

CITY OF CARLSBAD SUSTAINABLE MOBILITY PLAN - DRAFT

DECEMBER 2020



ACKNOWLEDGMENTS

The Carlsbad Sustainable Mobility Plan document would not have been completed without the efforts of the following individuals:

CITY OF CARLSBAD

Nathan Schmidt, AICP, Project Manager
 Craig Williams, Project Manager
 Marshall Plantz, Transportation Director
 Craddock Stropes, Senior Management Analyst
 Paz Gomez, Public Works Director
 Christie Marcella, Economic Development Manager
 Claudia Huerta, Senior Program Manager
 Elaine Lukey, Chief Operating Officer
 Lolly Sangster, Program Manager

CONSULTANT TEAM

Sherry Ryan, PhD, Principal Planner, Chen Ryan Associates
 Brian Gaze, AICP, Project Manager, Chen Ryan Associates
 Nick Mesler, EIT, GIS Analyst, Chen Ryan Associates
 Eric Sindel, Project Planner, Chen Ryan Associates
 Katja Dillmann, Project Planner, Chen Ryan Associates
 Aaron Galinis, Project Planner, Chen Ryan Associates
 Andy Pendoley, Outreach Manager, MIG-MJE
 Gabriela Dow, NV5, Communications Liaison
 Paul Moore, PE, Design Guidelines Project Manager, Nelson-Nygaard Consulting Associates

Zach Zabel, Design Guidelines Support, Nelson-Nygaard Consulting Associates

STAKEHOLDER WORKING GROUP

Cristina Amorium, VP, Facilities EH&S and Sustainability, Thermo Fisher Scientific
 Eric Bruvold, Chief Executive Officer, San Diego North Economic Development Council
 Benjamin Churchill, Superintendent, Carlsbad Unified School District
 Rachel Forseth, iCommute Account Manager, Steer Group (on behalf of SANDAG)
 Andy Hanshaw, Executive Director, San Diego County Bicycle Coalition
 Frank Idris, Hotel General Manager, LEGOLAND
 Cindy Krimmel, District Environmental Coordinator, California State Parks
 Thomas Lee, General Manager, Cape Rey Carlsbad
 Chiara Leroy, Community Health Promotion Specialist, County of San Diego
 Jim Mandler, Property Manager, Cruzan
 Antoinette Meier, Principal Regional Planner, SANDAG
 Eduardo Moya, Head of Hotel Operations, LEGOLAND
 Toni Padron, Executive Vice President/COO, Carlsbad Chamber of Commerce
 Andrew Papino, HR Manager, Thermo Fisher Scientific
 Pete Penseyres, Cycling Instructor and Traffic Safety Commissioner, Bike Walk Carlsbad
 Joey Powers, Experience Manager, Go Daddy

Diane Proulx, Assistant to the President, Grand Pacific Palisades Resort & Hotel

Lisa Rodman, CEO, Agua Hedionda Lagoon Foundation

Sam Ross, Executive Director, Carlsbad Convention & Visitors Bureau

Robert Rota, Vice President, Facilities & Security, Via Sat, Inc.

Kevin Sladek, Founder and Principal, Mod 4 Design and Development

Kalim Smith, Community Representative and ADA activist

Ivan Tesic, Senior Project Manager, Business Operations, Thermo Fisher Scientific

Glenn Thomas, Marketing Sales Manager and Director of Safety and Risk Management for Continuing Life, La Costa Glen

Lisa Urbach, Sector Superintendent, California State Parks, San Diego Coast District (North Sector)

Doug Yavarian, Community Relations, Omni La Costa Resort & Spa

CALTRANS

Vanessa De La Rosa, Associate Transportation Planner

TABLE OF CONTENTS

EXECUTIVE SUMMARY	11
1 INTRODUCTION	21
2 EXISTING MOBILITY NETWORKS	31
3 GUIDING PRINCIPLES AND EMERGING MOBILITY TRENDS	71
4 COMMUNITY PERSPECTIVES	89
5 THE PLANNED MOBILITY NETWORKS	103
6 PROPOSED MOBILITY PROGRAMS	125
7 ACTION PLAN	141

LIST OF FIGURES

FIGURE 2-1 EXISTING LAND USES.....	36
FIGURE 2-2 PLANNED LAND USES	37
FIGURE 2-3 MEDIAN HOUSEHOLD INCOME.....	38
FIGURE 2-4 MODE SHARE/TRAVEL TIME TO WORK.....	39
FIGURE 2-5 CITY OF CARLSBAD AUTO TRAVEL ACTIVITY.....	41
FIGURE 2-6 WHERE CARLSBAD WORKERS LIVE.....	42
FIGURE 2-7 WHERE CARLSBAD RESIDENTS WORK	43
FIGURE 2-8 WORK DESTINATION ZONES AND PERCENT OF AVERAGE WEEKDAY TRIPS ENDS	44
FIGURE 2-9 EXISTING PEDESTRIAN NETWORK.....	45
FIGURE 2-10 MISSING SIDEWALKS	46
FIGURE 2-11 QUALITY OF THE PEDESTRIAN ENVIRONMENT	47
FIGURE 2-12 PEDESTRIAN COLLISIONS	50
FIGURE 2-13 TRAILS PLAN.....	51
FIGURE 2-14 EXISTING BIKE NETWORK.....	53
FIGURE 2-15 BIKE RACKS AT PUBLIC FACILITIES	54
FIGURE 2-16 LEVEL OF TRAFFIC STRESS	56

