Costa Mesa

Pedestrian Master Plan

June 2022

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**The Committee is formerly known as the Bikeway and Walkability Committee.*

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Executive Summary

PURPOSE

The Costa Mesa Pedestrian Master Plan, also known as the Plan or CMPMP, offers additional support to the City's 2018 Active Transportation Plan (ATP). The ATP provides a bold vision for active transportation in the city: "The City of Costa Mesa will have a comprehensive and visible active transportation network and will promote safety, education, health, recreation and access to important locations within the City while connecting to the larger regional network."

The CMPMP supplements the ATP by providing additional infrastructure, programs, and policy recommendations specific to improving the pedestrian experience in the city.

PLAN STRUCTURE

The Plan contains seven chapters and seven supporting appendices.

Chapter 1: Introduction provides a Plan overview and a summary of the City's policy, program, and existing/planned infrastructure projects.

Chapter 2: Community Engagement discusses the strategies used to gather community input for the planning process and outcomes of the community engagement effort.

Chapter 3: Existing Conditions documents the planning context through different analyses that pertain to the pedestrian environment in the city.

Chapter 4: Policy Recommendations provides a list of goals, objectives, and recommendations to help achieve the vision identified in the ATP, offering additional long-term recommendations to enhance the pedestrian environment.

Chapter 5: Pedestrian Infrastructure Toolbox provides a starting point on what infrastructure treatments (tools) can be considered for ongoing and planned projects that would enhance the pedestrian environment and increase the safety and accessibility for pedestrians.

Chapter 6: Infrastructure Projects discusses a set of infrastructure projects the City can begin work on to help advance the CMPMP and ATP Vision. These recommendations provide a short-term roadmap that complement the recommendations discussed in Chapter 4, Policy Recommendations, and Chapter 5, Pedestrian Infrastructure Toolbox, by providing Project Factsheets for five identified pedestrian project corridors.

Chapter 7: Implementation Strategy offers a list of prioritized projects that the City could start with to implement the Plan and a list of grant opportunities that the City could seek to fund the projects.

PLANNING CONTEXT

The project team analyzed five categories of data to better understand the existing conditions of the study corridors and to help identify and develop new recommendations to help enhance the pedestrian environment:

- Demographic statistics & travel characteristics
- Land use and destinations
- Roadway characteristics
- Pedestrian infrastructure
- Pedestrian safety

The analysis was concentrated in the Pedestrian Opportunity Zones. The opportunity zones were first discussed in the General Plan and were included in the Active Transportation Plan. According to the General Plan, the City will pursue street enhancements to create pedestrian-friendly environments in the Pedestrian Opportunity Zones.

COMMUNITY ENGAGEMENT

Community outreach and engagement played a central role in the Plan development. A combination of in-person public events, electronic and in-person surveying, and online mapping exercises were employed to help the project planning team (the team) understand community sentiment on pedestrian infrastructure. The engagement strategy was continuously adapted to challenges stemming from the COVID-19 pandemic.

Community members participated in the planning efforts through the following opportunities:

- Six (6) walk audits
- Three (3) Community workshops
- Five (5) Active Transportation Committee presentations
- One (1) Project survey
- One (1) Online mapping tool

A qualitative analysis was conducted from the comments gathered in the outreach effort to identify common concerns and input shared by community members. Community members provided a total of 547 location-specific comments.

RECOMMENDATIONS

The Plan provides four separate, yet interrelated components of recommendations for pedestrian improvements that the City could implement to realize the vision for the Plan.

Plan goals and long-term program and policy recommendations: The Plan has six (6) goals and 62 objectives and policies that were adapted from the Active Transportation Plan and 35 new recommendations to

enhance and better support the ATP vision.

Pedestrian project corridors: The Plan contains ten Pedestrian Project Corridors. The corridors were identified through the Existing Conditions Analysis and comments received from the community engagement effort and the Active Transportation Committee. These project corridors revolve around the Pedestrian Opportunity Zones identified in the City's General Plan.

Pedestrian infrastructure framework: The Pedestrian Infrastructure Framework is a toolbox that provides guidance on a variety of infrastructure treatments that could be incorporated in ongoing and planned projects to enhance the pedestrian network and increase pedestrian safety.

Priority project factsheets:

The Plan provides project factsheets for five Pedestrian Project Corridors. Each factsheet contains a description of the corridor, along with a summary of existing conditions and concerns as well as proposed treatment recommendations including photos and a sample concept plan of a specific treatment for the corridor.

01

Introduction

1.1 INTRODUCTION

Walking is an important form of transportation and a valuable recreation activity. As a transportation mode, it allows people to access destinations with minimal assistance from mobility devices, unlike a vehicle or bicycle. As a recreational activity, walking brings many health benefits.

The Costa Mesa Pedestrian Master Plan, also known as the Plan or CMPMP, offers additional support to the City's 2018 Active Transportation Plan (ATP) and the Circulation Element of the General Plan. The ATP provides a bold vision for active transportation in the city, "The City of Costa Mesa will have a comprehensive and visible active transportation network and will promote safety, education, health, recreation and access to important locations within the City while connecting to the larger regional network."

The Plan also contains a policy framework with many goals, objectives, policies, and recommendations that would help the city achieve the Vision.

The Circulation Element of the General Plan identified four Pedestrian Priority Areas, also known as Pedestrian Opportunity Zones, where the City will pursue street enhancements to create pedestrian-friendly environments.

The CMPMP supplements the ATP and the General Plan by providing additional infrastructure, programs, and policy recommendations that are specific to improving the pedestrian experience in the city. In particular, the CMPMP focuses on improvements at the Pedestrian Opportunity Zones.

1.2 PLAN LOCATION

The City of Costa Mesa is home to more than 113,000 residents according to the 2019 America Community Survey. It is located in central Orange County and shares a border with the cities of Huntington Beach, Fountain Valley, Santa Ana, Irvine, and Newport Beach, as well as the John Wayne (JWA) Santa Ana Airport. The City is well-connected via three major freeways – Interstate 405 (I-405), State Route 55 (SR-55), and State Route 73 (SR-73), and has a network of existing pedestrian facilities. The City is host to major employers in Orange County, including: the Auto Club of Southern California, Fairview Developmental Center, South Coast Plaza, and OC Fair and Event Center. The City is comprised of different neighborhoods, which include Eastside Costa Mesa, South Coast Metro, Mesa Verde, and Westside Costa Mesa. Each neighborhood features unique roadway characteristics and built environments, which range from high-density residential units surrounded by wide roadways (such as in South Coast Metro) to single-family residential housing with curvilinear residential streets like those found in the Mesa Verde neighborhood.

1.3 PROJECT CONTEXT

The Pedestrian Master Plan builds upon many local and regional planning and engineering efforts. These are summarized below while Appendix A, Plan And Policy Review contains more detailed information.

CITYWIDE PLANNING EFFORTS

Costa Mesa General Plan Circulation Element (2015)

The Circulation Element of the General Plan includes goals, objectives, and policies that the City uses to make decisions about transportation network improvements. The Plan emphasizes expanding travel mobility for bicycles and pedestrians, as well as implementing complete streets strategies in the city.

Costa Mesa Active Transportation Plan (2018)

The Costa Mesa Active Transportation Plan (ATP), provides strategies and actions that will improve the active transportation experience in Costa Mesa. It analyzes existing pedestrian and bicycle facilities in the city, provides a policy framework behind the City's active transportation vision, and proposes facilities for future funding.

Complete Street Safety Assessment (2021)

The assessment was completed as a collaboration between the City and SafeTREC at UC Berkeley. It reviewed several corridors in the City and provided recommendations for infrastructure improvements.

Multi-Purpose Trails Plan (2016)

Completed in June 2016, the Costa Mesa Multi-Purpose Trails Plan analyzes the strategies needed for implementing a multi-use trail system within the City, focusing on the area between the Santa Ana River Trail and Newport Bay in the middle of the City.

Local Roadway Safety Plan (LRSP)

The City's Local Road Safety Plan identifies safety countermeasures for all travel modes including walking and bicycling. The Plan helps ongoing efforts to make safety improvements by analyzing crash data, selecting emphasis areas, and identifying countermeasures through public outreach and diverse stakeholder collaboration.

LOCAL PROGRAMS AND PROJECTS

Go Human Explore Merrimac (2018)

On April 21, 2018, Costa Mesa hosted a SCAG Go Human demonstration project on Merrimac Way from Harbor Boulevard to Fairview Road to explore potential pedestrian and bicycle improvements. The demonstration project led to the construction of pedestrian and bicycle facilities in 2021.

Reimagining 19th Street

In the summer of 2020, the Costa Mesa Alliance for Better Streets, a community organization, collaborated with the Costa Mesa community and the City on the "Reimagine 19th Street" project. The project resulted in a tactical urbanism

demonstration on 19th Street to showcase potential new infrastructure improvements along the corridor and to gather community feedback

Costa Mesa Community Pedestrian & Bicycle Safety Training

The Costa Mesa Active Transportation Committee, California Walks, and the University of California, Berkeley's Safe Transportation Research and Education Center (SafeTREC) collaboratively planned a training on August 28, 2020, which included walking and biking assessments. Assessments were conducted along three routes: Newport Boulevard from 17th Street to 19th Street, 19th Street from the western city limit to Harbor Boulevard, and Fairview Road from Baker Street to Fair Drive (adjacent to Orange Coast College)

Other Planned and Funded Active Transportation Projects Within Costa Mesa

The City is currently working on many projects with pedestrian elements. Examples of such projects include: Mesa Del Mar multi-modal access and circulation improvements, Mesa Drive and Santa Ana Avenue bicycle facility improvements, Randolph Avenue parking and pedestrian improvements, W 18th Street at Lions Park HAWK Signal, Wilson Street HAWK Signal, and Adams Avenue and Pinecreek Drive Intersection Project.

REGIONAL & ADJACENT CITY EFFORTS

OC Active (2019)

OC Active is Orange County's Bike and Pedestrian Plan. It provides a framework for bikeway and pedestrian planning across the county. OC Active replaces the Orange County Commuter Bikeways Strategic Plan developed in 2009.

Connect SoCal (2020):

Connect SoCal is the 2020 Regional Transportation Plan/ Sustainable Communities Strategy from Southern California Association of Governments (SCAG). The Plan includes a technical report outlining the existing state of active transportation and the impacts of active transportation investments within the SCAG region.

City of Newport Beach Bicycle Master Plan (2014)

The Plan guides the development and maintenance of a comprehensive bicycle network and set of programs until 2034. The City contains 18.9 miles of Class I Shared-Use Paths which allow joint pedestrian and bicycle use. In 2014, there were 93 miles of existing bikeways, which include 26 miles of sidewalks that allow bicycling.

City of Irvine Strategic Active Transportation Plan (2020)

The 2020 Plan seeks to balance new technologies, innovative pedestrian treatments, and bicycle transportation options to establish an environment that is

comfortable and convenient for users. On-street facility connections are planned via Red Hill Avenue and along Main Street.

City of Huntington Beach Bicycle Master Plan (2013)

The Bike Master Plan discusses opportunities for pedestrian travel via off-street shared-use paths. Connections are made to Costa Mesa via the Santa Ana River Trail. The Santa Ana River Trail is maintained and operated by the County of Orange.

City of Santa Ana Active Transportation Plan (2019)

The goal of the Santa Ana Active Transportation Plan (2019) document is to create a City that provides multi-modal access for walking, biking, and rolling. Santa Ana forms the northern boundary with the City of Costa Mesa along Sunflower Avenue.

City of Fountain Valley General Plan Update (forthcoming)

The City is currently working on updating its General Plan, and it may include discussions on active transportation. The City shares a short border with Fountain Valley.

02

Community Engagement

2.1 INTRODUCTION

Interactive community feedback outlets were foundational to the development of the Plan. A combination of in-person public events, electronic and in-person surveying, and online mapping exercises were employed to help the project team understand community sentiment on pedestrian infrastructure. The engagement strategy was continuously adapted to challenges from the COVID-19 pandemic.

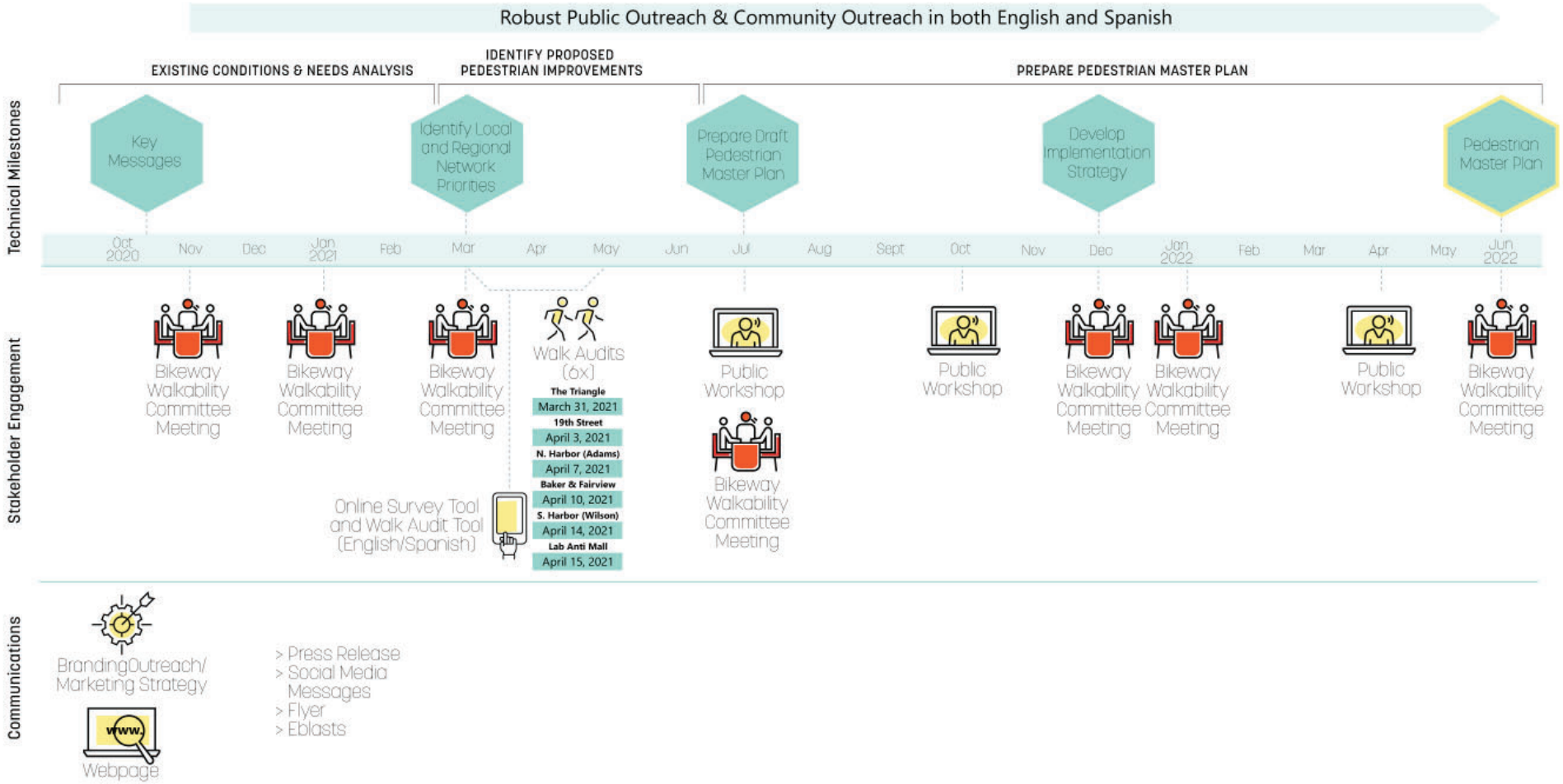
Opportunities made available for community members to participate in included:

- Walk audits
- Community workshops
- Active Transportation Committee presentations
- Project survey
- Online mapping tool

The engagement effort was conducted between November 2020 and April 2022. It focused on two primary audiences: the general public and key stakeholders as represented by the Bikeway and Walkability Committee.

Figure 2.1, Process Diagram, shows how the engagement effort aligned with the overall development of the Plan.

Figure 2.1 Process Diagram



Project logo

Event flyer using project branding

2.2 PUBLIC OUTREACH AND INFORMATION SHARING

The project team employed many strategies to inform the Costa Mesa community about opportunities to participate in the planning effort.

Project Branding

A logo and branding style were created to establish a project identity. The logo and branding style were used across all project communication materials.

Communication Channels

Project communications and outreach content such as press releases, flyers, and social media messages were developed to inform community members about opportunities to provide input on the Costa Mesa Pedestrian Master Plan. The flyers and social media messages were in both English and Spanish, allowing more community members to participate in the planning process. The project team worked collaboratively with the City's communications team to deliver the information through various communication channels.

2.3 WALK AUDITS

A Walk Audit is an event that allows participants to walk along a predefined route and discuss opportunities and barriers to walking along the route with the project team members leading the walk audits.

The project team conducted in-person Walk Audits at six focus areas. The focus areas were identified during Bikeway and Walkability Committee meetings and in the Pedestrian Opportunity Zones in the General Plan Circulation Element. In response to the COVID-19 pandemic, a project website was created with information detailing how community members could conduct a self-guided Walk Audit. Table 2.1 offers an overview of the Walk Audits while Appendix B provides a summary of each Walk Audit.

Table 2.1 Overview of Walk Audits

Event #	Event Date	Focus Area
1	Wednesday, March 31, 2021 1:00 pm - 3:00 pm	The Triangle
2	Saturday, April 3, 2021 10:00 am - 12:00 pm	19th Street Commercial
3	Wednesday, April 7, 2021 1:00 pm - 3:00 pm	North Harbor Commercial (Adams)
4	Saturday, April 10, 2021 10:00 am - 12:00 pm	Baker Street and Fairview Road
5	Wednesday, April 14, 2021 1:00 pm - 3:00 pm	South Harbor Commercial (Wilson)
6	Thursday, April 15, 2021 9:00 am - 11:00 am	LAB Anti-Mall

2.4 COMMUNITY WORKSHOPS

The project team conducted three community workshops to gather input from community members for the Plan. The workshops were held virtually via Zoom due to the COVID-19 pandemic. Workshop participants included community members, members of the Bikeway and Walkability Committee, elected officials, and commissioners.

Table 2.2 provides a snapshot of the Community Workshops. Appendix C offers a summary of each event.

Table 2.2 Overview of Community Workshops

Event #	Event Date	Topic
1	Tuesday, July 27, 2021 6:00 pm - 7:00 pm	Project overview and potential pedestrian treatments
2	Wednesday, October 6, 2021 6:00 pm - 7:30 pm	Draft recommendations
3	Wednesday, April 27, 2022 6:00 pm - 7:30 pm	Draft report

2.5 ACTIVE TRANSPORTATION COMMITTEE

The project provided five presentations to the Active Transportation Committee, formerly the Bikeway and Walkability Committee (BWC), to update committee members on key milestones and gather feedback on the next steps. The committee provided valuable comments and input that helped shape the Plan. Table 2.3 gives an overview of the presentations.

Table 2.3 Overview of Active Transportation Committee Presentations

Event #	Event Date	Presentation Topics
1	Wednesday, November 4, 2020: 3:00 pm - 4:00 pm	Expectations from the BWC, Strategic objectives, Project schedule, and Outreach & engagement
2	Wednesday, January 6, 2021: 3:00 pm - 4:00 pm	Project recap, Preliminary collision analysis, and Potential Walk Audit locations
3	Wednesday, March 3, 2021 3:00 pm -4:00 pm	Project update, walk audit events, bicycle racks,
4	Wednesday, July 7, 2021 4:00 pm - 6:00 pm	Project overview, Update on outreach & engagement, and Sample of pedestrian treatments
5	Wednesday, December 1, 2021: 6:00 pm -7:30 pm	Draft recommendations
6	Wednesday, January 19, 2022: 6:00 pm -7:30 pm	Draft report
7	Wednesday, June 22, 2022: 4:00 pm -6:00 pm	Updated report review

2.6 COMMUNITY FEEDBACK & INPUT TOOLS

A project survey and online mapping tool were created to allow community members to share their input.

Project Survey

Between February and May, 2021, the project team administered an online survey offering community members an opportunity to participate in the planning process on their own time. It also allowed Walk Audit participants to provide additional detailed feedback after each event. All materials were available in English and Spanish.

Appendix D, Project Survey, provides a discussion of the survey results.

Online Mapping Tool

An online mapping tool was developed for community participants to identify active transportation-related concerns or desired areas of improvement in the Pedestrian Opportunity Zones. The team received more than 350 comments from the online mapping tool.

2.7 FINDINGS FROM OUTREACH EFFORT

A qualitative analysis was conducted from the comments gathered in the outreach effort to identify common concerns and input shared by community members. The analysis was focused on location-based comments in order to identify potential infrastructure improvements that could address the concerns.

The data used in this analysis focused on comments received from the following sources:

- Walk audits
- Online mapping tool
- Virtual workshops
- Project survey
- Bikeway And Walkability Committee (BWC) meetings

Top Corridors and Spot Locations/Destinations

Community members provided a total of 547 location-specific comments. Of these comments, 68 pertained to corridors and 479 were associated with a particular location or destination. The most popular corridors and intersections are shown in the following lists.

Note: The number of comments associated with the corridor is in the parentheses.

Top corridors, with comments:

1. Newport Boulevard (6)
2. Harbor Boulevard (5)
3. Bristol Street (5)
4. Wilson Street (4)
5. Baker Street (4)
6. Fairview Road (4)
7. Paularino Avenue (3)
8. Pomona Avenue (2)
9. W 19th Street (2)
10. W 17th Street (2)

Top intersections or destinations, with comments:

1. Fairview Road and Adams Avenue (12)
2. Bristol Street and Paularino Avenue (9)
3. Bristol Street and Hotel Way (9)
4. Fairview Road and Village Way (9)
5. Harbor Boulevard and Adams Avenue (9)
6. Harbor Boulevard and Gisler Avenue (9)
7. Victoria Street and Maple Street (8)
8. Wilson Street and Center Way (8)
9. Bristol Street and Sobeca Way (8)
10. Baker Street and Jeffrey Drive (8)

Common Themes

Comments provided by community members can be categorized into four major themes and many sub-themes. The major themes are:

- Sidewalk-related infrastructure
- Crossing-related infrastructure
- Other crossing improvements
- Other roadway infrastructure

The most popular theme is "other infrastructure" with 250 comments. This is followed by sidewalk-related infrastructure with 153 comments and crossing-related infrastructure with 131 comments. Other items with high number of comments include the sub-themes "lack of crossings (at intersections)" and "missing ramps/not ADA compliant" under the "crossing-related infrastructure characteristics" theme, and "destinations" under the "other" theme.

Table 2.4, Summary of Themes, shows the themes, sub-themes, and the total comments received. A detailed summary of the majority of comments received, along with their locations, is available in Appendix B, Walk Audit Summaries.

Note: Some comments fall into multiple themes; as a result, the total number of comments evaluated in this section of the analysis exceeds the total comments received in the outreach effort.

Table 2.4 Summary of Comment Themes, Sub-themes, and Number of Comments

Theme	Sub-Theme		Comments Received
Sidewalk-related infrastructure	• Missing sidewalk/connection • Narrow sidewalk • Buckled (raised) sidewalk	• Sidewalk obstructions • Bicyclists on sidewalk	153
Crossing-related infrastructure	• Lack of crossings (in-between long roadway stretches) • Lack of crossings (at intersections) • 3 legged crosswalk intersection • Half-delta ramps • Not ADA compliant ramps/missing ramps	• Other curb issues • Traffic control: insufficient countdown/push button • Traffic control: insufficient signal timing • Visibility	131
Crossing Improvements	• Lack of crossings • No right turn on red • Pedestrian refuge island	• Lead pedestrian interval • Curb extension	17
Other roadway infrastructure	• Road diet/traffic calming/speeding • Destination • Compliment • Project-relevant notes • Non-project related • General walking • Other specific comments • Landscaping/shade • Traffic volume	• Bike improvement • Motorist behavior • Driveway issues • Roadway rehabilitation • Lighting • Drainage • Transit	250

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03

Existing Conditions

3.1 INTRODUCTION

The existing city fabric presents many opportunities and constraints for improving walkability in Costa Mesa. The City has an area of 15.81 square miles, which includes 0.96 square miles of park and outdoor spaces. On average, it also has a walk score of 65, which means residents can travel to some destinations by walking.

This section examines some of the essential existing conditions that pertain to walking. Many datasets were also analyzed to position the city for a future application for the Walk Friendly Community designation.

The project team analyzed five categories of data for the effort:

- Demographic statistics & travel characteristics
- Land use and destinations
- Roadway characteristics
- Pedestrian infrastructure
- Pedestrian safety

The analysis is concentrated on the Pedestrian Opportunity Zones. The opportunity zones were first discussed in the General Plan and were included in the Active Transportation Plan.

3.2 DEMOGRAPHIC CHARACTERISTICS

POPULATION

The population in the city serves as a proxy for understanding the origins of walking trips and possible community needs for walking infrastructure improvements and programs. According to the 2019 American Community Survey (ACS), the City is home to 113,011 residents, with a population density of 7,148 person per square mile. The Median Household Income (MHHI) in the city is $84,138, which is higher than the state MHHI ($75,235), but lower than the MHHI for Orange County ($90,234). Approximately a quarter of residents are under the age 20 (24.5%).

According to the 2019 ACS, the areas with the highest populations (3,001 to 4,000 people) are located north of Interstate 405 (I-405), around Anton Boulevard, where large townhomes and apartment developments are located. Several areas in Westside Costa Mesa also have a large number of townhomes and apartment developments.

Table 3.1, Population Distribution by Median Household Income, Table 3.2, Age Distribution, Figure 3.1, Total Population by Census Block, and Figure 3.2, Median Household Income provide additional detail about each demographic characteristic.

