BICYCLE & PEDESTRIAN ACTION PLAN

Final Adopted Plan - June 2020

Culver CITY

PUBLIC WORKS DEPARTMENT

ACKNOWLEDGEMENTS

Active transportation is integral to the identity of Culver City. This Bicycle and Pedestrian Action Plan supersedes the 2010 Bicycle and Pedestrian Master Plan. The Plan sets the vision and actions that aim to establish walking and cycling as viable modes of travel for all trip types. Continued City efforts and investments will ensure building a high quality, citywide active transportation network that is safe, convenient and accessible to users of all ages and abilities.

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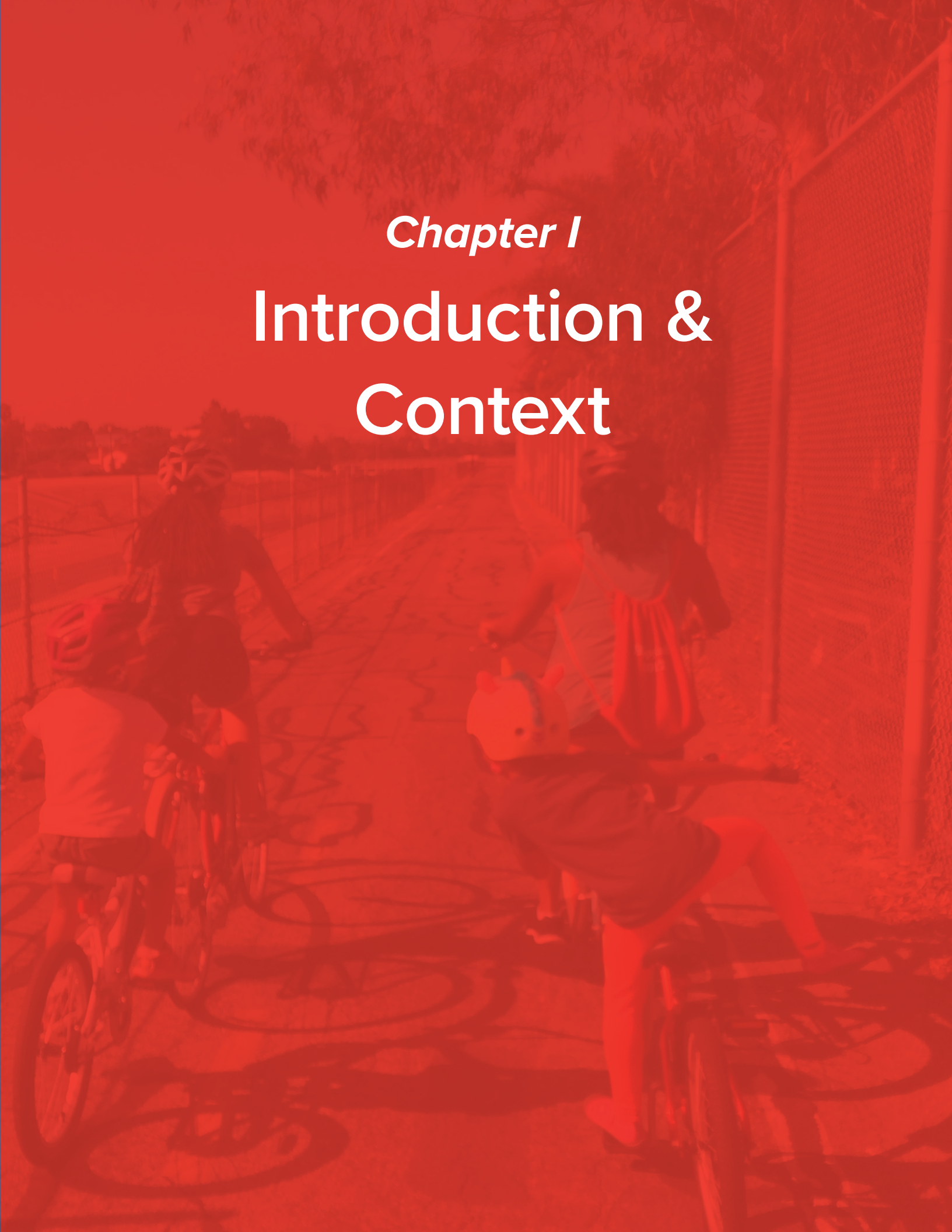

Chapter I

Introduction & Context

THE NEED FOR AN ACTION PLAN

Active transportation is integral to the identity of Culver City. This Bicycle and Pedestrian Action Plan (Plan) establishes a long-term vision for improving walking and bicycling in Culver City by updating the previous Bicycle and Pedestrian Master Plan adopted by the City Council in 2010. Similar to the previous plan, this update seeks to ensure comfortable, safe, and attractive places to bike and walk so that these forms of active transportation become first choices for travelling around our city. Culver City completed its first Bicycle and Pedestrian Master Plan in 2010. Since then, many more bicycle and pedestrian projects have been completed including:

- Bicycle lanes and green conflict markings on Duquesne Avenue
- Bicycle lanes on Jefferson Boulevard, east of Duquesne Avenue
- An off-street bicycle path along National Boulevard
- Bicycle lanes along Washington Place and Washington Boulevard, west of Sepulveda Boulevard
- Bicycle lanes on Overland Avenue, between Culver Boulevard and Ballona Creek
- Multiple bicycle routes including Sepulveda Boulevard, Irving Place, Van Buren Place, Lucerne Avenue, and Wesley Street
- Numerous high visibility crosswalks and curb ramps have been installed citywide, especially in school areas
- Three large-scale Open Street events in partnership with surrounding cities and non-profit, CicLAvia
- Citywide Safe Routes to School education programs continue in partnership with the School District and Culver City Walk n' Rollers
- A Complete Streets Policy was adopted by City Council in January 2020

Along with the creation of this Plan, the City continues to move forward with a number of additional projects that benefit the safety of people walking and bicycling including:

- The Transit Oriented District Visioning Study which identifies pedestrian and bicycle improvements was approved by Council in 2017.
- The City is proceeding with the detailed design of the Expo-Downtown Connector which has 1.2 miles of a Class IV two-way cycle track along with other pedestrian facilities, and exploring the feasibility of a design that could also accommodate potential bus lanes.
- Culver Boulevard Realignment with bicycle and pedestrian improvements between Sepulveda Boulevard and Elenda Street is expected to be completed by the end of 2021.

- Major traffic calming and other active transportation focused projects have been approved by Council, including the Rancho Higuera Neighborhood Traffic Management Project and the La Ballona Area Safe Routes to School Projects.
- A Safe Routes to Schools program with enhancements to pedestrian and bicycle facilities such as signage, pavement markings and curb ramps has been initiated. El Marino and El Rincon Elementary School Areas have been completed and studies for the remaining school areas are underway.
- The City is in the process of developing a Local Road Safety Plan, which will include both infrastructure and non-infrastructure recommendations.
- The City is in the process of updating its General Plan and developing its first Climate Action Plan.

Additionally, Culver City's station for the Metro E (Expo) Line opened in 2012, re-connecting the city to the larger regional rail network. The station has been highly utilized. With a significant percentage of visitors arriving to the station on foot and by bicycle, the station has become one of the city's top destinations for walking and bicycling trips since the adoption of the previous plan. Along with the Expo Station opening, the adjacent Robertson Transit Hub also opened providing enhanced regional bus access.

This Plan continues to build upon a long-standing effort to make Culver City a place known for its extensive bicycle and pedestrian network and as an active, healthy place to live, work, and play. It expands upon the 2010 Bicycle and Pedestrian Master Plan by providing new and updated infrastructure, program, and policy recommendations. In addition to updating the 2010 plan, this Plan takes advantage of new, innovative solutions to guide City staff in prioritizing resources when implementing future projects and programs, and finally, helps make the City eligible for more grants and other outside funding for these pursuits. With this in mind, this document includes an inventory of the City's current bicycle and pedestrian network and recommends specific infrastructure, program, and policy changes to encourage bicycling and walking.

PLAN VISION & GOALS

Vision

Culver City will be a community where bicycling and walking provide affordable, safe, and healthy mobility options for all residents. New projects and programs will work to enhance multi-modal mobility.

Goal 1 – Access and Connectivity

Culver City will support increased access to neighborhood destinations such as schools, parks, bus stops, transit stations/ centers, and Downtown.

Cycling along Jefferson Boulevard in a Class II Bike Lane

Goal 2 – Healthier, Safer Communities

Culver City will empower residents to live a more active lifestyle by providing a network of safe and comfortable active transportation facilities for everyone to enjoy. Culver City will design (and re-design) the public realm with the goal of eliminating traffic fatalities and severe injury crashes on the roadways.