FIGURE 2-17 BICYCLE COLLISIONS 58

FIGURE 2-18 EXISTING TRANSIT NETWORK 60

FIGURE 2-19 TRANSIT SERVICE QUALITY AND RIDERSHIP 61

FIGURE 2-20 TRANSIT SAFETY 62

FIGURE 2-21 HIGH DETRACTORS AND TRANSIT RIDERSHIP 63

FIGURE 2-22 KEY DESTINATIONS AND PEDESTRIAN NETWORK..... 67

FIGURE 2-23 KEY DESTINATIONS AND BICYCLE NETWORK..... 68

FIGURE 2-24 KEY DESTINATIONS AND TRANSIT NETWORK 69

FIGURE 3-1 NEV ACCESS..... 86

FIGURE 4-1 ALL COMMENTS RECEIVED BY CATEGORY (COUNT)..... 96

FIGURE 4-2 ALL COMMENTS RECEIVED BY CATEGORY (AVERAGE)..... 96

FIGURE 4-3 ALL COMMENTS RECEIVED: (SUGGESTED IMPROVEMENT
LOCATIONS)..... 97

FIGURE 4-4 COMMENTS BY CATEGORY TYPE 98

FIGURE 4-5 DENSITIES BY COMMENT CATEGORY TYPE..... 99

FIGURE 4-6 COMMENTS BY GENDER..... 100

FIGURE 4-7 SENIOR RESIDENT COMMENTS 101

FIGURE 5-1 THE PLANNED PEDESTRIAN NETWORK 107

FIGURE 5-2 THE PLANNED TRAIL NETWORK 110

FIGURE 5-3 THE PLANNED BICYCLE NETWORK 111

FIGURE 5-4 END-OF-TRIP FACILITIES 113

FIGURE 5-5 THE PLANNED TRANSIT NETWORK..... 114

FIGURE 5-6 TRANSIT PROJECT AREAS AND RIDERSHIP..... 115

FIGURE 5-7 MCCLELLAN-PALOMAR AIRPORT MOBILITY HUB CONCEPT . 118

FIGURE 5-8 THE SHOPPES AT CARLSBAD MOBILITY HUB CONCEPT 119

FIGURE 5-9 POINSETTIA COASTER MOBILITY HUB CONCEPT 120

FIGURE 5-10 CARLSBAD VILLAGE MOBILITY HUB CONCEPT..... 121

FIGURE 5-11 TROLLEY FEASIBILITY..... 122

FIGURE 5-12 TRANSFORMATIVE CORRIDORS..... 123

FIGURE 6-1 SCHOOL AREAS MAP 128

FIGURE 6-2 SCHOOL NEAR TRAILS 129

FIGURE 6-3 EXAMPLE CONCEPTUAL IMPROVEMENT MAP..... 131

FIGURE 6-4 SAMPLE SUGGESTED ROUTES TO SCHOOL MAP..... 132

FIGURE 6-5 SHORTEST PATH TO SCHOOL ASSESSMENT 133

FIGURE 6-6 SCHOOL CHILDREN RESIDENTIAL DENSITY..... 134

FIGURE 6-7 BICYCLE AND PEDESTRIAN COUNT LOCATIONS 138

FIGURE 7-1 SMP PROJECT DATABASE PROJECT ID..... 143

FIGURE 7-2 SMP PROJECT DATABASE 152

FIGURE 7-3 HIGHEST PRIORITY PROJECTS 153

LIST OF TABLES

TABLE 1-1 CALTRANS ACTIVE TRANSPORTATION PLAN CHECKLIST 30

TABLE 2-1 WHERE CARLSBAD WORKERS LIVE 42

TABLE 2-2 WHERE CARLSBAD RESIDENTS WORK..... 43

TABLE 2-3 PEQE RANKING SYSTEM AND CRITERIA 48

TABLE 2-4 PEDESTRIAN COLLISIONS BY SEVERITY OF TYPE 50

TABLE 2-5 CENTERLINE MILEAGE OF CARLSBAD
ROADWAYS BY SPEED 52

TABLE 2-6 LTS CLASSIFICATION..... 57

TABLE 2-7 BICYCLE COLLISIONS BY SEVERITY TYPE 58

TABLE 3-1 TOTAL DAILY TRIPS BY LAND USE TYPE IN THE
CITY OF CARLSBAD 74

TABLE 5-1 SUMMARY OF PEDESTRIAN NETWORK MILEAGE..... 107

TABLE 5-2 SUMMARY OF TRAIL NETWORK MILEAGE..... 110

TABLE 5-3 SUMMARY OF BIKEWAY MILEAGE..... 112

TABLE 5-4 SUMMARY OF TRANSIT NETWORK MILEAGE..... 114

TABLE 5-5 SMP TRANSIT, BICYCLE, AND PEDESTRIAN PROJECTS
NEAR HIGH RIDERSHIP TRANSIT STOPS..... 116

TABLE 6-1 DATA TYPES, METHODS, AND COSTS BY CATEGORY..... 136

TABLE 7-1 PROJECT DATABASE WITH PROJECT
RECOMMENDATION TYPE 144

TABLE 7-2 PRIORITIZATION CRITERIA..... 148

TABLE 7-3 TOP 30 PRIORITY PROJECTS BY COUNCIL DISTRICT..... 154

TABLE 7-4 HIGH PRIORITY PROJECT DESCRIPTIONS (TOP 30 PROJECTS). 157

TABLE 7-5 ESTIMATED ACTIVE TRANSPORTATION
TRIPS AND NEW USERS..... 163

LIST OF APPENDICES

- APPENDIX A: DRAFT SMP EXISTING CONDITIONS REPORT
- APPENDIX B: ROADWAY SEGMENTS WITH MISSING OR SUBSTANDARD SIDEWALKS
- APPENDIX C: SMP COMPLETE STREET DESIGN GUIDELINES
- APPENDIX D: SMP COMMUNICATIONS PLAN
- APPENDIX E: DRAFT PLAN REVIEW PUBLIC INPUT REPORT
- APPENDIX F: SMP PUBLIC COMMENT
- APPENDIX G: SRTS CONCEPTUAL IMPROVEMENT PLANS
- APPENDIX H: SRTS WALK AUDIT REPORTS
- APPENDIX I: SRTS SUGGESTED WALKING ROUTES
- APPENDIX J: SRTS SCHOOL CHILDREN RESIDENTIAL DENSITY
- APPENDIX K: SMP PROJECT DATABASE
- APPENDIX L: PRIORITIZATION SCORE

[This page is left intentionally blank]

The image shows a group of people walking away from the camera on a boardwalk. The scene is overlaid with a semi-transparent blue filter. The boardwalk has a metal railing on the right side. In the background, there are buildings, palm trees, and streetlights. The overall aesthetic is clean and modern, with green wavy borders at the top and bottom of the page.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Carlsbad Sustainable Mobility Plan

(SMP) presents a comprehensive look at current active travel and transit conditions, as well as previous planning efforts to consolidate findings and recommendations into one master document. There are twelve previous planning documents integrated into the SMP including the 2007 Bikeway Master Plan, the 2008 Pedestrian Master Plan (PMP), the 2013 ADA Transition Plan, the 2013 Livable Streets Assessment, the 2015 Carlsbad Active Transportation Strategy, the 2015 Climate Action Plan, the 2015 General Plan Mobility Element, the 2016 Coastal Mobility Readiness Plan, the 2018 Village and Barrio Master Plan, the 2018 Draft Transit and TDM Blueprint, the 2019 Trolley Program Feasibility Study, and the 2019 Trails Master Plan. A key goal of the SMP is to integrate planned, unbuilt projects from all of these plans into a single database; prioritize these planned, unbuilt projects; and thereby provide a significant tool to city staff for facilitating implementation of these multiple planned networks.