Note: The level of analysis used for this portion of the analysis is Census block groups, which are smaller units of area than Census tracts.

Table 3.1 Population Distribution by Median Household Income

Median Household Income Group	Total Households (Estimate)	Percent of Households (citywide)
< $50,000	1,981	4.76%
$50,001 - $75,000	8,338	20.04%
$75,001 - $100,000	1,8261	43.9%
$100,001 - $125,000	6,048	14.54%
> $125,000	5,832	14.02%
No MHHI data	1,138	2.74%

Note: For Census block groups within Costa Mesa that extend outside city boundary, a ratio was applied to estimate total number of households in the Census block group (based on percent area of Census block group that exists within Costa Mesa city limits).

Table 3.2 Age Distribution

Age	Percent of Households (citywide)
Under 20	24.5%
20-64	63%
65-84	10.8%
Over 85	1.8%

Note: The total % is over 100 (100.1) because these are rounded estimates.

Figure 3.1 Total Population by Census Block

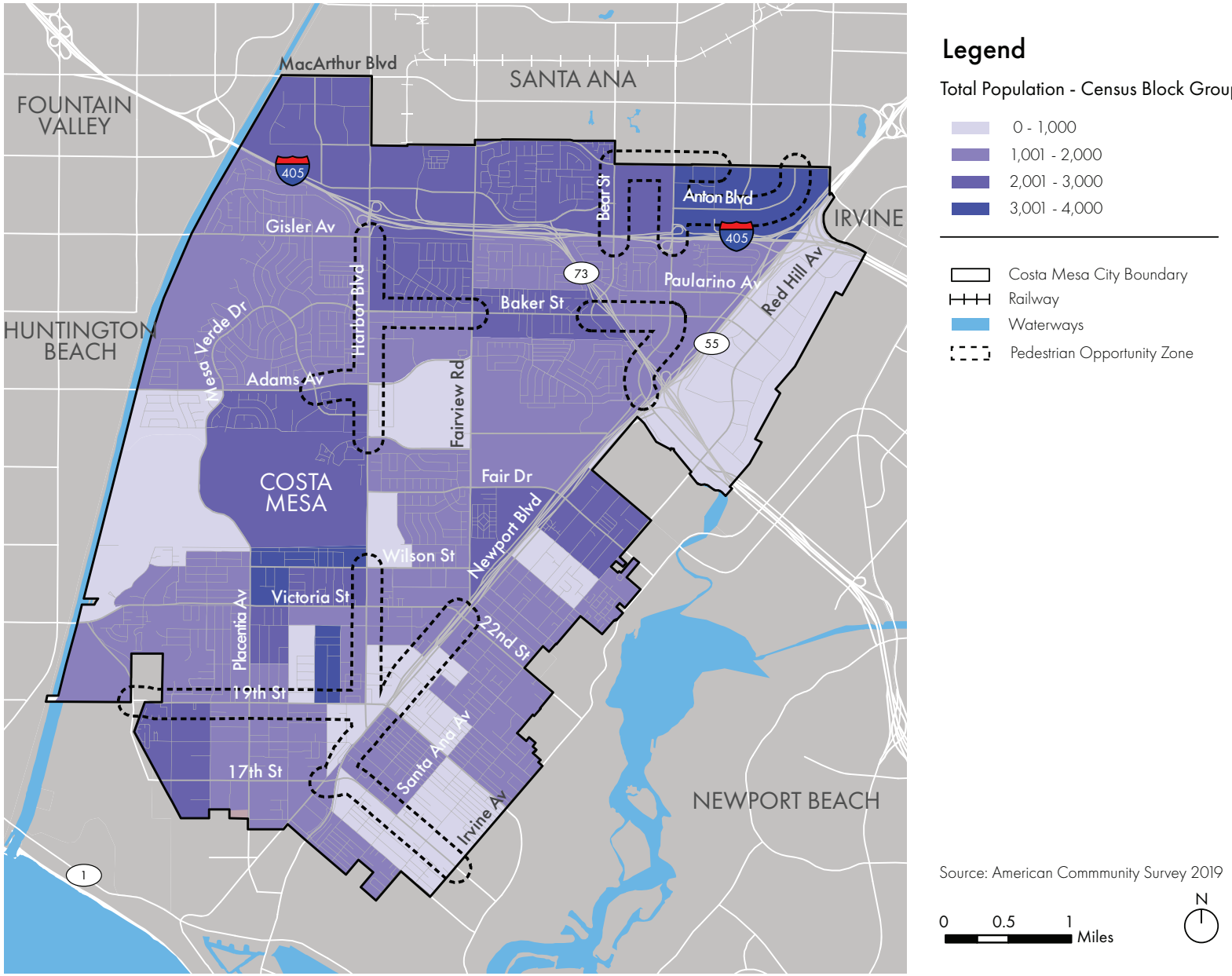
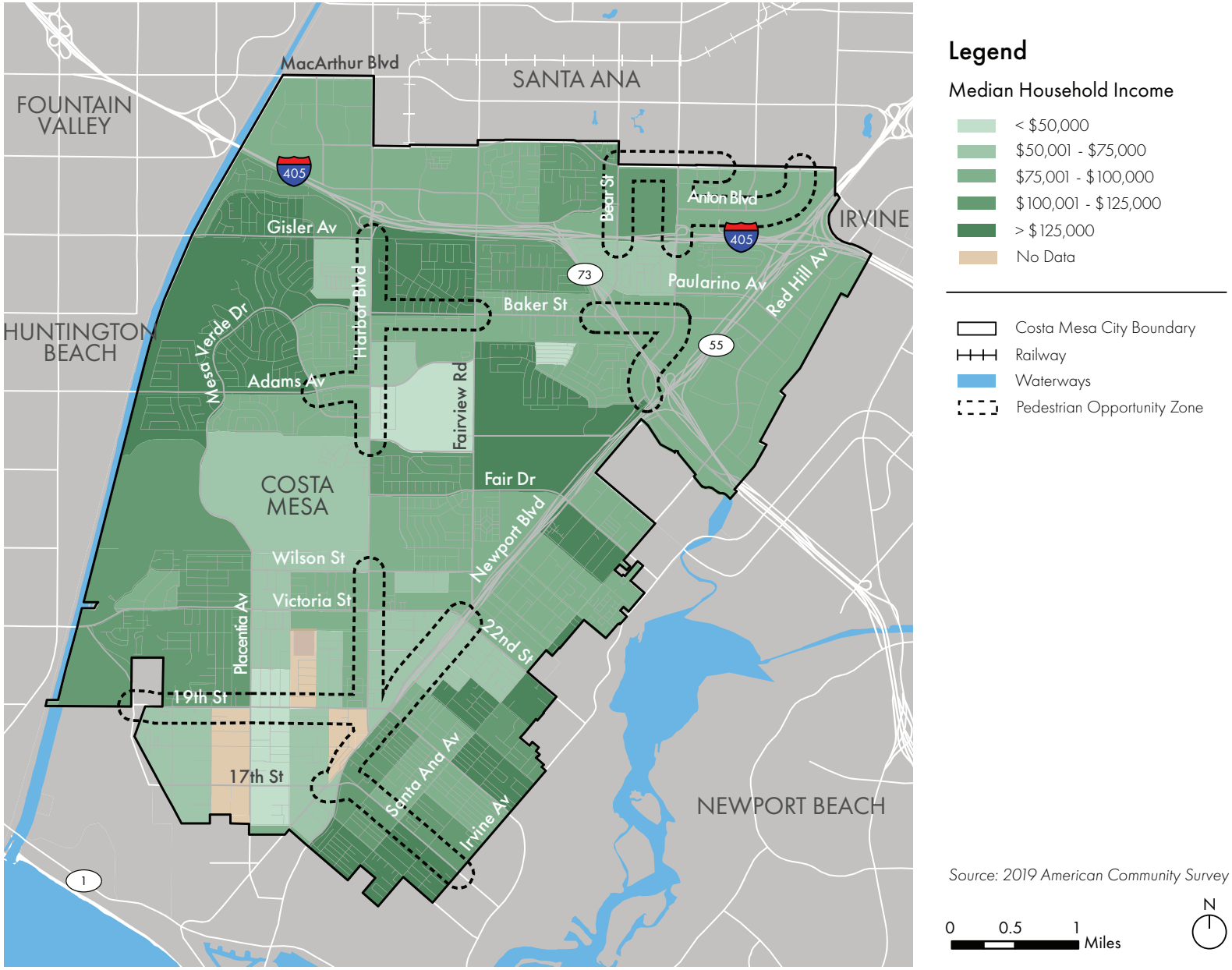


Figure 3.2 Median Household Income



3.3 TRAVEL CHARACTERISTICS

MODE SHARE

Mode share is a breakdown of the travel modes that travelers take to reach a destination. The U.S. Census Bureau collects data on the travel mode share for commuters. According to the 2010 Census, 3.4% of people walk to work in Costa Mesa, while 73.8% drive to work in single-occupancy vehicles, as shown in Table 3.3 Commute to Work. A review of the five-year trend since 2010 shows that a slightly lower percentage of people were walking to work, as shown in Table 3.4, Commute to Work- Five Year Trend. The information will be useful in the application for the Walk Friendly Community designation.

Data collected for the CMPMP, however, suggests that many community members walk in the opportunity zones. Of the 63 responses collected, 74.6% selected walking as an option for how they most frequently get around within the opportunity zones. This was followed by 60.3% of the participants who preferred getting around by car. The third most popular selection was bike at 41.3%. Lastly, scooter and bus were the two least popular selections which only 3.2% of participants used to get around. Figure 3.3, Travel Mode Preferences in the Opportunity Zones summarizes this finding.

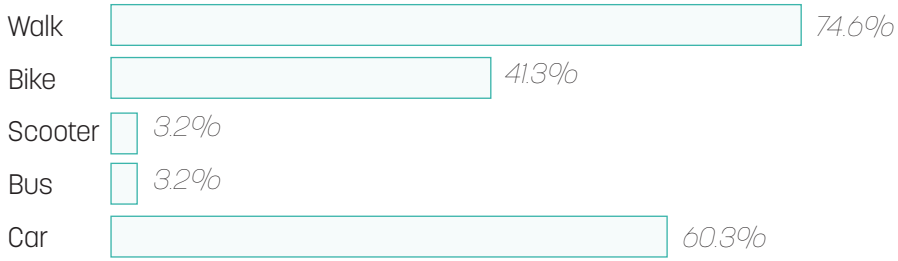
Table 3.3 Commute to Work

Mode	Percent of Households (citywide)
Walking	3.4%
Bicycling (and other means)	3.7%
Public Transit	3.4%
Single Occupant Vehicles	73.8%
Carpool	10.5%

Table 3.4 Commute to Work - Five Year Trend

Mode	Percent of Households (citywide)
Walking (2006-2010)	3.4%
Walking (2010-2014)	2.1%
Public transit (2006-2010)	3.4%
Public transit (2010-2014)	2.9%

Figure 3.3 Travel Mode Preferences in the Opportunity Zones



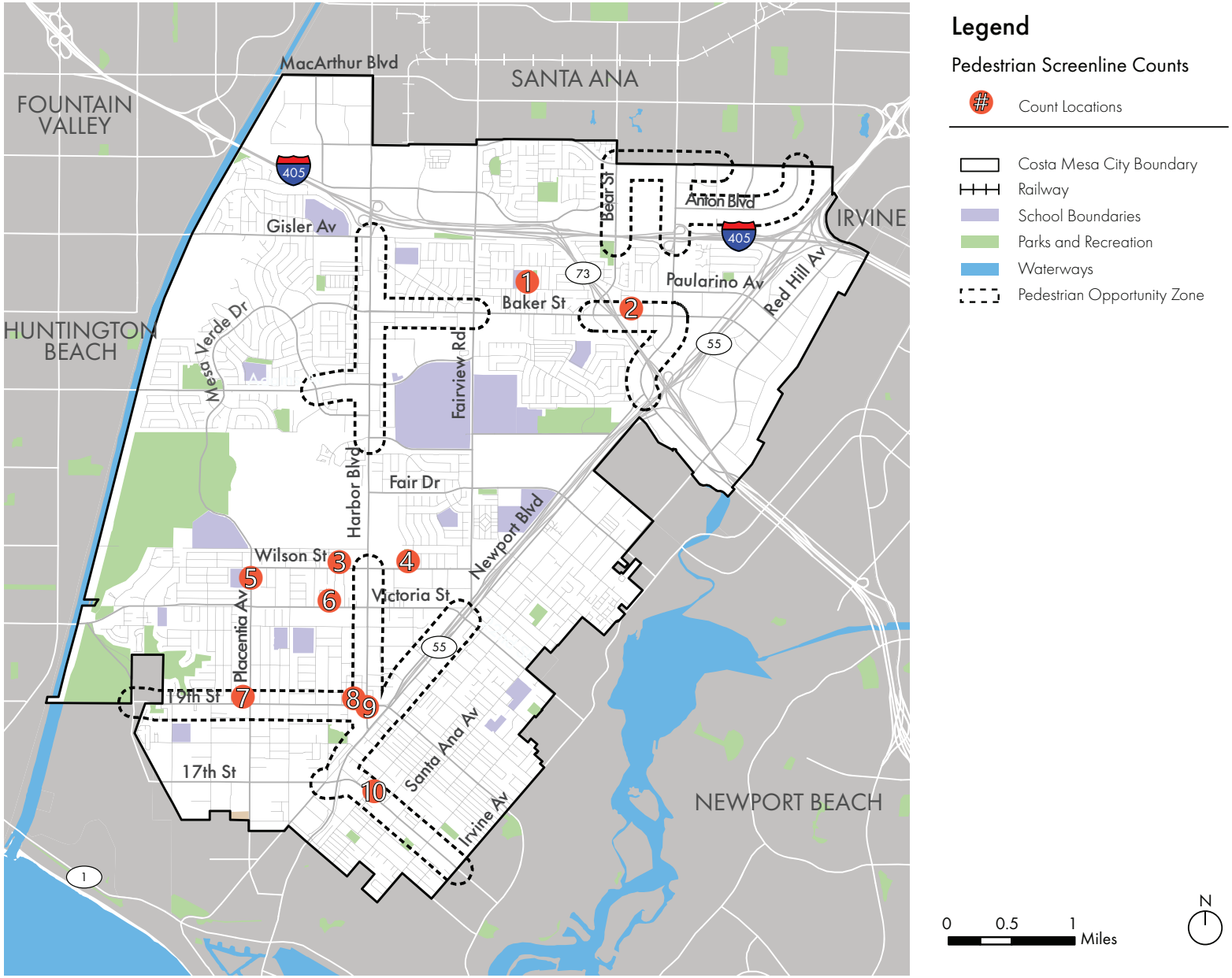
PEDESTRIAN COUNTS

Pedestrian counts were conducted at 10 locations to better assess pedestrian sidewalk traffic along major corridors across the city. The counts were collected on a typical weekday in Fall 2021 during morning and afternoon peak intervals (7-9 AM and 4-6 PM, respectively). The counts documented pedestrian activities for either side of the street at the locations listed in Table 3.5. Appendix G: Pedestrian Counts provides a more refined breakdown of the pedestrian counts collected.

Table 3.5 Pedestrian Counts at Selected Locations

#	Location	Sides of Street	North/East - AM Peak	North/East - PM Peak	South/West - AM Peak	South/West - PM Peak
1	Paularino Avenue btwn Garfield Avenue and Madison Avenue	N/S	62	19	13	10
2	Baker Street btwn Jeffrey Drive and Century Place	N/S	12	11	9	5
3	Wilson Street btwn Maple Street and Miner Street	N/S	31	34	26	25
4	Wilson Street btwn College Avenue and Fordham Drive	N/S	11	15	29	42
5	Placentia Avenue btwn Wilson Street and Congress Street	E/W	95	54	56	18
6	Victoria Street btwn San Michel Drive and Maple Street	N/S	17	12	33	30
7	19th Street btwn Federal Avenue and Placentia Avenue	N/S	30	28	12	19
8	19th Street btwn Park Avenue and Harbor Boulevard	N/S	12	25	43	64
9	Harbor Boulevard btwn 19th Street and Newport Boulevard	E/W	18	63	4	16
10	17th Street btwn Orange Avenue and Westminster Avenue	N/S	10	23	4	8

Figure 3.4 Pedestrian Count Locations



3.4 LAND USE AND DESTINATIONS

LAND USE

Existing land uses within the City identify the locations of where people live, work, and play. Land uses such as low, medium, and high-density residential areas highlight population centers. Meanwhile commercial and public/ institutional land uses suggest typical destinations for shopping and entertainment.

Comparing land uses in opportunity zones to the city as a whole, citywide distributions show a higher allocation of residential uses, while opportunity zones are largely comprised of commercial and industrial uses. Land within the opportunity zones accounts for 22% of all city land.

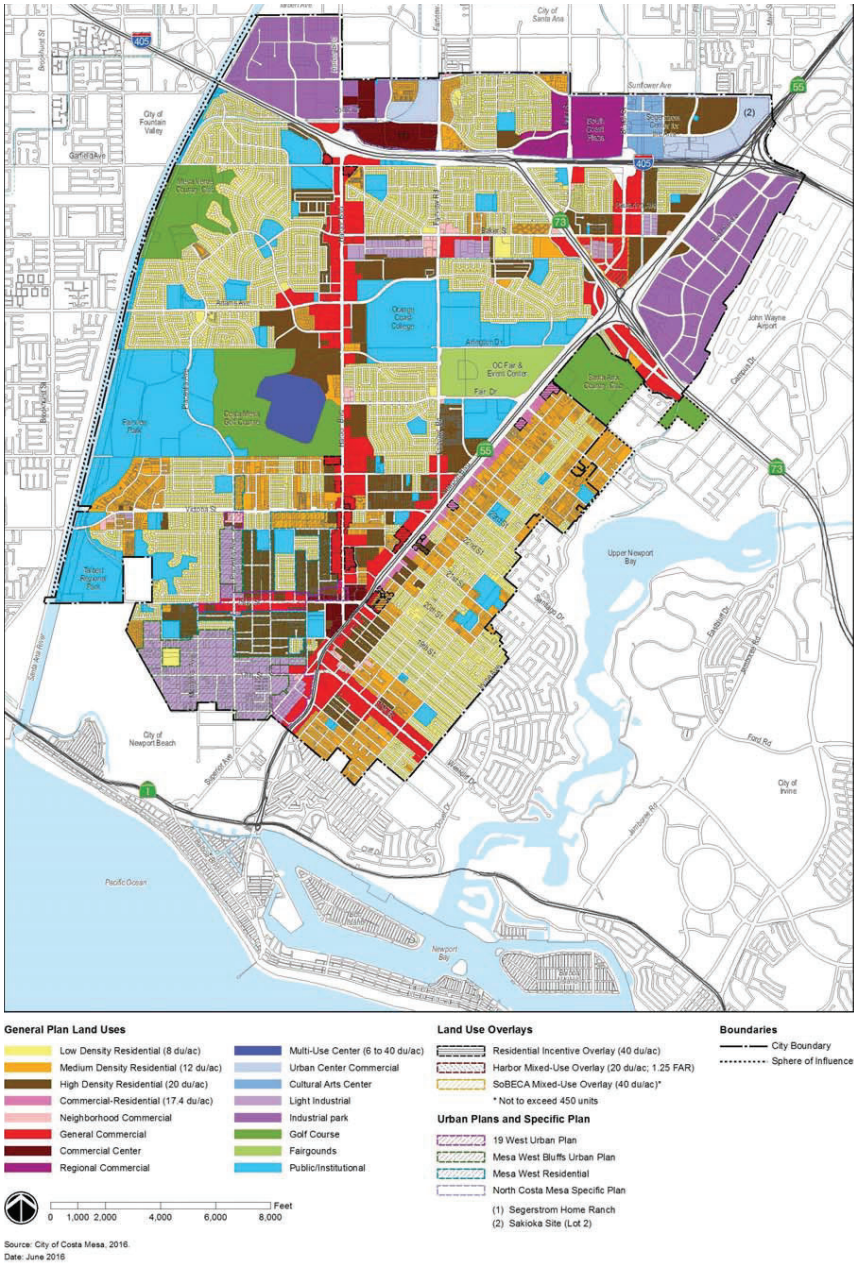
Figure 3.5 Land Use Map shows the spatial distribution of existing land uses at a citywide scale.

ACTIVITY CENTERS

Activity centers are destinations that community members can reach through non-motorized transportation. Examples of activity centers include schools, parks, commercial areas, and municipal facilities.

The City of Costa Mesa has many local and regional destinations. Some of the popular attractors include South Coast Plaza, Segerstrom Center for the Arts, Downtown, The Triangle, commercial areas on 19th Street and 17th Street, the LAB Anti-Mall, the Camp, Orange Coast College, Herzog Community Center and the OC Fair and Event Center.

Figure 3.5 Land Use Map



Costa Mesa General Plan | LU-25

3.5 ROADWAY CHARACTERISTICS

ROADWAY NETWORK

The roadway network in the City of Costa Mesa provides inter-and intra-city multimodal connectivity. Major and primary arterials such as Harbor Boulevard, Fairview Road, Placentia Avenue, and Bristol Street offer access in the north-south direction. Meanwhile, roadways such as Sunflower Avenue, Baker Street, Adams Avenue, Victoria Street, 19th Street, and 17th Street allow travelers to move in the east-west direction. Local streets form the bulk of the roadway network and offer access to predominately residential land uses.

AVERAGE DAILY TRAFFIC VOLUME

The Average Daily Traffic (ADT) volumes shows the vehicular trip volume along a corridor on a given date. It gives an understanding on where roadways have higher or lower vehicular usage. ADT data was sourced from the City of Costa Mesa, Transportation Services Division for the years 2014 to 2020.

The roadways with the highest ADT volume mirror the roadway classifications for major and primary arterials. These include Harbor Boulevard, Fairview Road, Adams Avenue, Victoria Street, and Bristol Street.

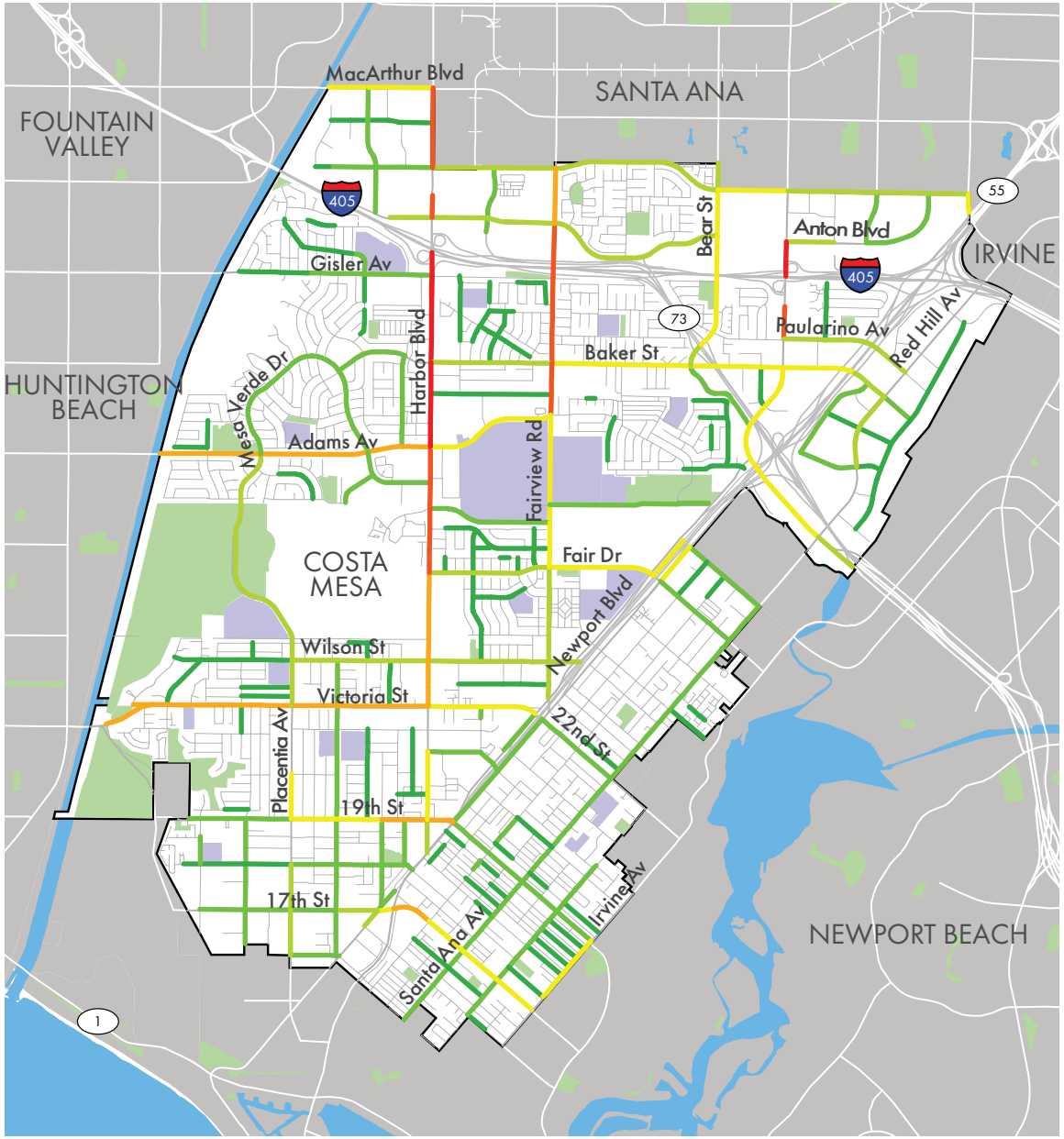
Within the Pedestrian Opportunity Zones, slightly more than a third (39.51%) of all centerline miles where ADT data was available had vehicular volumes between 20,001 and 40,000.

