

July 29, 2022

To: Carlsbad Tomorrow Committee

From: Committee Member Steve Linke (Traffic & Mobility Commission)

I am concerned that the presentations on Mobility/Circulation last evening may have created some confusion about the types of performance standards that can be implemented. There was a lot of unavoidable, but potentially confusing, transportation engineering jargon and acronyms.

My main concern was the repeated statement that “vehicle miles traveled” (VMT) must now be used instead of “level of service” (LOS) as the performance standard under the “California Environmental Quality Act” (CEQA). While that statement is technically true, it is not really relevant to our committee’s work on growth management. As I explained last evening, the development project review process simultaneously follows two paths, which can be pictured as follows:

Agency	State of California	City of Carlsbad
Impact addressed	Environment (GHGs)	Street infrastructure
Governing code	CEQA	GMP
Travel mode(s)	Vehicles	All
Required study	EIR	LMA
Method	VMT	LOS

The **State** requires certain proposed projects to review the **environmental** impact of vehicle trips (greenhouse gas emissions) under its **CEQA** law with a document called an “environmental impact report” (**EIR**).<sup>1</sup> The EIR must include a study that estimates how many **VMT** will be generated by the project. If VMT is determined to be over a certain CEQA threshold, then the project can be compelled to pay for mitigation strategies to reduce its VMT by reducing vehicle trips or length.

At the same time, **Carlsbad** requires review of **street infrastructure** impacts in the vicinity of the proposed project (e.g., vehicle congestion and pedestrian, bicycle, and/or transit facility needs) under its “Growth Management Plan” **GMP** code with a document called a “local mobility analysis” (**LMA**).<sup>2</sup> The LMA should include analyses of **LOS** for **all modes** of travel prioritized on the adjacent streets. If LOS is worse than the “D” GMP performance standard for any prioritized mode, then the project should pay for improvements such as road widening, intersection improvements, sidewalks, bike lanes, transit amenities, and or vehicle trip/length reduction approaches.

Conveniently, many of the mitigation strategies for both paths are shared, and the State requirement could take care of the environmental side of things, while the City requirements could cover the quality of life side. Projects that have significant impacts on just one path could have lower mitigation requirements, while those that have significant impacts on both paths could have higher mitigation

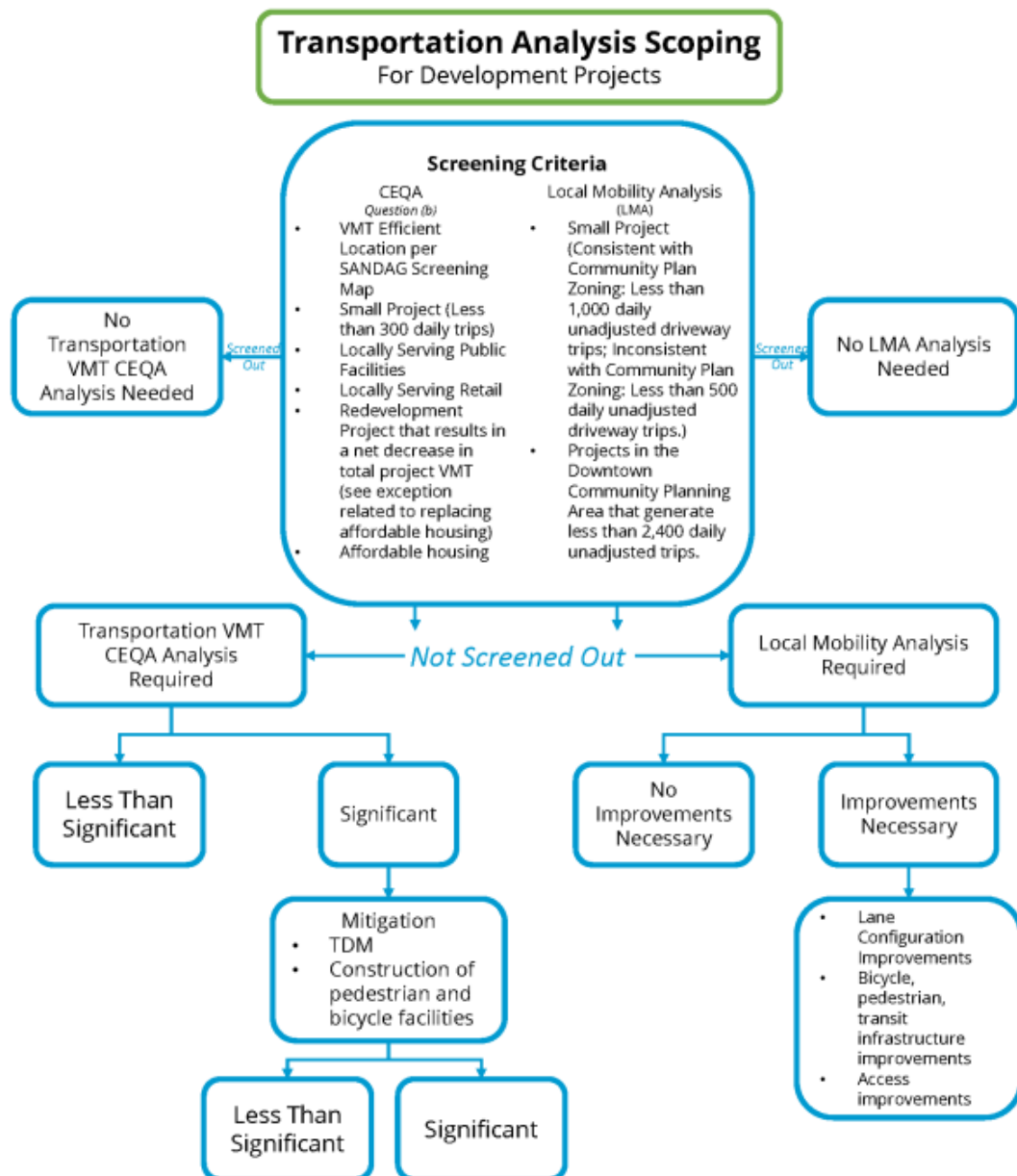
<sup>1</sup> Note that some projects use a Negative Declaration or Mitigated Negative Declaration (MND) instead of an EIR.

<sup>2</sup> Note that some jurisdictions call this a Local Transportation Analysis (LTA), Transportation Impact Analysis (TIA), or Traffic Impact Study (TIS).

requirements. Unfortunately, from my perspective, this is not the reality in Carlsbad, which minimizes mitigation requirements by developers.

Also note that, in Carlsbad, the proportion of projects required to do EIRs is small, and the proportion found to have significant VMT impacts is tiny, so adopting VMT as Carlsbad’s GMP performance standard would ensure that nearly no infrastructure projects would get funded under the GMP.

Finally, please note that the San Diego Section of the Institute of Transportation Engineers recommends, and all major San Diego County jurisdictions use, this dual review approach. As an example, here is the [City of San Diego’s Transportation Study Manual](#) flow chart. The State CEQA/EIR/VMT path is on the left, and the City/LMA/LOS path is on the right.





# 7 ACTION PLAN



# ACTION PLAN

This chapter of the SMP presents an Action Plan that serves to consolidate recommendations from previous mobility plans and then prioritize these recommendations. The chapter gives city staff a short-range implementation plan that will support a coordinated effort to improve mobility-related sustainability across the city. The SMP Project Database is a core component of the SMP Action Plan. It includes recommendations from 12 prior Carlsbad mobility plans, as well as unbuilt planned recommendations from this current planning process, especially the planned networks presented in Chapter Five. This chapter also presents a phasing plan for the programmatic recommendations presented in Chapter 6.

The Action Plan chapter begins with a presentation of the SMP Project Database, then presents the project prioritization criteria, along with the prioritization analysis and results. This assessment is intended to provide City staff and community members with an implementation plan that leads to the highest quality, multimodal and sustainable mobility networks in the shortest amount of time. Implementation of key programs will support the City's efforts to encourage more walking and cycling trips, and these programs should be launched in conjunction with building out the active transportation networks over the coming years.

Lastly, the chapter presents estimates of new bike and walk trips anticipated to be generated by full buildout of the SMP planned networks, and the associated economic benefits of this modal shift.