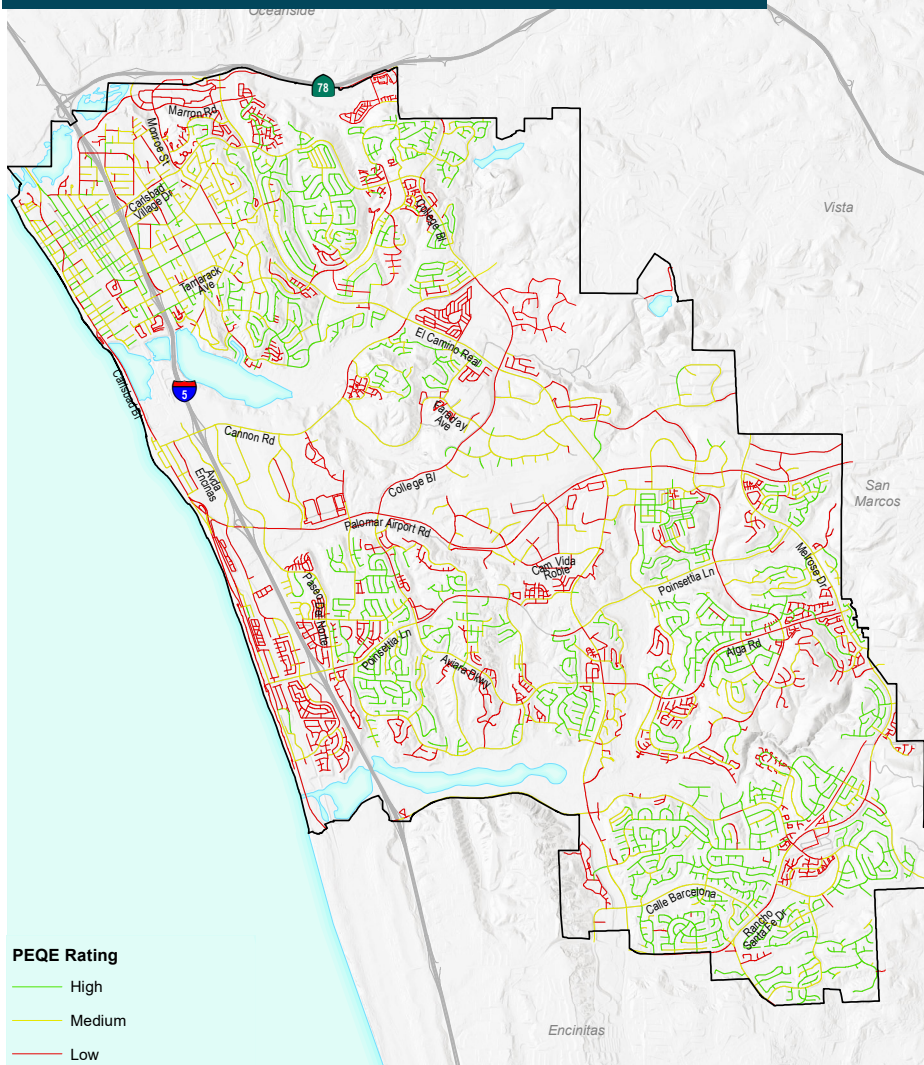
Chapter One of the SMP provides an overview of recent state legislation that motivates local government attention to improving the walking, cycling and transit environments within their jurisdictions. A series of over 15 pieces of state legislation have been adopted since 2006 to reduce

vehicle-miles-traveled and greenhouse gas emissions, improve the safety of our most vulnerable travelers and encourage planning practices that result in sustainable outcomes rather than enhanced automobility. The SMP is certainly in line with these directives from the state of California and also with the desires of community members who echo these concerns and wishes.

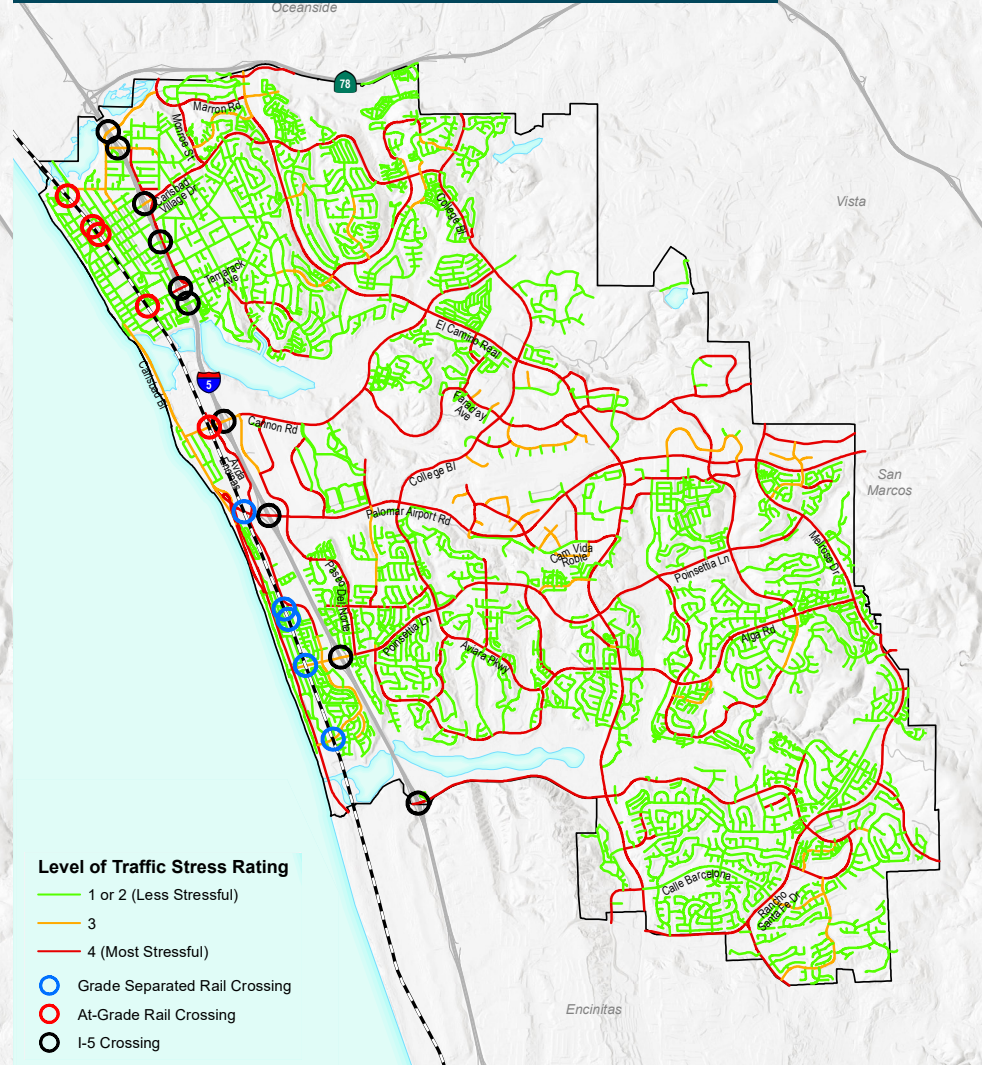
Chapter Two of the SMP highlights existing travel conditions and the need to address several shortcomings for people walking, riding a bike and using transit. Figures ES1 and ES2 on the following pages show results of the Pedestrian Environment Quality Evaluation (PEQE) and the Bicycle Level of Traffic Stress (LTS), which reflect the overall comfort for cyclists and pedestrians. Figure ES3 shows employment density along with the existing transit network highlighting the high potential demand for transit in the central portion of Carlsbad. As shown, there are several gaps in these networks, and critical locations across the city suffer from poor quality walking and cycling environments and a sparse transit network.