ADT volumes are shown in more detail in Table 3.6 Average Daily Traffic within Pedestrian Opportunity Zones and Figure 3.6 Average Daily Traffic Volumes.

Table 3.6 Average Daily Traffic (ADT) within the Opportunity Zones

ADT Category	Length (mi)	%
0-3,500	1.57	9.54
3,501-10,000	4.31	26.2
10,001-20,000	1.99	12.1
20,001-30,000	4.4	26.75
30,001-40,000	2.1	12.77
40,001-55,000	0.72	4.38
> 55,000	1.36	8.27
Grand Total	**16.45**	**100%**

Figure 3.6 Average Daily Traffic Volumes



Legend

Average Daily Trip Volume (Veh., 2014+)

- < 3,500
- 3,501 - 10,000
- 10,001 - 20,000
- 20,001 - 30,000
- 30,001 - 40,000
- 40,001 - 55,000
- > 55,000

- Costa Mesa City Boundary
- Railway
- School Boundaries
- Parks and Recreation
- Waterways
- Pedestrian Opportunity Zone

Source: City of Costa Mesa, Transportation Services Division

0 0.5 1 Miles

N

POSTED SPEED LIMIT

Posted speed limits indicate how fast motorists are legally allowed to drive, with optimal conditions in place, along each roadway. Data on posted speed limits were sourced from the 2019 City of Costa Mesa Speed Map. The dataset shows primary corridors that represent non-residential roadways where the speed limit is over 25 Miles Per Hour (MPH), and only refers to streets on OCTA's Master Plan of Arterial Highways (MPAH) with classifications of Collector Arterial, Secondary Arterial, Primary Arterial, and Major Arterial.

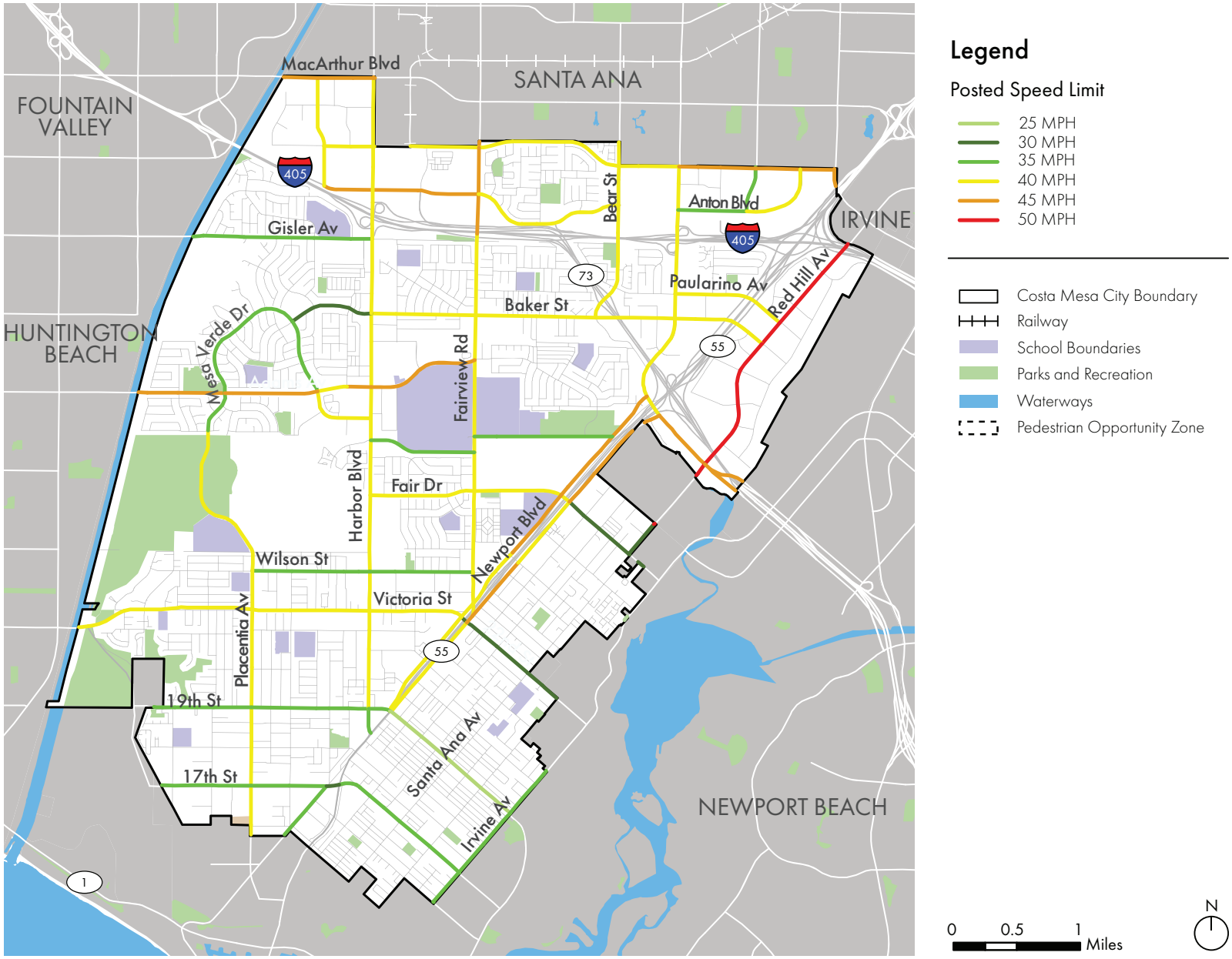
The roadways with the highest speed limits are along Red Hill Avenue between SR-73 and I-405 (50 MPH) and Adams Avenue where the speed limit is 45 MPH. Except for a short portion of Adams Avenue, speed limits within the Pedestrian Opportunity Zones are 40 MPH.

The distribution of speed limits across the City roadways is shown in Table 3.7, Percentage of Posted Speed Limit on Primary Corridors and Figure 3.7 Posted Speed Limits in the City of Costa Mesa on MPAH Streets of Collector Arterial and Higher.

Table 3.7 Percentage of Posted Speed Limit on MPAH Streets of Collector Arterial and Higher

Speed Limit	Total Centerline (ft)	%
Blank	2,433	0.87%
25	2,755	0.99%
30	11,785	4.24%
35	64,777	23.28%
40	144,423	51.91%
45	42,367	15.23%
50	9,692	3.48%
Total	**278,231**	**100%**

Figure 3.7 Posted Speed Limits in the City of Costa Mesa on MPAH Streets of Collector Arterial and Higher



3.6 PEDESTRIAN INFRASTRUCTURE

SIDEWALKS

Sidewalks provide a designated right-of-way for pedestrians and separate pedestrian activities from other travel modes. Sidewalk coverage was analyzed in the Pedestrian Opportunity Zones.

Overall, there are 42.77 miles of roadway curb edges on both sides of roadways in the Pedestrian Opportunity Zones. Of these, 39.06 miles (91.33%) have sidewalk infrastructure and 3.71 miles (8.67%) have missing sidewalks. Table 3.8 Summary of Sidewalk Coverage in Pedestrian Opportunity Zones illustrates the sidewalk coverage discussed in this section.

The Northern Pedestrian Opportunity Zones, as shown in Figure 3.8, Sidewalk Coverage in North Pedestrian Opportunity Zones, has 20.3 miles of sidewalk, and 0.88 miles of missing sidewalks. Most of the missing sidewalks are clustered around South Coast Plaza, particularly along Sunflower Avenue. Several roadway segments along Bristol Street also lack sidewalk facilities.

The Southern Pedestrian Opportunity Zones, as shown in Figure 3.9, Sidewalk Coverage in South Pedestrian Opportunity Zones, contain more areas with missing sidewalks. Of the 21.56 roadway curb miles in the area, 2.83 miles have missing sidewalk infrastructure, which account for 13.11% curb space. Many of the missing sidewalks are located around the intersection of Newport Boulevard and 17th Street and along Superior Avenue. The area offers several retail options and could generate more pedestrian traffic with enhanced sidewalk coverage.

There are also several key missing sidewalk segments along Harbor Boulevard. Just south of the intersection of Harbor Boulevard and Victoria Street, southbound Harbor Boulevard is missing small portions of sidewalks from Victoria Street to Hamilton Street, where parking overflow of adjacent auto-related businesses use the space. This is an important pedestrian corridor, linking some of the highest-traffic OCTA bus stops along Harbor Boulevard to relatively dense residential areas.

Another area with limited sidewalk connectivity is the Westside neighborhood. Roadways such as Arbor Street, Whittier Avenue, and Continental Avenue in the neighborhood have front yards that extend to the end of the curb.

Table 3.8 Summary of Sidewalk Coverage in Pedestrian Opportunity Zones

Opportunity Zone	Length - Sidewalks (Miles)	Length – Sidewalks Missing (Miles)	Sidewalk Availability (%)
North	20.30	0.88	95.85%
South	18.76	2.83	86.89%
Total	**39.06**	**3.71**	**91.33%**

Figure 3.8 Sidewalk Coverage in North Pedestrian Opportunity Zone

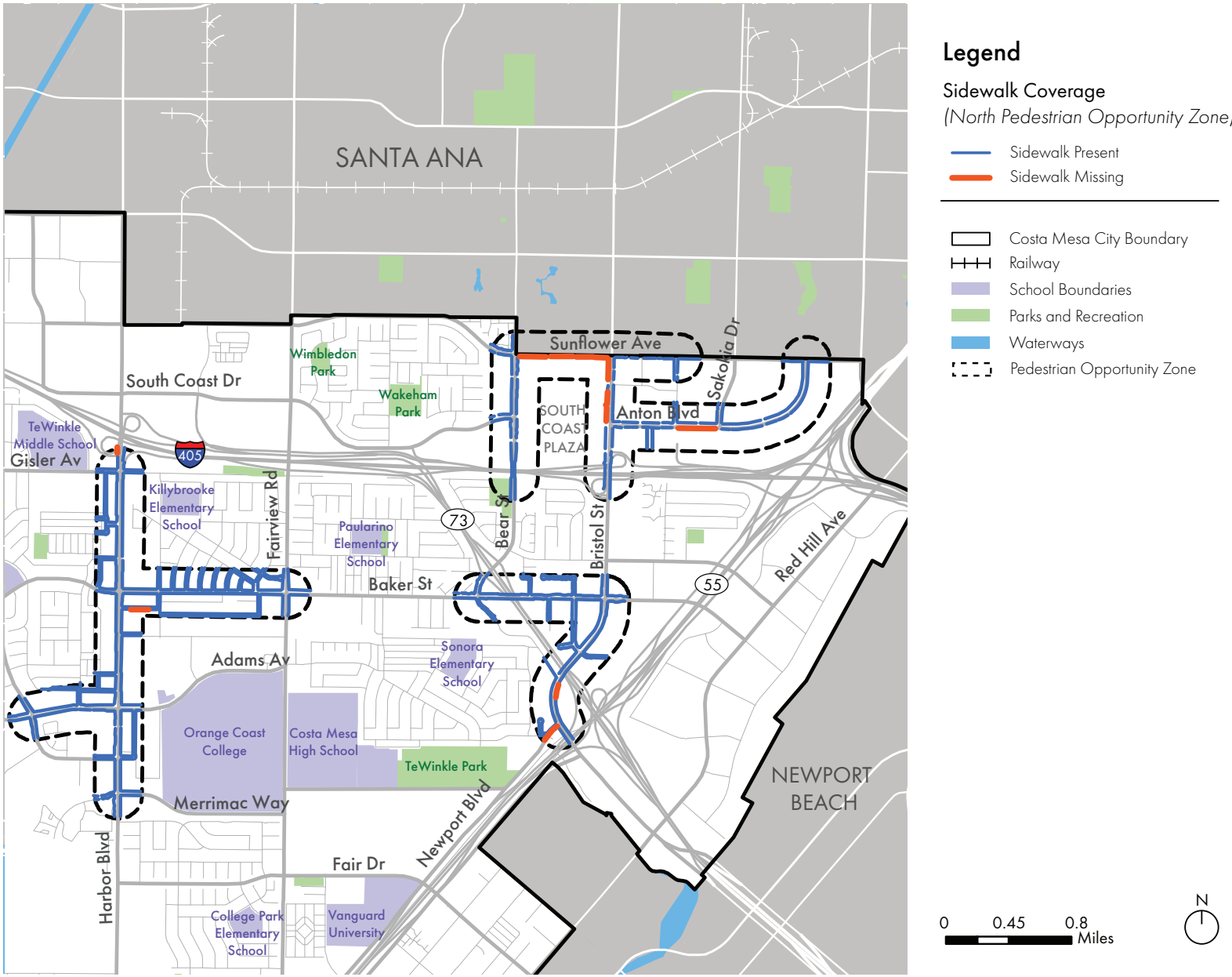
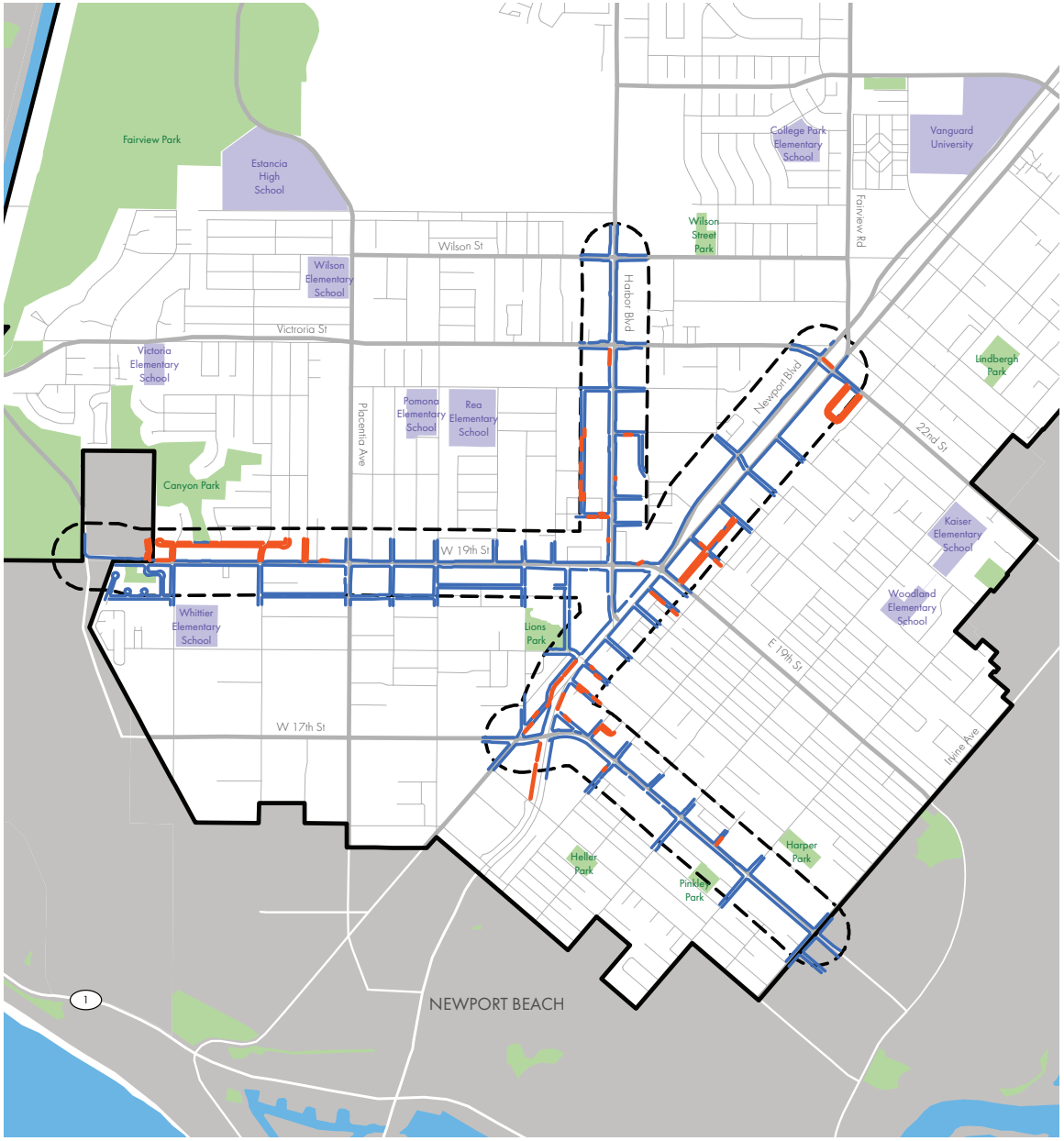


Figure 3.9 Sidewalk Coverage in South Pedestrian Opportunity Zone



Legend

Sidewalk Coverage
(South Pedestrian Opportunity Zone)

- Sidewalk Present
- Sidewalk Missing

- Costa Mesa City Boundary
- Railway
- School Boundaries
- Parks and Recreation
- Waterways
- Pedestrian Opportunity Zone

0 0.45 0.8 Miles

N

CROSSWALKS

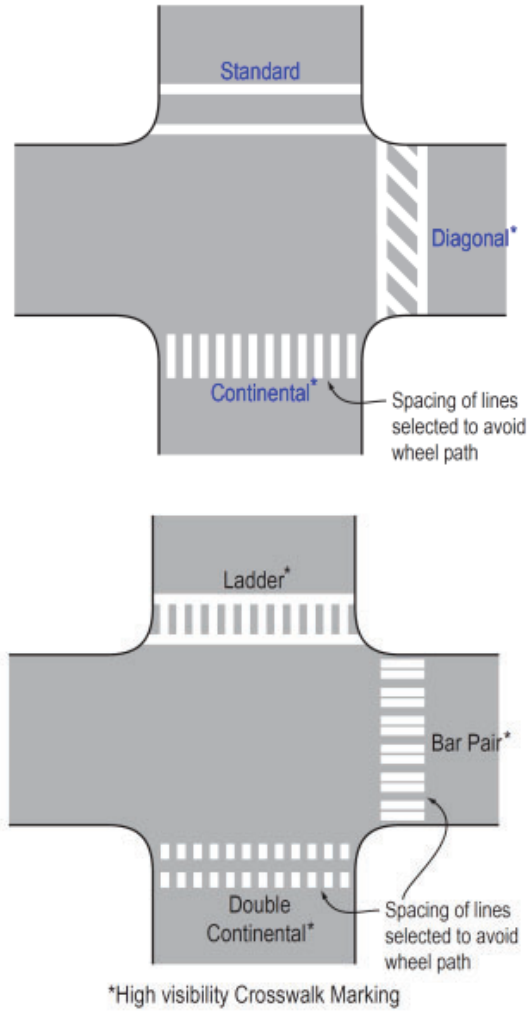
Crosswalks clearly delineate the pedestrian right-of-way at areas where crossings may likely occur, and they are typically located at intersections. Figure 3.10, Crosswalk Types details the different kinds of crosswalks available.

Currently, the City has four types of crosswalks that help facilitate pedestrian crossings: continental, ladder, decorative, and standard crosswalks. There are many intersections that have marked crosswalks on three legs of four-leg intersections. The lack of a fourth leg may present additional barriers for pedestrians to cross the intersection. Several of these three-legged crosswalk intersections are in high pedestrian traffic areas, such as The Triangle and along Harbor Boulevard. The City is in the process of upgrading all crosswalks to either ladder or continental for arterials and high pedestrian volume intersections and school crossings.

PEDESTRIAN COUNTDOWN SIGNALS

Pedestrian signals with countdown timers show the remaining time left for pedestrians to cross the roadway. Pedestrian countdown signals exist at intersections where new construction or signal improvements have been made (typically in the last five years). In situations where signal upgrades have yet to take place, these pedestrian countdown signals flash without a countdown. It is a City and ADA standard to upgrade any signal heads with pedestrian countdown flashers for all new construction

Figure 3.10 Crosswalk Types



Source: CA MUTCD

or signal upgrades. Over time the City will have more widespread offerings of such features.

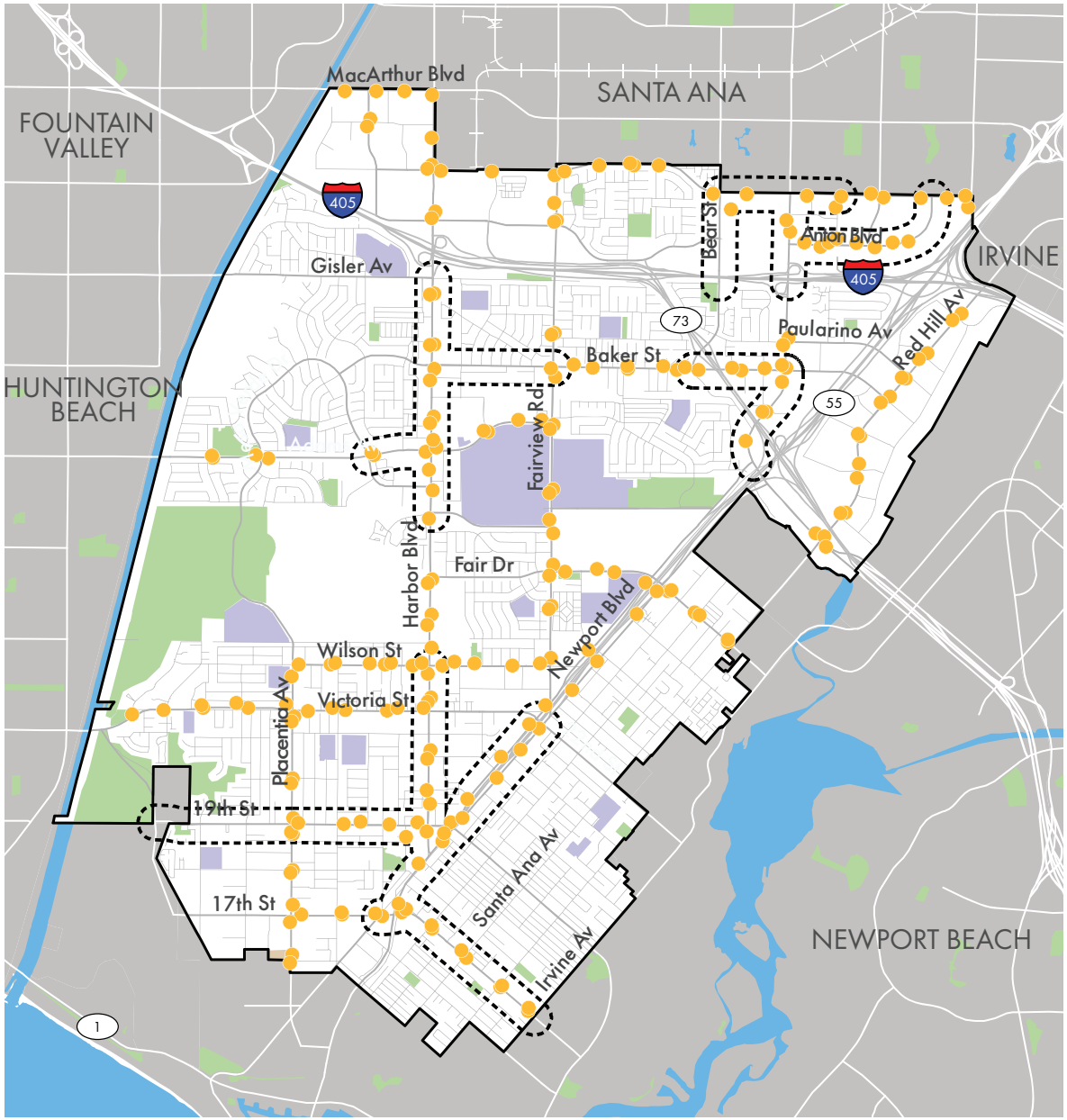
TRANSIT ACCESS

Walking is an important mode of transportation for travelers to travel to/from transit hubs. It allows transit users to complete their "First/Last Mile" trips. The Orange County Transportation Authority (OCTA) is the primary service provider within the city. Bus transit stop locations are shown in Figure 3.11, OCTA Bus Stops.

There are 215 OCTA bus stops within the city. Of these, 94 (44%) are located within the Pedestrian Opportunity Zones. From the average daily boarding bus ridership data acquired from OCTA for June 2019, the major hubs of bus ridership can be found in the opportunity zones. Ridership is particularly concentrated near South Coast Plaza (Bristol Street), major retail destinations along Harbor Boulevard between Wilson Street and Victoria Street, and along 19th Street in Westside Costa Mesa. Figure 3.12, OCTA Bus Ridership Heat Map, further highlights the higher bus ridership in these major destinations.

Despite the opportunities available for community members in Costa Mesa to take transit, there are some constraints. Bus ridership is much lower in low-density residential (single-family home) neighborhoods such as Victoria Street, around Mesa Verde, and along E 17th Street near Newport Beach. For certain routes such as the ones along Wilson Street and Harbor Boulevard, transit users must walk a long distance to transfer between routes. Additionally, there are minimal transit connections between Downtown Costa Mesa and the Newport Pier area, a popular local destination.