Cycling along Washington Boulevard

Goal 3 – Affordability

Culver City will work to reduce the burden of transportation costs on households by further encouraging and providing for use of active transportation.

Walking under the decorative arches of Sony Pictures Studio on Washington Boulevard

Goal 4 – Collaboration

Culver City will foster an increased role for the community in the planning process and will work alongside other relevant planning efforts on the local, regional and state levels.

Jogging and cycling during one of the city's CicLAvia events

Goal 5 – Equitable

All community members regardless of age, physical ability, or financial resources will have access to an improved network of bicycle and pedestrian facilities within Culver City and connecting with neighboring jurisdictions.

A family relaxing in the pedestrian plaza near the Culver Hotel after a bike ride

BENEFITS OF ACTIVE TRANSPORTATION

Active transportation is a healthy, non-polluting, low-cost, quiet, and fun way to get around that is ideal for many trips throughout Culver City, including commute and recreation trips. Residents and visitors of Culver City, even those who choose not to use active transportation, will greatly benefit from the improvements recommended within this Plan.

Public Health

Physical inactivity is now widely understood to play a significant role in the most common chronic diseases in the United States, including heart disease, stroke, and diabetes. Approximately 280,000 adults in the U.S. die prematurely due to obesity-related illnesses every year. A study published in the American Journal of Preventive Medicine in 2004 by Frank et al., reported that for each extra 60 minutes spent in a car, there was a six percent increase in the chances of being obese. Creating a better physical environment that encourages walking, bicycling, and use of other active modes is a key strategy for fighting obesity and inactivity and has been shown to have substantial impacts with relatively limited public investment.

Equity

This Plan will enhance the accessibility of pedestrian and bicycle networks in Culver City, making daily transportation and physical activity more viable for youth, seniors, and those with disabilities. This Plan is designed to create opportunities for affordable, safe, and convenient transportation for all people, especially those who may not have access to a motor vehicle or who have limited income.

Economic

On a community scale, pedestrian and bicycle infrastructure projects are typically less expensive than automobile-related infrastructure. For users, the costs likewise differ; the annual operating costs for bicycle commuters are 1.5% to 3.5% of those for automobile commuters, and walking costs nothing. These savings are amplified by potential reductions in health care costs, as regular walking can minimize health complications associated with an inactive lifestyle.

Environmental

Replacing motor vehicle trips with pedestrian and bicycle trips has a measurable impact on reducing human-generated greenhouse gases (GHGs) in the atmosphere that contribute to climate change. Fewer vehicle trips and vehicle miles traveled (VMT) translate into fewer mobile source pollutants released into the air, such as carbon dioxide, nitrogen oxides, and hydrocarbons. Fossil-fuel driven transportation generates the largest share of GHG emissions of any economic sector in the United States, amounting to almost 30% of all GHG emissions and surpassing those generated from electricity production and industry.[1]

Safety

Culver City is committed to creating safe public spaces, including our roadways, for everyone. One of the leading causes of preventable death is traffic collisions, and people walking and bicycling are about 1.5 times more likely than motorists to be killed in traffic collisions.[2] The creation of bike lanes and physical barriers between bicyclists and motor vehicle traffic have been shown to increase individuals' safe use of bicycle infrastructure.[3] Well-lit sidewalks can also reduce the chances of collisions for people walking[4] and Leading Pedestrian Intervals can improve the safety of crossings.[5]

Quality of Life

The aesthetic quality of a community improves when visual and noise pollution caused by automobiles is reduced and when urban space is reserved for facilities that enable people of all ages to recreate and commute in pleasant settings. Creating conditions in which walking, bicycling, and using other active modes are accepted and encouraged increases a community's livability and has the potential to reduce traffic congestion by providing people with options to leave their cars at home and complete their trips on foot or bike.

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1 United States Environmental Protection Agency. Sources of Greenhouse Gas Emissions. Accessed May 28, 2019, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions.

2 Beck et al. Motor vehicle crash injury rates by mode of travel, United States: using exposure-based methods to quantify differences. 2007; Centers for Disease Control and Prevention. Motor Vehicle Crash Deaths in Metropolitan Areas — United States, 2009. Morbidity and Mortality Weekly Report. 2012.

3 Hoffman et al. Bicycle commuter injury prevention: it is time to focus on the environment. 2010.; Pucher et al., Infrastructure, programs, and policies to increase bicycling: An international review. 2010.

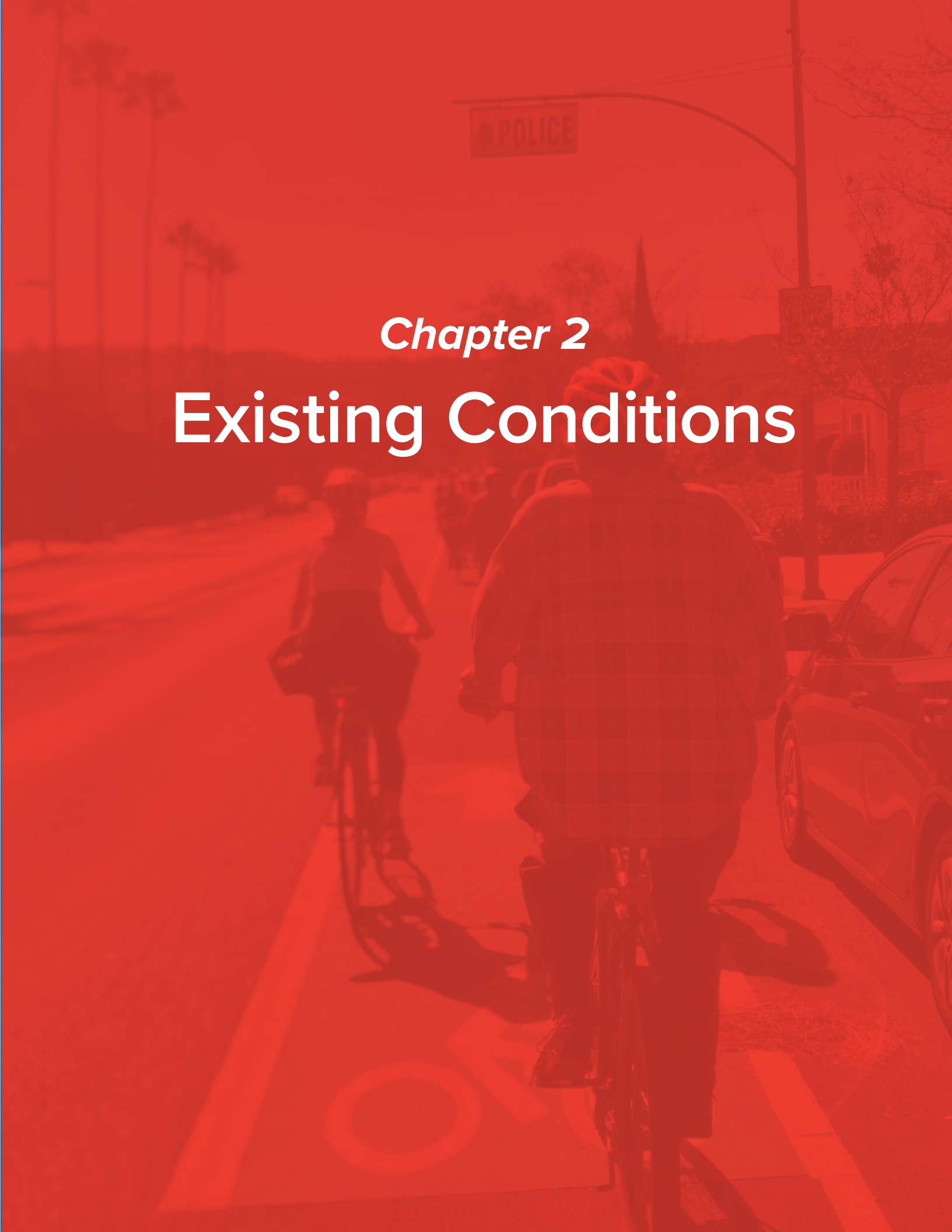
4 Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, Table 11.

5 Aaron C. Fayish and Frank Gross, "Safety Effectiveness of Leading Pedestrian Intervals Evaluated by a Before & After Study with Comparison Groups," Transportation Research Record 2198 (2010): 15â€“22. DOI: 10.3141/2198-03

WHAT'S IN THIS PLAN?