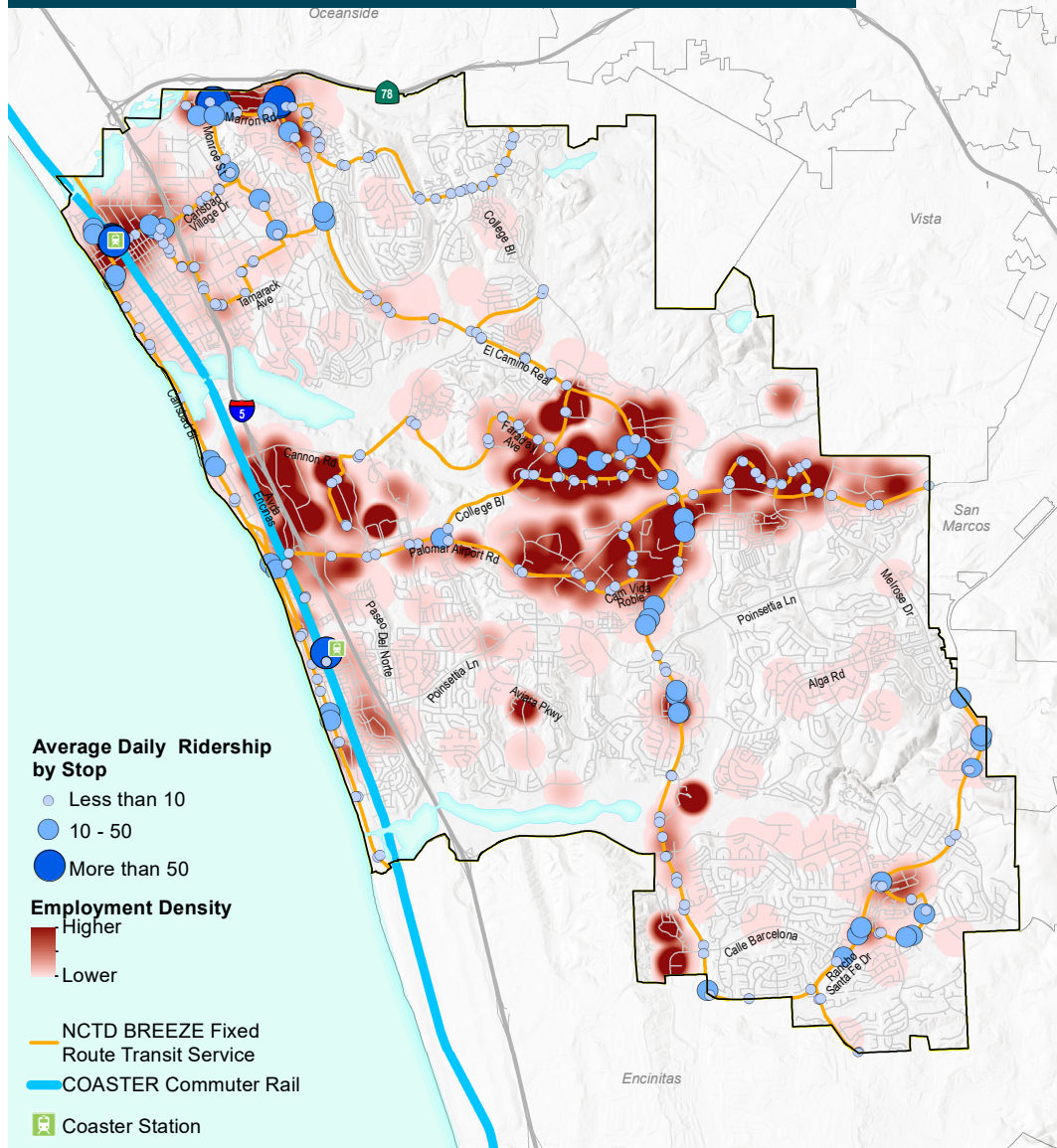
ES1 QUALITY OF PEDESTRIAN ENVIRONMENT



ES2 LEVEL OF TRAFFIC STRESS



ES3 TRANSIT SERVICE QUALITY AND RIDERSHIP



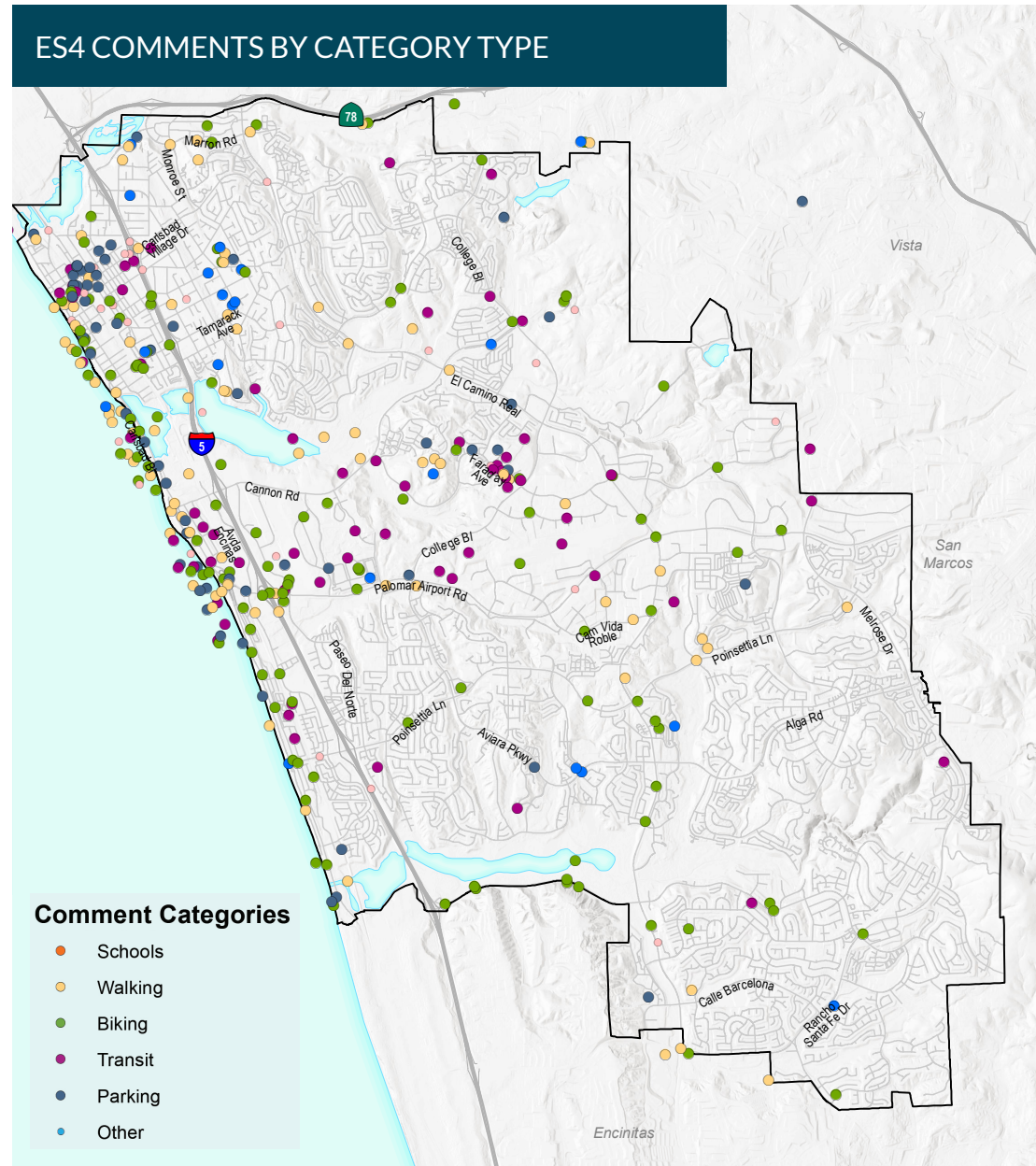
Chapter Three provides an overview of guiding planning principles and emerging mobility concepts that framed the SMP process.

Chapter Four summarizes the spectrum of community outreach activities that were undertaken as part of the SMP process, including business and resident surveys, focus groups, formation of a stakeholder working group, a project website, community meetings and presentations, and outreach to cyclists via social media and guided tours.

