Escondido, San Marcos, and Vista do not call for any new arterial roadway facilities or connections to be constructed. Oceanside's 2030 Master Transportation Roadway Plan identifies the following new connections: 1) Melrose Drive is connected between North River Road and SR 76 and 2) Melrose Drive is connected between Spur Avenue and N. Santa Fe Avenue. Within Carlsbad, there is a planned new arterial street to connect College Boulevard from Cannon Road to El Camino Real.

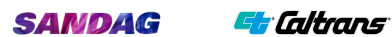
Managed Lanes Concept

Managed lanes are highway facilities or a set of lanes where operational strategies are proactively implemented and managed in a response to changing conditions. For example, I-15 Express Lanes include 8-miles of High Occupancy Travel (HOT) lanes with tolls that vary dynamically based on level of congestion. At the time of this study, the I-15/SR 78 Managed Lanes Direct Connectors is an on-going project for the study area.

Figure 5. SANDAG 2050 Regional Transportation Plan



Source: SANDAG 2021 Regional Vision – 5 Big Moves



Active Transportation Network

EXISTING

Within the Study Area there are several major bicycle facilities connecting communities within the subregion:

- Inland Rail Trail
- San Luis Rey Bike Path
- Coastal Rail Trail

In addition to these facilities, there are many other bicycle facilities in the subregion. Bikeway facilities as represented in **Figure 6** can be classified into five types per SANDAG Regional Bike Plan: Riding to 2050: Class IV bicycle facilities are separated from other modes of transportation, provide a higher level of safety for cyclists and are the recommended facilities where possible. Class III routes and bicycle boulevards offer the least amount of protection for cyclists and are typically designated where in slow-speed areas or where necessary to make a connection to another facility.

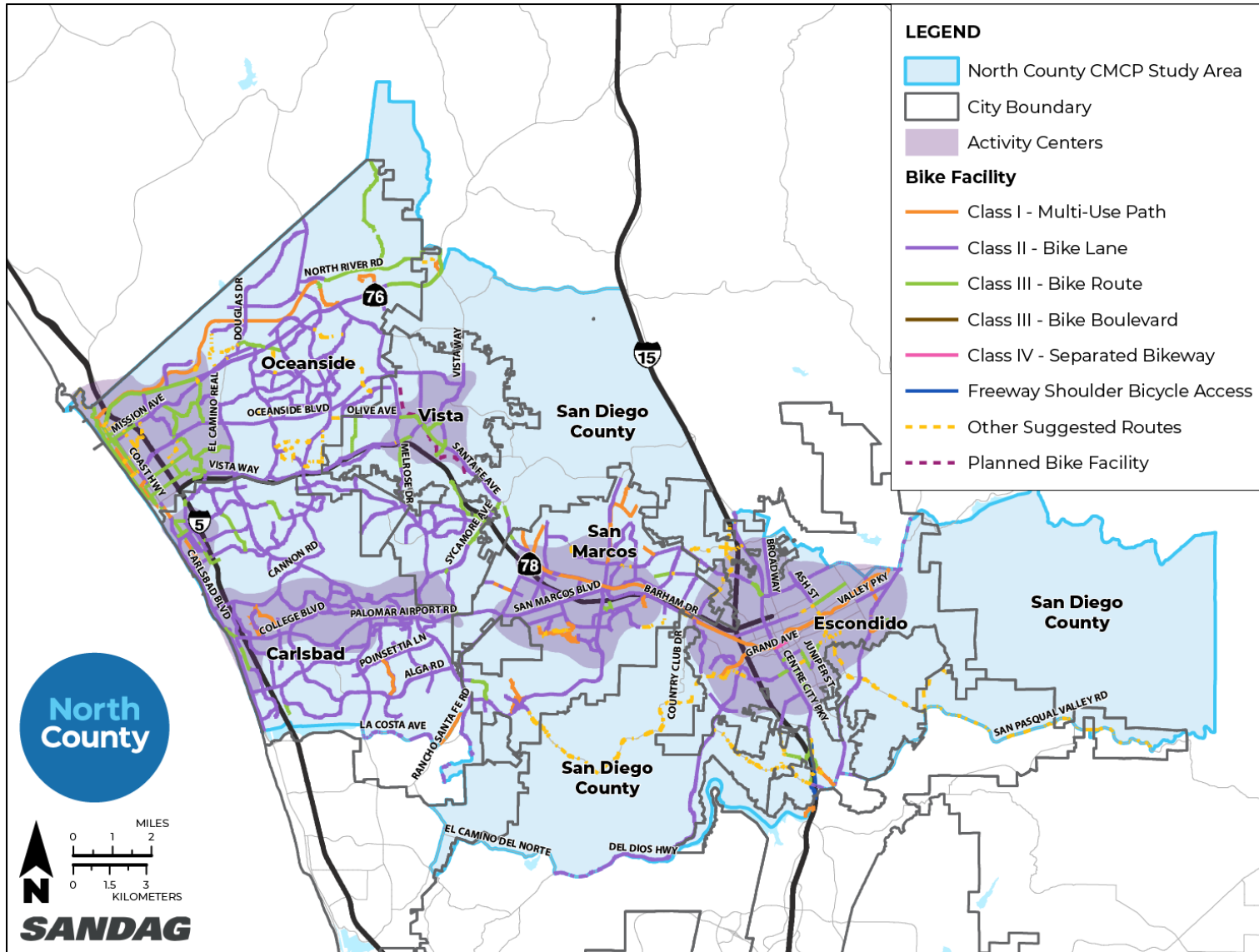
There are about 445 miles of bikeway facilities within the study area with about 10% being Class I and about 66% being about Class II. There are about 55 miles of Class III and about 49 miles of other suggested bike routes in the study area.