## IN THIS CHAPTER

- SMP Project Database
- Prioritization Criteria
- Project Prioritization
- Project Implementation Phasing
- Program Implementation Phasing
- Forecast Active Travel Trips and Economic Benefits

The SMP has been referred to as "a plan of plans" in that it seeks to respect recent multimodal planning efforts in the City of Carlsbad by consolidating their respective recommendations into a single, searchable project database for use by city staff and community members in various aspects of implementing multimodalism in the city.

A total of 246 project recommendations were culled from 12 prior plans, as well as from the current plan, and were then assigned to 95 corridors and areas across the city. The corridor segments were generally defined by intersecting circulation element roadways. Each of the 246 projects was assigned to one of the 95 corridors or areas.

Figure 7-1 displays the SMP project corridor and area extents with their respective IDs, while Table 7-1 presents a basic description of recommendations being made in these project corridor/areas. Appendix K provides a table with the SMP Project Database and complete project descriptions.

The SMP Project Database is an important outcome of this planning process, and the City should coordinate integrating this database into the recently launched Capital Improvement Program Dashboard. Integration of the SMP Project Database into this dashboard will help city staff and community members understand the multitude of proposed projects that fall along any particular roadway segment across the City. The understanding will facilitate combining certain projects with others, based upon their proximity or overlap.

After the projects were assigned to corridors and areas, each of these locations was prioritized.

Table 7-2 describes the prioritization criteria and their minimum and maximum point values, along with how their point values were assigned. The prioritization criteria largely flowed out of the community engagement process and included factors related to density, safety, sustainability, equity and connectivity.

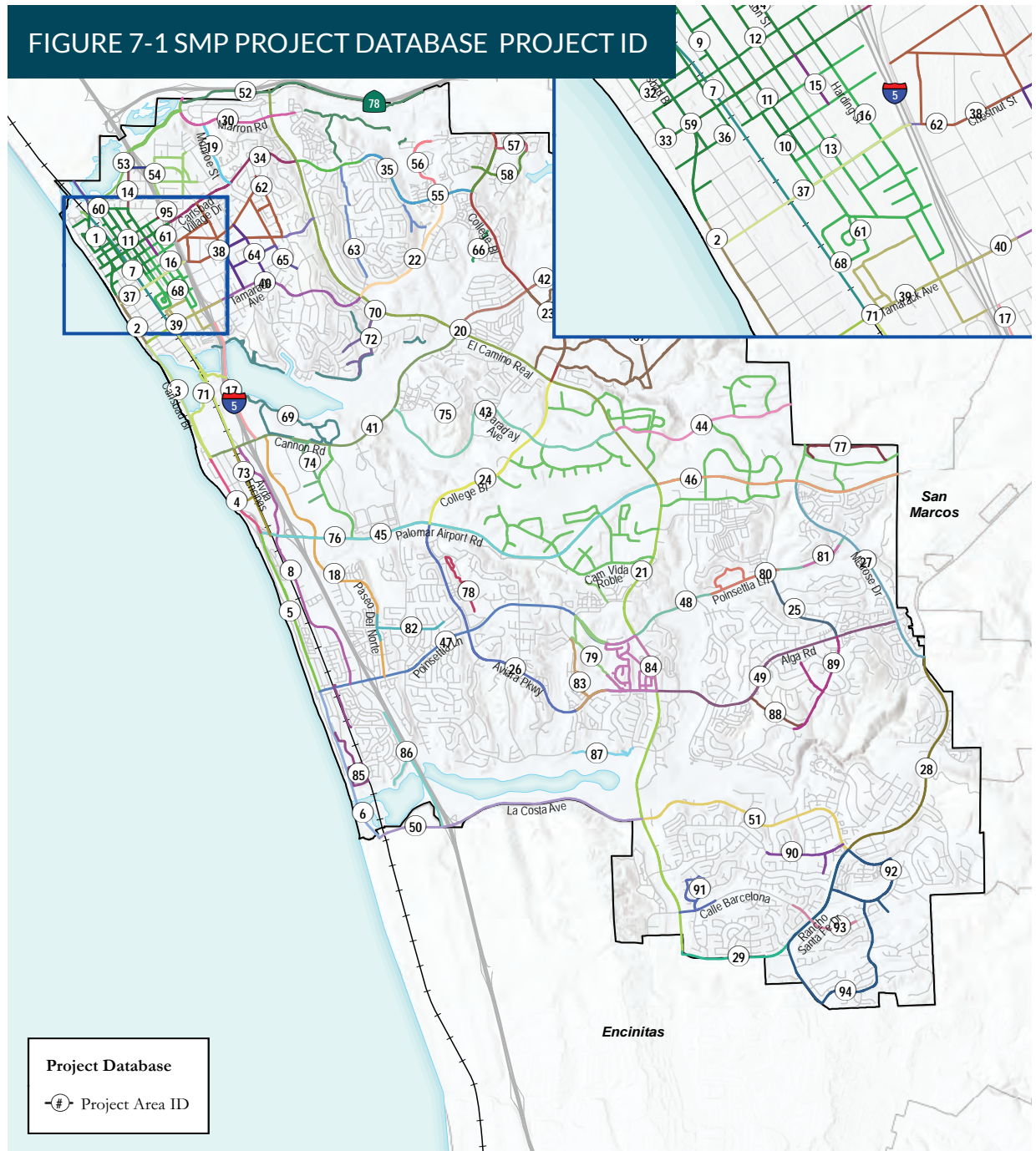


Table 7-1 Project Database with Project Recommendation Type

PR ID	Street	Corridor	From	To	Project Recommendation Type		
					Bicycle	Pedestrian	Transit
1	Carlsbad Bl	Corridor	N City Boundary	Carlsbad Village Dr	x	x	x
2	Carlsbad Bl	Corridor	Carlsbad Village Dr	Tamarack Av	x	x	x
3	Carlsbad Bl	Corridor	Tamarack Av	Cannon Rd	x	x	-
4	Carlsbad Bl	Corridor	Cannon Rd	Palomar Airport Rd	x	x	-
5	Carlsbad Bl	Corridor	Palomar Airport Rd	Poinsettia Ln	x	x	-
6	Carlsbad Bl	Corridor	Poinsettia Ln	La Costa Av	x	x	-
7	Rail ROW	Corridor	Carlsbad Bl	Tamarack Av	-	x	-
8	Avenida Encinas	Corridor	Cannon Rd	Poinsettia Ln	x	x	x
9	State St	Corridor	Laguna Dr	Oak Av	-	x	-
10	Tyler St	Corridor	Oak Av	Chestnut Av	-	x	-
11	Roosevelt St	Corridor	Laguna Dr	Magnolia Av	-	x	-
12	Madison St	Corridor	Laguna Dr	Carlsbad Village Dr	-	x	-
13	Madison St	Corridor	Carlsbad Village Dr	Magnolia Av	-	x	-
14	Jefferson St	Corridor	Interstate 5 over-pass	Carlsbad Village Dr	x	-	-
15	Jefferson St	Corridor	Carlsbad Village Dr	Pine Av	-	x	-
16	Harding St	Corridor	Carlsbad Village Dr	Magnolia Av	-	x	-
17	I-5 (ChinquTo Cannon)	Corridor	Chinquapin Av	Cannon Rd	x	-	-
18	Paseo Del Norte	Corridor	Cannon Rd	Poinsettia Ln	x	-	-
19	Monroe St	Corridor	Marron Rd	Carlsbad Village Dr	-	x	-
20	El Camino Real	Corridor	N. City Boundary	Palomar Airport Rd	x	x	-
21	El Camino Real	Corridor	Palomar Airport Rd	Olivenhain Rd	x	x	x
22	Tamarack Ave	Corridor	El Camino Real	Carlsbad Village Dr	x	-	-
23	College Bl	Corridor	N. City Boundary	El Camino Real	x	x	-
24	College Bl	Corridor	El Camino Real	Palomar Airport Rd	-	-	x