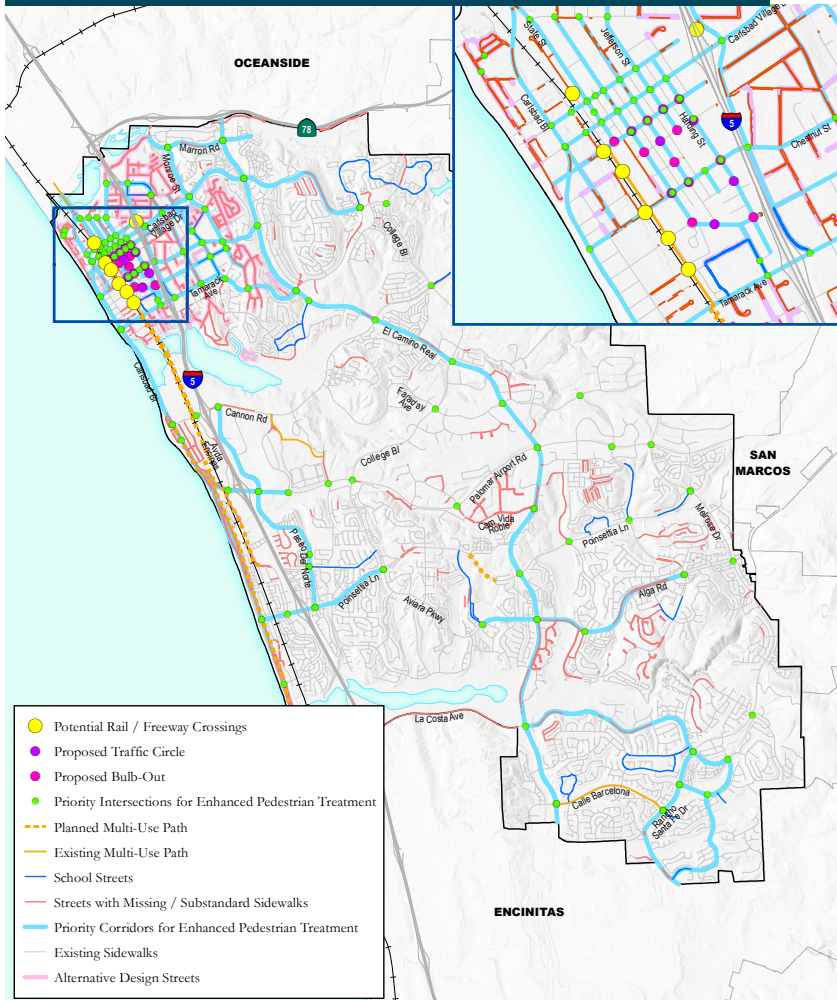
Results of the online survey yielded several insights about community members' issues and desires. The figure to the right shows the magnitude of comments received via the online mapping tool, and whether the comment was about the school trip, walking, cycling, transit or parking.

The most pressing issues identified by community members were related to innovation, location (or density), gap closure and first/last mile services. There is a strong desire on the part of the City of Carlsbad's residents to shift out of single occupant vehicles to transit, but access to transit is difficult.