The Culver City Bicycle and Pedestrian Action Plan is organized in the following chapters:

- **Chapter 1:** Introduction & Context outlines the purpose of the plan and its goals
- **Chapter 2:** Existing Conditions provides an overview of previous planning efforts in the community and highlights the walking and biking conditions in Culver City today
- **Chapter 3:** Community Outreach describes the extensive public outreach process that guided this effort
- **Chapter 4:** Network Recommendations describes the recommended infrastructure improvements to increase safety and comfort for active transportation users across the city
- **Chapter 5:** Policies establishes specific policies and actions the City can take to achieve the goals of the plan
- **Chapter 6:** Non-Infrastructure Programs provides a summary of partners and non-infrastructure programs to complement the network recommendations and policies in this Plan
- **Chapter 7:** Implementation & Prioritization provides a prioritization structure for bikeway projects and how to fund these investments in the community
- **Appendix A:** ATP Compliance Checklist is a quick reference guide to locate the information required by Caltrans for a compliant Active Transportation Plan
- **Appendix B:** Existing Plans and Policies provides detailed descriptions of the documents referenced in Table 1
- **Appendix C:** Community Outreach Details describes each of the outreach activities related to this project to inform the public about the development of this plan
- **Appendix D:** Bicycle & Pedestrian Facility Design Guidelines provides a detailed review of types of facilities referenced in this document, as well as Design Features of these facilities
- **Appendix E:** Opportunity Corridors Memo includes analysis of the existing conditions and potential redesigns of three Opportunity Corridors
- **Appendix F:** Maintenance and Operations describes policies to maintain bicycle and pedestrian facilities
- **Appendix G:** General Cost Estimates of Construction provides a quick reference of the type of devices and costs to create the projects described in this document
- **Appendix H:** Funding Sources provides a list of potential funding sources for bicycle and pedestrian facilities, including local, regional, state, and federal sources
- **Appendix I:** Resolution of Adoption is a copy of the City Council's resolution adopting this Plan



Chapter 2

Existing Conditions

PREVIOUS PLANNING EFFORTS

There is great potential to expand the role and use of active transportation in Culver City. The city is mostly flat, enjoys mild weather, has nearly 15 miles of existing bikeways, and recently upgraded many pedestrian facilities. The City has also installed bicycle parking at numerous locations, particularly throughout Downtown. These investments provide a foundation upon which Culver City can build a high quality, citywide active transportation network that is safe and comfortable for daily use.

The Bicycle and Pedestrian Action Plan is consistent with and builds upon the efforts of various planning, policy, and regulatory documents. These include the City's own documents, such as the General Plan, Municipal Codes, and the 2010 Bicycle and Pedestrian Master Plan. Culver City also intends to design a bicycle and pedestrian network that complements existing and planned bikeways and pedestrian projects in surrounding jurisdictions. Therefore, the planning context also includes bicycle and pedestrian plans, policies, and projects of neighboring jurisdictions, Los Angeles County, and the State of California. **Table 1** summarizes the relevant documents that this Plan has taken into account, in order of agency and adoption date. More information about each planning document can be found in Appendix B.

Table 1 - Existing Plans and Policies

Document	Agency	Year Adopted
Complete Streets Policy	Culver City	2020
ADA Transition Plan	Culver CIty	2018
TOD Visioning Study	Culver CIty	2017
AB321 Technical Report (draft)	Culver CIty	2017
Bike Share Feasibility Study	Culver CIty	2017
Expo-Downtown Bicycle Connector Study	Culver City	2017
Washington National Transit Oriented Development District: Streetscape Plan	Culver City	2016
Urban Forest Master Plan	Culver City	2016
Culver City Strategic Plan FY 2016-17 to FY 2020-21	Culver City	2016
Parkway Design Guidelines	Culver City	2016
Green Street Policy	Culver City	2015
Culver City Bicycle/Pedestrian Safety Assessment	Culver City	2014
Procedures and Regulations for Residential Permit Parking Districts	Culver City	2013
Culver City Bicycle and Pedestrian Master Plan	Culver City	2010

Document	Agency	Year Adopted
Outdoor Dining Standards and Procedures on the Public Right-of-Way	Culver City	2009
Ballona Creek and Trail: Focused Special Study and Ballona Creek Related City Council Resolution No. 2004-R044	Culver City	2004
Culver City General Plan: Circulation Element	Culver City	2004
Culver City General Plan: Land Use	Culver City	2004
Culver City General Plan: Open Space Element	Culver City	2004
Bicycling-Related Sections of the Municipal Code	Culver City	Varies
Active Transportation Plans of Neighboring Jurisdictions		
Jefferson Blvd Pedestrian and Bicycle Access Improvements	California Department of Parks and Recreation	2017
Exposition Corridor Transit Neighborhood Plan	City of Los Angeles	2017
City of Los Angeles Mobility Plan 2035	City of Los Angeles	2016
Westside Cities Long Range Transportation Plan Project List	Westside Cities Council of Governments	2015
Westside Cities Bicycle Safety Awareness Coordination Plan	Westside Cities Council of Governments	2012
Park to Playa Trail Feasibility Study and Wayfinding Plan	Mountains Recreation and Conservation Authority	2011
Regional Plans & Policies		
LA Metro Active Transportation Strategic Plan	Metro	2016
Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP)	SCAG	2016
Los Angeles County Metro First Last Mile Strategic Plan	Metro	2013
County of Los Angeles Bicycle Master Plan	County of Los Angeles	2012
Metro Bicycle Transportation Strategic Plan	Metro	2006
State Plans & Policies		
California State Bicycle & Pedestrian Plan	State of California	2017
Complete Streets Implementation Action Plan 2.0	State of California	2017
SB 99 - Active Transportation Program Act	State of California	2013
Caltrans Deputy Directive 64 – Complete Streets	State of California	2008
AB 1358 - Complete Streets Act	State of California	2008
SB 375 - California Sustainable Communities Strategy	State of California	2008
AB 32 - California Global Warming Solutions Act	State of California	2006
Federal Plans & Policies		
Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations	United States Department of Transportation	2010

CONTEXT

Demographics and Access to Vehicles

Culver City is home to nearly 40,000 people, according to 2018 American Community Survey (ACS) 5-year estimates. The median age of Culver City residents is 41.7 years old, with nearly 19% of residents under 18 years old and nearly 16% over 65 years old.

Approximately 46% of residents rent their homes, similar to the rest of the California. Regarding ethnic/racial demographics, around half of Culver City residents identify as White. The next most populous racial/ethnic group identifies as Hispanic or Latino, followed by those of Asian descent (**Table 2)**.

The overall median household income in Culver City is $90,183 which is 32% higher than the County's median household income of $64,251.

Of the Culver City residents 16 or older in the workforce as of 2018, 3.0% stated that they walk and 2.8% stated they use a bicycle to commute, more than three times the number of Angelenos and twice the number of Californians who bike (**Table 3**). However, bicycle ridership could be higher than this, as ACS does not factor recreational trips or trips where commuters use more than one mode when traveling to work, such as taking a bus partway then riding a bicycle to the final destination. 2.2% of workers (about 470) reported that they do not have access to an automobile. These workers would rely on transit, walking, bicycling, carpool, or the City's scooter share pilot program to get to work.

Equity & Disadvantaged Communities Qualifications

The State of California primarily uses CalEnviroScreen 3.0 (updated June 2018) to measure if a census tract or community is considered a 'Disadvantaged Community.' The CalEnviroScreen 3.0 uses a variety of indicators including levels of environmental contamination, health indicators, and economic burden to determine how disadvantaged a community is considered. If the census tract is in the Top 25th Percentile of statewide tracts, it is considered a Disadvantaged Community (DAC), and is given additional consideration in statewide funding sources. None of the census tracts in Culver City meet this definition.

While Culver City has a diverse population, including some individuals who live below the poverty line, only one of the city's 10 census tracts has a median household income of less than the County's. Census Tract 7028.01, which is bounded by Venice Boulevard to the north, Overland Avenue to the east, Culver Boulevard to the south, and Interstate 405 to the west, has a Median Household Income 89% of the County. Despite this economic indicator, the area is not considered a DAC using the CalEnviroScreen 3.0 tool and thresholds established by Senate Bill 535. This Plan, nonetheless, seeks to create opportunities for safe, convenient travel by all modes for residents and visitors of all income levels.