Figure 3.11 OCTA Bus Stops



Legend

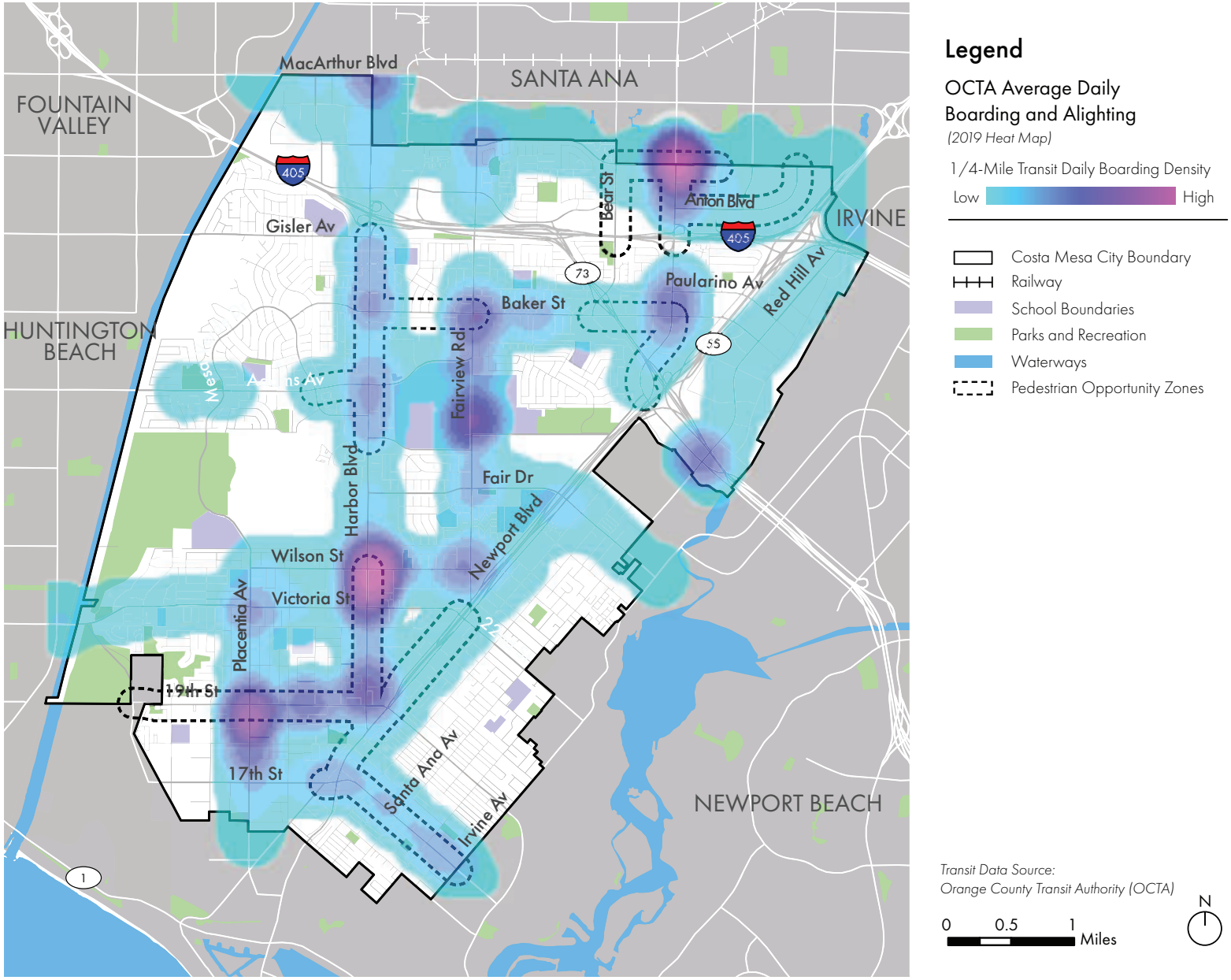
OCTA Bus Stops

- OCTA Bus Stop
- Costa Mesa City Boundary
- Railway
- School Boundaries
- Parks and Recreation
- Waterways
- Pedestrian Opportunity Zone

0 0.5 1 Miles

N

Figure 3.12 OCTA Bus Ridership Heat Map



3.7 PEDESTRIAN SAFETY

To understand pedestrian safety, the project team evaluated vehicular collisions and police citations given to motorists who exhibited behaviors that could create an unsafe environment for pedestrians. Traffic collisions are incidents where a vehicle collides with a bicyclist, pedestrian, and/or vehicle. For this study, pedestrian-involved collisions were assessed. Pedestrian-involved collisions typically result from a vehicle or bicyclist colliding with one or more pedestrians. Police citations could be interpreted as "near-miss" collisions. While not all citation indicate a collision, the locations of police citations can indicate hotspots that may be prone to collisions. A full report of pedestrian safety in the city is available in Appendix E: Pedestrian Safety Analysis.

PEDESTRIAN COLLISION ANALYSIS

Citywide vehicular collision data from July 1, 2015 to June 30, 2020 was obtained through the Statewide Integrated Traffic Records System (SWITRS) published by the California Highway Patrol. This analysis focused on pedestrian-involved collisions. At the citywide scale, a total of 175 collisions over the 5-year timeframe involved a pedestrian. Within opportunity zones, 83 collisions involved a pedestrian.

Top Collision Hotspots

Collision hotspots are classified as intersections with high collision density within 250 feet of the intersection. Pomona Avenue and 19th Street had the highest number of pedestrian-involved collisions at the citywide scale and within the opportunity zones. Figure 3.13, Heat Map of Pedestrian Collisions and Table 3.9, Top Five Collision Hotspots, Citywide and at Pedestrian Opportunity Zones, shows the top five collision hotspots across the city and in the Pedestrian Opportunity Zones, with the corresponding collision severity.

Top Collision Corridors

A "corridor" is defined as the primary road of travel where a collision occurs. The collisions may occur at intersections along the corridor or outside of an intersection. The top five collision corridors are showcased in Table 3.10, Top Five Corridors. Harbor Boulevard had the highest pedestrian-involved collision density across all scales of analysis. Newport Boulevard also had high collision density at the citywide scale and within opportunity zones.

Figure 3.13 Heat Map of Pedestrian Collisions

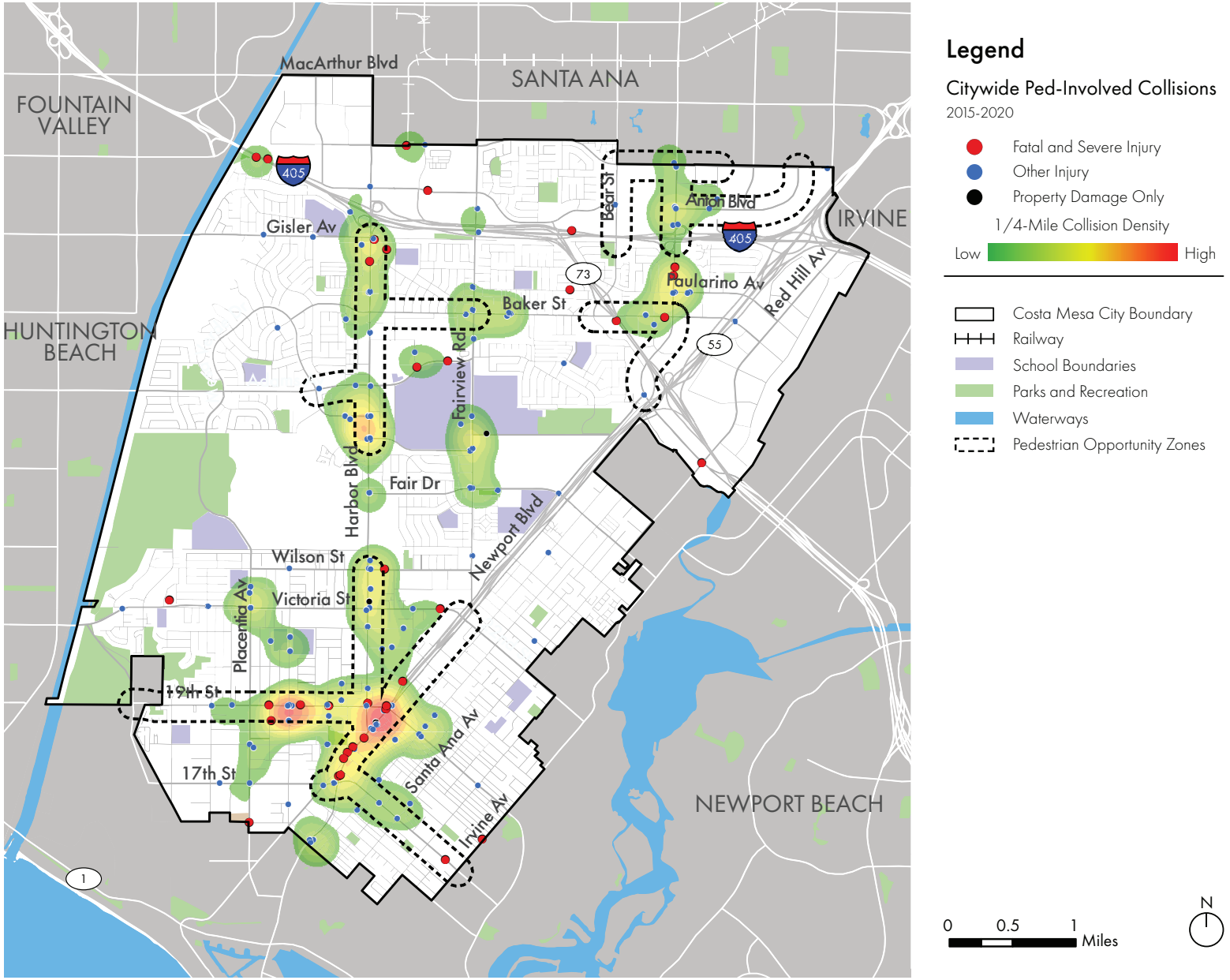


Table 3.9 Top Five Collision Hotspots, Citywide and at Pedestrian Opportunity Zones, from July 2015 to June 2020

Corridor	Fatal or Severe Injury	Visible Injury	Complaint of Pain	Property Damage Only	Total[1]
Citywide					
Pomona Avenue and 19th Street	0	2	4	0	6
Harbor Boulevard and Merrimac Way	0	1	3	0	4
Gisler Avenue and Harbor Boulevard	2	1	0	0	3
19th Street and Harbor Boulevard	0	0	3	0	3
Fairview Road and Merrimac Way	0	2	1	0	3
Opportunity Zones					
Pomona Avenue and 19th Street	0	2	4	0	6
Harbor Boulevard and Merrimac Way	0	1	3	0	4
Harbor Boulevard and Victoria Street	0	1	1	1	3
19th Street and Newport Boulevard	0	3	0	0	3
Broadway and Newport Boulevard	0	2	0	1	3

Table 3.10 Top Five Collision Corridors, Citywide and at Pedestrian Opportunity Zones, from July 2015 to June 2020

Corridor	Fatal or Severe Injury	Visible Injury	Complaint of Pain	Property Damage Only	Total[1]
Citywide					
Harbor Boulevard[1]	4	10	9	1	24
Newport Boulevard[2]	9	7	5	1	22
Bristol Street	3	5	2	0	10
19th Street	2	4	4	0	10
Fairview Road	0	5	4	0	9
Opportunity Zones					
Harbor Boulevard[1]	3	8	9	1	21
Newport Boulevard[2]	9	6	3	1	19
19th Street	2	4	4	0	10
Bristol Street	0	4	2	0	6
17th Street	1	1	1	0	3

1- A safety improvement project on Harbor Boulevard was completed in 2019, which installed medians and landscaping between sidewalks.
2- Includes Caltrans Right of Way.

POLICE CITATION ANALYSIS

Police citation data from January 2016 to January 2021 was acquired from the City of Costa Mesa Police Department. A total of 20,419 citations were recorded citywide between January 2016 and January 2021. Within the Pedestrian Opportunity Zones, 11,141 citations were recorded, which account for approximately 54% of all citations. The major clusters of citations were centered around 19th Street and Newport Boulevard, and along Harbor Boulevard between Baker Street and Adams Avenue.

The top five locations with police citations are:

- Harbor Boulevard & Village Way
- Newport Boulevard & W 19th Street
- Newport Boulevard & W 18th Street
- Placentia Avenue & Swan Circle
- Harbor Boulevard & Victoria Street

Figure 3.14, Heat Map of Police Citations, illustrates the hotspots where police citations were issued. Table 3.11, Summary of Citations Given shows a list of the citations given out based on different violation categories.

Figure 3.14 Heat Map of Police Citations

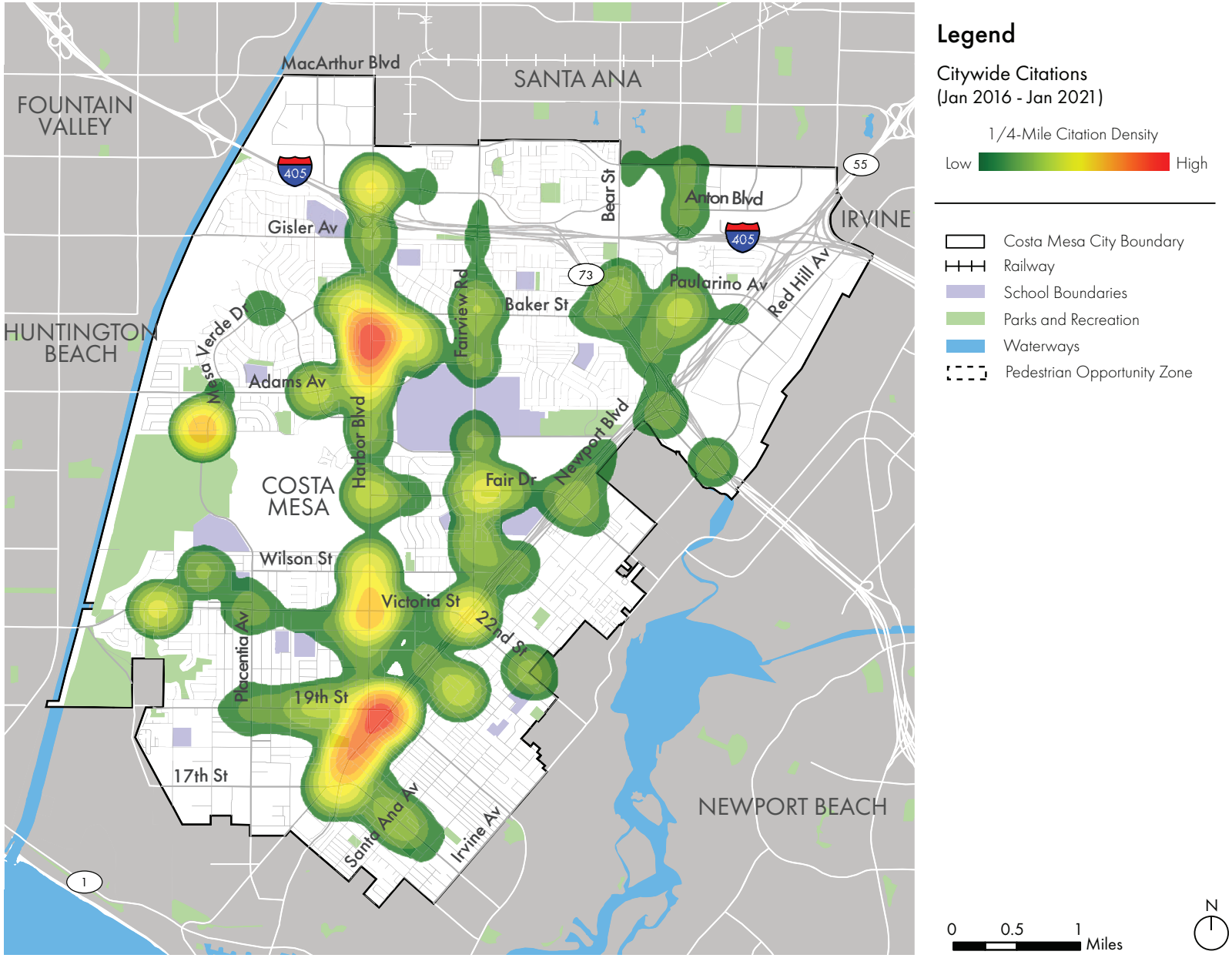


Table 3.11 Summary of Citations Given

Violation Code	Description	Count	Percent
Cell Phone Use		**6364**	**31.17%**
23123-5A	Prohibit text-based communication while driving	4566	22.36%
23123A	Using wireless phone while driving	1798	8.81%
Speeding		**5463**	**26.75%**
22350	Unsafe speed for prevailing conditions	5225	25.59%
22349A	No person should travel at speeds greater than 65 mph	226	1.11%
21703	Vehicle follow too closely	12	0.06%
Signals and Signs		**5140**	**25.17%**
22450A	Failure to stop at stop sign limit line, crosswalk, or entrance of intersection	1757	8.60%
21453A	Driver failing to stop at traffic signal limit line	1223	5.99%
21461A	Failure to obey sign or signal	1184	5.80%
22101D	Disobeying the directions of a traffic control device	330	1.62%
21453C	Failure to obey red arrow signal	264	1.29%
21950	Crosswalks, failure to yield to pedestrians within.	158	0.77%
38300	Failure to obey sign	67	0.33%
21802	Fail to yield right of way at stop sign/intersection	75	0.37%
38300	Failure to obey sign	67	0.33%
21451A	Driver shall proceed straight through or right, left, or U-turn on green signal unless U-turn sign is present	11	0.05%
21457B	Driver shall stop at flashing red signal	4	0.02%

Table 3.11 Summary of Citations Given (Cont.)

Violation Code	Description	Count	Percent
DUI		**1177**	**5.76%**
23152A	Unlawful for a person under the influence of alcohol to operate a vehicle	1102	5.40%
23153A	Unlawful for a person under the influence of alcohol to operate a vehicle and concurrently do any act forbidden by law	75	0.37%
Wrong Side of Road		**483**	**2.37%**
21650	Failure to drive on right half of roadway	483	2.37%
Pedestrian		**935**	**4.58%**
21955	Jaywalking	412	2.02%
21954A	Pedestrian failing to yield to traffic (not in crosswalk)	183	0.90%
21456	Pedestrian failing to abide to pedestrian control signal at crosswalk	159	0.78%
21456B	Pedestrian failing to obey to "DON'T WALK" or "WAIT" or approved "Upraised Hand" symbol with a countdown	152	0.74%
21453D	Pedestrian failing to obey to red or red arrow signal	24	0.12%
21956A	No pedestrian may walk upon any roadway	5	0.02%
Unsafe Turning		**681**	**3.34%**
22107	Unsafe turn and/or without signal	244	1.19%
21804A	Driver of vehicle about to enter or cross a highway from public/private property or an alley shall yield the ROW to all traffic	132	0.65%
21651A2	Improperly making left, semicircular, or U-turn on divided highway	121	0.59%
21801A	Vehicle intending to turn left or to complete a U-turn shall yield the ROW to traffic in the opposite direction	105	0.51%

Table 3.11 Summary of Citations Given (Cont.)

Violation Code	Description	Count	Percent
21453B	Failing to properly turn right or left from a one-way street onto a one-way street	74	0.36%
21800A	Driver of vehicle approaching an intersection shall yield the ROW to any vehicle which has entered the intersection from a different highway	2	0.01%
21803A	Driver of vehicle approaching an intersection controlled by a yield ROW sign shall yield to the ROW to any vehicles that have entered the intersection	2	0.01%
21952	The driver of any motor vehicle, prior to driving over or upon any sidewalk, shall yield the right-of-way to any pedestrian approaching thereon	1	0.00%
Unsafe Lane Change		171	0.84%
21658A	Vehicle shall not move from a lane until movement can be made with reasonable safety	163	0.80%
21750	Overtake vehicle/bike:left pass violation	4	0.02%
21755	Use shoulder/etc to pass on right	4	0.02%
24400B	Vehicle headlamps not equipped or improperly equipped	72	0.35%
Lights		72	0.35%
24400B	Vehicle headlamps not equipped or improperly equipped	72	0.35%
	TOTAL	20,419	100%

04

Policy Recommendations

4.1 INTRODUCTION

This chapter provides a list of goals, objectives, and recommendations that will help the City achieve the vision identified in the Active Transportation Plan: "The City of Costa Mesa will have a comprehensive and visible active transportation network and will promote safety, education, health, recreation, and access to important locations within the city while connecting to the larger regional network."

The goals, objectives, and recommendations mirror those in the Costa Mesa Active Transportation Plan (ATP) by offering additional long-term programs and policy recommendations that would enhance the environment where pedestrian activities occur.

Adapted from the ATP, the Costa Mesa Pedestrian Master Plan, has the following goals:

- Goal 1.0: Promote a pedestrian-friendly system in Costa Mesa
- Goal 2.0: Create a safer place to walk
- Goal 3.0: Integrate pedestrian elements into the circulation system and land use planning
- Goal 4.0: Promote a culture of walking
- Goal 5.0: Promote the positive air quality, health, and economic benefits of walking
- Goal 6.0: Monitor, evaluate, and pursue funding for implementation of the Pedestrian Master Plan

Objectives and policies that are identified in blue-green are adapted from the Active Transportation Plan, while the objectives and policies in orange are additional recommendations from the Pedestrian Master Plan.

4.2 POLICY RECOMMENDATIONS

GOAL 1.0: PROMOTE A PEDESTRIAN-FRIENDLY SYSTEM IN COSTA MESA

Create a pedestrian-friendly environment for users of all types, ages, and abilities. The pedestrian-friendly environment will be designed in accordance with the six "Es": Education, Encouragement, Enforcement, Engineering, Evaluation, and Equity.

OBJECTIVES & RECOMMENDATIONS

Pedestrian Network

A pedestrian network offers pedestrians a protected right-of-way for walking activities to occur. It also allows pedestrians to safely reach their destinations within and outside of the city.

ATP Objective 1.1

Expand, enhance, and protect the existing pedestrian network to provide a comprehensive system to increase connectivity between homes, jobs, schools, transit, and recreational resources in Costa Mesa.

ATP Policy 1.1

Develop an extensive pedestrian backbone network through the use of standard and appropriate innovative treatments.

ATP Policy 1.4

Prioritize safe access to major regional trails such as the OC Loop/ Santa Ana River Trail and the Newport Back Bay Trail System. Where feasible, plan and provide a continuous low-stress Class I and/or Class IV facility from east to west across the City between these facilities.

ATP Policy 1.8

Designate walkable districts in the city.

ATP Policy 1.9

Pursue the following mode split goal for walking: 20%.

ATP Recommendation 1.4

Identify citywide infrastructure needed to create the interconnected multi-trail system.

ATP Recommendation 1.5

Low-stress design techniques should be considered where necessary to attract a wide variety of users.

ATP Recommendation 1.9

Improve the quality, aesthetics and safety of high-use pedestrian corridors.

ATP Recommendation 1.10

Establish a goal for all trips of less than 1 mile to be 30 percent by walking.

ATP Recommendation 1.14

Establish designated suggested routes to schools for biking and walking.

Recommendation 1.1

Develop an annual list of pedestrian projects to be proposed as part of the city's Capital Improvement Program (CIP). Use the Pedestrian Project Corridors Map and the project factsheets in Chapter 6 Infrastructure Projects as a starting point.

Recommendation 1.2

Leverage the tools discussed in the Pedestrian Infrastructure Toolbox (e.g. sidewalk connectivity, curb ramps, and crosswalks) to continue to develop a pedestrian network that is accessible by users of all ages and abilities.

Recommendation 1.3

Continue to work with the ADA Coordinator (or someone in a similar role) to ensure that new roadway projects, particularly pedestrian infrastructure projects, are ADA compliant.

Recommendation 1.4

Collaborate with adjacent jurisdictions and Caltrans to develop and seek funding for pedestrian projects along corridors that promote intercity connectivity. Examples of such projects include Bristol Street which provides access to South Coast Plaza, commercial centers, residential neighborhoods within Costa Mesa, and adjacent jurisdiction (Santa Ana); Victoria Street which provides access to commercial centers, schools, residential neighborhoods within Costa Mesa, and adjacent jurisdiction (Huntington Beach); 17th Street which offers connectivity to commercial areas, residential neighborhoods within Costa Mesa, and adjacent jurisdiction (Newport Beach); and Newport Boulevard along Caltrans jurisdiction.

Recommendation 1.5

Conduct an analysis to identify roadways that have excess vehicle capacity. For roadways with excess vehicle capacity, consider the reduction of travel lanes and use the reclaimed space for other purposes. Examples include widening the sidewalk

and expanding the frontage zones (as identified in the General Plan, Circulation Element), adding in street landscaping, offering more transit amenities, providing diagonal parking, and converting the space into a small parklet or other public space. Examples of such corridors could include Placentia Avenue and South Coast Drive.

Recommendation 1.6

Collaborate with Caltrans, OCTA, and other local agencies to re-envision the future of Newport Boulevard in the area between and adjacent to 17th Street and 19th Street as a destination that facilitates placemaking and pedestrian activities with enhanced pedestrian infrastructure that provide for connectivity in the east-west direction.

First and Last Mile Programs

"First/Last Mile" refers to the first and last-mile connections that transit users typically have to take to reach a transit stop or hub from the trip origin to the final destination. Walking is an important mode of transportation that allows transit users to complete the trip.

ATP Objective 1.3

Encourage walking to fill gaps between the first and last miles of trips.

Lighting

Pedestrian-scaled lighting provides additional visibility for pedestrians walking along the roadway. Nicely designed lighting could also enhance the character of the roadway.

Recommendation 1.7

Conduct a study on pedestrian network lighting conditions with a focus to increase the presence of pedestrian-scaled lighting across the city's pedestrian network. Corridors that could benefit from more pedestrian-scaled lighting include: Wilson Street, Pomona Avenue, Orange Avenue, and Santa Ana Avenue.

Street Canopies

Street trees and landscaping offer many benefits that enhance the pedestrian environment. They provide shade for pedestrians and can contribute to a more comfortable and pleasant environment for pedestrian activities to occur.

Recommendation 1.8

For new pedestrian infrastructure projects, incorporate street trees that provide shade whenever possible.

Recommendation 1.9

Address areas where the pedestrian infrastructure is disrupted by street trees. Examples of such concerns include buckled sidewalks and sidewalk obstruction caused by street trees. Corridors identified from the Walk Audits that had concerns include Fairview Road and Wilson Street.

Refer to Appendix F: Toolbox Reference for recommendations on how to address concerns related to street trees and landscaping.