PLANNED

There are about 3 miles of planned bikeway facilities within the study area. The expansion of the Inland Rail Trail to connect Oceanside, Vista and San Diego County from the existing trail facility in Vista to Melrose Drive is the major planned improvement for the study area. Additional on-street improvements are planned in the 2021 Regional Vision but are still being determined.



Figure 6. Existing and Planned Bicycle Facility Network



Source: SANDAG Bike Routes Shapefile (Accessed April 2021)

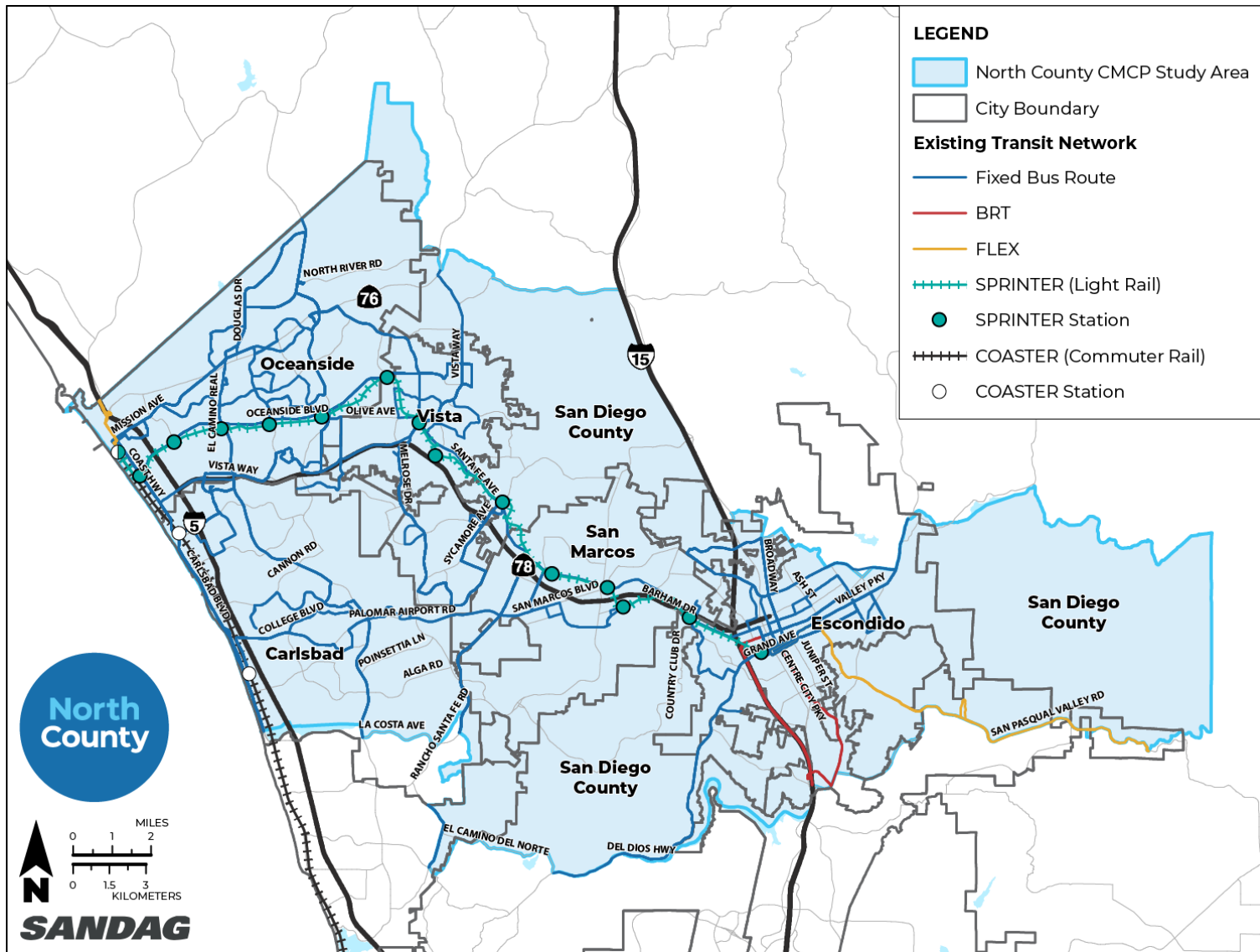
Transit Network

EXISTING NETWORK

The North County CMCP is served by the following transit options: 29 fixed local bus routes, 3 Bus *Rapid* Transit (BRT) services, 2 inter-regional commuter rail services (Surfliner/Metrolink), 2 commuter rail services (SPRINTER/COASTER), and 3 FLEX bus services. The key operator for transit in the NC CMCP is North County Transit District (NCTD). However, the inter-regional commuter rail services are operated by Metrolink and Amtrak. Two of the BRT services operated by Metropolitan Transit System (MTS), providing high-frequency bus services between NC CMCP and Downtown San Diego. Maps displaying the alignment and route of these facilities can be found below.



Figure 7. Existing Transit Network



Source: SANGIS Transit Routes GTFS Shapefile (Accessed March 2021)

Fixed Bus Transit

NCTD operates 29 fixed bus routes, 22 of which are within the North County CMCP. Six of these routes connect the NC CMCP to another city within the region.

SPRINTER/COASTER

SPRINTER is a hybrid rail system that spans 22 miles in the San Diego region connecting Oceanside, Vista, San Marcos, and Escondido by way of 15 stations along the SR 78 Corridor (see **Figure 8**). Headways are typically 30-minutes, with extended times on weekends.

COASTER is a commuter train providing service from Oceanside to downtown San Diego with eight stations. COASTER runs more than 20 trains on weekdays and has additional service on the weekends. COASTER connects to many other transit services at various stations.

Bus Rapid Network

The Region's *Rapid* is a high-frequency, limited-stop bus service with destinations throughout San Diego. The *Rapid* network includes eight routes. Most of these routes are focused within San Diego.

Within the study area, two *Rapid* services, the *Rapid Express* 280 and *Rapid* 235 operate. Route 280 is a weekday, peak-hour service that goes south in the morning and north in the evening between the Escondido Transit Center and Downtown San Diego with one stop at the Del Largo Transit Station. *Rapid* 235 is an all stop service between downtown Escondido and downtown San Diego.