Table 2 - Ethnicity/Race of Culver City Residents

Ethnicity	
American Indian and Alaska Native alone	0%
Asian alone	16%
Black or African American alone	8%
Hispanic or Latino	23%
Native Hawaiian and Other Pacific Islander alone	0%
White alone	47%
Two or more races	5%
Some other race alone	1%

Source: American Community Survey 5-Year Estimates

Table 3 - Commute Mode Share in Culver City

Mode Share (ACS, 2017)			
Mode Type	**Culver City**	**Los Angeles County**	**California**
Drove alone	77.5%	73.7%	73.6%
Carpool	6.6%	9.6%	10.4%
Public Transit	3.2%	6.3%	5.2%
Walk	3.0%	2.7%	2.7%
Bicycle	2.8%	0.9%	1,1%
Work from home	5.6%	5.3%	5.6%
Other	1.3%	1.5%	1.5%

Source: American Community Survey 5-Year Estimates

Land Use

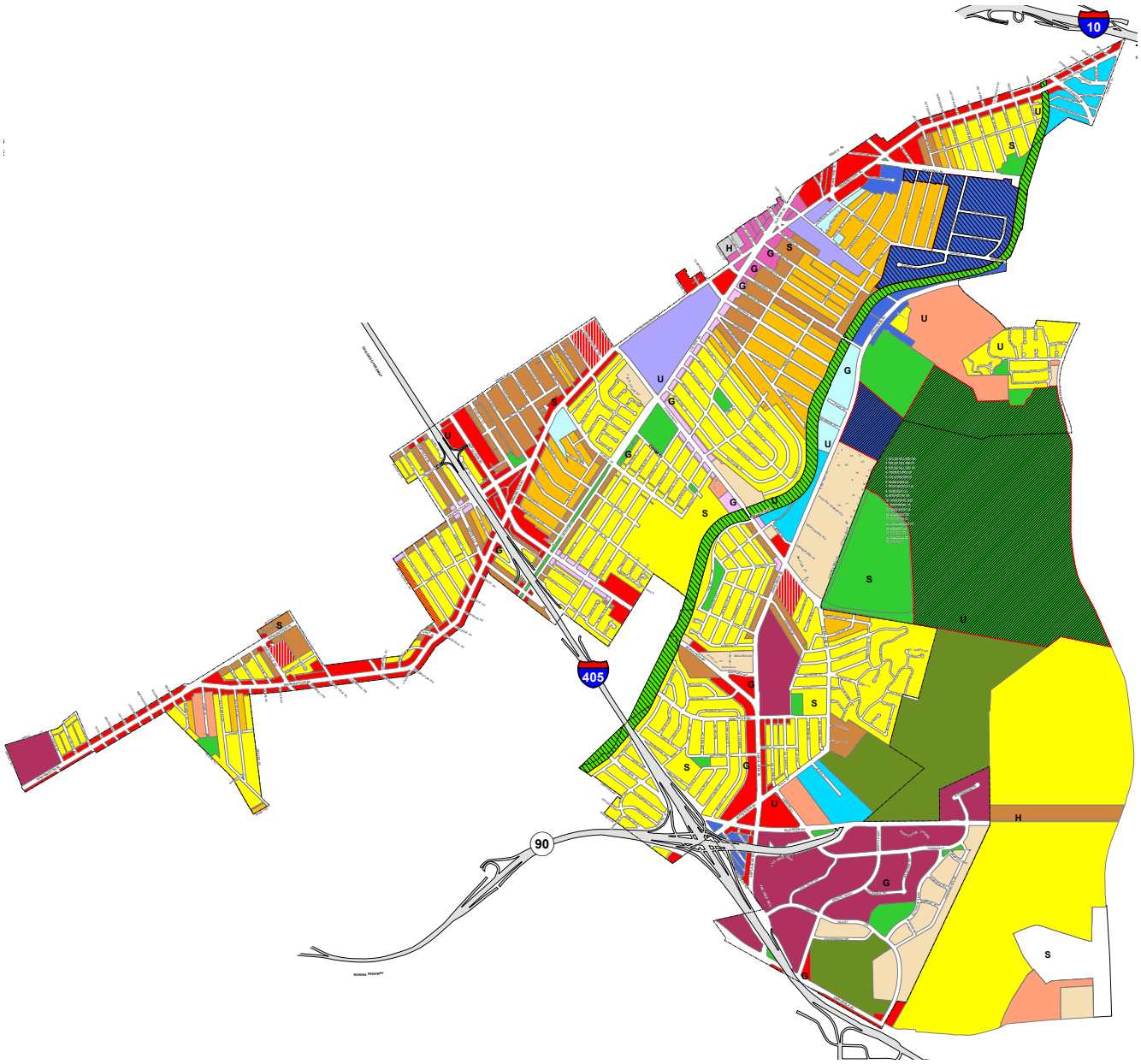
Culver City's General Plan land use designations are shown in **Figure 1**. The City is comprised of a mix of residential densities, from single-family to multi-family residences. The other most prevalent uses include oil field, retail and services, and civic and institutional. The Inglewood Oil Field occupies the eastern edge of the city and significant hillside areas. Commercial activity is concentrated along major corridors such as Washington, Jefferson, and Sepulveda Boulevards. Industrial uses are concentrated between Jefferson Boulevard and Ballona Creek and in the Hayden Tract and McManus neighborhood located near the intersection of Washington and La Cienega Boulevards. Civic and institutional uses can be found throughout the city and include places of worship, public and private schools, libraries, City Hall, police and fire stations, and other public uses.

Attractors and Generators

Attractors and generators are the destinations in and around Culver City to which community members frequently travel in addition to work commutes. These include schools, civic centers, transit stations, parks, event centers, and commercial centers and corridors. Some of these major destination points and areas are:

- Baldwin Hills Scenic Overlook
- Ballona Creek Bike Path
- Culver City Arts District
- Culver City High School
- Culver Studios
- Downtown Culver City
- Hayden Tract
- Helms Bakery District
- Julian Dixon Library
- Metro E (Expo) Line Culver City Station
- Platform
- Robertson Transit Hub
- Sony Studios
- Stoneview Nature Center
- Veterans Memorial Park
- Wende Museum
- West Los Angeles College
- Westfield Culver City Mall
- Westfield-Culver City Transit Center

Figure 1 - Culver City Land Use Designation Map



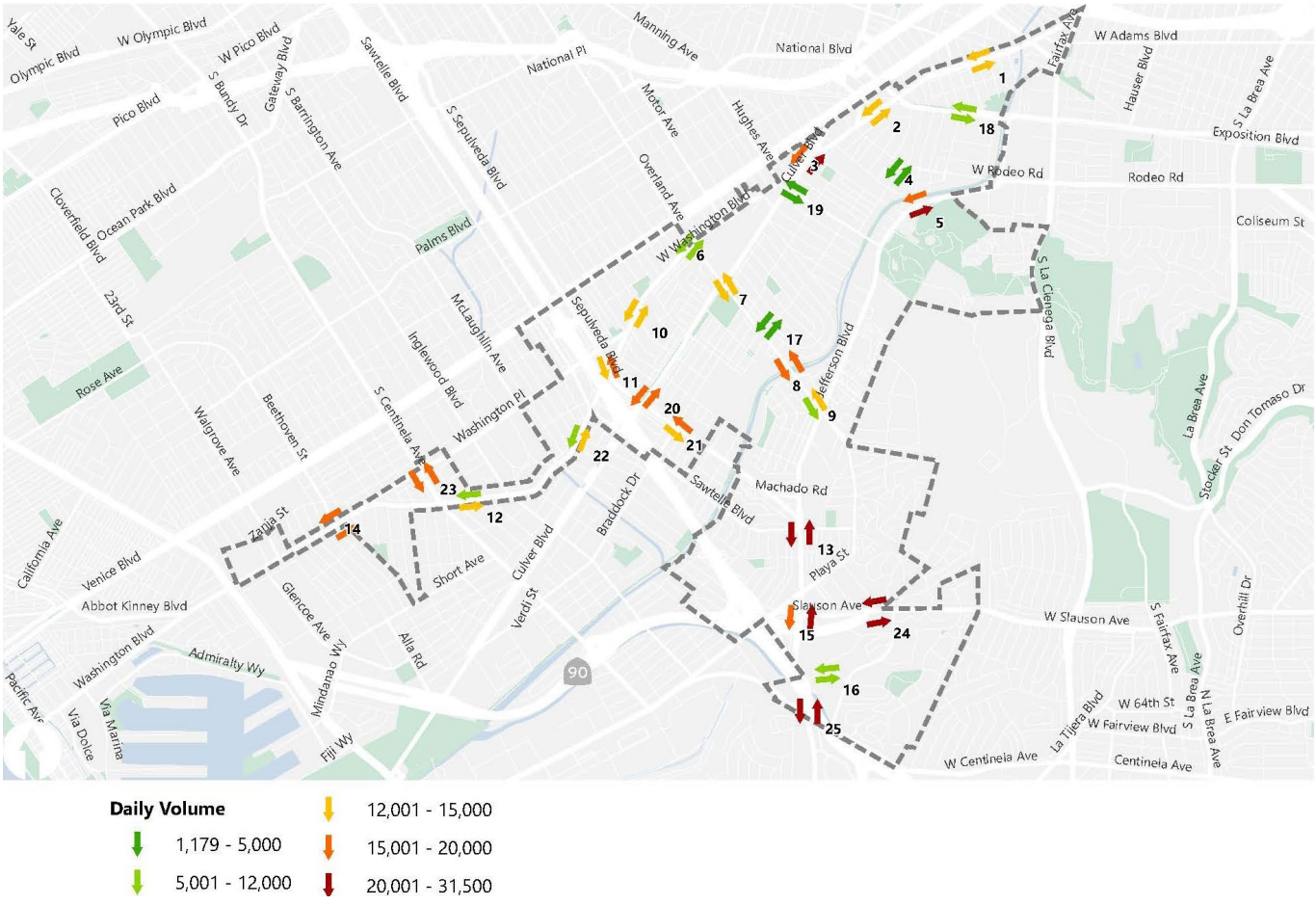
STATE OF ACTIVE TRANSPORTATION IN CULVER CITY