Table 7-1 Project Database with Project Recommendation Type

PR ID	Street	Corridor	From	To	Project Recommendation Type		
					Bicycle	Pedestrian	Transit
25	El Fuerte St	Corridor	Poinsettia Ln	Alga Rd	-	x	-
26	Aviara Pkwy	Corridor	Palomar Airport Rd	El Camino Real	-	x	-
27	Melrose Dr	Corridor	Palomar Airport Rd	Rancho Santa Fe Rd	x	-	-
28	Rancho Santa Fe Rd	Corridor	Melrose Dr	La Costa Ave	x	-	-
29	Olivenhain Rd	Corridor	El Camino Real	La Costa Ave	x	-	-
30	Marron Rd	Corridor	N. City Boundary	1100' east of ECR	-	x	x
31	Las Flores Dr	Area	SB Ramps	NB Ramps	-	x	-
32	Christiansen Wy	Corridor	Garfield St	Washington St	-	-	-
33	Carlsbad Village Dr	Corridor	Ocean St	Interstate 5	x	x	x
34	Carlsbad Village Dr	Corridor	Interstate 5	El Camino Real	x	x	-
35	Carlsbad Village Dr	Corridor	El Camino Real	College Bl	x	-	-
36	Oak Ave	Corridor	Lincoln St	Washington St	-	x	-
37	Chestnut Ave	Corridor	Carlsbad Bl	Interstate 5	x	x	-
38	Chestnut Ave	Corridor	Interstate 5	El Camino Real	x	x	-
39	Tamarack Ave	Corridor	Carlsbad Bl	Interstate 5	x	x	-
40	Tamarack Ave	Corridor	Interstate 5	El Camino Real	x	x	-
41	Cannon Rd	Corridor	Carlsbad Bl	El Camino Real	x	x	-
42	Cannon Rd	Corridor	El Camino Real	eastern terminus	x	-	-
43	Faraday Ave	Corridor	Cannon Rd	El Camino Real	-	x	x
44	Faraday Ave	Corridor	El Camino Real	E. City Boundary	-	x	-
45	Palomar Airport Rd	Corridor	Carlsbad Bl	El Camino Real	x	x	x
46	Palomar Airport Rd	Corridor	El Camino Real	E. City Boundary	x	-	-
47	Poinsettia Ln	Corridor	Carlsbad Bl	El Camino Real	-	x	-
48	Poinsettia Ln	Corridor	El Camino Real	Melrose Dr	x	-	-
49	Alga Rd	Corridor	El Camino Real	Melrose Dr	-	x	-

Table 7-1 Project Database with Project Recommendation Type

PR ID	Street	Corridor	From	To	Project Recommendation Type		
					Bicycle	Pedestrian	Transit
50	La Costa Ave	Corridor	Carlsbad Bl	El Camino Real	x	-	-
51	La Costa Ave	Corridor	El Camino Real	Rancho Sante Fe Rd	x	x	-
52	Buena Vista Creek Eco	Area	N/A	N/A	-	x	-
53	Buena Vista Lagoon	Area	N/A	N/A	-	x	-
54	Buena Vista ES	Area	N/A	N/A	-	x	-
55	Calavera Hills PMP	Area	N/A	N/A	-	x	-
56	Hope ES School Area	Area	N/A	N/A	-	x	-
57	Calavera Hills MS	Area	N/A	N/A	-	x	-
58	Calavera Hills ES	Area	N/A	N/A	-	x	-
59	Lincoln Plaza	Area	N/A	N/A	-	x	-
60	Village Streets	Area	N/A	N/A	-	x	-
61	Barrio Streets	Area	N/A	N/A	-	x	-
62	Carlsbad HS PMP	Area	N/A	N/A	-	x	-
63	Hidden Canyon Park	Area	N/A	N/A	-	x	-
64	Valley MS	Area	N/A	N/A	-	x	-
65	Magnolia ES	Area	N/A	N/A	-	x	-
66	SDG&E Corridor	Corridor	N/A	N/A	-	x	-
67	Carlsbad Highlands Eco	Area	N/A	N/A	-	x	-
68	Jefferson ES	Area	N/A	N/A	-	x	-
69	Agua Hedionda Lagoon	Area	N/A	N/A	-	x	-
70	Kelly Dr / Park Dr	Corridor	El Camino Real	Alondra Wy	x	x	-
71	Canyon Park	Area	N/A	N/A	x	x	-
72	Kelly ES	Area	N/A	N/A	-	x	-
73	CRT (Cannon To Palomar)	Corridor	Cannon Rd	Palomar Airport Rd	x	x	-



Table 7-1 Project Database with Project Recommendation Type

PR ID	Street	Corridor	From	To	Project Recommendation Type		
					Bicycle	Pedestrian	Transit
74	Legoland	Area	N/A	N/A	-	x	-
75	The Kirgis Trail Conn	Corridor	Twain Av	Existing Trail	-	x	-
76	Connector Study Area	Area	N/A	N/A	x	x	x
77	Carlsbad Raceway Park	Corridor	Melrose Dr	Lionshead Av	-	x	-
78	SDG&E (Plum to Poin)	Corridor	Plum Tree Ct	Poinsettia Ln	-	x	-
79	Aviara Community Park	Area	N/A	N/A	-	x	-
80	Poinsettia ES	Area	N/A	N/A	-	x	-
81	Carillo ES	Area	N/A	N/A	-	x	-
82	Pacific Rim	Area	N/A	N/A	-	x	-
83	Aviara Oaks MS & ES	Area	N/A	N/A	-	x	-
84	Aviara Oaks PMP	Area	N/A	N/A	-	x	-
85	Avenida Encinas	Area	N/A	N/A	-	x	-
86	Batiquitos Lagoon	Area	N/A	N/A	x	-	-
87	Batiquitos Lagoon Eco	Area	N/A	N/A	-	x	-
88	SDG&E (Alga to El Fuerte)	Corridor	Alga Rd	El Fuerte	-	x	-
89	La Costa Meadows	Area	N/A	N/A	-	x	-
90	La Costa Heights	Area	N/A	N/A	-	x	-
91	El Camino Creek	Area	N/A	N/A	-	x	-
92	La Costa Ave / Cam Coches	Corridor	Olivenhain Rd	Rancho Santa Fe Rd	x	x	-
93	Mission Estancia	Area	N/A	N/A	-	x	-
94	La Costa HS School Area	Area	N/A	N/A	-	x	-
95	Grand Ave	Corridor	Grand Ave terminus	Pio Pico Dr	x	x	-

Table 7-2 Prioritization Criteria

Prioritization Criteria				Point Value																								
<p>Population Density: The Population Density criteria is a composite of scores from three unique density-related inputs, including population density, senior density, and youth density, as follows:</p> <table border="1"> <thead> <tr> <th></th> <th>Population Density</th> <th>Senior Density</th> <th>Youth Density</th> </tr> </thead> <tbody> <tr> <td><b>Lowest density</b></td> <td>3.30 persons/acre and below = 0 pts</td> <td>0.66 persons/acre and below = 0 pts</td> <td>0.83 persons/acre and below = 0 pts</td> </tr> <tr> <td><b>Medium-Low density</b></td> <td>3.33 – 5.14 persons/acre = 0.5 pts</td> <td>--</td> <td>--</td> </tr> <tr> <td><b>Medium density</b></td> <td>5.16 – 6.36 persons/ acre = 1 pt</td> <td>0.71 – 1.10 persons/acre = 2 pts</td> <td>0.84 – 1.33 persons/acre = 2 pts</td> </tr> <tr> <td><b>Medium-High density</b></td> <td>6.40 – 8.82 persons/acre = 1.5 pts</td> <td>--</td> <td>--</td> </tr> <tr> <td><b>Highest density</b></td> <td>9.56 persons/acre or greater = 2 pts</td> <td>1.14 persons/acre or greater = 4 pts</td> <td>1.35 persons/acre or greater = 4 pts</td> </tr> </tbody> </table> <p>Population density was calculated within a 500’ buffer area of each project using a Census Block Group-level population dataset from the 2017 American Community Survey five-year estimate. The three density inputs were summed by buffer area and then divided by three. The aggregate population density scores range from 0 to 1 points.</p>					Population Density	Senior Density	Youth Density	<b>Lowest density</b>	3.30 persons/acre and below = 0 pts	0.66 persons/acre and below = 0 pts	0.83 persons/acre and below = 0 pts	<b>Medium-Low density</b>	3.33 – 5.14 persons/acre = 0.5 pts	--	--	<b>Medium density</b>	5.16 – 6.36 persons/ acre = 1 pt	0.71 – 1.10 persons/acre = 2 pts	0.84 – 1.33 persons/acre = 2 pts	<b>Medium-High density</b>	6.40 – 8.82 persons/acre = 1.5 pts	--	--	<b>Highest density</b>	9.56 persons/acre or greater = 2 pts	1.14 persons/acre or greater = 4 pts	1.35 persons/acre or greater = 4 pts	0 – 1
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<p>Employment Density: Employment density was calculated within a 500’ buffer area of each project using a Census Block-level employment dataset from the 2016 US Census Longitudinal Employer-Household Dynamics estimate. The category breaks determining the point values of this criterion were assigned by sorting project area employment densities in descending order and dividing the projects into five roughly equal categories. Higher employment density is associated with higher implementation priority. The category breaks governing this criterion’s point values are as follows:</p> <ul style="list-style-type: none"> <li>• Lowest density (1.2 persons per acre and below) = 0 points</li> <li>• Medium-Low density (1.29 – 2.12 persons per acre) = 0.25 points</li> <li>• Medium density (2.21 – 4.12 persons per acre) = 0.5 points</li> <li>• Medium-High density (4.32 – 7.08 persons per acre) = 0.75 points</li> <li>• Highest density (7.72 persons per acre or greater) = 1 point</li> </ul>				0 – 1																								