Chapter Five presents the four planned networks as shown on the following pages for walking, trails, cycling and transit (see Figures ES5 through ES8). These recommendations were layered and combined into a Transformative Corridor Network which presents a well-connected, comfortable backbone network for more sustainable travel across the city. (See Figure ES9)



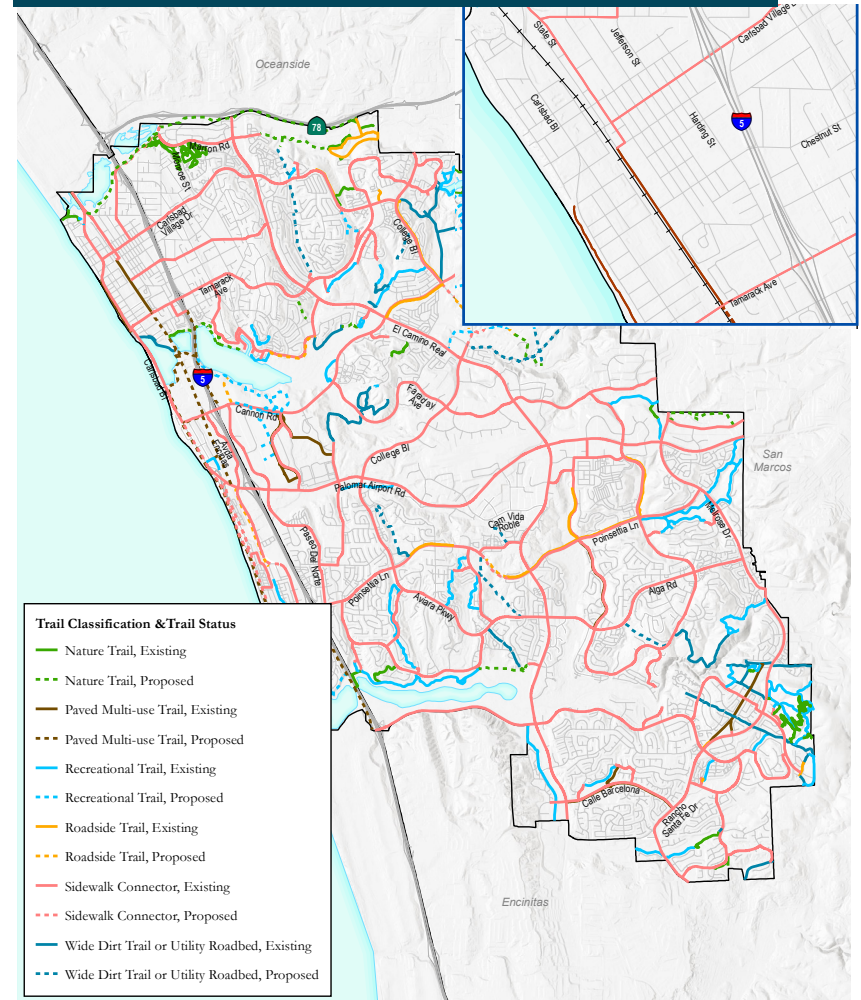
ES5 THE PLANNED PEDESTRIAN NETWORK



Pedestrian Network Mileage

Pedestrian Classification	Existing	Planned	Change in Mileage	Percent Change
Multi-Use	3.2	9.3	+ 6.1	192%
Priority Corridors for Enhanced Treatment	0.0	54.4	+ 54.4	-
Standard Sidewalk	651.6	651.6	-	0%
School Streets	13.4	13.4	-	0%
Alternative Streets	24.0	24.0	-	0%
Total	874.4	936.6	+60.5	9%

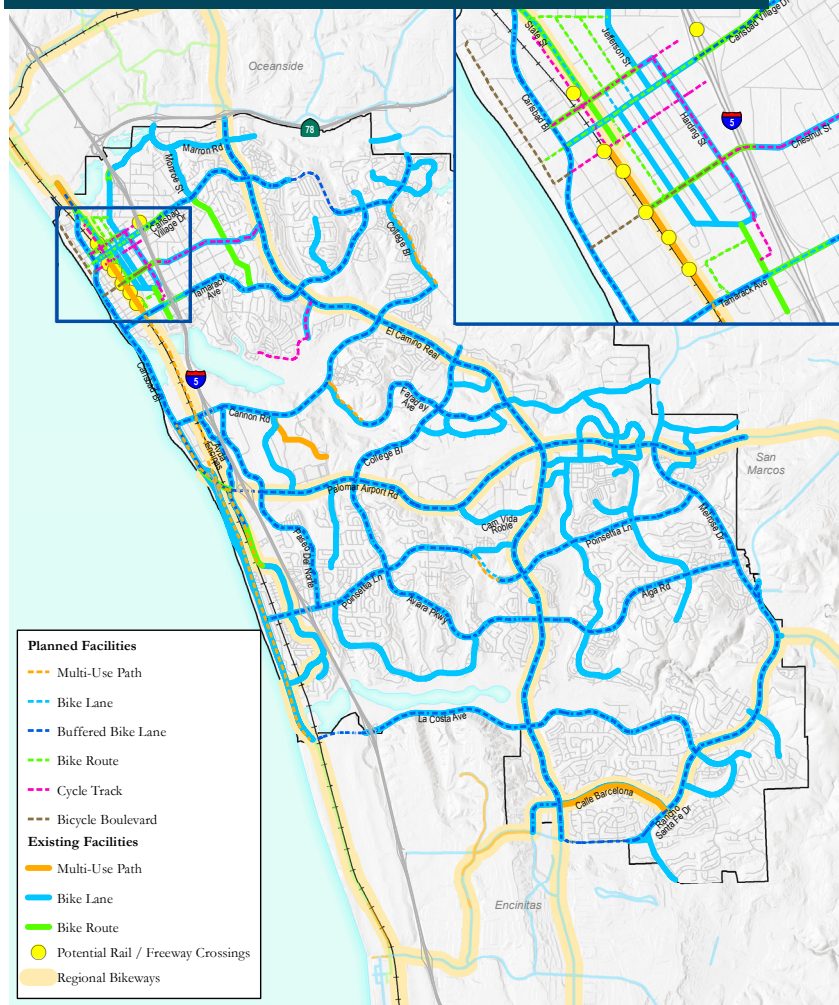
ES6 THE PLANNED TRAIL NETWORK



Trail Network Mileage

Trail Classification	Existing	Planned	Change in Mileage	Percent Change
Nature	11.4	23.6	+ 12.1	107%
Recreational	26.6	30.8	+ 4.2	16%
Wide Dirt	13.2	22.2	+ 8.9	68%
Roadside	7.8	11.8	+ 4.0	51%
Sidewalk Connector	105.5	113.0	+ 7.5	7%
Paved Multi-Use Path	7.8	17.4	+ 9.6	123%
Total	172.3	218.7	+ 46.4	27%