Vehicle, Bicycle, and Pedestrian Counts

Vehicle volumes and speeds were collected at 25 locations using standard pneumatic tubes for a period of 24 hours on Tuesday, 9/11/18. The locations were selected based on the number of collisions (including Killed or Seriously Injured [KSI] collisions, and bicycle or pedestrian collisions within a 50-foot radius of the location); whether it is on the High Injury Network (HIN); and proximate active transportation facilities. These locations are:

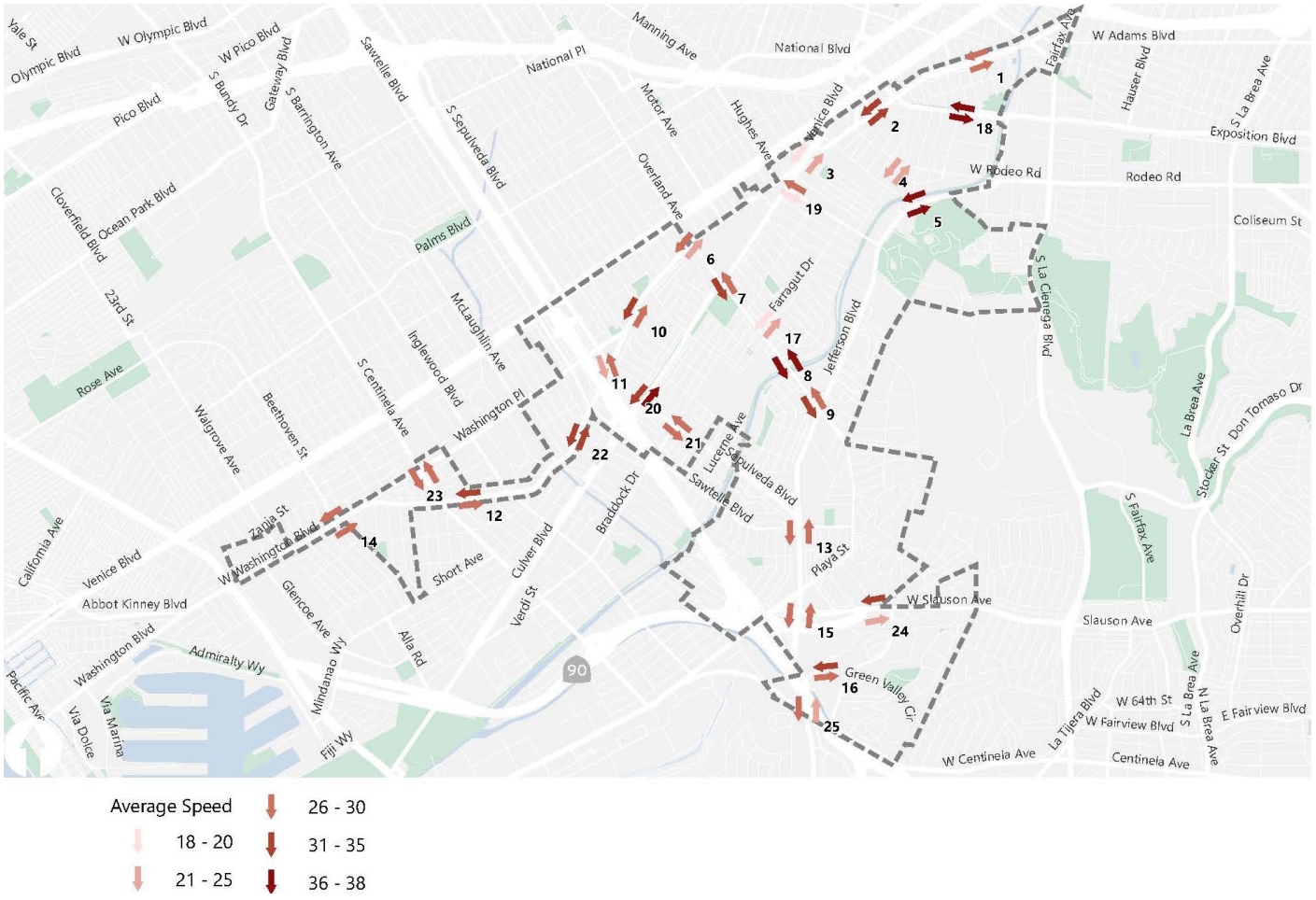
1. Washington Boulevard west of Roberts Avenue
2. Washington Boulevard west of Landmark Street
3. Washington Boulevard west of Cardiff Boulevard
4. Lucerne Avenue west of Higuera Street
5. Jefferson Boulevard south of Hetzler Road
6. Washington Boulevard west of Overland Avenue
7. Overland Avenue south of Culver Boulevard
8. Overland Avenue north of Ballona Creek Bike Path
9. Overland Avenue south of Jefferson Boulevard
10. Washington Boulevard west of Prospect Avenue
11. Sepulveda Boulevard north of Washington Boulevard
12. Washington Boulevard west of Grand View Boulevard
13. Sepulveda Boulevard south of Sawtelle Boulevard
14. Washington Boulevard west of Moore Street
15. Sepulveda Boulevard south of Slauson Avenue
16. Green Valley Circle east of Fox Hills Drive
17. Farragut Drive east of Overland Avenue
18. National Boulevard east of Hayden Avenue
19. Duquesne Avenue east of Culver Boulevard
20. Culver Boulevard east of Sepulveda Boulevard
21. Sepulveda Boulevard east of Braddock Drive
22. Washington Boulevard south of Purdue Avenue
23. Centinela Avenue south of Washington Place
24. Slauson Avenue east of Playa Court
25. Sepulveda Boulevard north of Centinela Avenue

Figure 2 - Average Daily Vehicle Volumes



Locations with the highest bidirectional average daily volume of vehicles are Location 24 (Slauson Avenue east of Playa Court), Location 13 (Sepulveda Boulevard south of Sawtelle Boulevard), Location 25 (Sepulveda Boulevard north of Centinela Avenue), and Location 15 (Sepulveda Boulevard south of Slauson Avenue). Average daily vehicle volume counts are shown in **Figure 2**.

Figure 3 - Average Vehicle Speeds



Locations with the highest average vehicle speeds are Location 5 (Jefferson Boulevard south of Hetzler Road – 37 mph), Location 18 (National Boulevard east of Hayden Avenue – 37 mph), Location 22 (Washington Boulevard south of Purdue Avenue – 33 mph), and Location 2 (Washington Boulevard west of Landmark Street – 31 mph). Average vehicle speeds are shown in **Figure 3**.