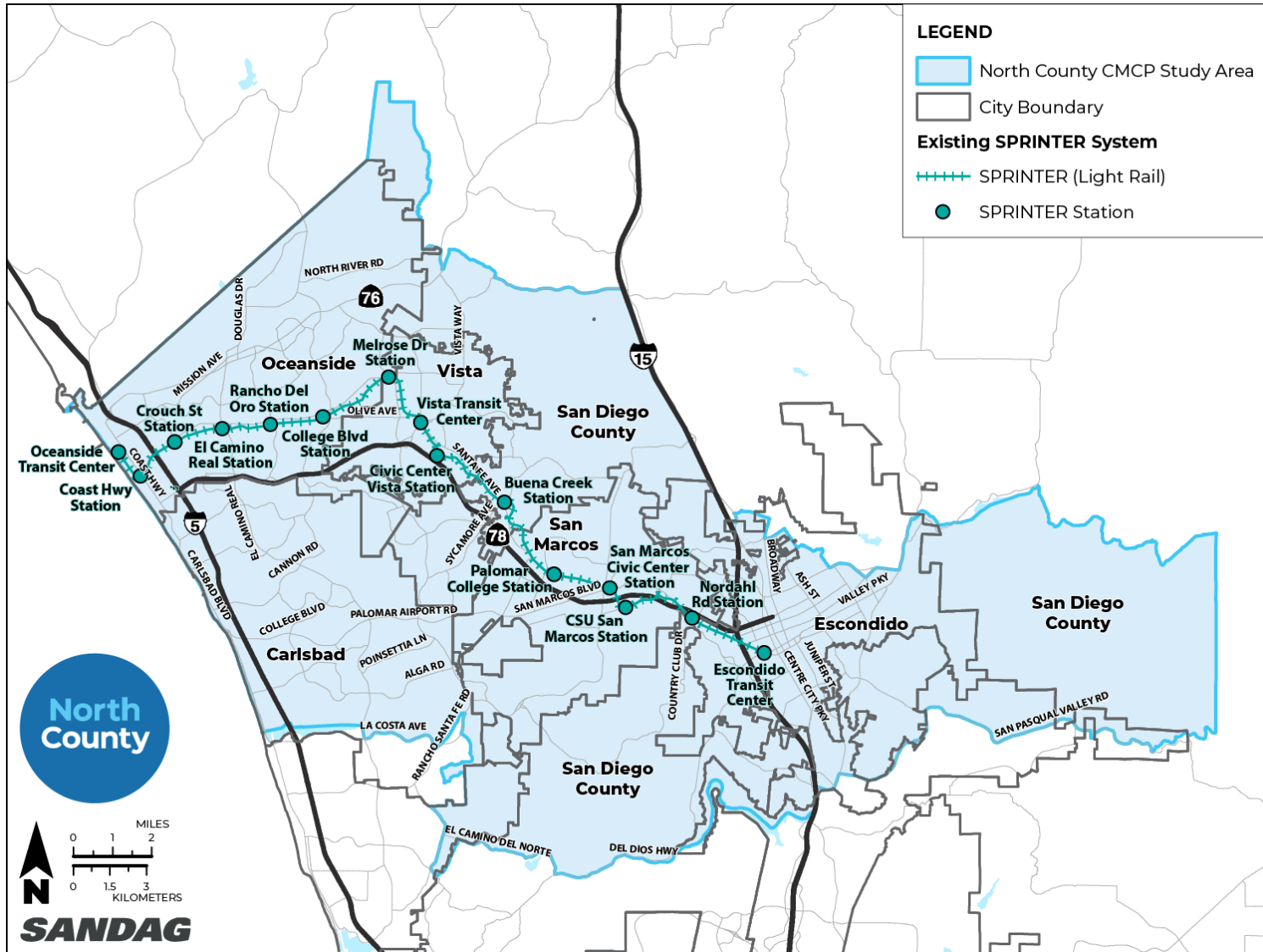


The North County Transit District (NCTD) operates the BREEZE *Rapid* Route 350 service between the Escondido Transit Center and the Del Lago Transit Center, primarily along Escondido Boulevard and Bear Valley Parkway. This service maintains some BRT qualities such as branded stops and faster, more frequent service.

Park and Ride Network

Park and Rides are designated locations where transit patrons can park their vehicles before taking transit for longer travel and commuting purposes. There are 60 active Park and Ride facilities in San Diego County, 32 of which are owned by the State. Four of the six Mobility Hubs within this study area contain a Park and Ride.