GOAL 2.0: CREATE A SAFER PLACE TO WALK

Provide a safe, convenient, and attractive pedestrian environment. Apply design standards, equitable enforcement of traffic laws, maintenance practices, and safety awareness campaigns to encourage and increase the use of pedestrian facilities.

OBJECTIVES & RECOMMENDATIONS

Design & Wayfinding

There are many manuals that contain approved uniform design standards, as well as guidance for pedestrian infrastructure treatments. Examples include the Federal Highway Administration (FHWA) and California Manual on Uniform Traffic Control

Devices (CAMUTCD), Caltrans Highway Design Manual (HDM), Public Right of Way Accessibility Guidelines (PROWAG), ADA Guidance, and National Association of City Transportation Officials (NACTO) Urban Street Design Guide.

ATP Objective 2.1

Develop pedestrian facilities with approved uniform design standards, and implementation of way-finding signage providing information on various destinations.

ATP Policy 2.1

Utilize Complete Streets elements as demonstrated in most recent version of National Association of City Transportation Officials (NACTO) Urban Street Design Guide.

ATP Policy 2.2

Develop, install, and maintain a pedestrian wayfinding signage program to indicate route turns, the presence of intersecting bikeways, streets and distances to nearby local and major destinations.

ATP Policy 2.5

Where feasible reduce or eliminate conflict points such as driveways that cross the sidewalk.

ATP Recommendation 2.1

Require that all facilities be designed in accordance with the latest federal, state, and local standards.

ATP Recommendation 2.2

Provide and maintain pedestrian signal detectors, informational signage, and lighting, along city bikeways.

ATP Recommendation 2.3

Crosswalks will include high-visibility treatments.

Safe Roadway Conditions

Safe roadway conditions provide a more comfortable environment for pedestrian activities to occur. Many infrastructure tools are available to create a safer walking environment.

ATP Objective 2.3

Maintain pedestrian facilities that are clear of debris and provide safe conditions for all users.

ATP Recommendation 2.4

Establish an expedited process to report maintenance and safety concerns.

ATP Recommendation 2.5

Establish routine maintenance schedule/standards for pedestrian facilities for sweeping, litter removal, landscaping, repainting of striping, signage, and signal actuation devices.

ATP Recommendation 2.12

Promote efficient reporting mechanisms for behaviors that endanger pedestrians.

ATP Recommendation 2.15

Encourage and empower citizens to report maintenance issues that impact pedestrian safety including, but not limited to, potholes, sidewalk lifting, and overgrown vegetation.

ATP Recommendation 2.16

Establish procedures for responding to citizen reports in a timely manner.

Recommendation 2.1

Identify traffic calming infrastructure improvements in areas with high collision frequencies across the city. Reference the Local Road Safety Plan for projects. Examples of such corridors could include Harbor Boulevard, Newport Boulevard, Bristol Street, 17th Street, 19th Street, and Fairview Road.

Recommendation 2.2

Identify opportunities to update signal timing and phases in different areas across the city.

Recommendation 2.3

At regular intervals, conduct a study to re-evaluate speeds along the city's roadways in response to AB 43.

Recommendation 2.4

Assess and implement enhanced crossing treatments to reduce pedestrian-automobile collisions at multi-lane crossings, including median refuge islands, rapid-rectangular flashing beacons, pedestrian hybrid beacons, raised crosswalks and other treatments. Reference Chapter 5 Pedestrian Infrastructure Toolbox for treatments that address different concerns.

Recommendation 2.5

Conduct analysis to identify intersections to prohibit or regulate right-turn-on-red (RTOR) movement at intersections with high frequencies of this collision/citation type. Consider the use of blank-out signs and add Lead Pedestrian Interval (LPI) where feasible.

Recommendation 2.6

Develop a program to help maintain clear zones for pedestrians waiting and crossing areas, including increased parking setbacks.

Recommendation 2.7

Develop a program to review traffic signal locations with prohibited pedestrian crossings and where feasible and appropriate, modify to restore prohibited crossings.

Education

Educational programs help educate the public on how to safely walk and use pedestrian facilities along the City's roadways. For example, a pedestrian traffic safety program for school children may teach students on when to safely cross an intersection. It is important that all program materials are available in both English and Spanish to accommodate the City's large Hispanic population.

ATP Objective 2.4

Increase education of bicycle and pedestrian safety through programs and training of school children and the public.

ATP Policy 2.6

Support marketing and public awareness campaigns aimed at improving pedestrian safety.

ATP Recommendation 2.19

Develop and distribute education material regarding pedestrian responsibilities and laws.

Recommendation 2.8

In tandem with new pedestrian or multi-modal projects, promote a campaign to educate roadway users of all modes on new active transportation infrastructure projects and how the projects will promote safety for all users.

Safety Data

An important component of evaluating pedestrian safety is analyzing pedestrian collisions along the City's roadways. The California Highway Patrol maintains the Statewide Integrated Traffic Record System (SWITRS), a statewide database of vehicle, pedestrian, and bicycle collisions that is accessible for to the public.

ATP Objective 2.5

Monitor and analyze bicycle and pedestrian safety.

ATP Recommendation 2.9

Request pedestrian collision reports from local law enforcement periodically and consider improvements to address problem areas.

ATP Recommendation 2.10

Conduct Roadside Safety Audits (RSAs) on a regular basis to provide periodic snapshots of roadway safety, including bicycle, pedestrian, equestrian, skateboard, and other non-motorized modes of travel.

Recommendation 2.9

Develop a program to regularly collect and share citywide pedestrian count data, and add as a requirement for all traffic studies/impact analyses conducted within the city's jurisdiction.

GOAL 3.0: INTEGRATE PEDESTRIAN ELEMENTS INTO THE CIRCULATION SYSTEM AND LAND USE PLANNING

Provide walkway facilities that are integrated with other transportation systems and land use planning decisions.

OBJECTIVES & RECOMMENDATIONS

ATP Objective 3.1

Consider pedestrian facilities during land use planning process.

ATP Objective 3.2

Integrate pedestrian facility improvements during planning, design and implementation of transportation projects.

ATP Policy 3.1

Require new developments to provide adequate pedestrian access.

ATP Recommendation 3.1

Provide a fully integrated network of modern pedestrian facilities to and from major activity centers and residential centers.

ATP Recommendation 3.2

Identify areas where an increase in the need for pedestrian activities can reasonably be anticipated due to housing/ business growth.

ATP Recommendation 3.4

Improve the safety of all road users through the implementation of neighborhood traffic calming treatments.

ATP Recommendation 3.5

Make commercial and recreational areas more enjoyable for pedestrians by implementing measures such as providing shade, planting trees, eliminating visible parking lots and vacant lots, and long stretches of bland building façade.

ATP Recommendation 3.6

Support the incorporation of pedestrian facilities into capital improvement projects, where appropriate to maximize leveraging of funds.

ATP Recommendation 3.8

Proactively seek new opportunities for acquisition of abandoned rights-of-way and other lands for the development of new multi-use pathways that integrates with the planned network.

ATP Recommendation 3.10

Detours through or around construction zones should be designed for safety and convenience, and with adequate signage for pedestrians.

Recommendation 3.1

Encourage new developments to provide pedestrian access that serves their intensity of use and complements the existing pedestrian network.

Recommendation 3.2

Study the potential to establish "transition zones" (an area which is communicated to motorists that the roadway environment is changing and their travel speeds or behavior should change as well) between major commercial and employment centers, and residential areas to better support pedestrian access.

Recommendation 3.3

Whenever feasible, incorporate pedestrian improvements to the public right-of-way as a part of the conditions of approval or development agreement with the city.

Recommendation 3.4

At commercial corridors (such as 19th Street and Harbor Blvd), update design standards on surface parking and driveways to reduce surface parking and driveways along the pedestrian infrastructure network. Whenever possible, have storefronts face the street to encourage pedestrian traffic.

GOAL 4.0: PROMOTE A CULTURE OF WALKING

Develop engagement, encouragement, and promotional programs to increase pedestrian usage that respects and accommodates all users to foster a more balanced transportation system.

OBJECTIVES & RECOMMENDATIONS

ATP Objective 4.1

Encourage more people to walk by supporting programs that foster community support for walking, and raise public awareness about walking.

ATP Policy 4.1

Support marketing and public awareness campaigns through a variety of media aimed at promoting walking as a safe, healthy, cost-effective, environmentally friendly transportation choice.

ATP Policy 4.3

Support programs aimed at increasing walk trips by providing incentives, recognition, or services that make walking a more convenient transportation mode.

ATP Policy 4.4

Promote walking at city-sponsored and public events, such as Earth Day, Bike to Work Day/Month, farmers' markets, public health fairs, concerts in the park, art walks, craft fairs, civic events, etc.

Safe Routes to School

Safe Routes to School is an approach that focuses on infrastructure treatments that improve safety on routes to school and non-infrastructure programs that educate and encourage students to walk and bike to school.

ATP Recommendations 2.7

Develop a partnership with the school community to establish and update suggested routes to schools for bicycling and walking.

Recommendation 4.1

Expand student and school participation in Walk to School Week events with the Newport-Mesa Unified School District.

Recommendation 4.2

Seek funding for a permanent citywide Safe Routes to School non-infrastructure program.

Recommendation 4.3

Develop a Safe Routes to School Plan for all elementary, middle, and high schools located in Costa Mesa.

Recommendation 4.4

On a regular basis, have meetings with school representatives and active parents to discuss opportunities to improve pedestrian safety and connectivity to schools and school facilities.

Recommendation 4.5

Encourage the Safe Routes and Accessibility Subcommittee from the Active Transportation Committee to continue to actively participate in projects related to schools.

Engagement and Encouragement Programs

Engagement and encouragement programs help promote new walking routes and changes to the existing roadway. Programs such as tactical urbanism demonstrations and quick-builds allow community members to experience

infrastructure change on the roadway on a temporary basis and provide feedback. "Open Streets" events close down a portion of a roadway altogether for the public to reclaim the roadway as an open space. Meanwhile, walking tours and walking groups encourage community members to enjoy the experience of being a pedestrian.

ATP Recommendation 4.4

Promote walking events in Costa Mesa to raise awareness and encourage walking, including, but not limited to, those that may involve temporary road closures, historic walks, and ciclovias.

ATP Recommendation 4.6

Encourage participation in pedestrian promotion activities by education facilities, arts programs, active transportation clubs, and entertainment providers.

Recommendation 4.6

Plan and install tactical urbanism demonstrations and/or quick-build projects along corridors or at areas with high pedestrian activity to showcase potential new traffic calming and pedestrian infrastructure treatments to improve the pedestrian environment. Potential projects could be located on Park Avenue, Arlington Drive, Mesa Verde Drive, and various residential roadways near commercial centers.

Recommendation 4.7

Host "Open Streets" events where a portion of the roadway is closed off from vehicular traffic and converted into a public space. Collect and evaluate public feedback and conduct traffic operational and other studies to consider closing the streets for longer period of time or even permanently for pedestrian activities.

Recommendation 4.8

Develop a network of walking paths in different commercial districts and neighborhoods to encourage community members to walk. The walking paths could

be artistic and each path could have its own wayfinding signs and stylistic flair to create a sense of place.

Recommendation 4.9

Build partnerships with local businesses and community groups such as Parks and Community Services, R.O.C.K.S Afterschool Program, Costa Mesa Historical Society, and Costa Mesa Walk Tour to host regular walk tours and other walking-related activities, and promote walking as a form of physical exercise.

GOAL 5.0: PROMOTE THE POSITIVE AIR QUALITY, HEALTH, AND ECONOMIC BENEFITS OF WALKING

Encourage active transportation by promoting air quality, health, and economic benefits.

OBJECTIVES & RECOMMENDATIONS

ATP Objective 5.1

Improve air quality and public health and reduce ambient noise by promoting walking programs.

ATP Policy 5.1

Coordinate with appropriate federal, state, and county health agencies on active transportation/ pedestrian programs to achieve health benefits.

ATP Policy 5.2

Encourage developers to include features, amenities and programs that are proven to increase walking.

ATP Policy 5.3

Encourage the Chamber of Commerce and the business community to promote active transportation in commercial areas to stimulate economic vitality.

ATP Recommendations 5.1

Determine baseline emissions levels, then track and communicate changes in emissions as modes of transportation trips shift to encourage more walking.

ATP Recommendations 5.3

Offer incentives for businesses whose employees walk to work.

ATP Recommendations 5.4

Incentivize the business community to support pedestrians in tangible ways.

ATP Recommendations 5.5

Improve the quality of life in Costa Mesa by reducing neighborhood traffic and noise.

ATP Recommendations 5.6

Increase pedestrian trips, thereby reducing vehicle trips and vehicle miles traveled.

Recommendation 5.1

Provide economic incentives for expanding and enhancing pedestrian facilities.

Recommendations 5.2

Collaborate with major employers and civic institutions such as Orange Coast College and the OC Fair and Event Center to increase multi-modal access.

GOAL 6.0: MONITOR, EVALUATE, AND PURSUE FUNDING FOR IMPLEMENTATION OF THE PEDESTRIAN MASTER PLAN

Observe and assess the usage of pedestrian facilities periodically and pursue funding for projects that will help achieve the overall implementation of the Pedestrian Master Plan.

OBJECTIVES & RECOMMENDATIONS

ATP Objective 6.1

Continuously monitor and evaluate Costa Mesa's implementation progress on the Pedestrian Master Plan policies, programs, and projects.

ATP Objective 6.2

Pursue grants and other sources of funding for pedestrian projects.

ATP Policy 6.1

Establish a monitoring program to measure the effectiveness and benefits of the Plan by tracking citywide trends in walking through the use of Census data, pedestrian counts, travel surveys, and online surveys as part of annual reviews of the General Plan.

ATP Policy 6.2

Ensure that programs and projects are implemented in an equitable manner, geographically, socioeconomically, and serving disadvantaged communities.

ATP Policy 6.3

Consider designating a portion of development traffic impact fees to fund pedestrian facilities.

ATP Recommendations 6.1

Strategize the use of resources on developing effective and efficient grant application and program administration.

ATP Recommendations 6.2

Pursue multiple sources of funding and support efforts to maintain or increase federal, state and local funding for the implementation of the Pedestrian Master Plan.

Recommendations 6.1

Develop a program to evaluate the citywide collected pedestrian count data and identify areas of increased pedestrian activity to evaluate the potential development of new pedestrian-related improvements to further enhance the pedestrian environment.

Recommendations 6.2

Develop a program to evaluate new technologies and infrastructure treatments on a regular basis that will support a safe pedestrian environment. Update the Pedestrian Infrastructure Toolbox with any new findings.

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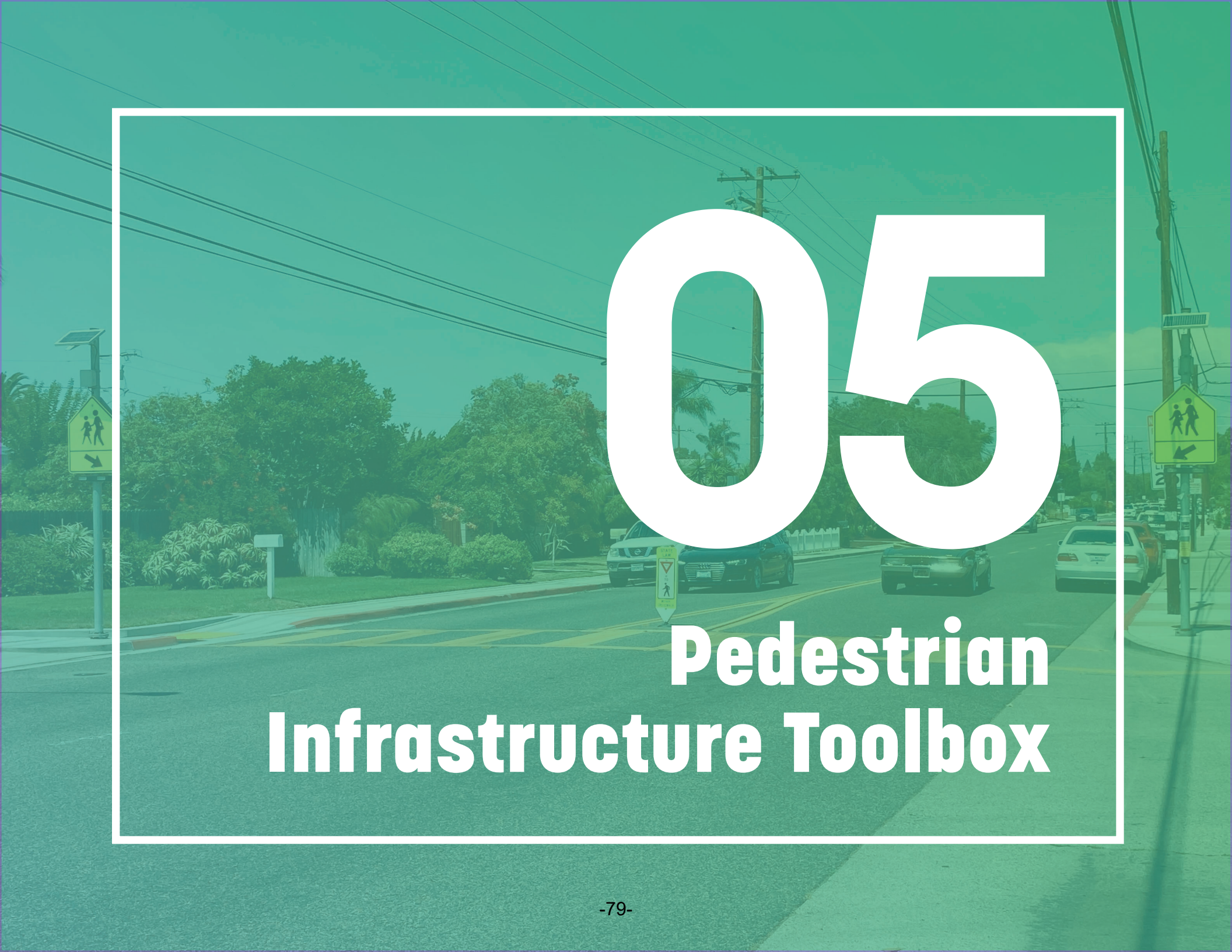


05

Pedestrian Infrastructure Toolbox

5.1 INTRODUCTION

Costa Mesa has many improvements and features that improve walkability. Although Costa Mesa has won awards for walkability in recognition of its historical efforts, improving walkability continues to be an ongoing goal of the City.

This chapter is meant to provide a starting point on what infrastructure treatments (tools) can be considered when designing safer and connected streets for pedestrians. It complements the policy recommendations discussed in Chapter 4, Policy Recommendations.

The tools were selected to help address many of the comments received from the community engagement process.

They fall into in following three categories:

- Sidewalk-Related Treatments: Infrastructure that could enhance the pedestrian right-of-way on the sidewalk realm.
- Crossing-Related Treatments: Infrastructure that could improve pedestrian crossings on the roadway.
- General Traffic Behavior and Other: Discussions of strategies to address broader concerns that tangentially impact walkability in the city.

Oftentimes, pedestrian infrastructure is available on the roadway; however, the infrastructure could be better designed to better accommodate pedestrians' needs. Cost estimate for each type of treatments are provided at the end of the chapter to serve as a guide for approximately how much each treatment cost. Appendix E, Toolbox Reference builds upon this chapter to include discussions of the benefits of each tool and their design considerations.

5.2 SIDEWALK-RELATED TREATMENTS

Many comments from the community engagement efforts refer to the general condition of sidewalks and the function of the overall sidewalk network. Many principles of sidewalk design can apply to all sidewalks, while others apply based upon the land use in the area, with commercial, high-density residential, and heavily used sidewalks requiring more area for walking than lower density residential areas.

SIDEWALKS

Sidewalks are perhaps the most important component of the pedestrian network. Whenever feasible, they should be provided on both sides of all roadways within the city. The Americans with Disabilities Act (ADA) sets minimum requirements for width and grades, but wider sidewalks can improve walkability.

PROPOSED IMPROVEMENTS TO THE SIDEWALK NETWORK

Improve sidewalk connectivity: Address gaps in the sidewalk network, and through retrofit of existing sidewalks when adding new developments, widen the pedestrian right-of-way and limit the size and frequency of curb cuts along major corridors to increase pedestrian comfort and reduce conflicts between pedestrians and motorists.

Provide for a clear, continuous sidewalk: For new construction, any required obstructions for streetlights, utilities, poles, and other above-ground features should be located within the parkway area (street side) so that the sidewalk is generally continuous and does not require pedestrians to be watchful to follow the clear, direct path.

Improve the bicycle network: To reduce the use of bicycle riding on sidewalks, it is necessary to examine and improve the bicycle network so that bicyclists of all ages and skill levels would be comfortable riding in the dedicated facilities.

Improve sidewalk connectivity to land uses: When evaluating the site plans for development proposals, include an analysis of the condition and directness of walking routes. Providing direct walking paths from street corners to the commercial areas can reduce the overall walking distances and time needed to travel to and from these destinations, while also encouraging pedestrians to more frequently opt for walking trips.

Address buckled, lifted, stained, physical defects on sidewalks: Develop a citywide program to identify sidewalk locations that are buckled, lifted, or have physical defects, such as cracks and voids, and scheduled remedial repairs. In areas with ongoing root issues, conduct routine inspections to monitor the situation.

Redesign driveways: Every driveway that crosses a sidewalk is a potential location for conflict between motorists and pedestrians. Driveways should be designed to be no wider than necessary. The rise from street level to curb level should be kept as short as possible so that the walking surface can be preserved as a level surface

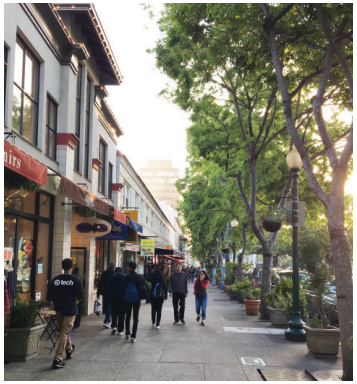
Incorporate new sidewalk treatments into the existing network: Consider including some of the tools identified in the following section to improve the sidewalk realm.

Bus Stops and Amenities

Bus stops are locations where sidewalks experience multiple uses, such as walking, waiting for buses, and bus boarding and alighting. Amenities are often provided at bus stops, including benches, shelters, trash disposals, and system service information.

Curb Extension / Bulb-out

Curb extensions / bulb-outs generally narrow the roadway at intersections or at mid-block locations, primarily to reduce the crossing distance for pedestrians, widen the sidewalk, and/or slow down vehicular right turns.

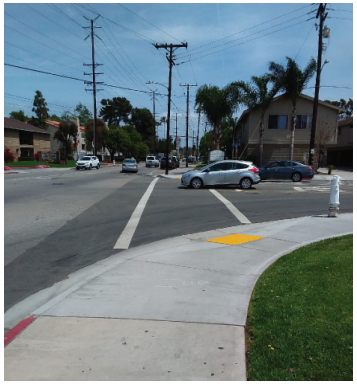


Street Trees and Landscaping

Street trees and landscaping are typically located between the curb and the sidewalk within the landscaped parkway. They are typically planted at regular intervals in a thematic manner. Many varieties of street trees provide shade for sidewalk users.

Pedestrian Lighting

Tall streetlights can provide adequate illumination to permit walking after dark. Lower-level lighting is often provided in commercial areas. These treatments increase the illumination level along the sidewalk and provide for a more constant level of illumination.



Curb Ramp

Curb ramps are required by ADA at all street corners where sidewalks are present and where pedestrians may cross. ADA guidelines encourage provision of directional ramps at corners rather than a single diagonal curb ramp.

Destination Wayfinding Signs

Pedestrian wayfinding signs are often used in walkable areas to help visitors and locals know where to go. They can also be helpful in advising that the walking travel time may be lower than expected.

Photo Credits: Wayfinding Signage – Downtown Long Beach Alliance

5.3 CROSSING-RELATED TREATMENTS

Many comments received from the community engagement process also discussed the general condition of crossings and the function of crossings overall in the pedestrian infrastructure network. Many principles of crosswalk design apply to all crossings, while others may be applied based upon the land use in the area. Heavily used pedestrian crossings require additional visibility and improvements than lower-density residential areas.

PROPOSED IMPROVEMENTS FOR PEDESTRIAN CROSSINGS

Consider appropriate design for uncontrolled pedestrian crossings: An appropriate design will consider the surrounding context, roadway cross-section, volume of pedestrians crossing, vehicular Average Daily Traffic, and prevailing speeds. Reducing the number of travel lanes and crossing distance for an uncontrolled crossing helps reduce pedestrian exposure in the roadway. Crossings may be enhanced with other treatments discussed in this section such as median refuge islands, advance yield lines, Rectangular Rapid Flashing Beacons (RRFB), Pedestrian Hybrid Beacons (HAWK signal), signalized crosswalks, and street lights.

Maintain crosswalk markings: Develop a citywide program to identify faded/poorly maintained crosswalks and other pavement markings, and routinely maintain them.

Improve sight distances at crosswalks and intersection corners: Use strategies such as prohibiting parking along the curb approaching the crosswalk and providing curb extensions (bulb-outs) that allow pedestrians to have better visibility of motorists.

Add missing crosswalks at traffic signals: Conduct a study to evaluate for adding crosswalks at traffic signals where crosswalks are not provided across all legs of the signalized intersection.

Improve pedestrian crossing times: Minimum crossing times are specified in the California MUTCD. Often the minimum times are present and adequate, but pedestrians may not fully understand the operation. Pedestrian Countdown Signals could better communicate how much time is left for pedestrians to cross.

Provide Pedestrian Push Buttons (PPBs) at appropriate locations: Pedestrian Push Buttons are generally prescribed to be located near the crosswalk and at a location that meets ADA requirements, and per MUTCD guidelines, preferably near the level landing. The location should be intuitive and generally allow for actuation while standing or waiting near the beginning of the crosswalk.