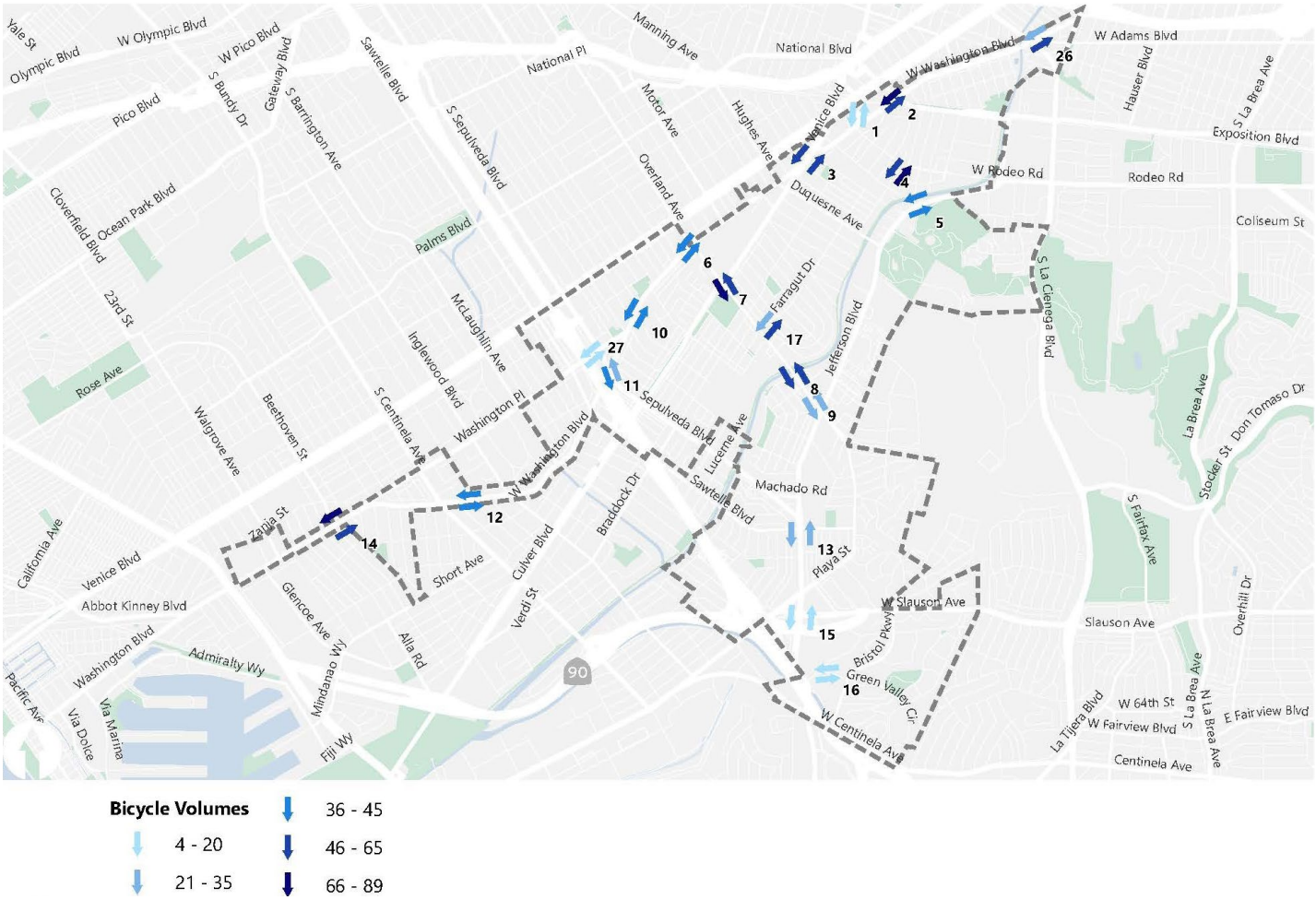
Bicycle and Pedestrian Counts

For the purposes of this plan, pedestrian and bicycle counts were conducted in 19 locations. The counts were collected either by the Los Angeles County Bicycle Coalition or by National Data & Surveying Service. Counts were collected according to the methodology defined by the Southern California Association of Governments (SCAG) and described in the memorandum Recommendations for Pedestrian, Bicycle, and Vehicle Data Collection in Culver City, dated June 4, 2018. The locations were selected based on the number of collisions; severity of collisions; bicycle or pedestrian collisions within a 50 feet radius of the location; whether it is on the High Injury Network (HIN); and proximate active transportation facilities.

Los Angeles County Bicycle Coalition collected counts at 15 locations. Weekday counts were collected at these locations on Wednesday, 5/9/18 or Wednesday, 5/23/18 between 7AM-9AM and between 4PM-6PM. Weekend counts were collected on Saturday, 5/12/18 or Saturday, 5/19/18 between 11AM-1PM. These locations are:

1. Robertson Boulevard between Washington Boulevard & Hoke Avenue
2. Washington Boulevard between National Boulevard & Metro E (Expo) Line
3. Washington Boulevard between Cardiff Avenue & Watseka Avenue
4. Washington Boulevard between Overland Avenue & Culver Center
5. Overland Avenue between Culver Boulevard & Barman Avenue
6. Overland Avenue between Ballona Creek & Ocean Boulevard
7. Overland Avenue between Jefferson Boulevard & Virginia Avenue
8. Washington Boulevard between Prospect Avenue & Huron Avenue
9. Sepulveda Boulevard between Washington Boulevard & Tuller Avenue
10. Washington Boulevard between Grand View Avenue & Campbell
11. Sepulveda Boulevard between Sawtelle Boulevard & Vera Way
12. Washington Boulevard between Moore & Beethoven Street
13. Sepulveda Boulevard between Slauson Avenue & 90 Freeway
14. Washington Boulevard between La Cienega Boulevard & Adams Boulevard
15. Washington Place between Sepulveda Boulevard & Tuller Avenue

Figure 4 - Bicycle Count Volumes



Bicycle Volumes

4 - 20	36 - 45
21 - 35	46 - 65
	66 - 89

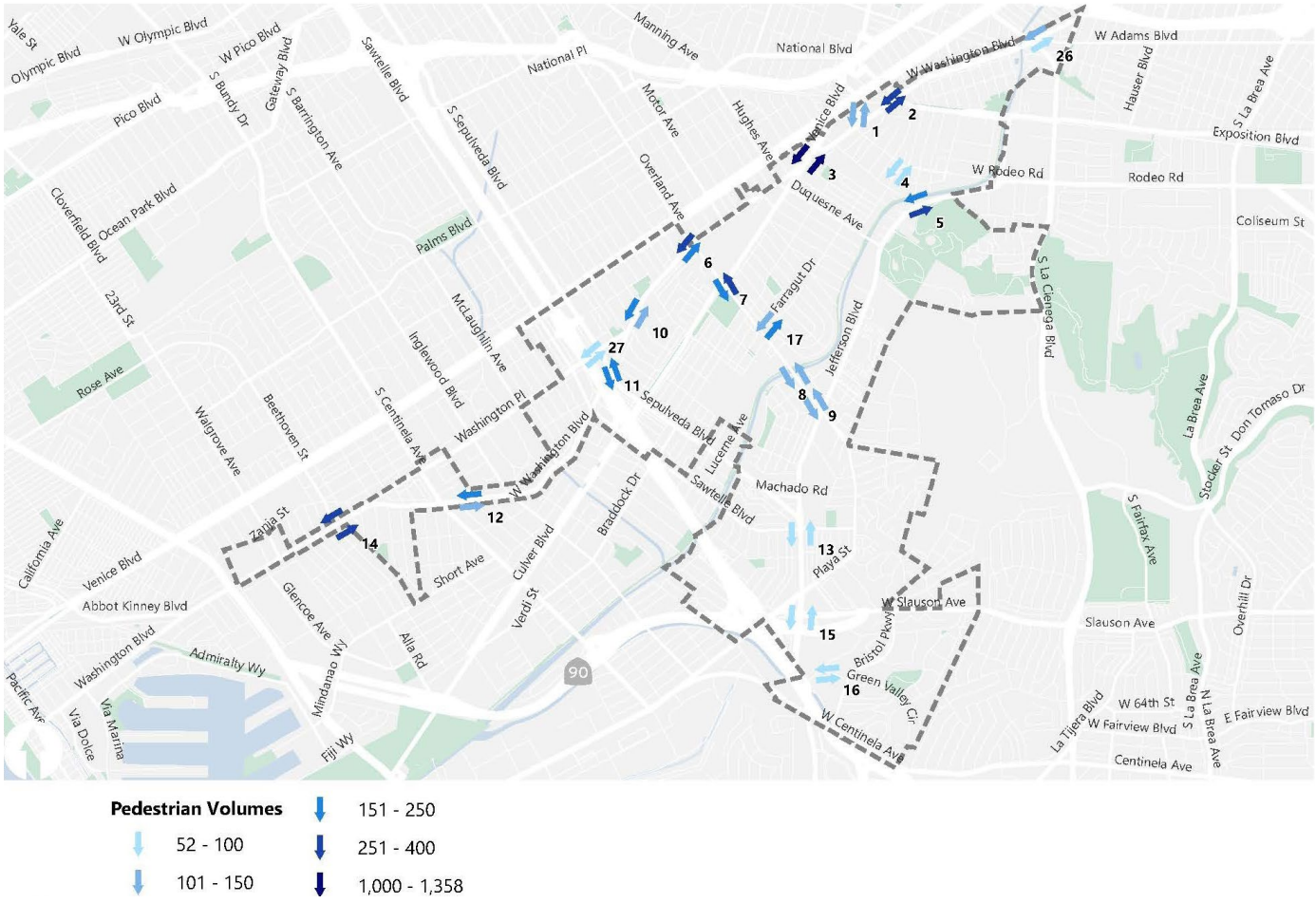
Four locations were collected by National Data & Surveying Service. Weekday counts were collected at these locations on Wednesday, 9/12/18 between 7AM-9AM and between 4PM-6PM. Weekend counts were collected on Saturday, 9/15/18 between 11AM-1PM. These locations are:

1. Lucerne Avenue W/O Higuera Street
2. Jefferson Boulevard S/O Hetzler Road
3. Green Valley Circle E/O Fox Hills Drive
4. Farragut Drive E/O Overland Avenue

Locations with the highest volumes of bicyclists are Location 14 (Washington Boulevard between Moore Street and Beethoven Street), Location 4 (Lucerne Avenue west of Higuera Street), Location 2 (Washington Boulevard between National Boulevard and Metro E (Expo) Line), and Location 3 (Washington Boulevard between Cardiff Avenue and Watseka Avenue). Peak bicycle counts are shown in **Figure 4**.