Figure 8. Existing SPRINTER Network



Source: SANGIS Transit Routes GTFS Shapefile (Accessed March 2021)

PLANNED NETWORK

Future Transit within each community will be coordinated with both SANDAG and NCTD. The following summarizes planned improvements from both of these agencies within the study area.

SANDAG

The SANDAG 2050 Regional Transportation Plan (**Figure 9**) identifies a transit network for the entire region based on a Revenue Constrained scenario. Within the study area, planned transit facilities include Light Rail Transit (LRT), Express LRT, Commuter Rail, High Speed Rail, BRT, Peak Period BRT, Streetcar, *Rapid Bus*, and Local Bus. Each community has also identified planned transit improvements.

NCTD

Planned improvements specifically from the Strategic Multimodal Transit Implementation Plan (SMTIP) are categorized by near-, short-, and long-term improvements. A high-level summary of current recommendations includes:

NEAR-TERM (0-3 YEARS):

- SPRINTER Frequency Upgrade to achieve 30-minute headways continuously from 8 a.m.-10 p.m. on weekends.
- Mission Avenue/North Santa Fe Avenue Corridor Development rebranding and implementing Route 303 as *Rapid BRT* service.
- Implement Oceanside School-Focused Microtransit Pilot Demonstration which will convert existing BREEZE Routes 311, 313, and 323 from fixed-route bus service to FLEX on-demand microtransit service.
- Central North-South Transit Corridor Development to improve service frequency on BREEZE Routes 315/325 to 30-minute headways in both directions on weekdays.
- El Camino Real Corridor Development to implement BRT-style operational improvements on existing BREEZE Route 309
- Palomar Airport Corridor Development will establish the Carlsbad Connector as a permanent hourly on-demand shuttle service with service along Palomar Airport Road and discontinue BREEZE Routes 444 and 445.
- Network Connectivity improvements from Inland to South Coast to improve service frequency on BREEZE Routes 304 and 308 to 30-minute headways throughout the day on weekdays.
- Camp Pendleton discontinue service FLEX Routes 392 and 395 in Camp Pendleton

SHORT-TERM (3-5 YEARS):

- Central North-South Transit Corridor Development to improve service frequency on BREEZE Route 315, 325, and 323.
- El Camino Real Corridor Development to improve BREEZE Route 309 service frequency.
- Vista Way Corridor Development to consider restructuring Routes 302 and 315/325 to minimize the overlapping segments.