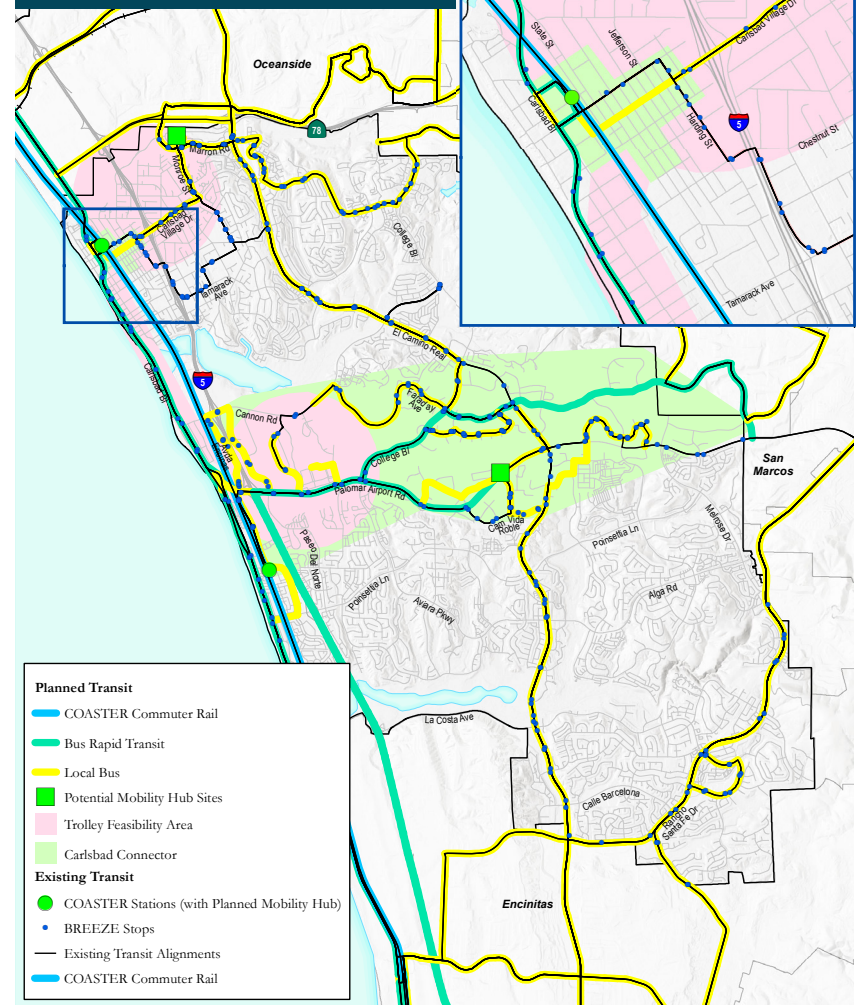
ES7 THE PLANNED BICYCLE NETWORK



Bicycle Network Mileage

Bicycle Classification	Existing	Planned	Change in Mileage	Percent Change
Multi-Use	3.2	9.3	+ 6.1	192%
Bike Lane	157.6	92.0	- 65.6	- 42%
Buffered Bike Lane	-	61.2	+ 61.2	-
Bike Route	5.1	5.2	- 0.2	- 3%
Cycle Track	-	5.1	+ 5.1	-
Bike Boulevard	-	1.3	+ 1.3	-
Total	166.1	174.0	+ 7.9	5%

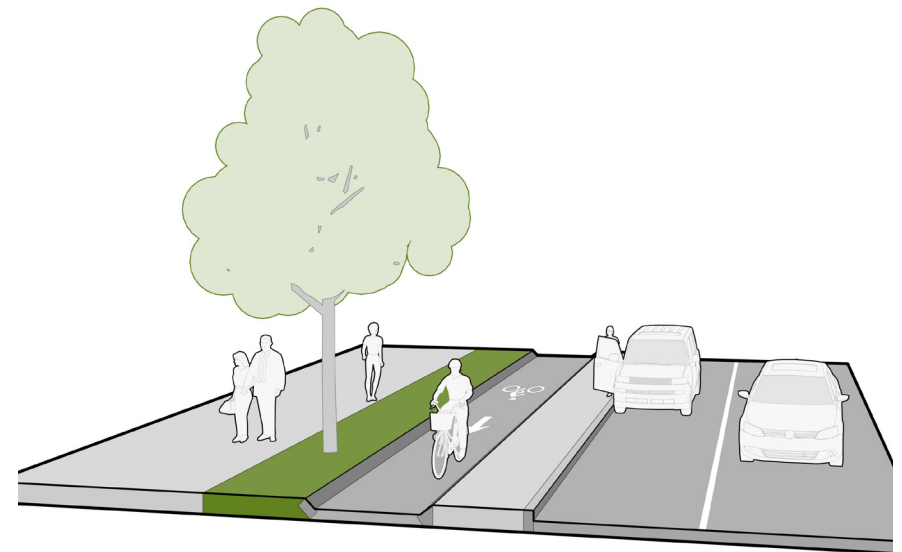
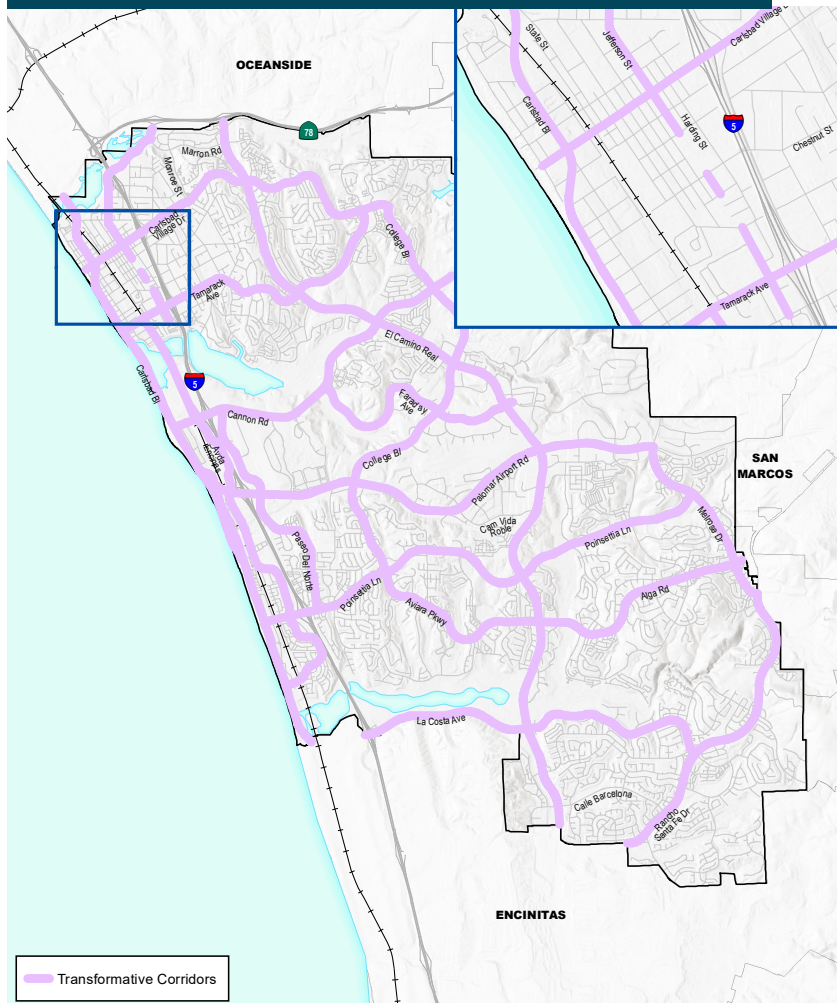
ES8 THE PLANNED TRANSIT NETWORK