The most recent data indicate that cyclists were observed traveling through citywide

Figure 5 - Pedestrian Count Volumes



intersections nearly 500 times during the morning commute peak hour and over 580 times in the evening commute peak hour. During a typical weekend, cyclists were observed traveling through intersections over 460 times during the peak hours.

Locations with the highest volumes of pedestrians are Location 3 (Washington Boulevard between Cardiff Avenue and Watseka Avenue), Location 12 (Washington Boulevard between Moore Street and Beethoven Street), Location 5 (Overland Avenue between Culver Boulevard and Barman Avenue), and Location 4 (Washington Boulevard between Overland Avenue and Culver Boulevard). Peak pedestrian counts are shown in **Figure 5**.

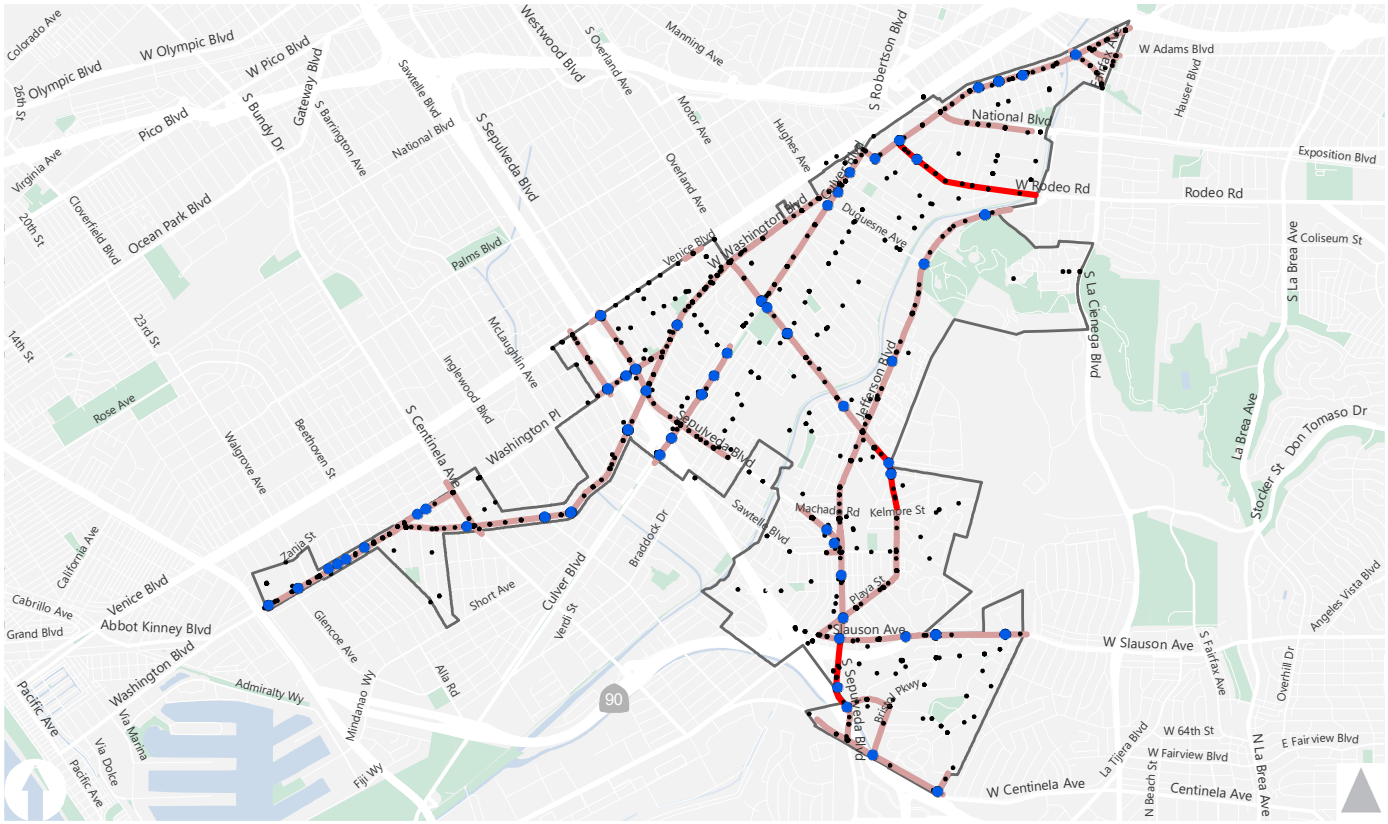
At the count locations, pedestrians were observed traveling nearly 1,700 times during the morning commute peak hour and over 3,100 times in the evening commute peak hour. During a typical weekend, pedestrians were observed traveling through intersections over 3,200 times during the peak hours.

COLLISIONS

As part of the Strategic Plan adopted in 2016, Culver City has made a bold commitment to eliminate serious injuries and fatalities on City streets. This commitment was reiterated in a study of Culver City's potential adoption of a policy called Vision Zero. Vision Zero is an international traffic safety philosophy that rejects the notion that traffic crashes are simply "accidents," but instead preventable incidents that can and must be systematically addressed. A Vision Zero Action Plan and Local Road Safety Plan are being developed independent of this project. The Vision Zero Action Plan includes a data-driven analysis of crash history in Culver City, the identification of a High Injury Network (HIN) – totaling just 15% of the City's streets and accounting for over 80% of the fatal and severe collisions – and a set of project recommendations customized to address the most frequent and severe types of crashes along the HIN **(Tables 4 and 5)**.

Crashes from 2014 through 2019 were analyzed to identify key trends (**Figure 6 and 7**). The full set of data included 1,909 crashes, including 72 crashes in which someone was killed or severely injured. Over the five-year period of time analyzed, the total number of annual crashes increased 38%, and crashes involving people walking or biking increased 69% and 12%, respectively. People walking in Culver City accounted for 5% of all crash victims, but nearly 26% of fatal victims. 17% of crashes resulting in a death or severe injury involved a driver under the influence of alcohol or drugs, and over half (57%) of fatal and severe injury crashes occurred at night. While more than three-quarters (83%) of crashes occurred on Culver City's large arterial roadways, those streets account for less than 16% of Culver City's total roadway network. As shown in **Figure 8**, the majority of fatalities and serious injuries occurred along Washington Boulevard, Overland Avenue, and Washington Place.

Figure 6 - All Collisions In Culver City (2014-2018)



High Injury Network

Existing High Injury Network

New additions to High Injury Network

KSI Collisions

All Collisions

Culver City

Figure 7 - All Collisions In Culver City as Heatmap (2014-2018)

Figure 1

Culver City: All Collisions (2014-2018)

Figure 8 - All Killed/Severly Injured (KSI) Collisions In Culver City as Heatmap (2014-2018)

High Injury Network (based on 2004-2014 collisions)

Culver City

KSI Collisions (2014-2018)

Sparse

Dense

Public School

Commercial Area

Park

Figure 1

Culver City: KSI Collisions (2014-2018)

Table 4 - Intersections with Most Collisions

Ranking	Intersection	Number of Collisions	KSI Collisions	Total Pedestrian Collisions	Total Pedestrian KSI Collisions	Total Bicycle Collisions	Total Bicycle KSI Collisions
1	Culver Blvd & Sawtelle Blvd	40	1	0	0	2	0
2	Sepulveda Blvd & Washington Blvd	40	1	3	1	0	0
3	Jefferson Blvd & Sepulveda Blvd	35	1	5	1	2	0
4	Overland Ave & W Washington Blvd	34	0	1	0	0	0
5	S Centinela Ave & Washington Blvd	32	0	4	0	0	0
6	Bristol Pkwy & W Slauson Ave	27	3	1	1	0	0
7	Buckingham Pkwy & W Slauson Ave	26	2	0	0	0	0
8	Roberts Ave & W Washington Blvd	26	0	2	0	2	0
9	Culver Blvd & Overland Ave	25	2	2	1	2	0
10	Glencoe Ave & Washington Blvd	24	1	3	0	0	0
11	Jefferson Blvd & Sawtelle Blvd & Sepulveda Blvd	24	0	2	0	0	0
12	Green Valley Cir & W Centinela Ave	24	1	2	0	0	0
13	W Washington Blvd & Wade St	22	0	4	0	1	0
14	Sepulveda Blvd & Slauson Ave	22	1	1	0	1	0
15	Culver Blvd & Sepulveda Blvd & Tuller Ave	22	0	1	0	2	0
16	Berryman Ave & Sepulveda Blvd	21	1	1	0	0	0
17	Bristol Pkwy & Green Valley Cir	19	0	0	0	0	0
18	Hannum Ave & Slauson Ave	18	0	0	0	0	0
19	S Sepulveda Blvd & W Centinela Ave	18	0	1	0	2	0
20	Bristol Pkwy & Interstate 405	17	1	0	0	0	0
21	Jefferson Blvd & Overland Ave	17	0	2	0	2	0
22	Washington Pl & S Centinela Ave	16	0	0	0	0	0
23	Sepulveda Blvd & State Route 187 & Venice Blvd	16	1	2	0	1	1
24	Jefferson Blvd & Machado Rd	16	0	1	0	0	0