Regulate Right Turn on Reds: Conduct a study to evaluate for Right Turn on Red restrictions and explore using the red turn arrows, extinguishable (blank out) message signs, or regular signs to seek compliance for the restrictions. Prohibiting right turns on red can improve safety for pedestrians.

Redesign Slip Turn Lanes: Uncontrolled free right turn lanes, also known as slip lanes, are not friendly to pedestrians, because they help vehicles make the turns at much higher speeds, take motorists' eyes off of the pedestrian crosswalk within the slip lane, and do not provide pedestrian signals to facilitate the crossing. Programs to remove or modify these turn lanes are common, and design approaches that minimize their future need are preferred.

Manage Pedestrian Delays: Pedestrians experience substantial delays at signalized intersections. The average delay per pedestrian is equal to about one-half of the amount of time that the signal does not display a WALK indication. It can amount to 45 seconds or more at typical large intersections.

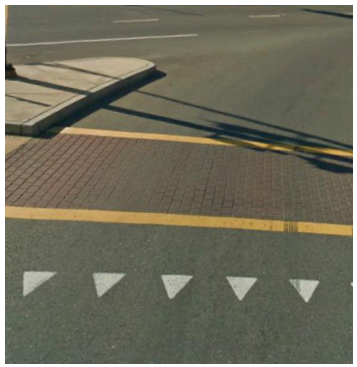
Incorporate pedestrian crossing treatments into the existing network: The tools identified in the following sections can improve the experience of pedestrian crossings. Consider including some of the tools in new projects, and reference Appendix E, Toolbox Reference, on the design considerations of the treatments.

High Visibility Crosswalks

Marking of crosswalks more clearly indicates where pedestrians are given the right-of-way. Their presence may better remind drivers to watch for pedestrians, and there also may be a traffic calming effect.

Advanced Stop Bars

Advance stop bars help improve the visibility of pedestrians by motorists as it provides an indication of where the vehicle must stop at the intersection approach.



Advanced Yield Lines

Advanced yield lines are roadway markings that provide guidance as to where drivers should wait while a pedestrian is crossing. They are placed in advance to provide separation between the crossing pedestrians and vehicles.

Mid-Block Crosswalk

Mid-block crosswalks facilitate crossings to places that people want to go but are not well served by the existing traffic network.

Median Refuge Islands

Median refuge islands are protected spaces placed in the center of the street to facilitate pedestrian crossings. The median refuge islands help shorten the crossings, especially at large intersections.

Pedestrian Scramble

A crosswalk scramble operation is a special traffic signal operation and phasing design that stops motor vehicle traffic in all directions while allowing pedestrians to cross between all corners at the same time.

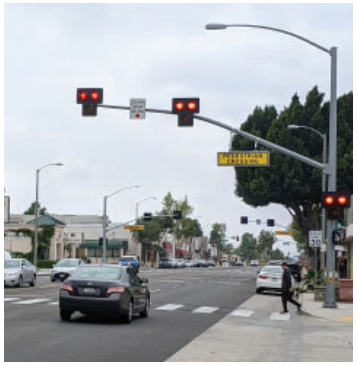
Photo Credits: Raised Crosswalk-Jeff Gulden | Mid-Block Crosswalk - Josh Mello | Advanced Yield markings – ATS Traffic

Countdown Pedestrian Signals

Pedestrian countdown signals indicate how many seconds of DON'T WALK remain before the traffic signal turns to yellow. The use of countdown indications is required for all signalized crosswalks except for extremely short crossings.

Accessible Pedestrian Signal (APS) Push Buttons

Accessible Pedestrian Signal (APS) push buttons are devices that communicate information about the "WALK" and "DON'T WALK" intervals at signalized intersections in non-visual formats (audible tones and vibrotactile surfaces) to pedestrians who are visually impaired.



Pedestrian Hybrid Beacon (HAWK Signal)

A pedestrian hybrid beacon provides traffic control to existing uncontrolled or newly proposed marked crosswalk locations. It is only activated by pedestrians when the push button is pressed.

Rectangular Rapid Flashing Beacon (RRFB)

RRFBs are a traffic control device that uses a strobing LED light bar and pedestrian warning signs to inform motorists that there is someone at the crosswalk and that they must yield. They are activated through a pedestrian push button or by passive pedestrian detection.

Leading Pedestrian Interval (LPI)

This traffic signal operation technique provides a head start for pedestrians at crossings, allowing them to leave the curb and establish a presence in the crosswalk before conflicting traffic is given a green to proceed. Typical leading pedestrian intervals (LPIs) range from 3-7 seconds.

Flashing Yellow Arrows (FYA)

Flashing Yellow Arrows (FYA) are implemented on traffic signals for left turn movements. The FYA indicates to motorists that they may turn left only when there is no oncoming traffic and crosswalks are clear of pedestrians and bicyclists.

Photo Credits: Flashing Yellow Arrows - City of Roseville

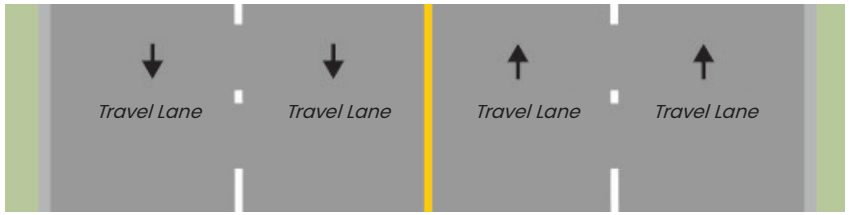
5.4 GENERAL TRAFFIC BEHAVIOR AND OTHER CONCERNS

A majority of comments received from the community engagement process were either related to the sidewalk realm or pedestrian crossings. However, there were a handful of comments that pertain to general motor vehicle traffic behaviors or that are well beyond the scope of the Plan. The following tools could improve general traffic behavior on the roadway. Reference Appendix F, Toolbox, on the design considerations of the treatments.

Roadway Reconfiguration

In many communities, multilane arterials have been modified to reduce the number of through travel lanes. It is especially common for roadways with 4-lanes undivided (no left turn lanes) to be reduced to 2 lanes (with left turn lane), where traffic needs are clearly met by fewer lanes. Roads that carry fewer than 20,000 vehicles per day and have no more than 4 lanes are the best candidates. The figure below shows an example of a roadway reconfiguration.

Before



After

Roadway Pavement Rehabilitation

Paving in pedestrian crossing areas can be important to providing a safe walking surface and should be monitored. Pavement condition in the travel way that does not serve walking is less important to walkability. But when streets are repaved, it is an appropriate time to review issues regarding how the street is used.

Speed Feedback Sign

A dynamic message sign that uses radar or laser technology to determine the speed of an approaching vehicle and then displays the speed to the driver. If motorists are speeding, the sign flashes the exceeded speed along with "SLOW DOWN" or "YOUR SPEED".

Photo Credits: Roadway Pavement Rehabilitation - City of San Mateo | Speed Feedback Sign - Richard Drdul

OTHER CONCERNS HEARD FROM THE COMMUNITY ENGAGEMENT EFFORT:

Transit access: Walking is an important consideration in encouraging or using transit. A typical walkshed of ¼ mile is considered in transit planning around each bus stop. Special attention to the walkability for all potential routes to bus stops is appropriate. Walking routes from bus stops to nearby shopping centers should be reviewed to ensure that the route is direct and relatively free of high-traffic aisles.

Excessive traffic volumes: Traffic volume, high speeds, and traffic noise detract from a positive walking environment. However, achieving reductions in traffic is difficult. Agencies who have removed traffic lanes or taken action to discourage traffic have often encountered intense public resistance. It is generally more successful to increase the separation between pedestrians and motor vehicles, provide buffers to add to the separation, ensure that convenient crossing locations are available to meet walking needs, and improve overall conditions for walking.

Motorist Behavior: Some of the most common concerns heard from the community engagement effort pertained to vehicle speeds, improper turns, and disregard for traffic controls. Many of the strategies in this Plan could help to reduce these behaviors. Police enforcement can help reduce speeds in regulating improper motorist behavior.

Drainage: Urban road systems are generally designed to incorporate a drainage system that carries water along the curb line to storm drain inlets. On occasions, the roadway will develop a condition that causes pools of water to persist in areas that are desirable for walking. When concerns over standing water are received, the location should be researched to determine if it can be corrected through routine maintenance.

5.5 COST ESTIMATES

Cost estimates were derived from similar recent projects across Southern California in 2022. Each pedestrian treatment has two cost estimates: a low-range estimate and a high-range estimate to account for the variability in existing conditions. When developing cost estimates for a project, it is recommended to include additional costs for design, environmental, construction management, mobilization, construction, and a 30% contingency to ensure that cost estimates cover the full financial expectations of each project.

Table 5.1 Pedestrian Treatment Cost Estimates

Treatment	Unit of Measurement	Low-Range	High-Range	Average Cost
Advanced Yield Lines	each	$75	$300	$188
Mid-Block Crosswalk	square foot	$5.00	$7.00	$6
Median Refuge Islands/ Pedestrian Refuge Islands	square foot	$10	$15	$13
Pedestrian Scramble (includes signal equipment and signing and striping)	each	$50,000	$100,000	$75,000
Countdown Pedestrian Signals (includes removal and replacement)	each	$2,000	$2,500	$2,250
Accessible Pedestrian Signal (APS) Push Buttons	each	$750	$1,500	$1,125
Pedestrian Hybrid Beacon (HAWK Signal)	each	$21,000	$128,000	$74,500
Rectangular Rapid Flashing Beacon (RRFB)	each	$4,500	$8,000	$6,250
Leading Pedestrian Interval (LPI)	lump sum	$500	$5,000	$2,750
Flashing Yellow Arrows (FYA) (includes retrofit installation)	each	$1,500	$1,650	$1,575
Roadway Reconfiguration	linear foot	$16	$26.10	$21
Roadway Pavement Rehabilitation	square yard	$1.50	$2.25	$2
Speed Feedback Sign	each	$1,900	$7,500	$4,700

06

Infrastructure Projects

6.1 INTRODUCTION

This chapter discusses a set of infrastructure projects that the City can start to help advance the Plan vision. The recommendations identified are short-term treatments that the City can install in a small amount of time. They complement the recommendations discussed in Chapter 4, Policy Recommendations, and Chapter 5, Toolbox. Infrastructure projects are comprised of two components: Pedestrian Project Corridors and Project Factsheets.

Pedestrian Project Corridors (PPC): PPCs are corridors that would benefit from pedestrian improvements, such as those identified in the toolbox. The corridors are concentrated in the Pedestrian Opportunity Zones to directly address the General Plan's priority of pursuing street enhancements to create pedestrian-friendly environments within the zones.

Project Factsheets: Project factsheets provide more information about recommended pedestrian improvements for the projects. Each factsheet contains a project description, roadway characteristics of the project location, and pictures. The projects were selected based on the feasibility of completion within a short time frame.

6.2 PEDESTRIAN PROJECT CORRIDORS

Nine [9] corridors citywide are designated as Pedestrian Project Corridors. The corridors provide connectivity throughout the Pedestrian Opportunity Zones, and they were identified based on the Walk Audits that were conducted as part of the community engagement effort. Figure 6.1, Pedestrian Project Corridors and Table 6.1, Pedestrian Project Corridors Details, show the location and extent of each corridor.

Table 6.1 Pedestrian Project Corridors Details

Corridor	From	To	Length (Miles)
19th Street	Whittier Avenue	Santa Ana Avenue	2.28
Wilson Street	Canyon Drive	Newport Boulevard	2.51
Baker Street	Mesa Verde Drive	Bristol Street	2.99
Harbor Boulevard	Gisler Avenue	Newport Boulevard	3.84
Bristol Street	Sunflower Avenue	Bear Street	1.63
Fairview Road	McCormack Lane	Merrimac Way	1.45
Adams Avenue	Mesa Verde Drive	Fairview Road	0.84
Newport Boulevard	19th Street	17th Street	0.44
17th Street	Superior Avenue	Irvine Avenue	1.27

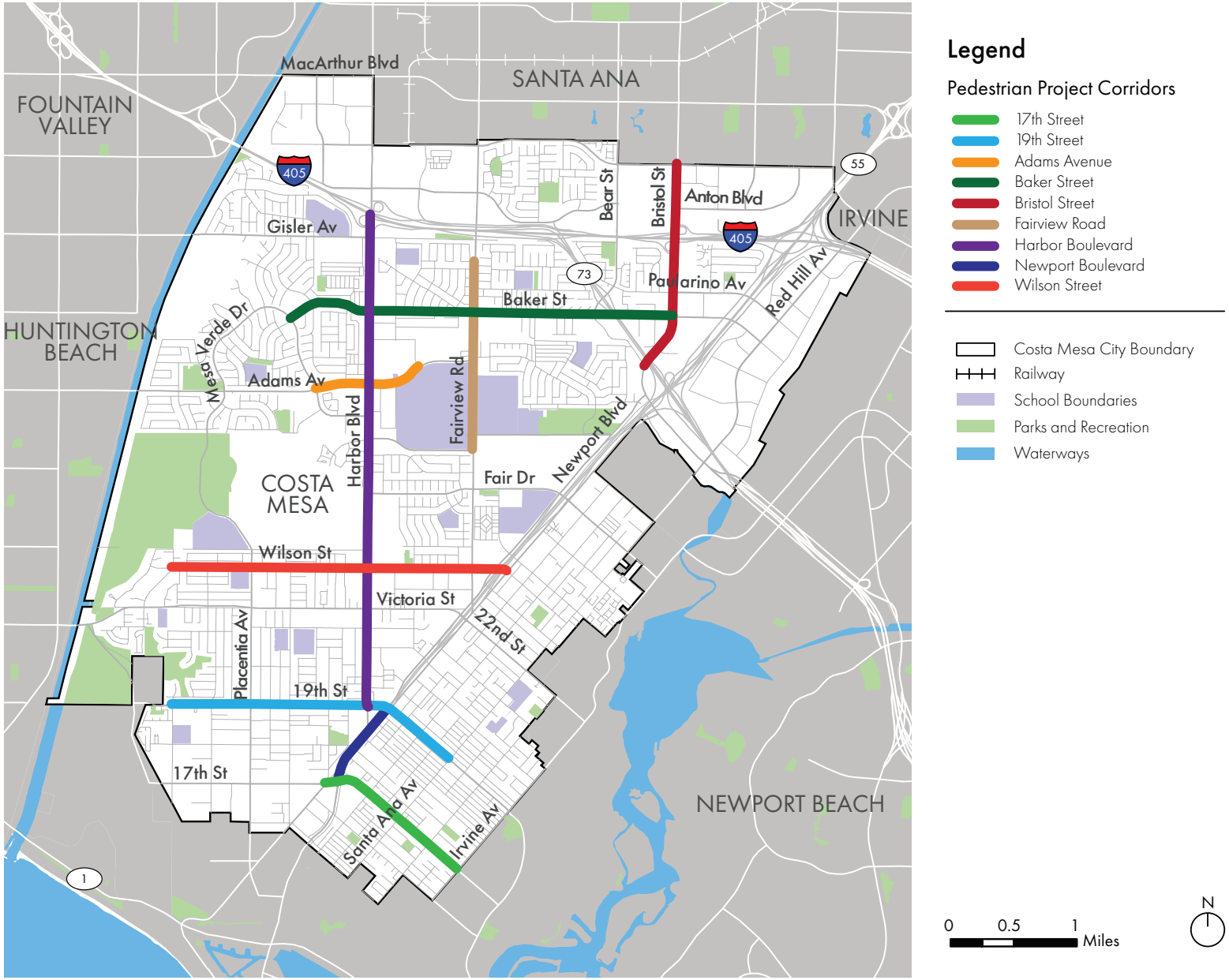
6.3 PROJECT FACTSHEETS

The following section presents factsheets for six projects. The projects include five corridors and a citywide project.

Projects with factsheets include:

- 19th Street Corridor
- Baker Street Corridor
- Harbor Boulevard Corridor (North)
- Harbor Boulevard Corridor (South)
- Wilson Street
- Citywide: High-Visibility Crosswalk Markings

Figure 6.1 Pedestrian Project Corridors



19TH STREET CORRIDOR

PROJECT LOCATION

The 19th Street corridor is located between Whittier Avenue and Santa Ana Avenue in the southern portion of the city. The corridor is classified as a Primary Arterial* west of Newport Boulevard and a Collector Arterial east of Newport Boulevard. Average Daily Traffic (ADT) volumes are noted to be in the 3,500 – 40,000 vehicles per day range. The corridor provides direct access to State Route 55 (SR-55) at Newport Boulevard. The posted speed limit along this corridor is 35 MPH.

The corridor is located in the Westside Costa Mesa area and adjacent to the Downtown area to the south. Some local destinations include Canyon Park, Talbert Regional Park, Marina View Park, The Triangle Square, Lions Park, Costa Mesa-Donald Dungan Library, Downtown Recreation Center, and several commercial centers.

** OCTA's 2021 Master Plan of Arterial Highways (MPAH) and City of Costa Mesa General Plan*

Pedestrian crossing on a yellow light

Pedestrian activity at 19th Street and Pomona Avenue

Sidewalk interrupted by driveway on 19th Street

19TH STREET CORRIDOR

EXISTING CONDITIONS & CONCERNS

No Bicycle Facilities: Corridor is not cyclist-friendly as there is signage indicating that cyclists are not allowed on the sidewalk, yet the corridor does not provide on-street bike lanes.

Sidewalks: Some areas along the corridor provide sidewalks that are not wide enough for two pedestrians to walk side by side. Obstructions in the sidewalk network were noted to be present throughout the corridor.

Intersection Crossings: The intersection of 19th Street and Meyer Place provides high visibility crosswalks, but does not provide a crossing on the east leg of the intersection.

Pavement Markings: Crosswalk markings at the intersection of 19th Street and Pomona Avenue show signs of wear, which can be less visible to motorists.

Pedestrian Crossing Times and Right Turns: Motorists have been observed to make right turn movements on red in front of pedestrians that are in the crosswalk. Pedestrian crossing times have been observed by the community to be too short for pedestrians of all ability levels.

High Vehicle Speeds: Vehicles traveling at higher than the posted speed limit were observed along the corridor.

Street Trees: Community members noted there is a lack of shade along areas of the corridor.

Sidewalk Conditions: Lifted and cracked sidewalks.

PROPOSED TREATMENTS

Bicycle Facilities: Reconfigure the roadway to install Class II bike lanes on West 19th Street from Sundance Drive to Pomona Avenue and Class III bike sharrows from Pomona Avenue to Park Avenue, according to the West 19th Street Improvement project. Providing bicycle facilities along the corridor will provide separation between cyclists and pedestrians along the corridor.

Sidewalks: Evaluate the sidewalk network along the corridor to identify, remove, and/or relocate obstructions that may create challenges for pedestrians of all ability levels to navigate around.

High-Visibility Crosswalks: Install high-visibility crosswalks at existing marked crossings along the corridor (Fullerton Avenue, Orange Avenue, Whitter Avenue, Monrovia Avenue, and Orange Avenue). Additionally, install high visibility crosswalks at Sundance Drive, Whittier Avenue, Monrovia Avenue, Federal Avenue, and Wallace Avenue, according to the West 19th Street Improvement project.

Curb Ramps: Install new ADA-compliant curb ramps at locations where new crossings are installed.

Pavement Markings: Conduct a study to evaluate adding crosswalks at traffic signals where crosswalks are not provided across all legs of the signalized intersection, such as Meyer Place, and at unsignalized intersections such as Fullerton Avenue and Santa Ana Avenue.

19TH STREET CORRIDOR

Improved Pedestrian Crossing Times: Evaluate traffic signal timing to adjust/improve pedestrian crossing times, as needed at all signalized intersections.

Countdown Pedestrian Signals: Install countdown pedestrian signals at the intersection of 19th Street and Newport Boulevard.

Leading Pedestrian Intervals: Evaluate traffic signal timing to include a Leading Pedestrian Interval (LPI), especially for pedestrian crossings adjacent to high vehicle right-turn movements.

Regulate Right Turn on Reds: Consider installation of a "blank out" No Right Turn changeable message sign that activates during the LPI WALK interval, then simply shuts off once pedestrians are in the crosswalk and can be seen.

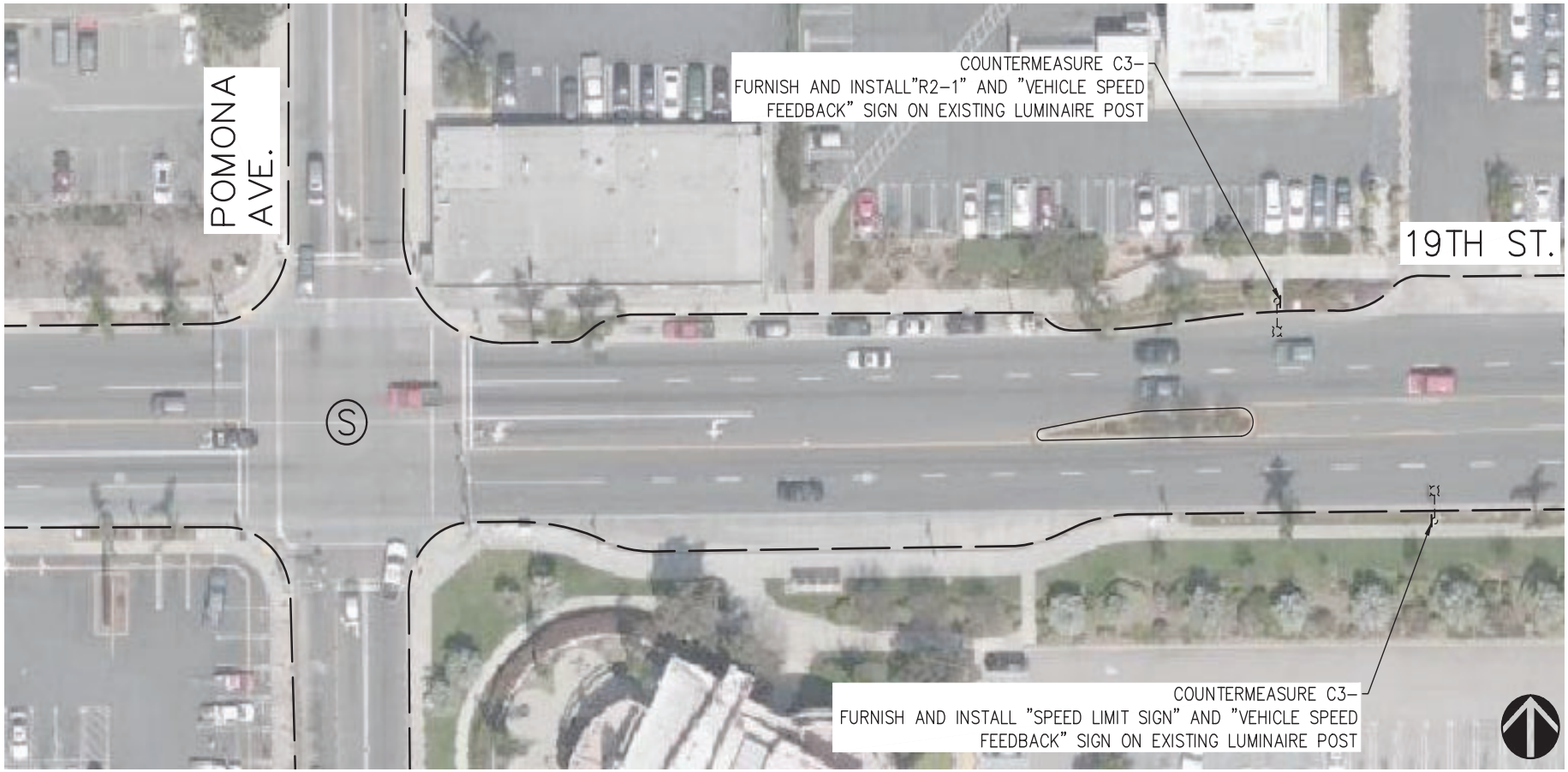
Pedestrian Lighting: Install pedestrian lighting/safety lighting at intersections where new pedestrian crosswalks are to be provided and where pedestrian activities are present.

Speed Feedback Signs: Consider installation of vehicle speed feedback signs on 19th Street between Pomona Avenue and Meyer Place, and between Orange Avenue and Westminster Avenue to help maintain vehicle speeds within the speed limit. (See concept plan on following page)

Street Trees: Evaluate the corridor to install new street trees within the City parkway areas where there are gaps in the sidewalk network. City to collaborate with developers to install new street trees adjacent to the new developments and within the City parkway areas to eliminate any gaps along the corridor.

Corridor-wide Improvements/Maintenance: Evaluate the corridor on a six-month or yearly basis to identify and repair sidewalk areas that have physical defects such as buckled or lifted pavement, stains, cracks, voids, or ongoing tree root issues to eliminate potential hazards for pedestrians of all ability levels.