Table 7-2 Prioritization Criteria

Prioritization Criteria	Point Value
<p>Median Household Income: Median Household Income was calculated within a 500' buffer area of each project using Census Block Group-level median household income dataset from the 2017 American Community Survey five-year estimate. The category breaks determining the point values of this criterion were assigned by sorting project area median household incomes in descending order and dividing the projects into four roughly equal categories. Lower household income is associated with higher implementation priority. The category breaks governing this criterion's point values are as follows:</p> <ul style="list-style-type: none"> <li>• Highest median income (\$119,210 or above) = 0 points</li> <li>• Medium-High median income (\$101,699 – \$118,174) = 1 point</li> <li>• Medium-Low median income (\$76,965 – \$101,235) = 2 points</li> <li>• Lowest median income (\$76,669 and below) = 3 points</li> </ul>	<p>0 – 3</p>
<p>CalEnvrioScreen (CES): CES is a composite index by Census Tract which reflects pollution burden and vulnerability across the state. Higher CES scores reflect higher exposure to pollution. An average weighted CES score was calculated for each project by intersecting the project extents with the CES coverage. The category breaks determining the point values of this criterion were assigned by sorting average weighted scores in descending order and dividing the projects into four roughly equal categories. Higher CES scores are associated with higher implementation priority. The CES category breaks governing this criterion's (shown as the CES score's conversion to statewide percentile) point values are as follows:</p> <ul style="list-style-type: none"> <li>• Low CES score (9.18 and below) = 0 points</li> <li>• Medium-Low CES score (9.35 - 11.47) = 1 point</li> <li>• Medium-High CES score (11.53 - 13.72) = 2 points</li> <li>• High CES score (13.95 and above) = 3 points</li> </ul>	<p>0 – 3</p>

Table 7-2 Prioritization Criteria

Prioritization Criteria	Point Value
<p>Transit: The transit criteria assigns implementation priority to project areas within a quarter-mile of high ridership transit stops/stations, which include the Coaster stations, planned Mobility Hub sites, and the transit stops at the intersection of El Camino Real &amp; Marron Road. Project extents within a quarter-mile of these high transit demand areas were awarded 2 points. This criterion's point values are as follows:</p> <ul style="list-style-type: none"> <li>• More than a quarter mile from a major transit location = 0 points</li> <li>• Within a quarter mile of a major transit location = 2 points</li> </ul>	0 - 2
<p>VMT: Implementation priority was assigned to project extents within higher VMT-generating areas of the city. VMT generation was divided into three categories: &lt;85%, 85-100%, or &gt;100% of the regional average VMT. This criterion's point values are as follows:</p> <ul style="list-style-type: none"> <li>• 85% of regional average or less = 0 points</li> <li>• 85% - 100% = 3 points</li> <li>• Above 100% (above regional average) = 6 points</li> </ul>	0 - 6
<p>School Proximity: Implementation priority was assigned to project extents that overlap with School Streets or are adjacent to schools. This criterion's point values are as follows:</p> <ul style="list-style-type: none"> <li>• Not overlapping with a School Street/Not adjacent to a school = 0 points</li> <li>• Overlaps with a School Street = 1 point</li> <li>• Overlaps with a School Street and is adjacent to a school = 2 points</li> </ul>	0 - 2

Safety-Related  
Prioritization Criteria

Table 7-2 Prioritization Criteria

Prioritization Criteria	Point Value
<p><i>Safety-Related Prioritization Criteria</i></p> <p>Collisions: This criterion assigns a point value ranging from zero to five, based on bicycle and pedestrian collisions per mile within the last five years along the project extent. The category breaks were determined by sorting collisions per mile in descending order and dividing the projects by mileage into five roughly equal categories. The category breaks defining this criterion's point values are as follows:</p> <ul style="list-style-type: none"> <li>• No collisions along proposed project extent = 0 points</li> <li>• 0.01 – 1.09 bicycle and pedestrian collisions per mile = 1 point</li> <li>• 1.10 – 2.78 bicycle and pedestrian collisions per mile = 2 points</li> <li>• 2.79 – 7.23 bicycle and pedestrian collisions per mile = 3 points</li> <li>• 7.24 – 38.25 bicycle and pedestrian collisions per mile = 4 points</li> </ul>	<p>0 - 4</p>
<p>Key Destination Connectivity: A project received points for this prioritization criterion if it improved pedestrian, bicycling or transit access to a key destination in the City of Carlsbad (key destinations are listed in Chapter 2). Points were assigned based on the significance of the destination (regionally significant, locally significant, or neighborhood-serving) and based on the level of access the project provided (if project was adjacent to destination, or if the project connected to destination-serving roadway within a quarter-mile or between a quarter-mile and half-mile).</p> <p>Up to 3 points maximum were given for this input.</p> $\text{Improved Accessibility Score} = \frac{\text{Transit Network Points} + \text{Bike Network Points} + \text{Pedestrian Network Points}}{\text{Locational Significance}}$	<p>0 - 3</p>
<p>Transformative Corridor: Priority was assigned to projects located along Transformative Corridors using the following scoring:</p> <ul style="list-style-type: none"> <li>• Project does not fall along a Transformative Corridor = 0 points</li> <li>• Project falls along a Transformative Corridor = 6 points</li> </ul>	<p>0 - 6</p>
<p><b>Total Possible Points</b></p>	<p><b>31</b></p>