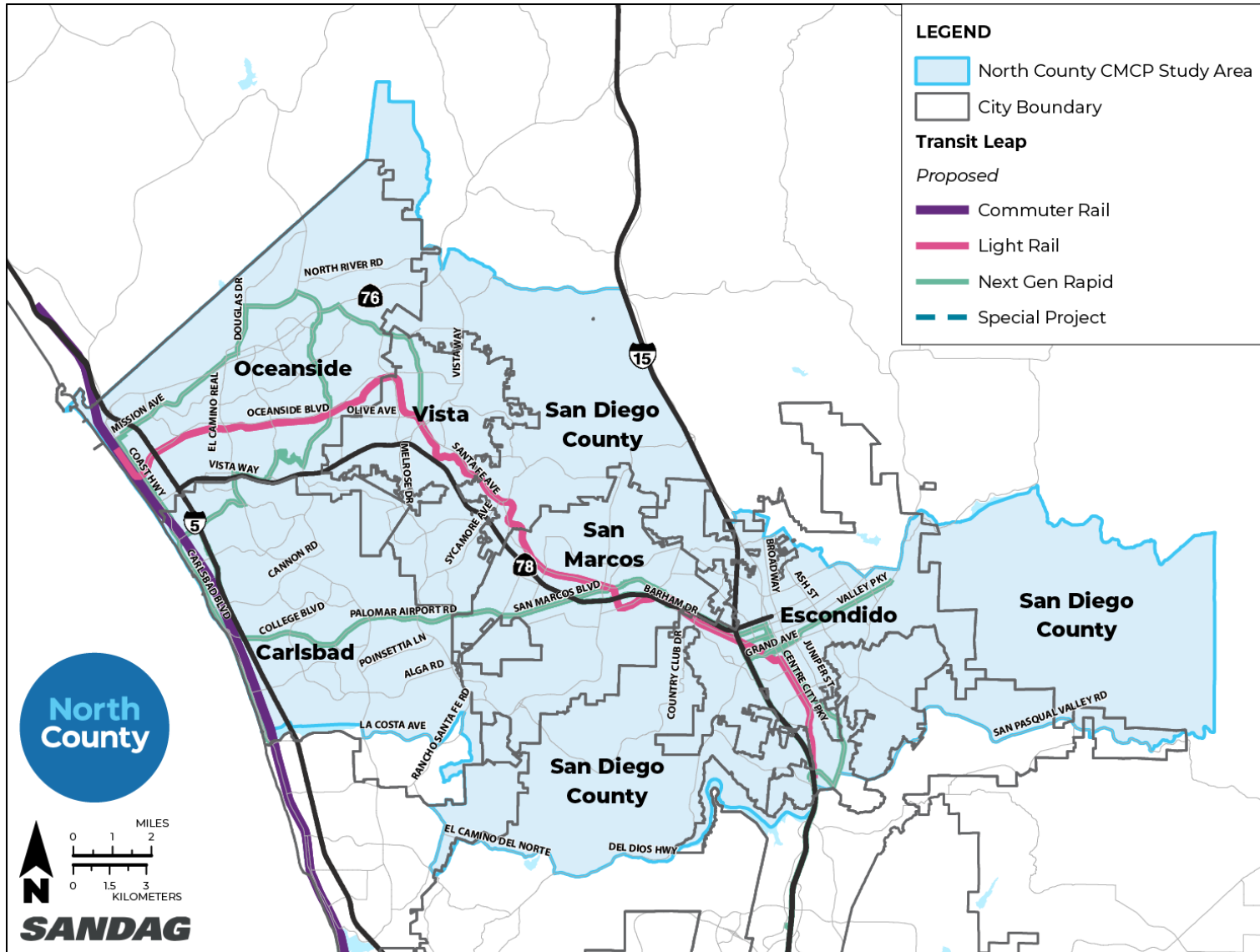
- Implement Carlsbad School-Focused Microtransit Pilot Demonstration by converting existing BREEZE Routes 323 and 325 from fixed-route bus service to FLEX on-demand microtransit service as part of a demonstration/pilot program to explore school-focused microtransit service.
- Palomar Airport Corridor Development to improve the service span and frequency of the Carlsbad Connector on-demand shuttle to meet all COASTER trains and every other SPRINTER train.
- Vista FLEX Mobility-on-Demand to restructure BREEZE Routes 318, 332, and 334.
- West Escondido/San Marcos FLEX to replace the existing low-frequency and low-ridership BREEZE Routes 347, 353, and 358/359 with FLEX on-demand microtransit service.
- Network Connectivity improvements from Inland to South Coast to improve service frequency on BREEZE Routes 304 and 308.

LONG-TERM (5-10 YEARS):

- COASTER Frequency upgrade service frequencies to three trains per hour during peak periods and two trains per hour during off-peak periods, following the completion of the LOSSAN Coast Rail Corridor infrastructure projects. In conjunction with the COASTER service frequency improvement (and to help facilitate increased transit ridership), NCTD should restructure the existing BREEZE Route 101 to focus on short bus feeder trips to rail stations (essentially serving the function of first-last mile connections), and schedule the restructured feeder bus trips to coordinate with COASTER arrival and departure times.
- SPRINTER Frequency upgrade to increase SPRINTER service frequencies following the completion of 9.5 miles of double-tracking along the SPRINTER corridor. NCTD should restructure the existing BREEZE Routes 305 and 318 and adjust the weekday and weekend service frequencies to serve the function of first-last mile connections at SPRINTER stations.
- Network Connectivity from Inland to South Coast to improve service frequency on BREEZE Routes 304 and 308.
- Escondido Network Improvements to improve service frequency on BREEZE Route 350. Similarly, improve service frequency on BREEZE Routes 351/352. NCTD should also improve the service frequency on BREEZE Routes 355/357.
- Palomar Airport Corridor Development to improve the service span and frequency of the Carlsbad Connector on-demand shuttle service to meet all COASTER trains and every other SPRINTER train.
- Ramona Service Capacity Expansion, if there is increased travel demand between Escondido and Ramona in the long-term, NCTD could increase service levels on FLEX Routes 371 and 372 to provide more peak period trips or midday trips.
- Pala Frequency Improvements to improve the service frequency on BREEZE Route 388.