19TH STREET CORRIDOR ..... SAMPLE CONCEPT PLAN



SIGN LEGEND

SPEED FEEDBACK SIGN

R2–1

LEGEND

Ⓢ SIGNALIZED INTERSECTION

– PROPOSED SIGN

EXISTING LUMINAIRE WITH POLE

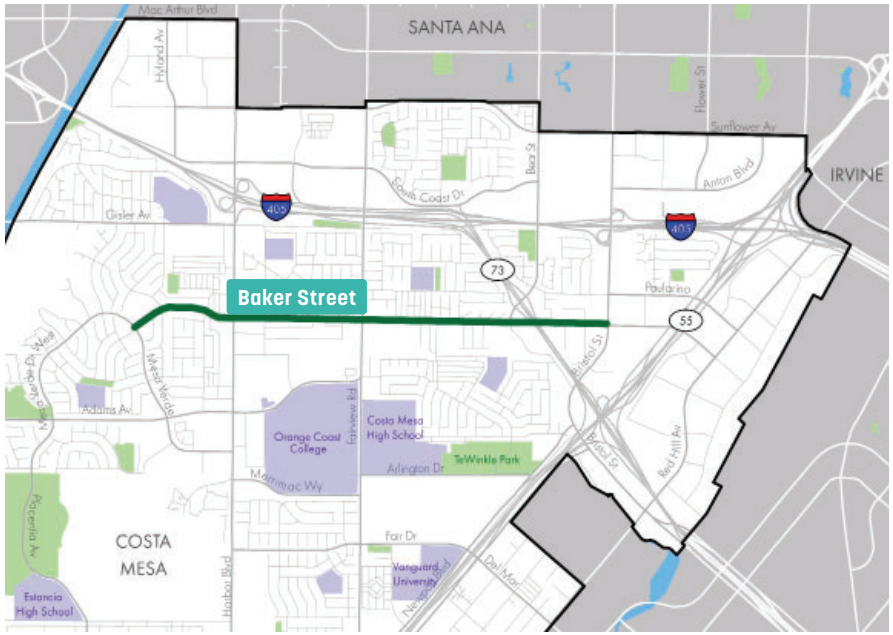
40' 20' 0 20' 40'
1"=40' GRAPHIC SCALE

BAKER STREET CORRIDOR

PROJECT LOCATION

The corridor is located on Baker Street between Mesa Verde Drive and Bristol Street. It is classified as a Secondary Arterial from Mesa Verde Drive to Harbor Boulevard, Primary Arterial from Harbor Boulevard to Bear Street, and Major Arterial from Bear Street to Bristol Street. Average Daily Traffic (ADT) volumes are noted to be in the 3,500 – 30,000 vehicles per day range. Baker Street provides access to State Route 73 (SR-73) via Bear Street and access to State Route 55 (SR-55) via Newport Boulevard. The posted speed limit along this corridor is 30 MPH from Mesa Verde Drive to Harbor Boulevard and 40 MPH from Harbor Boulevard to easterly city limit.

The corridor is located in the Halecrest area and adjacent to the Mesa Del Mar area to the south. Some local destinations include commercial areas such as the LAB Anti-mall and The Camp.



Bicyclist crossing Fairview Road at Baker Street

Sidewalk on Baker Street

Multi-lane STOP controlled intersection on Baker Street

BAKER STREET CORRIDOR

EXISTING CONDITIONS & CONCERNS

Sidewalks: Some areas along the corridor provide sidewalks that were noted to not feel wide enough for two pedestrians to walk side by side, and felt narrower especially at locations with utility poles, guy wires, utility boxes, and other obstructions.

Intersection Crossings: The Baker Street corridor contains high pedestrian activity, especially at several intersections such as Mesa Verde Drive, Harbor Boulevard, College Avenue, Fairview Road, Coolidge Avenue, Randolph Avenue, and Bristol Street crossings. Additionally, intersections where crosswalks are not provided at all legs were noted to have a desire for additional crossings to be added.

Pedestrian Crossing Times: Pedestrian crossing times have been noted by the community to be too short for pedestrians of all ability levels.

Pedestrian Crossing at Signalized Intersections: The intersection of Baker Street and Fairview Road is lacking pedestrian countdown signal heads.

High Vehicle Speeds: Vehicles traveling at higher than the posted speed limit were observed along the corridor.

Mid-Block Crossings: Community members noted there is a need for mid-block crossings on Baker Street between College Avenue and Fairview Road. High mid-block pedestrian and bicyclist crossing activity at Loren Drive, across Baker Street

Sidewalk Conditions: Lifted and cracked sidewalks.

Bus Stop Shelters & Amenities: Various bus stops along the corridor do not provide shelters for transit riders.

PROPOSED TREATMENTS

Bicycle Facilities: Evaluate Baker Street from Royal Palm Drive to Coolidge Avenue to design and install a Class II bike lane as identified in the City's Active Transportation Plan to complete the bicycle network on Baker Street and reduce conflicts between pedestrians and bicyclists on the sidewalk.

Sidewalks: Evaluate the sidewalk network along the corridor to identify, remove, and/or relocate obstructions that may create challenges for pedestrians of all ability levels to navigate around.

Marked Crosswalks: Evaluate the traffic operations at signalized intersections where marked crosswalks are not provided at all legs to install new marked crosswalks at intersection legs where not currently provided.

Curb Ramps: Install new ADA-compliant curb ramps at locations where new crossings are installed.

High-Visibility Crosswalks: Install high-visibility crosswalks at existing marked crossings along the corridor to improve motorists visibility of the crossings and potential pedestrians within the crosswalks (Mesa Verde Drive, Labrador Drive, Harbor Boulevard, College Avenue, Fairview Road, Coolidge Avenue, Babb Street, Milbro Street, and Bear Street).

BAKER STREET CORRIDOR

Improved Pedestrian Crossing Times: Evaluate traffic signal timing to adjust/improve pedestrian crossing times, as needed at all signalized intersections.

Countdown Pedestrian Signals: Install countdown pedestrian signals at the intersection of Baker Street and Fairview Road.

Leading Pedestrian Intervals: Evaluate traffic signal timing to include a Leading Pedestrian Interval (LPI), especially for pedestrian crossings adjacent to high vehicle right-turn movements.

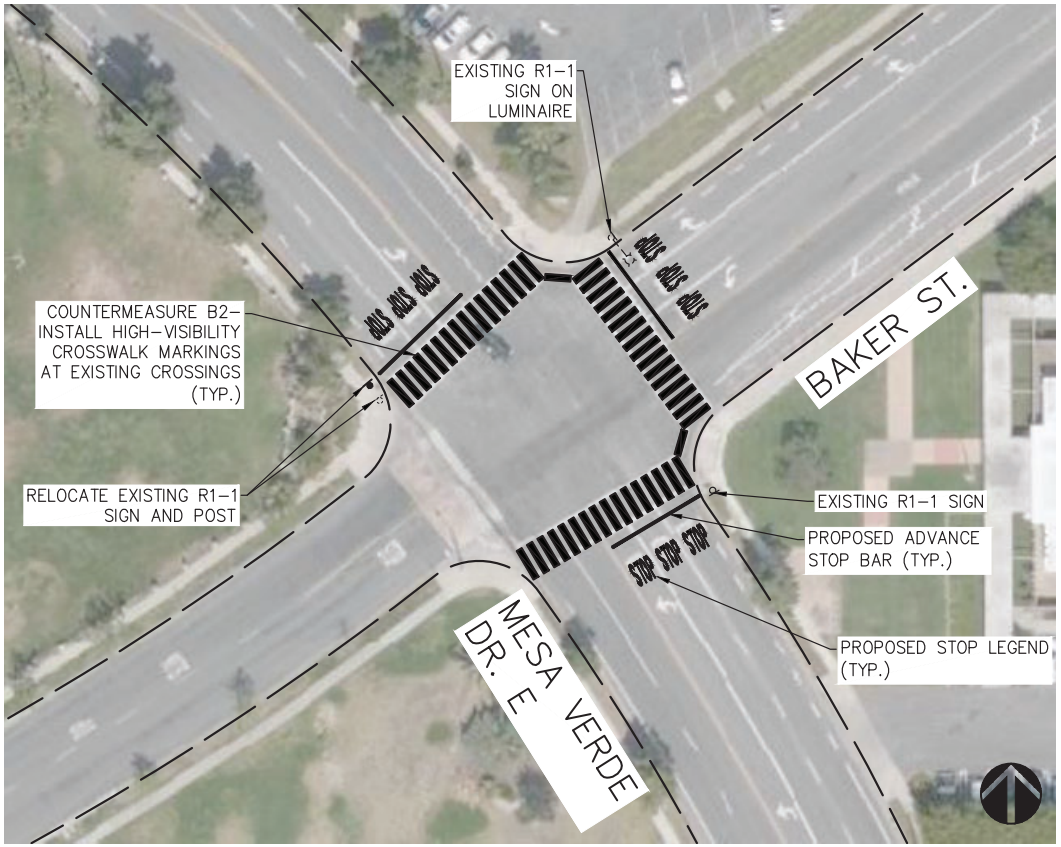
Regulate Right Turn on Reds: Consider installation of a "blank out" No Right Turn changeable message sign that activates during the LPI WALK interval, then simply shuts off once pedestrians are in the crosswalk and can be seen.

Speed Feedback Signs: Consider installation of vehicle speed feedback signs between Bear Street and Century Place to encourage motorists to reduce speeds within the posted speed limit.

Mid-Block Crossing: Evaluate corridor between College Avenue and Fairview Road to install a mid-block crossing with RRFB and push buttons to provide additional crossing areas along this segment of the corridor (potentially at Donnybrook Lane).

Corridor-wide Improvements/Maintenance: Evaluate the corridor on a six-month or yearly basis to identify and repair sidewalk areas that have physical defects such as buckled or lifted pavement, stains, cracks, voids, or ongoing tree root issues to eliminate potential hazards for pedestrians of all ability levels.

BAKER STREET CORRIDOR ..... SAMPLE CONCEPT PLAN



LEGEND

- PROPOSED HIGH-VISIBILITY CROSSWALK
- EXISTING LUMINAIRE WITH POLE
- REMOVED SIGN AND POST
- EXISTING SIGN AND POST
- PROPOSED SIGN AND POST

SIGN LEGEND

R1-1

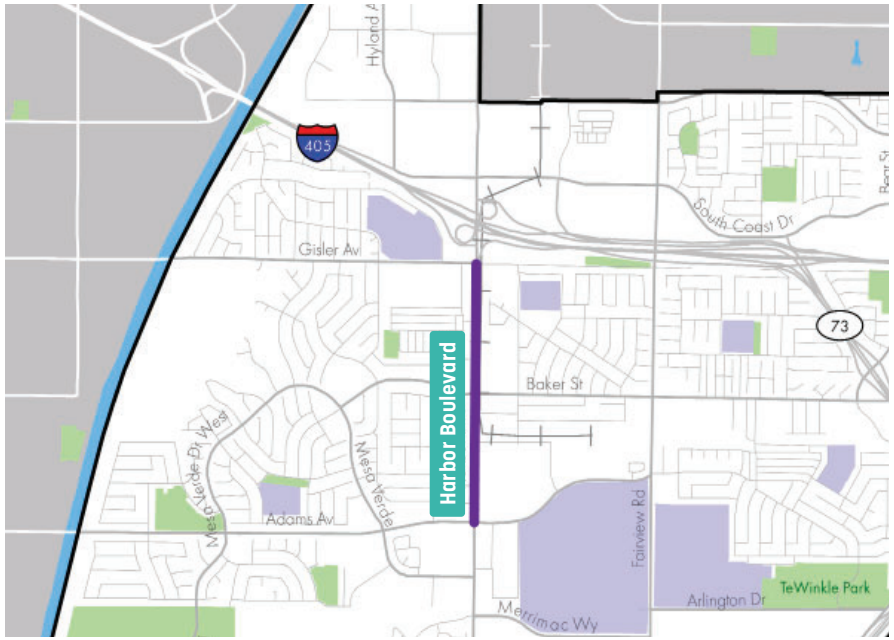
HARBOR BOULEVARD CORRIDOR (NORTH)

PROJECT LOCATION

The corridor is located on Harbor Boulevard between Gisler Avenue and Adams Avenue. It is classified as a Major Arterial based on OCTA's 2021 Master Plan of Arterial Highways (MPAH).

Average Daily Traffic (ADT) volumes are noted to be over 55,000 vehicles per day. Harbor Boulevard provides direct access to Interstate 405 (I-405) at the northern end of the corridor. The posted speed limit along this corridor is 40 MPH.

The corridor is located in the Halecrest Neighborhood and adjacent to the Mesa Del Mar area. Some nearby local destinations include Fairview Development Center, Orange Coast College, Early College High School, and Costa Mesa Golf Course.



Sidewalk on Harbor Boulevard north of Adams Avenue

Decorative Crosswalk at Adams Avenue

Sidewalk on Harbor Boulevard south of Adams Avenue

HARBOR BOULEVARD CORRIDOR (NORTH)

EXISTING CONDITIONS & CONCERNS

Sidewalks: Some areas along the corridor provide sidewalks that are narrower than four feet, especially in front of commercial areas north of Adams Avenue, where wider sidewalks are provided south of Adams Avenue.

Intersection Crossings: Various crosswalk markings are faded, causing visibility issues for motorists approaching the crossings. These faded crosswalk markings have been noted to be at various intersections along the corridor.

Pedestrian Crossing Times & Right Turns: Pedestrian crossing times have been noted by the community to be too short for pedestrians of all ability levels. Also, many motorists make right turn movements at intersections while pedestrians are starting to cross the street or in the crosswalk, violating the pedestrian right-of-way.

Bus Stop Shelters & Amenities: Various bus stops along the corridor do not provide shelters for transit riders or amenities such as trash receptacles.

Street Trees: The community expressed support for more street trees and landscaping along the corridor.

Sidewalk Conditions: Lifted and cracked sidewalks.

PROPOSED TREATMENTS

Bicycle Facilities: Evaluate Harbor Boulevard from Gisler Avenue to Newport Boulevard to design and install Class II bike lanes as identified in the City's Active Transportation Plan to complete the bicycle network on Harbor Boulevard and reduce conflicts between pedestrians and bicyclists on the sidewalk.

Sidewalks: Evaluate the sidewalk network along the corridor to identify, remove, and/or relocate obstructions that may create challenges for pedestrians of all ability levels to navigate around.

Marked Crosswalks: Evaluate the traffic operations at signalized intersections where marked crosswalks are not provided at all legs to install new marked crosswalks at intersection legs where not currently provided (Date Place and Nutmeg Place).

Curb Ramps: Install new ADA-compliant curb ramps at locations where new crossings are installed.

High-Visibility Crosswalks: Install high-visibility crosswalks at existing marked crossings along the corridor to provide motorists better visibility of the crossings and potential pedestrians within the crosswalks.

Improved Pedestrian Crossing Times: Evaluate traffic signal timing to adjust/improve pedestrian crossing times, as needed at all signalized intersections.

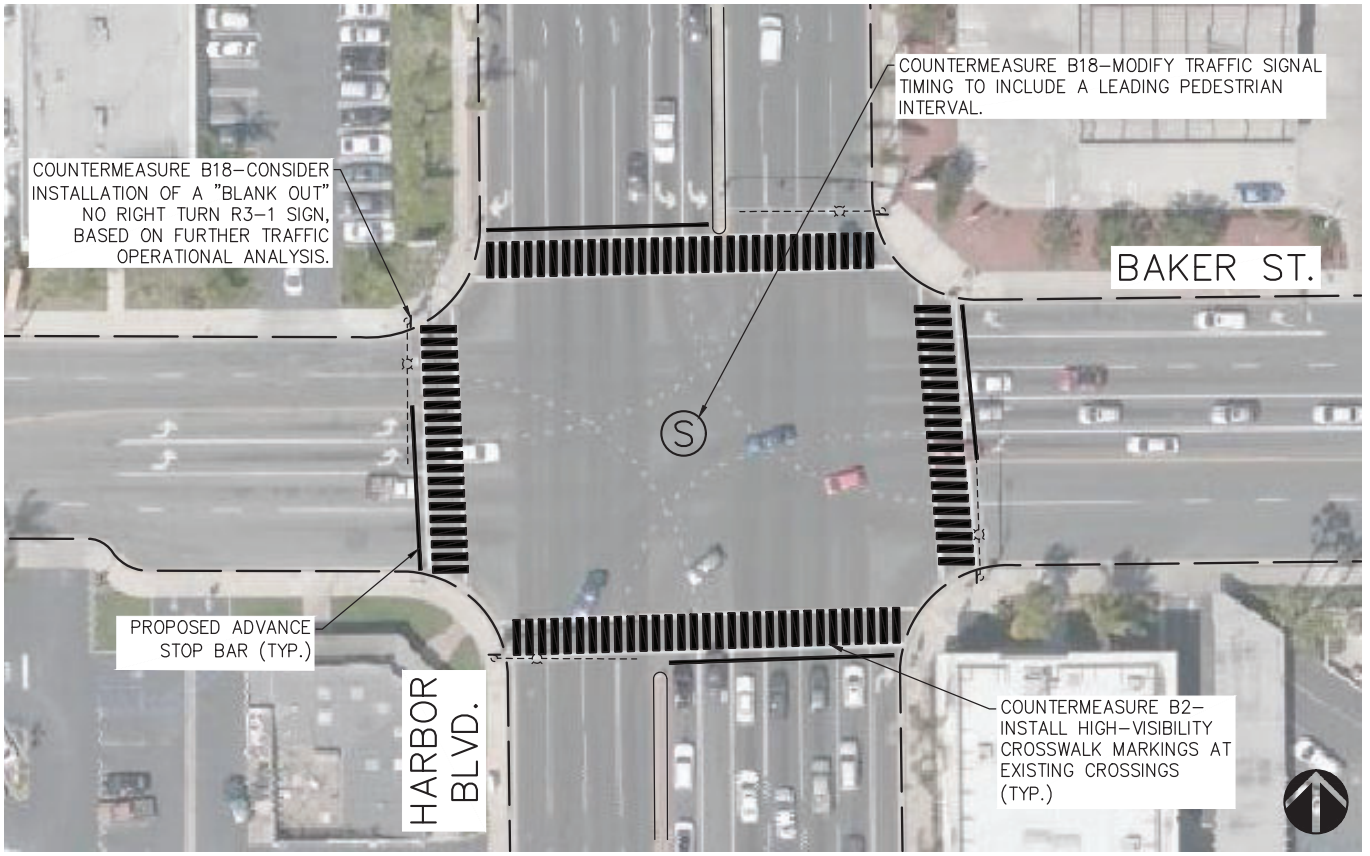
HARBOR BOULEVARD CORRIDOR (NORTH)

Regulate Right Turn on Reds: Consider installation of a "blank out" No Right Turn changeable message sign that activates during the LPI WALK interval, then simply shuts off once pedestrians are in the crosswalk and can be seen.

Leading Pedestrian Intervals: Evaluate traffic signal timing to include a Leading Pedestrian Interval (LPI), especially for pedestrian crossings adjacent to high vehicle right-turn movements.

Corridor-wide Improvements/Maintenance: Evaluate the corridor on a six-month or yearly basis to identify and repair sidewalk areas that have physical defects such as buckled or lifted pavement, stains, cracks, voids, or ongoing tree root issues to eliminate potential hazards for pedestrians of all ability levels.

HARBOR BOULEVARD CORRIDOR (NORTH) ..... SAMPLE CONCEPT PLAN



LEGEND

- (S) SIGNALIZED INTERSECTION
- PROPOSED HIGH–VISIBILITY CROSSWALK
- EXISTING TRAFFIC SIGNAL POLE
- PROPOSED SIGN

SIGN LEGEND

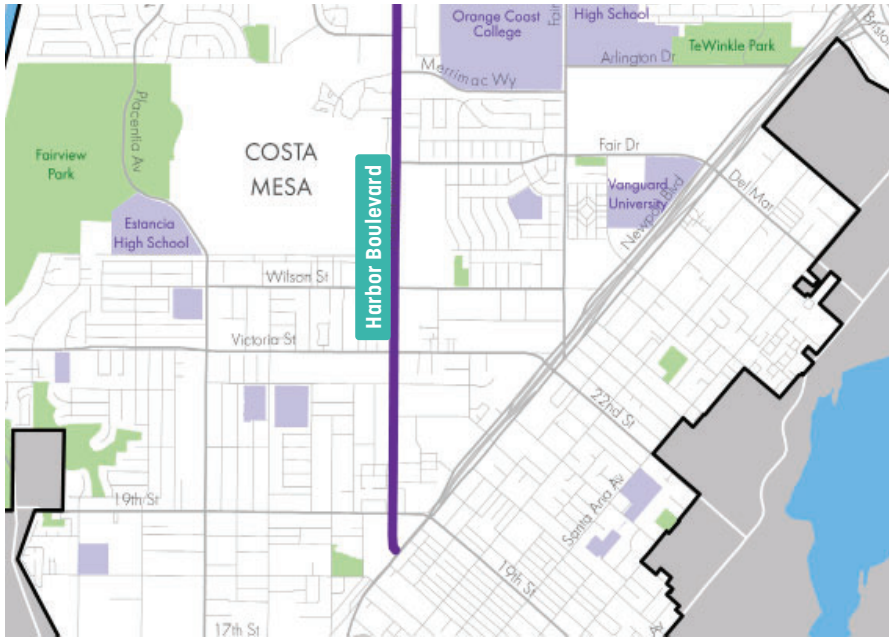
R3–1
ACTIVATED BLANK–OUT
(24" X 24")
DETAIL "A"

HARBOR BOULEVARD CORRIDOR (SOUTH)

PROJECT LOCATION

The corridor is located on Harbor Boulevard between Adams Avenue and Newport Boulevard. It is classified as a Major Arterial. Average Daily Traffic (ADT) volumes are noted to be in the 10,000 – 55,000 vehicles per day range. Harbor Boulevard provides direct access to State Route 55 (SR-55) at Newport Boulevard at the south end of the corridor. The posted speed limit along this corridor is 40 MPH.

The corridor is located in the Westside Costa Mesa and Downtown area and adjacent to the College Park area to the east. Harbor Boulevard terminates at Newport Boulevard. Some local destinations include Fairview Development Center, Estancia High School, Orange Coast College, Early College High School, Fairview Park, and Lions Park.



North leg of Harbor Boulevard at Fair Drive, looking west

Standard crosswalks at Wilson Street

East leg crossing at Mesa Verde Dr./ Peterson Place

HARBOR BOULEVARD CORRIDOR (SOUTH)

EXISTING CONDITIONS & CONCERNS

Sidewalks: Street furniture such as landscaping and utility boxes create obstructions on the sidewalk and reduce the sidewalk width. Additionally, more sidewalk and bicycle infrastructure is desired throughout the corridor to complete gaps in the network and provide a better experience for pedestrians and bicyclists.

Intersection Crossings: The intersections of Harbor Boulevard with Fair Drive, as well as Bay Street and Newport Boulevard do not provide a crossing at all legs of the intersections. The community desires more marked crosswalks at these intersections to facilitate pedestrian crossings from various directions.

Pedestrian Countdown Signals: The intersection of Harbor Boulevard and Newport Boulevard is lacking pedestrian countdown signals.

Right Turns vs Pedestrians: Many motorists make right turn movements at intersections while pedestrians are starting to cross the street or in the crosswalk, violating the pedestrian right-of-way.

Pedestrian Visibility: On-street parking has been noted to present visibility concerns for pedestrians crossing the roadway.

Bus Stop Shelters & Amenities: Various bus stops along the corridor do not provide shelters for transit riders.

Sidewalk Conditions: Lifted and cracked sidewalks.

PROPOSED TREATMENTS

Bicycle Facilities: Evaluate Harbor Boulevard from Gisler Avenue to Newport Boulevard to design and install Class II bike lanes as identified in the City's Active Transportation Plan to complete the bicycle network on Harbor Boulevard and reduce conflicts between pedestrians and bicyclists on the sidewalk.

Sidewalks: Evaluate the sidewalk network along the corridor to identify, remove, and/or relocate obstructions that may create challenges for pedestrians of all ability levels to navigate around. Widen sidewalks along the corridor where right-of-way is available.

Marked Crosswalks: Evaluate the traffic operations at signalized intersections where marked crosswalks are not provided at all legs to install new marked crosswalks at intersection legs where not currently provided (Fair Drive, Bay Street and Newport Boulevard).

Curb Ramps: Install new ADA-compliant curb ramps at locations where new crossings are installed.

Countdown Pedestrian Signals: Install countdown pedestrian signals at the intersection of Harbor Boulevard and Newport Boulevard.

High-Visibility Crosswalks: Install-high visibility crosswalks at existing marked crossings along the corridor to improve motorists visibility of the crossings and potential pedestrians within the crosswalks (Fair Drive, Wilson Street, Victoria Street, Hamilton Street, and Bay Street).