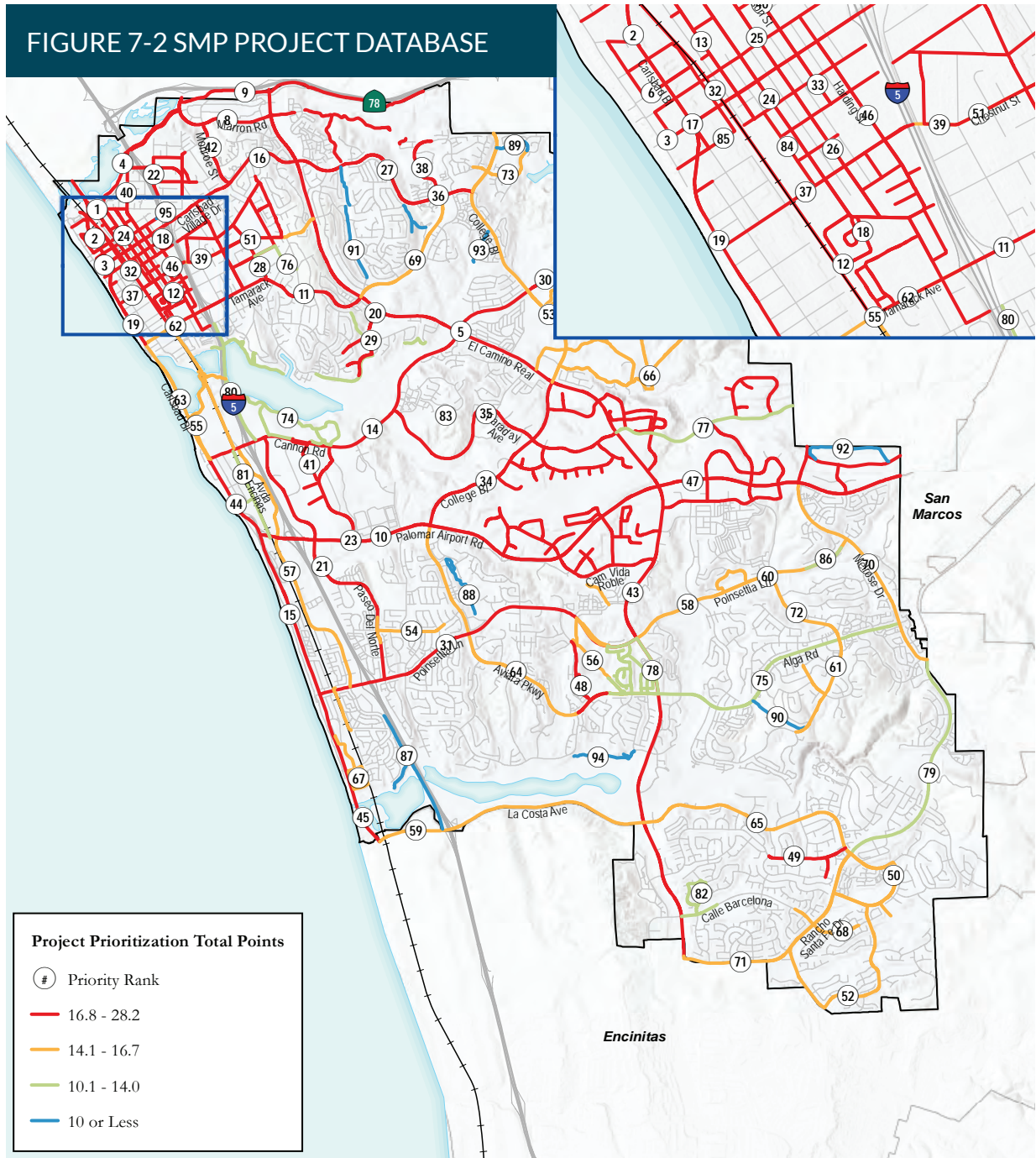


Figure 7-2 displays the final project prioritization scores for the 95 project corridors and areas based on the criteria provided in Table 7-2. Projects with the highest implementation priority are shown in red and orange, with prioritization scores over 16.7 out of a total possible score of 31.

In order to achieve a reasonable geographic distribution of priority projects across the city, we selected the top 30 priority projects in a manner that would match the proportion of project extents falling within each council district. Council District 1, for example, has 30% of the project extents, so this district was assigned 30% of the top 30 projects. Council District 2 has 35% of the project areas, so this district was assigned 35% of the top 30 projects. Council District 3 has 20% of the project areas, so this district was assigned 20% of the top 30 projects. Lastly, Council District 4 has 15% of the project areas, so this district was assigned 15% of the top 30 projects.

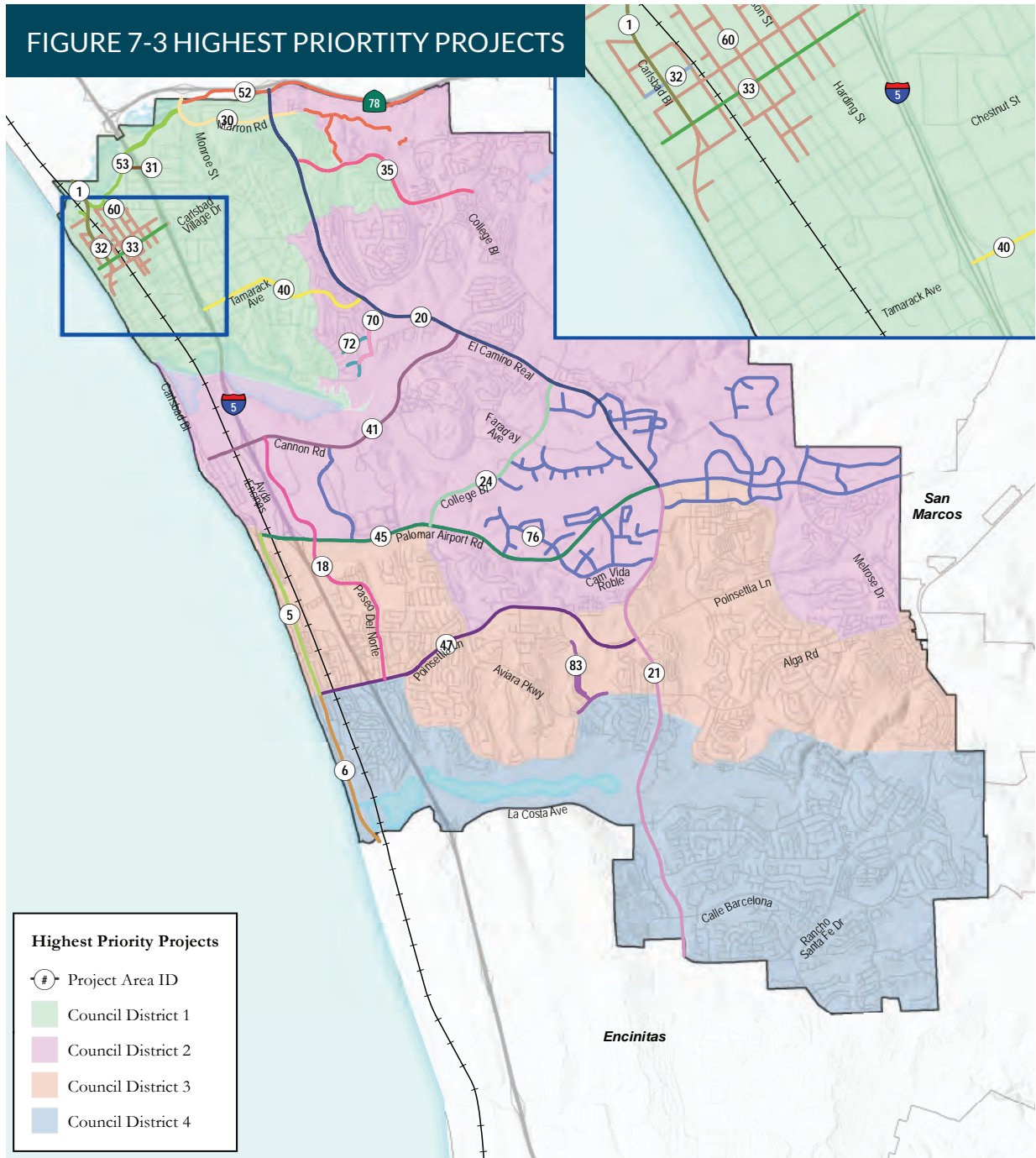


Table 7-3 and Figure 7-3 show the highest priority (top 30) projects across the City of Carlsbad, including consideration of the final project area prioritization score and maintaining a reasonable distribution of top priority projects by council district.

Table 7-4 presents a brief project description for each of the 30 top priority projects as defined in Table 7-3.

Appendix L presents the final prioritization scores and ranking for the entire database of 95 project extents.

Table 7-3 Top 30 Priority Projects by Council District

	Overall Rank	Rank	PR ID	Street	Corridor	From	To	Population Density	Employment Density	Median Household Income	EnviroScreen	School Proximity	Collisions	Key Destination Accessibility Score	Transformative Corridor	Transit	VMT	TOTAL
Council District 1	1	1	60	Village Streets	Area	N/A	N/A	0.83	1	3	3	2	3	1.33	6	2	6	28.17
	2	2	1	Carlsbad Bl	Corridor	N City Boundary	Carlsbad Village Dr	0.75	1	3	2	2	3	2.17	6	2	6	27.92
	3	3	33	Carlsbad Village Dr	Corridor	Ocean St	Interstate 5	0.75	1	3	3	0	4	0.00	6	2	6	25.75
	4	4	53	Buena Vista Lagoon	Area	N/A	N/A	1.00	0.5	3	3	2	2	0.00	6	2	6	25.5
	5	5	20	El Camino Real	Corridor	N. City Boundary	Palomar Airport Rd	0.25	0.5	2	2	2	3	0.00	6	2	6	23.75
	6	6	32	Christiansen Wy	Corridor	Garfield St	Washington St	0.50	1	3	1	0	3	0.00	6	2	6	22.5
	7	7	31	Las Flores Dr	Area	SB Ramps	NB Ramps	1.00	0.25	3	2	1	3	0.00	6	0	6	22.25
	8	8	30	Marron Rd	Corridor	N. City Boundary	1100' east of El Camino Real	0.42	0.75	3	1	0	2	0.00	6	2	6	21.17
	9	9	52	Buena Vista Creek Eco	Area	N/A	N/A	0.50	0.5	3	3	0	0	0.00	6	2	6	21