Transit Network Mileage

Transit Classification	Existing	Planned	Change in Mileage	Percent Change
Coaster Commuter Rail	6.6	6.6	-	0%
Bus Rapid Transit	-	19.8	+ 19.8	-
Local Bus	50.2	35.5	- 14.7	- 29%
Total	56.8	61.9	+ 5.1	9%

ES9 TRANSFORMATIVE CORRIDORS

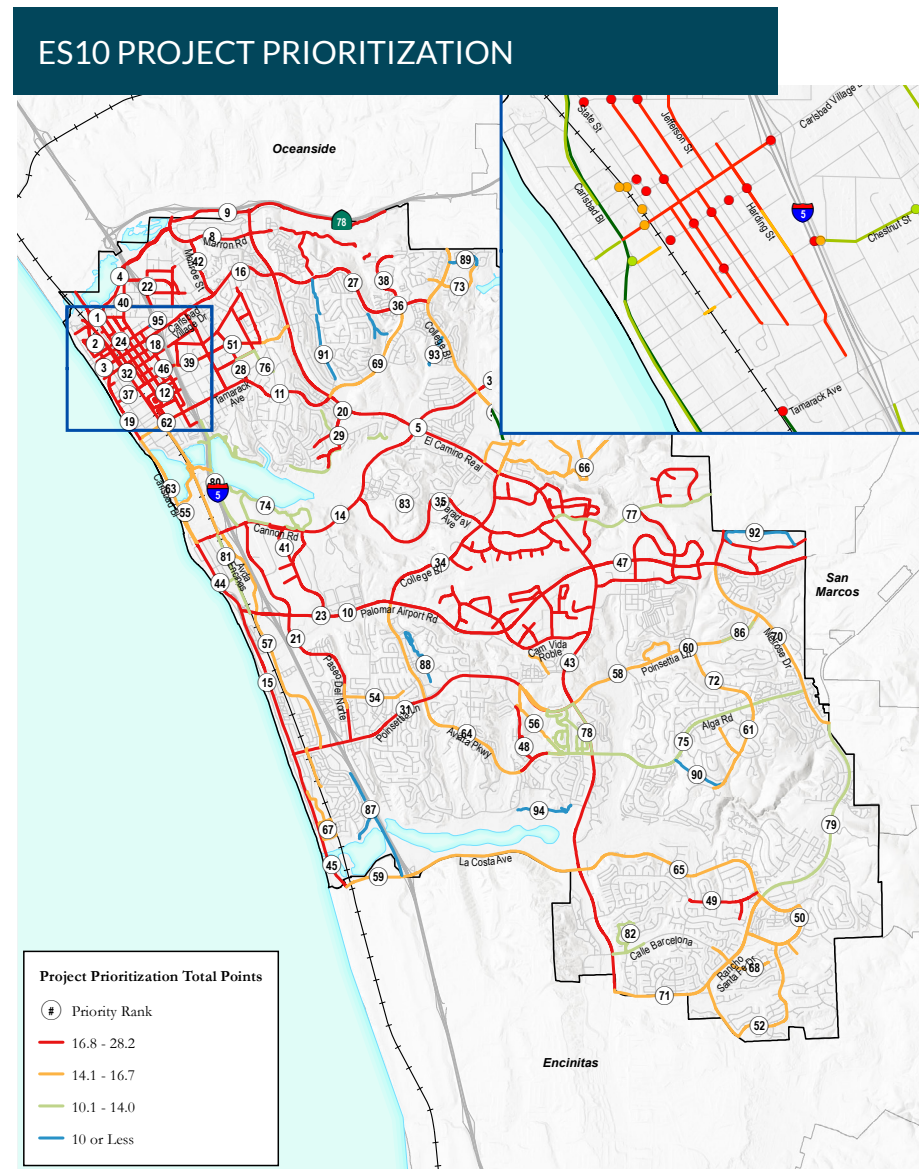


Conceptual cycle track with separated travelway for cyclists. (Source: Seattle.gov)

Chapter Six focuses on programmatic recommendations, specifically Safe Routes to Schools (SRTS), Transportation Demand Management (TDM), and Active Transportation Monitoring. These programs hold strong promise for assisting two core city subpopulations — school children and workers — to change travel behavior to less polluting, healthier modes. The Active Transportation Monitoring Program will assist city staff and community members with understanding how behavior is changing in relation to infrastructure improvements.

Chapter Seven presents the SMP action plan, which includes a presentation of the SMP project database and the prioritization of this database. The SMP project database reflects a comprehensive consolidation of planned unbuilt project recommendations from twelve prior mobility planning efforts of the past fifteen years, combined with new recommendations from the SMP.

The SMP project database includes 246 bicycle, pedestrian and transit recommendations across the city along corridors and across city subareas such as the Village, the Barrio or within school and transit walkshed areas. The prioritization of these projects allows city staff and community members to understand which projects have the highest priority for implementation thereby providing direction for near-term and longer-term implementation. Figure ES10 displays the final prioritization of the SMP project database. The map and accompanying project database provide a searchable tool for city staff that can be queried and used to support efficient and timely implementation of mobility projects across the city.



[This page is left intentionally blank]