HARBOR BOULEVARD CORRIDOR (SOUTH)

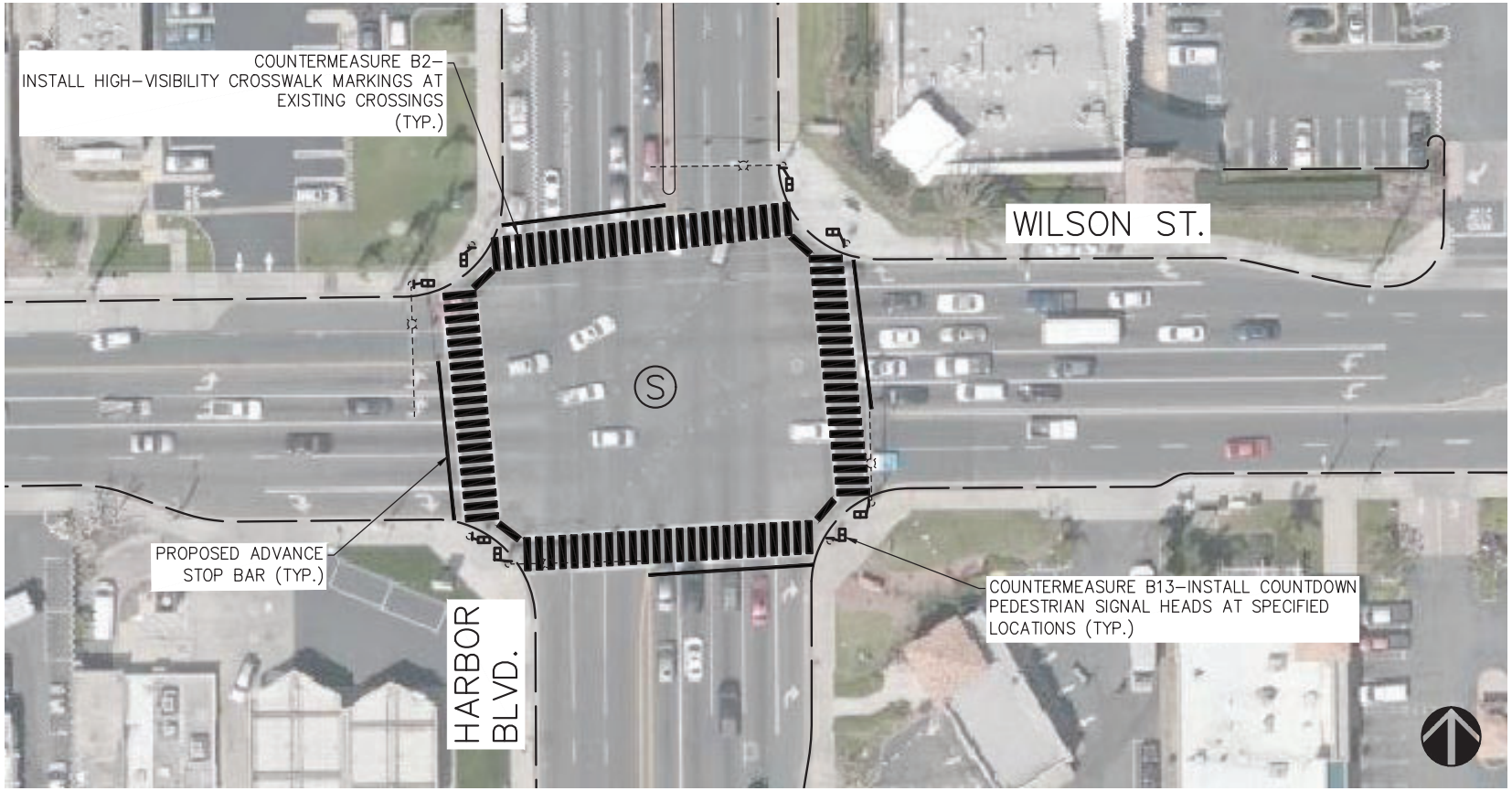
Improved Pedestrian Crossing Times: Evaluate traffic signal timing to adjust/improve pedestrian crossing times, as needed at all signalized intersections.

Regulate Right Turn on Reds: Consider installation of a "blank out" No Right Turn changeable message sign that activates during the LPI WALK interval, then simply shuts off once pedestrians are in the crosswalk and can be seen.

Leading Pedestrian Intervals: Evaluate traffic signal timing to include a Leading Pedestrian Interval (LPI), especially for pedestrian crossings adjacent to high vehicle right-turn movements.

Corridor-wide Improvements/Maintenance: Evaluate the corridor on a six-month or yearly basis to identify and repair sidewalk areas that have physical defects such as buckled or lifted pavement, stains, cracks, voids, or ongoing tree root issues to eliminate potential hazards for pedestrians of all ability levels.

HARBOR BOULEVARD CORRIDOR (SOUTH) ..... SAMPLE CONCEPT PLAN



LEGEND

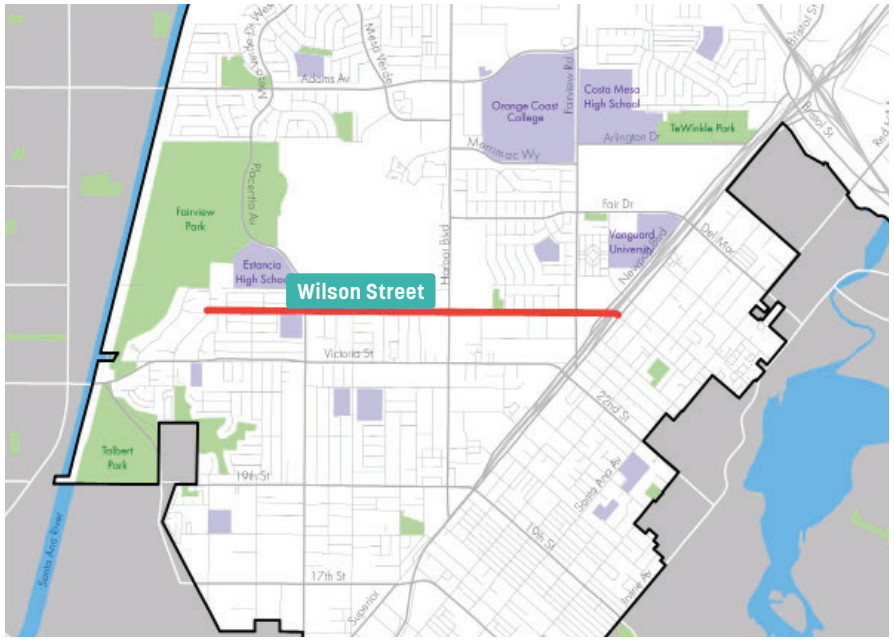
- (S) SIGNALIZED INTERSECTION
- PROPOSED HIGH–VISIBILITY CROSSWALK
- PROPOSED PEDESTRIAN SIGNAL HEAD
- EXISTING TRAFFIC SIGNAL POLE
- PROPOSED PEDESTRIAN PUSH BUTTON

WILSON STREET CORRIDOR

PROJECT LOCATION

The corridor is located on Wilson Street between Canyon Drive and Newport Boulevard in the southern portion of the City. It is classified as a Secondary Arterial. Average Daily Traffic (ADT) volumes are noted to reach 10,000 vehicles per day. Major arterial roadways in the vicinity include Harbor Boulevard perpendicular to Wilson Street and Fairview Road at the east end of the corridor. The posted speed limit along this corridor is 35 MPH.

The corridor is located in the Westside Costa Mesa and College Park areas of the city. It provides access to State Route 55 (SR-55) via Newport Boulevard on the east side of the corridor. Some local destinations include Wilson Elementary School, Wilson Street Park, and various residential communities and commercial areas along the corridor.



Pedestrian signage south of Harbor Blvd without mid-block marked crosswalks

Pedestrians crossing College Avenue on Wilson Street

Cracked and buckled sidewalks near Wilson Park

WILSON STREET CORRIDOR

EXISTING CONDITIONS & CONCERNS

Sidewalks: Street furniture such as landscaping and utility boxed create obstructions on the sidewalk and reduce the sidewalk width. Pedestrians were observed to share the sidewalk with bicyclists, despite Wilson Street's designation as a bike route. Additionally, more sidewalk and bicycle infrastructure is desired throughout the corridor to complete gaps in the network, provide a better experience for pedestrians and bicyclists, and provide better access to local destinations, such as Wilson Park.

Intersection Crossings: The intersection of Wilson Street and Pomona Avenue does not provide a crossing at the east leg and the intersection of Wilson Street and Center Way does not provide a crossing at the west leg. The community desires an additional marked crosswalk at these locations to facilitate pedestrians crossing from various directions. Additionally, more marked crosswalks are desired throughout the corridor to facilitate pedestrian crossings.

Pedestrian Crossing Times: Pedestrian crossing times have been noted by the community to be too short for pedestrians of all ability levels.

Street Lighting: Community members expressed the desire for better street lighting along the corridor.

High Vehicle Speeds: Vehicles traveling at higher than the posted speed limit were observed along the corridor and the desire for traffic calming features along the corridor was noted.

Pedestrian Visibility: On-street parking has been noted to present visibility concerns for pedestrians crossing the roadway.

Bus Stop Shelters & Amenities: Various bus stops along the corridor do not provide shelters for transit riders (Wilson-Anaheim and Wilson-College).

Sidewalk Conditions: Lifted and cracked sidewalks.

PROPOSED TREATMENTS

Bicycle Facilities: Evaluate Wilson Street west of Placentia Avenue and from Harbor Boulevard to Newport Boulevard to design and install Class II bike lanes as identified in the City's Active Transportation Plan to complete the bicycle network on Wilson Street and reduce conflicts between pedestrians and bicyclists on the sidewalk.

Sidewalks: Evaluate the sidewalk network along the corridor to identify, remove, and/or relocate obstructions that may create challenges for pedestrians of all ability levels to navigate around. Widen sidewalks along the corridor where right-of-way is available.

Marked Crosswalks: Evaluate the traffic operations at Wilson Street and Pomona Avenue where marked crosswalks are not provided at all legs to install new marked crosswalks at intersection legs where not currently provided.

Curb Ramps: Install new ADA-compliant curb ramps at locations where new crossings are installed.

WILSON STREET CORRIDOR

Pedestrian Hybrid Beacon (HAWK Signal): Install a pedestrian HAWK signal at the west leg of Wilson Street and Fordham Drive intersection. (see concept)

Pedestrian Lighting: Install pedestrian lighting/safety lighting at intersections where new pedestrian crosswalks are to be provided and where pedestrian activities are present. Evaluate the corridor to install additional street lighting in areas where there is a gap in street lighting along the corridor.

Countdown Pedestrian Signals: Install countdown pedestrian signals at Placentia Avenue, Fairview Road, and Newport Boulevard.

High-Visibility Crosswalks: Install high-visibility crosswalks at existing and new marked crossings along the corridor to improve motorists visibility of the crossings and potential pedestrians within the crosswalks.

Speed Feedback Signs: Consider installation of vehicle speed feedback signs on Wilson Street, National Avenue, and Continental Avenue.

Mid-Block Crossing: Evaluate the segment of Wilson Street between Maple Street and Miner Street for the design and installation of a new mid-block crossing with RRFB and push buttons.

Rectangular Rapid Flashing Beacon (RRFB): Evaluate the segment of Wilson Street between Maple Street and Miner Street for the design and installation of RRFBs and push buttons to accompany the new mid-block crossing.

Improved Pedestrian Crossing Times: Evaluate traffic signal timing to adjust/improve pedestrian crossing times, as needed at all signalized intersections.

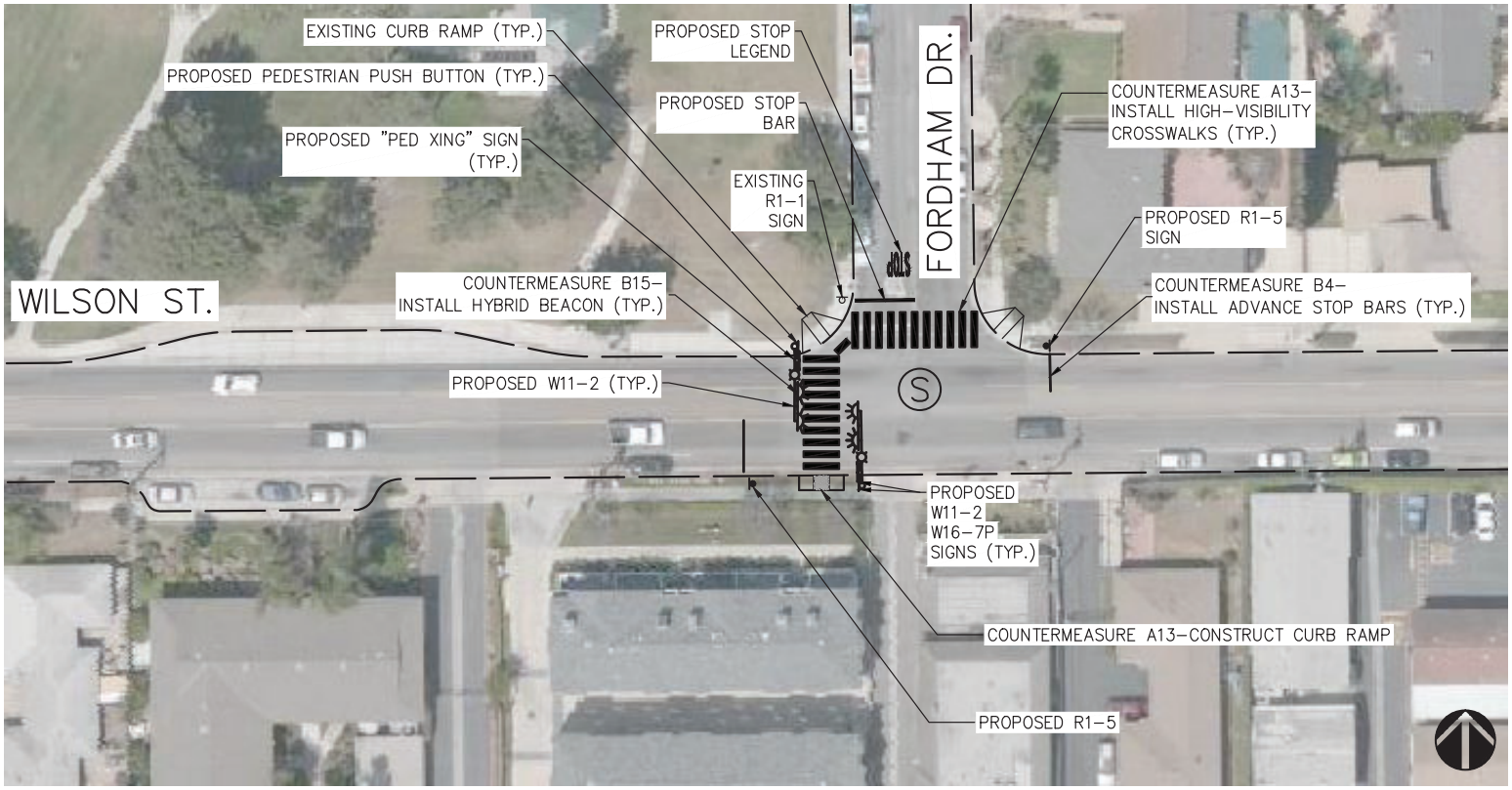
Leading Pedestrian Intervals: Evaluate traffic signal timing at signalized intersections to include a Leading Pedestrian Interval (LPI), especially for pedestrian crossings adjacent to high vehicle right-turn movements.

Regulate Right Turn on Reds: Consider installation of a "blank out" No Right Turn changeable message sign that activates during the LPI WALK interval, then simply shuts off once pedestrians are in the crosswalk and can be seen.

Advance Yield Lines: Install advance yield lines at approaches to existing and new mid-block crossings.

Corridor-wide Improvements/Maintenance: Evaluate the corridor on a six-month or yearly basis to identify and repair sidewalk areas that have physical defects such as buckled or lifted pavement, stains, cracks, voids, or ongoing tree root issues to eliminate potential hazards for pedestrians of all ability levels.

WILSON STREET CORRIDOR ..... SAMPLE CONCEPT PLAN

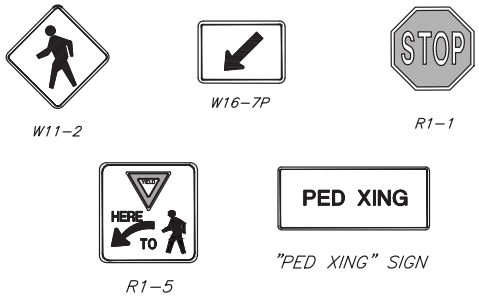


40' 20' 0 20' 40'
1"=40' GRAPHIC SCALE

LEGEND

- (S) SIGNALIZED INTERSECTION
- PROPOSED HIGH-VISIBILITY CROSSWALK
- PROPOSED SIGN AND POST
- PROPOSED MAST ARM WITH HYBRID BEACON
- PROPOSED PEDESTRIAN PUSH BUTTON
- EXISTING SIGN AND POST

SIGN LEGEND



(CITYWIDE) HIGH-VISIBILITY CROSSWALK LOCATIONS

PROPOSED TREATMENTS

Install high-visibility crosswalk markings parallel to the major street and across the minor street, within all commercial corridors and near schools, parks, and regional attractors (such as the OC Fair & Event Center). A list of the locations is illustrated in Table 6.2, Crosswalk Improvement Locations On Minor Streets Along Major Corridors.

Table 6.2 Crosswalk Improvement Locations On Minor Streets Along Major Corridors

Street Name Corridor	Orientation	Minor Street	Signalized Intersection	On Ramps	Total Crosswalks
Sunflower Avenue	Northside	3	6	0	9
	Southside	0	8	0	8
Bear Street	Eastside	1	4	0	5
	Westside	0	4	0	4
South Coast Drive	Northside	2	2	0	4
	Southside	0	4	0	4
Bristol Street	Eastside	1	10	1	12
	Westside	0	13	2	15
Baker Street	Northside	4	6	0	10
	Southside	5	5	2	12
Randolph Avenue	Eastside	0	2	0	2
	Westside	1	2	0	3
Arlington Drive	Northside	2	1	0	3
	Southside	1	1	0	2
Fair Drive	Northside	3	6	1	10
	Southside	2	6	0	8
Harbor Blvd	Eastside	5	14	0	19
	Westside	3	13	0	16
Adams Avenue	Northside	1	6	1	8
	Southside	2	4	1	7

Table 6.2 Crosswalk Improvement Locations On Minor Streets Along Major Corridors (Cont.)

Street Name Corridor	Orientation	Minor Street	Signalized Intersection	On Ramps	Total Crosswalks
Mesa Verde Drive E	Eastside	1	2	0	3
	Westside	2	2	0	4
19th Street	Northside	6	6	0	12
	Southside	2	5	0	7
17th Street	Northside	5	8	0	13
	Southside	1	8	0	9
Baker Street and Fairview Road	Eastside	4	11	0	15
	Westside	4	12	0	16
Newport Boulevard and Del Mar Avenue	Eastside	8	7	0	15
	Westside	0	7	0	7
Bay Street	Northside	1	2	0	3
	Southside	1	2	0	3
Ford Road	Northside	3	0	0	3
	Southside	3	0	0	3
Park Avenue	Eastside	1	1	0	2
	Westside	2	1	0	3
Orange Avenue	Eastside	3	2	0	5
	Westside	0	2	0	2

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07

Implementation Strategy

7.1 INTRODUCTION

This chapter discusses five approaches the City can take to implement the infrastructure and long-term recommendations discussed in Chapters 4-6. The approaches, both proactive and reactive, could be used together or individually, depending on the resources available. They include:

- Project prioritization: Implement the infrastructure projects by order of priority using a data-driven approach.
- Project cost and time: Construct the infrastructure projects based on the available time and financial resources.
- Funding availability: Develop infrastructure projects based on available funding opportunities. Many funding sources are available for pedestrian improvements.
- Collaboration with different city departments and community stakeholders: Work with city departments and community stakeholders to implement the long-term recommendations.
- Project options: Certain circumstances, such as findings from a new study or community members voicing their concerns, may prompt the City to take a reactive approach to implement the recommendations identified in the Plan.

7.2 PROJECT PRIORITIZATION

The purpose of project prioritization is to develop a list of ranked infrastructure projects based on the recommendations that offer the greatest potential benefit that supports pedestrian activities within a short time frame.

The specific measures for each category, along with the weights, are shown in Table 7.1, Project Prioritization Criteria. Table 7.2, Ranked Projects List, shows the list of prioritized projects, with their respective score out of 100.

Table 7.1 Project Prioritization Criteria

Group	Item	Weight
Need and Equity	Disadvantaged Community (DAC)	20%
	Median Household Income (MHHI)	
Safety	Bicycle and Pedestrian Collisions	30%
	Vehicle Citations	
Community Support	Community Support	30%
Network Connectivity	Transit Accessibility	20%
	Connects to priority destinations including commercial areas, parks, and schools	
	Total	**100%**

Table 7.2 Ranked Projects List

Rank	Corridor	From	To	Length (in Miles)	Score
1	Newport Boulevard	19th Street	17th Street	0.44	62.8
2	Fairview Road	McCormack Lane	Merrimac Way	1.45	53.3
3	Adams Avenue	Mesa Verde Drive	Fairview Road	0.84	52.0
4	Bristol Street	Sunflower Avenue	Bear Street	1.63	51.1
5	Harbor Boulevard	Gisler Avenue	Newport Boulevard	3.84	46.0
6	Wilson Street	Canyon Drive	Newport Boulevard	2.51	30.8
7	17th Street	Superior Avenue	Irvine Avenue	1.27	27.3
8	19th Street	Whittier Avenue	Santa Ana Avenue	2.28	24.2
9	Baker Street	Mesa Verde Drive	Bristol Street	2.99	19.6

7.3 TIME AND COST

Infrastructure improvements roughly follow along a time/cost continuum. Small-scale projects such as signing and striping can be completed in a short amount of time with relatively low cost. On the other hand, large-scale projects such as a roadway configuration and new traffic signals could require more time and cost more. Table 7.3, Infrastructure Cost and Time Continuum, provides some examples of pedestrian improvements that fall into three categories: short-term/low-cost, mid-term/mid-cost, and long-term/high cost.

Table 7.3 Infrastructure Cost and Time Continuum

Type	Description	Estimated Time Frame and Cost	Example of Infrastructure	
short-term/low cost	These types of infrastructure improvements present opportunities for more rapid implementation to address community concerns.	0-2 years $500 - $50K	• ADA-compliant curb ramps • high visibility crosswalks • pavement markings • signage • rectangular rapid flashing beacons (RRFB)	• pedestrian intersection enhancements • neighborhood traffic calming measures (e.g curb extensions, speed humps, and raised crosswalks)
mid-term/mid cost	These types of projects either require additional research or are ready for implementation, but roadway impacts such as vehicular right-of-way, utility easements, and/or other constraints must be considered.	2-5 years $50K - $200K	• sidewalk (with curb and gutter) • curb extensions at major intersection and arterial street	• protected intersection • minor traffic control signal improvements
long-term/high cost	This type of projects can be considered as planned projects and require added resources prior to implementation. These projects require more studies, right-of-way acquisition, and/or include the need for coordination with adjacent agencies or county governing bodies.	5+ years >$200K	• traffic signals • roundabouts • projects that require modifying or adding hard wiring infrastructure	

7.4 FUNDING OPPORTUNITIES

The following section presents potential federal, state, regional, and local funding sources that the City can seek for Plan implementation. Table 7.4, Funding Opportunities, lists different grant programs by source, agency, program name, and project eligibility, with a brief description for context. The City can consider applying for a variety of funding opportunities to implement the recommendations.

Table 7.4 Funding Opportunities

Source	Program	Administering Agency	Program Description
Federal	Congestion Mitigation and Air Quality (CMAQ) Program via FAST Act	OCTA	The program funds transportation projects likely to contribute to the attainment or maintenance of a national ambient air quality standard, with a high level of effectiveness in reducing air pollution, and are included in the MPO's current transportation plan and transportation improvement program. OCTA directs these funds mainly to transit and high occupancy vehicle lane projects, but 10% is set aside for bike and pedestrian projects.
Federal	Highway Safety Improvement Program (HSIP)	Caltrans	Projects that improve safety for any public road, bicycle facility, pedestrian pathway, or trail.
Federal	Community Development Block Grant (CDBG)	Orange County Housing and Community Development	CDBG is a flexible program that provides communities with resources to address a wide range of unique community development needs. The federally-funded program is administered by the Department of Housing and Urban Development (HUD). On the local level, these funds are administered by the Orange County Housing and Community Development and can fund a range of projects including transportation services, public safety programs, flood and drainage facilities, water/sewer improvements, street improvements/sidewalks, etc.
Federal	(Forthcoming) Safe Streets and Roads for All (SS4A) Grant Program	US Department of Transportation	The Bipartisan Infrastructure Law (BIL) established the new Safe Streets and Roads for All (SS4A) discretionary program with $5 billion in appropriated funds over the next 5 years. In fiscal year 2022 (FY22), up to $1 billion is available. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

Note: The program descriptions are retrieved from the program websites.

Table 7.4 Funding Opportunities (Cont.)

Source	Program	Administering Agency	Program Description
Federal/State	Office of Traffic Safety (OTS) Grants	California Office of Traffic Safety	Bicycle and pedestrian projects have been funded through this program. Promotes traffic safety education.
State	Affordable Housing and Sustainable Communities Program (AHSC)	Strategic Growth Council and Department of Housing and Community Development	The program funds land-use, housing, transportation, and land preservation projects to support infill and compact development that reduce greenhouse gas emissions.
State	Active Transportation Program (ATP)	Caltrans	Funds active transportation-related infrastructure projects, plans, and education/ encouragement/enforcement activities. Consolidates previous programs (Transportation Alternatives Program, Bicycle Transportation Account, and Safe Routes to Schools).
State	Sustainable Transportation Planning Grant Program	Caltrans	Projects that plan for reductions in GHG and VMT, and/or integrate Land Use and Transportation planning are eligible. This includes: SRTS, ATP, trail master plans, pedestrian master plans, bicycle master plans, Vision Zero, bike parking facilities planning, educational outreach, traffic calming, health equity studies, first mile/last mile, station area planning, etc.
Regional/Local	Sustainable Planning Grant	SCAG	The Sustainability Planning Grant Program (formerly known as the Compass Blueprint Grant Program) provides technical support to members in SCAG's jurisdictions. Grants can be used toward planning and policy efforts that allow for the implementation of the regional RTP/SCS. Grants in the program falls into three categories: Integrated Land Use – Sustainable Land Use Planning, Transit Oriented Development (TOD) and Land Use & Transportation Integration. Active Transportation – Bicycle, Pedestrian and Safe Routes to School Plans. Green Region – Natural Resource Plans, Climate Action Plans (CAPs) and Green House Gas (GHG) Reduction programs.

Note: The program descriptions are retrieved from the program websites.

Table 7.4 Funding Opportunities (Cont.)

Source	Program	Administering Agency	Program Description
Regional/Local	Comprehensive Transportation Funding Program (CTFP) Project O Regional Capacity Program	OCTA	Approximately $32 million in M2 funds that are available through the RCP (Project O) for Arterial Capacity Enhancements, Intersection Capacity Enhancements, and Freeway Arterial/Street Transitions.
Regional/Local	Comprehensive Transportation Funding Program (CTFP) Project P Regional Traffic Signal Synchronization Program (RTSSP)	OCTA	Competitive funding from M2 funds that are available for traffic signal synchronization updates.

Note: The program descriptions are retrieved from the program websites.


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