Table 7-3 Top 30 Priority Projects by Council District

Overall Rank	Rank	PR ID	Street	Corridor	From	To	Population Density	Employment Density	Median Household Income	EnviroScreen	School Proximity	Collisions	Key Destination Accessibility Score	Transformative Corridor	Transit	VMT	TOTAL
5	1	20	El Camino Real	Corridor	N. City Boundary	Palomar Airport Rd	0.25	0.5	2	2	2	3	0.00	6	2	6	23.75
8	2	30	Marron Rd	Corridor	N. City Boundary	1100' east of El Camino Real	0.42	0.75	3	1	0	2	0.00	6	2	6	21.17
9	3	52	Buena Vista Creek Eco	Area	N/A	N/A	0.50	0.5	3	3	0	0	0.00	6	2	6	21
10	4	45	Palomar Airport Rd	Corridor	Carlsbad Bl	El Camino Real	0.17	1	1	2	0	2	0.50	6	2	6	20.67
11	5	40	Tamarack Ave	Corridor	Interstate 5	El Camino Real	0.50	0	2	2	1	3	0.00	6	0	6	20.5
14	6	41	Cannon Rd	Corridor	Carlsbad Bl	El Camino Real	0.00	1	2	2	2	1	0.00	6	0	6	20
20	7	70	Kelly Dr / Park Dr	Corridor	El Camino Real	Alondra Wy	0.42	0	2	1	2	2	0.00	6	0	6	19.42
21	8	18	Paseo Del Norte	Corridor	Cannon Rd	Poinsettia Ln	0.50	0.75	1	1	2	2	0.00	6	0	6	19.25
23	9	76	Connector Study Area	Area	N/A	N/A	0.00	0.75	1	2	0	1	0.50	6	2	6	19.25
27	10	35	Carlsbad Village Dr	Corridor	El Camino Real	College Bl	0.50	0.25	2	1	0	3	0.00	6	0	6	18.75
29	11	72	Kelly ES	Area	N/A	N/A	0.42	0	2	1	2	1	0.00	6	0	6	18.42

Council District 2

Table 7-3 Top 30 Priority Projects by Council District

	Overall Rank	Rank	PR ID	Street	Corridor	From	To	Population Density	Employment Density	Median Household Income	EnviroScreen	School Proximity	Collisions	Key Destination Accessibility Score	Transformative Corridor	Transit	VMT	TOTAL
Council District 3	10	1	45	Palomar Airport Rd	Corridor	Carlsbad Bl	El Camino Real	0.17	1	1	2	0	2	0.50	6	2	6	20.67
	15	2	5	Carlsbad Bl	Corridor	Palomar Airport Rd	Poinsettia Ln	0.00	0.75	1	1	0	1	2.00	6	2	6	19.75
	21	3	18	Paseo Del Norte	Corridor	Cannon Rd	Poinsettia Ln	0.50	0.75	1	1	2	2	0.00	6	0	6	19.25
	23	4	76	Connector Study Area	Area	N/A	N/A	0.00	0.75	1	2	0	1	0.50	6	2	6	19.25
	31	5	47	Poinsettia Ln	Corridor	Carlsbad Bl	El Camino Real	0.58	0.5	0	1	2	2	0.00	6	0	6	18.08
	34	6	24	College Bl	Corridor	El Camino Real	Palomar Airport Rd	0.00	1	2	2	0	1	0.00	6	0	6	18
---																		
Council District 4	31	1	47	Poinsettia Ln	Corridor	Carlsbad Bl	El Camino Real	0.58	0.5	0	1	2	2	0.00	6	0	6	18.08
	43	2	21	El Camino Real	Corridor	Palomar Airport Rd	Olivenhain Rd	0.42	0.5	1	1	0	2	0.00	6	0	6	16.92
	45	3	6	Carlsbad Bl	Corridor	Poinsettia Ln	La Costa Av	0.25	0.5	1	1	0	2	0.00	6	0	6	16.75
	48	4	83	Aviara Oaks MS & ES	Area	N/A	N/A	0.50	0.25	0	2	2	0	0.00	6	0	6	16.75

Table 7-4 High Priority Project Descriptions (Top 30 Projects)

Rank	PR ID	Street	From	To	Project Description	
Council District 1	1	60	Village Streets	N/A	N/A	Pedestrian lighting; Street planters and sharrows; roadways less than 48 feet without bike lane; Transition street improvements and entry features; Alleyway pedestrian improvements
						EV charging stations & NEV Shuttles
						ADA Priority Level 1 - Village Area: Right-of-Way adjacent to public facilities
						ADA Priority Level 2 - Village Area: 1/4 mile from public facilities
						ADA Priority Level 3 - Village Area: Remaining (mid-term) projects in study area
	2	1	Carlsbad Bl	N City Boundary	Carlsbad Village Dr	Pedestrian lighting and Restriping for bike and ped comfort
						Pedestrian improvements
						Bulbouts at all RRFB and EcoCounter locations
						Transformative Corridor
						Pedestrian crossings, Roadway alignment, and Transit stop improvements
	Comfort Stations (quarter- to half-mile spacing)					
	3	33	Carlsbad Village Dr	Ocean St	Interstate 5	Bike and ped crossing improvements
						Streetscape improvements
						Improvements at intersection of Washington St/Carlsbad Village Dr
						Transit stop improvements
						Mobility Hub at Carlsbad Village Coaster Station
4	53	Buena Vista Lagoon	N/A	N/A	I-5 crossing pedestrian improvements on Carlsbad Village Dr	
					Buena Vista South Shore	
					Carlsbad Blvd Lagoon Overlook Area	
					Sidewalk infill, wayfinding, freeway crossing	

Table 7-4 High Priority Project Descriptions (Top 30 Projects)

Rank	PR ID	Street	From	To	Project Description
5	20	El Camino Real	N. City Boundary	Palomar Airport Rd	Truncated domes, audible signal installation at intersection of El Camino Real/Marron Rd
					Transformative Corridor
					El Camino Real & Cannon Road bridge improvements and bike lane installation
					Sidewalk improvements along east and west sides of El Camino Real from Tamarack Av to Chestnut Av; Sidewalk improvements along west side of El Camino Real from Lisa St to Crestview
					Signalized intersection improvements at El Camino Real/Chestnut Av; Signalized intersection improvements at El Camino Real/Tamarack Av
					Transit stop improvements along El Camino Real from SR-78 to Cannon Rd; Transit stop improvements along El Camino Real from Cannon Rd to College Bl; Transit stop improvements along El Camino Real from College Bl to Palomar Airport Rd
					Class I Bike Path westside El Camino between Palomar Airport and Gateway Rd
6	32	Christiansen Wy	Garfield St	Washington St	Christiansen Wy improvements
7	31	Las Flores Dr	SB Ramps	NB Ramps	I-5 crossing pedestrian improvements on Las Flores Drive
8	30	Marron Rd	N. City Boundary	1100' east of El Camino Real	Sidewalk infill, wayfinding, rail crossing, transit stop improvements
					Mobility Hub at Shoppes Carlsbad
9	52	Buena Vista Creek Eco	N/A	N/A	Haymar Rd (From El Camino To South Coast Quarry - Quarry Creek)
					Haymar Rd (From Marron Rd To El Camino)
					Hidden Canyon Park & North SDG&E Utility Rd
					Park Drive Trail
					Quarry Creek Development Trails
					Buena Vista Creek Ecological Reserve Trail

Council District 1

Table 7-4 High Priority Project Descriptions (Top 30 Projects)