Additional information regarding these improvements can be found in the NCTD SMTIP website <https://gonctd.com/about-nctd/smtip/>

Figure 9. SDForward Transit Routes 2050



Source: SANDAG 2021 Regional Vision – 5 Big Moves

Flexible Fleet/Micro-Transit Network

EXISTING

Flexible Fleets are shared, on-demand transportation services that provide convenient and personalized travel options. SANDAG has identified five Flexible Fleet types: 1) Micromobility 2) Ridehailing 3) Ridesharing 4) Microtransit and 5) Last-Mile Delivery Services. These fleets provide services for all trip types at all times of the day. They also provide important connections between transit services and key destinations such as work or home. Flexible Fleets are primarily accessible through mobile apps and can be operated by public and private agencies or through partnerships. Within the subregion, services such as Uber, Lyft, HOOT Rides Oceanside, e-bikes, scooters, and RideCo among many other services are available for use.



PLANNED

According to the Vision for the 2021 Regional Plan Network Development Summary Report (2021 Vision), SANDAG envisions continued expansion of existing Flexible Fleet services. SANDAG plans to have Flexible Fleets operate within and between activity centers. Communities will develop better access to high-quality transit, and have a wide variety of travel options that connect people to their destinations. According to the Transformative Transportation Vision for the SANDAG 2021 Regional Plan, Oceanside, Vista, Carlsbad, San Marcos, and Escondido are all planned Mobility Hub locations. These and other opportunities are further explored in Chapter 3.

ITS / TSMO

EXISTING

Intelligent Transportation Systems (ITS) are the control and information systems that use communication and data processing technologies to improve mobility, reduce traffic, increase safety, and meet transportation policy goals. ITS technologies lay the foundation for Transportation Systems Management and Operations (TSMO), a set of strategies that focuses on operational improvements that can maintain and restore the performance of the existing transportation system before extra capacity is needed.

Efficient and real-time management of existing traffic congestion and incident response on SR 78 is limited. Currently, the corridor has one closed-circuit television (CCTV) site located at the Nordahl Road interchange; therefore, the ability to visually detect and promptly respond to real-time traffic demands and incidents and the ability to provide up-to-date driving conditions to the traveling public is limited to the areas immediately adjacent to this interchange.

According to the Regional TSMO Plan, the North County Regional Corridor (NCRC) Charter established an on-going SR 78 Corridor Management Team (CMT) to help address the mobility needs of adjacent agencies and further TSMO within the North County area. The Charter establishes a framework for agencies to develop a culture of collaboration in the context of the SR 78 corridor. The CMT developed the North County Corridor TSMO Roadmap, which is intended to be a starting point to guide the direction of the CMT and updated over time.

PLANNED

According to the SR 78 Project Initiation Report, 4 new CMS signs and 17 new CCTV locations will be installed along the SR 78 corridor to enhance the transportation management capabilities of this corridor. The single existing CCTV location will also be upgraded. In addition to the new CMS and CCTV installations, 15 existing vehicle detection station (VDS) as well as 36 existing ramp meter (RM) locations will be replaced, repaired or upgraded as needed.

The SR 78 CMT is tasked with developing an Implementation Plan as part of the CMCP, which includes developing a prioritized list of projects and TSMO strategies to be implemented in the region, as well as identifying current and likely future funding opportunities for projects. In addition, the CMT is tasked with developing a Concept of Operations that builds on the needs gathered by the stakeholder group and strategies developed in the Implementation Plan. Both the Implementation Plan and Concept of Operations are included in the CMT TSMO Roadmap, shown in **Figure 10**.

Figure 10. SR 78 Corridor Management Team TSMO Roadmap