Rank	PR ID	Street	From	To	Project Description
1	20	El Camino Real	N. City Boundary	Palomar Airport Rd	Same as Council District 1 Rank 5
2	30	Marron Rd	N. City Boundary	1100' east of El Camino Real	Same as Council District 1 Rank 8
3	52	Buena Vista Creek Eco	N/A	N/A	Same as Council District 1 Rank 9
4	45	Palomar Airport Rd	Carlsbad BI	El Camino Real	Midblock crosswalk at Armada Dr
					Multi-use path
					Bicycle and traffic striping improvements on Palomar Airport Rd/I-5 overpass
					Transformative Corridor
					Transit stop improvements along Palomar Airport Rd from College BI to El Camino Real
5	40	Tamarack Ave	Interstate 5	El Camino Real	Improvements at intersection of Highland Drive/Tamarack Avenue
					Improvements at intersection of Sunnyhill Dr/Tamarack Av
					Traffic signal near Valley Middle School and Magnolia Elementary School
					Transformative Corridor
6	41	Cannon Rd	Carlsbad BI	El Camino Real	Truncated domes and audible signal installation at intersection of Paseo Del Norte/Cannon Road
					Transformative Corridor
7	70	Kelly Dr / Park Dr	El Camino Real	Alondra Wy	AT facility improvements
8	18	Paseo Del Norte	Cannon Rd	Poinsettia Ln	Road diet and sharrows on Paseo Del Norte from Palomair Airport Rd to Cannon Rd
					Transformative Corridor
9	76	Connector Study Area	N/A	N/A	Bicycle improvements on Camino Vida Roble from El Camino Real to Palomar Airport Rd
					Mobility Hub in Business Park
					Traffic signal installation and pedestrian improvments at Aramada Dr/Fleet St S.
					Traffic signal installation and pedestrian improvments at intersection of Aramada Drive & Grand Pacific Resort
					Traffic signal installation and pedestrian improvments at intersection of Camino Vida Roble & Yarrow Drive

Council District 2

Table 7-4 High Priority Project Descriptions (Top 30 Projects)

	Rank	PR ID	Street	From	To	Project Description
Council District 2	9 cont.	76	Connector Study Area	N/A	N/A	AT Facility improvements along Orion Street from El Camino Real to Faraday Avenue
	10	35	Carlsbad Village Dr	El Camino Real	College Bl	Transformative Corridor
	11	72	Kelly ES	N/A	N/A	SRTS improvements
						---
Council District 3	1	45	Palomar Airport Rd	Carlsbad Bl	El Camino Real	Same as Council District 2 Rank 4
	2	5	Carlsbad Bl	Palomar Airport Rd	Poinsettia Ln	Reconfiguration and redevelopment; Improvements at intersection of Carlsbad Bl/ Poinsettia Ln
						Pedestrian improvements
						Bulbouts at all RRFB and EcoCounter locations
						Class I - Bike Path
						Transformative Corridor
						Roadway alignment; AT facility improvements along Carlsbad Bl from Palomar Airport Rd to Avenida Encinas; AT facility improvements
						Comfort Stations (quarter- to half-mile spacing)
	General Mobility Improvement					
	3	18	Paseo Del Norte	Cannon Rd	Poinsettia Ln	Same as Council District 2 Rank 8
4	76	Connector Study Area	N/A	N/A	Same as Council District 2 Rank 9	
5	47	Poinsettia Ln	Carlsbad Bl	El Camino Real	Transformative Corridor	
					Traffic signal installation and pedestrian Improvements at Poinsettia Ln/Brigantine Rd	
6	24	College Bl	El Camino Real	Palomar Airport Rd	Roadway construction of Poinsettia Ln from Cassia Rd to Oriole Ct	
						Transit stop improvements along College Bl from Palomar Airport Rd to Faraday Av

Table 7-4 High Priority Project Descriptions (Top 30 Projects)

Rank	PR ID	Street	From	To	Project Description
1	47	Poinsettia Ln	Carlsbad BI	El Camino Real	Same as Council District 3 Rank 5
2	21	El Camino Real	Palomar Airport Rd	Olivenhain Rd	Transformative Corridor
					Traffic signal installation and pedestrian Improvements at Poinsettia Ln/Brigantine Rd
					Roadway construction of Poinsettia Ln from Cassia Rd to Oriole Ct
3	6	Carlsbad BI	Poinsettia Ln	La Costa Av	Reconfiguration and redevelopment
					Pedestrian improvements
					Bulbouts at all RRFB and EcoCounter locations
					Transformative Corridor
					Roadway alignment; AT facility improvements along Carlsbad BI from Palomar Airport Rd to Avenida Encinas; AT facility improvements
Comfort Stations (quarter- to half-mile spacing)					
4	83	Aviara Oaks MS & ES	N/A	N/A	SRTS improvements

Council District 4

## IMPLEMENTATION PLANNING AND PHASING

This section proposes phasing plans for both project and program recommendations presented in the SMP.

### Project Implementation and Phasing

The project prioritization presented in this chapter presents a high-level planning analysis that will require further refinement and feasibility analysis through the preparation of a Feasibility and Implementation Plan. Implementation is by far the most challenging aspect of creating a successful mobility network. Significant obstacles can include acquisition of right-of-way, securing construction and maintenance funding, designing projects that provide access for all roadway users, and meeting environmental standards.

In order to address these obstacles and to determine project feasibility, the Feasibility and Implementation Plan will include the preparation of planning level cost estimates, analysis of right-of-way constraints, constructability analysis, and conceptual plan preparation. The resulting plan will be utilized for both grant applications and when integrating the plan recommendations into the Capital Improvement Program (CIP) for construction.

The implementation and phasing for the prioritized projects are divided into three main categories: Near-Term, Medium-Term, and Long-Term.

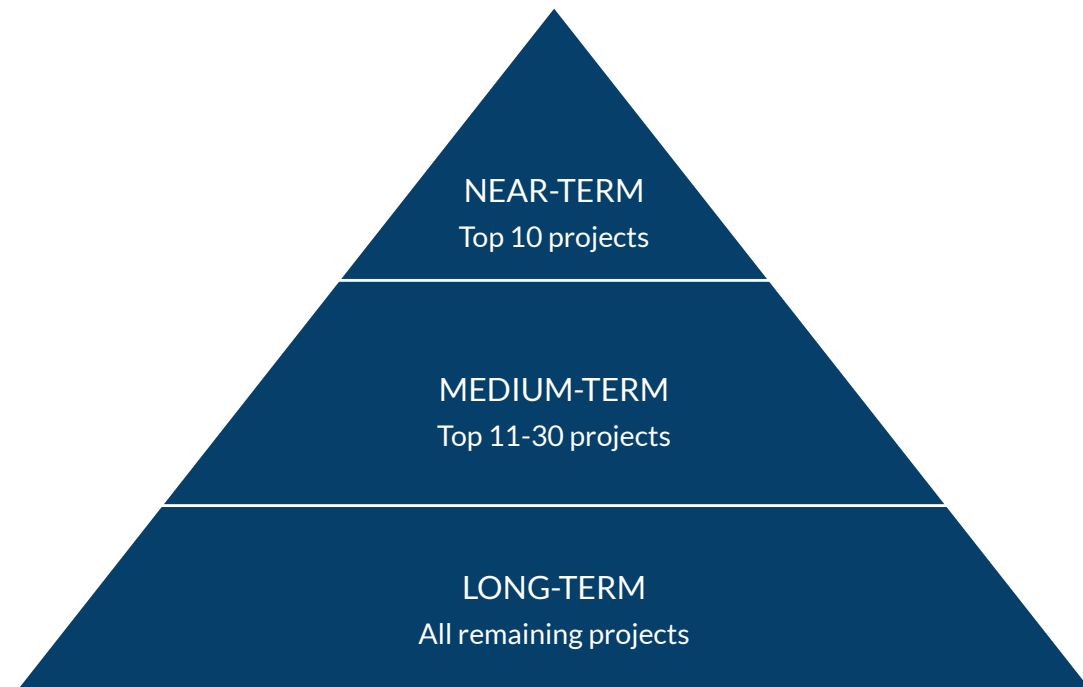
The top 10 priority projects are defined as Near-Term projects and should be implemented first, ideally within a 5 to 10 year timeframe.

The top 11-30 priority projects are defined as Medium-Term projects and should be implemented in the medium to near future,

ideally within a 10-20 year timeframe.

The remaining proposed projects, as listed in Appendix L, are considered Long-Term and are anticipated to be implemented in the 20 to 30 year range.

In order to monitor and report on the progress being made as a result of implementing these high priority projects, the city will execute the SMP Active Transportation Monitoring Program as described in detail in Chapter 6 of the SMP.





This program will allow city staff, elected officials, and community members to track changes in travel behavior over time and especially in relation to the implementation of active travel and transit infrastructure projects.

### Program Implementation and Phasing

Chapter 6 recommends a total of five programs to support shifting travel from automobile to walking and cycling across the City of Carlsbad, as follows:

- Cycling Education
- Safe Routes to School
- Transportation Demand Management
- Active Transportation Monitoring
- Local Roadway Safety Plan

Based upon input from the Transportation & Mobility Commission and City staff, these programs have been prioritized for implementation into two phases as shown below.

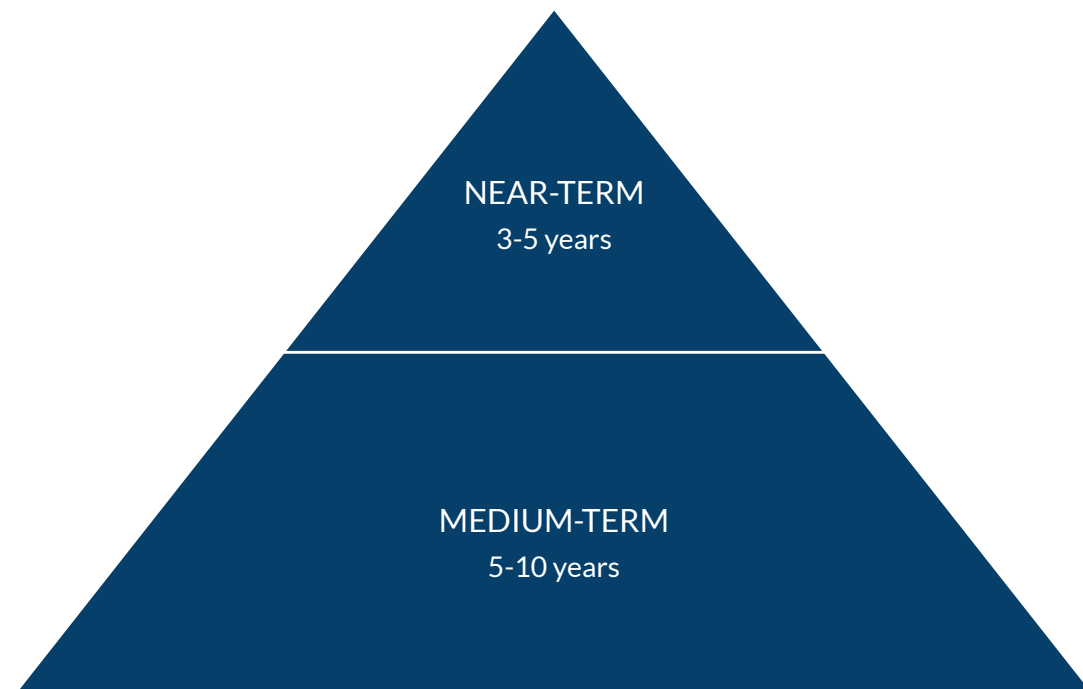
#### Near Term (3 to 5 years)

- Safe Routes to School
- Active Transportation Monitoring
- Local Roadway Safety Plan

#### Medium Term (5 to 10 years)

- Cycling Education
- Transportation Demand Management

The Feasibility and Implementation Plan referenced in the previous section should include cost estimates for launching and maintaining these five programs, with details such as staffing, marketing, and general operating costs.



## ESTIMATED NEW USERS AND ASSOCIATED BENEFITS

### Calculating New Users

Table 7-5 presents an estimation of current and projected future active transportation trips. Current trips are based upon 2017 American Community Survey (ACS) data, which is the most recent available from the US Census Bureau.

These data measure commute trips only, and therefore were extrapolated further to capture the active travel trips taken by those accessing transit, working from home, and school children who bike and walk to school.

Regional growth estimates were applied based upon SANDAG Series 13 regional growth forecasts, and increased by 1.3% to account for the improved facilities resulting from buildout of the SMP networks, since walking and biking will become viable for more people with an enhanced network. This increase is a conservative estimate based upon experience of other major metropolitan areas.

Table 7-5 Estimated Active Transportation Trips and New Users

Source of Trip	Description of Source	Number of Trips
Carlsbad Census Population	From 2017 American Community Survey (ACS) Estimates	113,147
Current Estimated Total Daily Bicycle Trips (Weekday)	Includes bicycle commuters, Assumption of 15% of work-at-home commuters making one bicycle trip per day, 10% of transit users biking to transit, and 2% of schoolchildren traveling by bike (x2 to reflect round trips)	3,072
Current Estimated Total Daily Walk Trips (Weekday)	Includes walking commuters, Assumption of 50% of work-at-home commuters making one walking trip per day, 85% of transit users walking to transit, and 14.5% of schoolchildren traveling by foot (x2 to reflect round trips)	13,951
Regional 2050 Population Growth Estimates	Based upon SANDAG regional estimates	+29%
2050 Population Estimate	Based upon +29% SANDAG estimate	145,960
2050 Estimated Total Daily Bicycle Trips (Weekday)	Based upon +29% SANDAG estimate and 1.3% network growth enhancement from fully completed network (based upon the experience of other major regions)	4,014
2050 Estimated Total Daily Walk Trips (Weekday)	Based upon 29% SANDAG estimate and 1.3% network growth enhancement from fully completed network (based upon the experience of other major regions)	18,231
Estimated New Bicycle Trips Per Day	Based on current estimates - 2050 estimates	942
Estimated New Walking Trips Per Day	Based on current estimates - 2050 estimates	4,280

### Economic Benefits of New Users

The economic benefits of active transportation are wide reaching and measurable on many levels: benefits to citywide economies, to businesses, to individuals and society, and benefits to the environment.

The transportation-related economic benefits from investing in active transportation infrastructure are significant and include the reduction of congestion, decreased road maintenance costs, less costly infrastructure, increased road safety and decreased user costs. Increased active transportation use also benefits society by increasing mobility, an increased sense of community and improved livability. There are workplace benefits as well – employees who are physically active report fewer days off due to illness, have lower turnover rates, lower healthcare costs and increased productivity.

The City of Carlsbad can expect to accrue several types of benefits from investing in active transportation infrastructure as described in the SMP and discussed below.

### Citywide Economic Benefits

One study analyzed the citywide economic benefits of active transportation investments resulting from increased walking and bicycling for utilitarian transportation purposes, such as commuting or accessing neighborhood destinations. The study analyzed the

effects of investing in active transportation infrastructure such as sidewalks, bicycle facilities (lanes, paths), and complete street design. The study found for every \$1 spent in implementing the active transportation strategy, the economy would see an additional \$8.41 in sales output, \$2.65 in personal income, and \$5.20 in value added.

Another example of a more regional economic impact comes from North Carolina's Outer Banks. The Outer Banks generates \$60 million in economic activity through bicycle tourism, by conservative estimates (in 2012 dollars). The one-time investment of \$6.7 million in bicycle infrastructure has resulted in an annual nine-to-one return.

The benefits of a bicycle accessible business district are measurable as well. A 2009 study of Bloor Street, a commercial street in Toronto, Ontario showed that encouraging bicycling is good for business: people who had biked and walked to the area reported that they spent more money in the area per month than those who drove there.

Another study of greater Portland, Oregon had the same finding: bicycling customers spend more money per month. The study found that customers who arrived by automobile, spent the most per visit across all of the establishments, however cyclists spent the most per month.

Broad Avenue Arts District in Memphis, TN was a struggling commercial and residential

area. The revitalizations began with a focus on attracting arts related business. However, the project grew in popularity once bicycle lanes were included. Business owners on Broad Avenue made the connection between bike lanes and business growth. As of 2012, the district had seen 16 new businesses, 29 property renovations (17 at blighted locations), and 40,000 visitors to the Arts Walk. Restaurants had reported a growth in business from cyclists as well.

The benefits of investing in active transportation infrastructure is also born out in the real estate market. Researchers have mapped real estate transactions and have shown that bike facilities can have positive, statistically significant impacts on home values. Studies in Canada, Vermont, Indiana, and Delaware, among other places, have shown that homes located close to bicycle infrastructure were valued between 5- 11% higher than comparable homes located further away.

#### Sources:

R. Campbell, M. Wittgens. *The Business Case for Active Transportation: The Economic Benefits of Walking and Cycling*. Better Environmentally Sound Transportation (March 2004).

*Active Transportation Health and Economic Impact Study*, November 7, 2016. Southern California Association of Governments.

D. Flusche, *Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure*, (2012).