Ranking	Intersection	Number of Collisions	KSI Collisions	Total Pedestrian Collisions	Total Pedestrian KSI Collisions	Total Bicycle Collisions	Total Bicycle KSI Collisions
25	Hetzler Rd & W Jefferson Blvd	16	2	0	0	0	0
26	Machado Rd & Sepulveda Blvd	15	0	1	0	0	0
27	W Washington Blvd & Walgrove Ave	14	0	0	0	0	0
28	Inglewood Blvd & Marcasel Ave & W Washington Blvd	14	2	2	1	1	1
29	Sawtelle Blvd & Washington Pl	14	2	2	1	0	0
30	Exposition Blvd & National Blvd & Washington Blvd	14	0	2	0	0	0
42	Braddock Dr & Overland Ave	10	2	3	1	1	0
53	Higuera St & Hoke Ave & Robertson Blvd & W Washington Blvd	9	2	2	1	1	1
61	Cattaraugus Ave & W Washington Blvd	8	2	0	0	1	0
68	Culver Blvd & Harter Ave	7	2	0	0	0	0
73	Northgate St & Overland Ave	7	2	1	0	0	0
75	W Washington Blvd & Alla Rd	6	2	1	1	0	0

Note: The final six intersections in this list are included because they have more than one KSI despite a lower number of overall collisions.

Table 5 - Collisions along the High Injury Network (HIN)

Street	From	To	Length (miles)	Number of Collisions	Number KSI
Adams Blvd	Washington Blvd	S Fairfax Ave	0.17	11	0
Bristol Pky	Green Valley Cir	W Centinela Ave	0.27	21	0
Culver Blvd	Corinth Ave	Elenda St	0.72	89	6
Culver Blvd	Overland Ave	Ince Blvd/Canfield Ave	0.94	64	3
Fairfax Ave	W Adams Blvd	Perry Dr	0.05	5	0
Green Valley Cir	W Centinela Ave	City Boundary (near 6666 Green Valley Circle Garage)	0.11	1	0
Green Valley Cir	Sepulveda Blvd	Bristol Pkwy	0.24	18	1
Higuera Street	Washington Blvd	City Boundary (near W Jefferson Blvd/ Obama Blvd)	0.79	23	1
Ince Blvd	Culver Blvd	Washington Blvd	0.06	3	0
Jefferson Blvd	Sepulveda Blvd	Slauson Ave	0.15	7	0
Jefferson Blvd	Sawtelle Blvd/ Sepulveda Blvd	City Boundary (Hetzler Rd)	2.18	113	4
La Cienega Blvd	Blackwelder St	City Boundary (Washington Blvd)	0.24	22	1
National Blvd	Washington Blvd	Eastham Dr	0.49	35	0
Overland Ave	Holy Cross Cemetery	Washington Blvd	1.95	157	9
Playa St	Sepulveda Blvd	Holy Cross Cemetery	0.32	14	0
S Centinela Ave	Mitchell Ave	Washington Blvd	0.33	20	0
Sawtelle Blvd	Sepulveda Blvd	Segrell Way/Bianco Way	0.07	8	0
Sawtelle Blvd	Venice Blvd	Washington Pl	0.39	38	2
Sepulveda Blvd	(500' north of) Machado Rd	W Centinela Ave	1.32	128	5
Sepulveda Blvd	Franklin Ave	Venice Blvd	1.03	104	2
Slauson Ave	Jefferson Blvd	Wooster Ave (City Boundary)	1.08	113	7
Venice Blvd	Sepulveda Blvd	Tuller Ave	0.06	0	0
Venice Blvd	Culver Ctr	Westwood Blvd	0.10	5	0
W Centinela Ave	City Boundary (near S Centinela Ave/ Mesmer Ave)	Green Valley Cir	0.76	63	2
Washington Blvd	Walnut Ave (City Boundary)	Culver Blvd/Irving Pl	3.95	346	15
Washington Blvd	Ince Blvd	S Genesee Ave (City Boundary)	1.50	115	7
Washington Pl	S Centinela Ave	Washington Blvd/ Rosabell St	0.39	15	2
Washington Pl	Washington Blvd	Albright Ave	0.42	48	3

EXISTING FACILITIES

Bikeway Types

The California Department of Transportation (Caltrans) designates four classes of bicycle facilities: Classes I, II, III, and IV. These classifications are broad descriptors, with a variety of design types making up each of the classes.

Shared-Use Paths (Class I)

Shared-use paths, or paved trails, are facilities that provide completely separated, exclusive right-of-way for bicycling, walking, and other non-motorized uses. They can be considered the lowest stress facilities, especially for the 'interested but concerned' riders, as there are few potential conflicts between people riding and people driving. There is a total of 4.4 miles of Class I (shared-use paths for pedestrians and cyclists) facilities in Culver City, with the longest being the Ballona Creek Bike Path (3.2 miles).

Ballona Creek Bike Path, Culver City

Bicycle Lanes (Class II)

Bicycle lanes are striped lanes on roadways for one-way bicycle travel. These types of facilities may be along a curb, or placed between curbside parking and moving traffic. Some bike lanes include striped buffers that add a few feet of separation between the bicycle lane and traffic lane or parking aisle. These facilities are important for the overall bikeway network Culver City strives to achieve in that they provide a designated space for riders along a roadway. Culver City currently has 6.5 miles of roads with bike lanes.

Green conflict striping in a Class II bike lane on Duquesne Avenue, Culver City

Buffered Class II Bike Lane, Long Beach

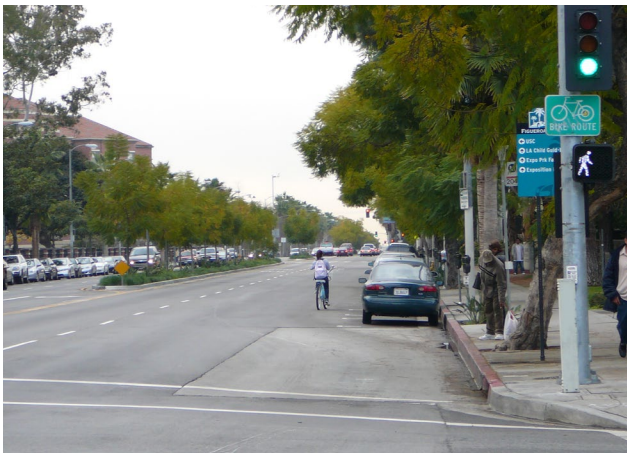
Bicycle Routes and Bike Boulevards (Class III)

Bicycle routes are signed routes where people riding bicycles share a travel lane with people driving motor vehicles. Because they are mixed-flow facilities, bicycle routes are only appropriate for low-traffic streets with slow travel speeds.

Some routes are designated only by Bike Route signs, while others are designated by signs and painted shared-lane markings, or "sharrows," to indicate a shared environment for bicycle riders and motorists. Among other benefits, shared-lane markings reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance.

Class III bike routes can be designated as "bicycle boulevards" by including engineering interventions to reduce the impetus for drivers to speed, reduce cut-through vehicle trips, and assist bicyclists and pedestrians in crossing busier roadways. Culver City currently has about 3.6 miles of Class III bicycle routes.

Class III Bike Route with sharrows on Irving Place, Culver City



Class III Bike Route with signage only, Los Angeles

Separated Bikeways (Class IV)

A separated bikeway, also known as a cycletrack or Class IV bikeway, is an on-street facility that is physically separated from motor vehicle traffic by a vertical element or barrier, such as a curb, bollards, or vehicle parking aisle. This facility type provides extra separation between moving vehicles and people riding bicycles so that bicyclists of all confidence levels can feel more secure while traveling along a roadway. These facilities can be unidirectional or bidirectional. Culver City currently has no separated bikeway facilities.

Class IV Bikeway, Downtown Los Angeles

Bidirectional Class IV Bikeway, Downtown Los Angeles

Existing Bikeway Network

Culver City currently has over 14 miles of bikeways (Classes I, II, and III) across 128 miles of roads. **Table 6** lists the total miles of bicycle facilities by classification, while **Figure 9** shows a map of the existing bikeway network in Culver City.

The City's existing network of Class I and Class II bicycle facilities is disconnected; few routes intersect with others, forcing cyclists to share space with motor vehicles. There are Class II bike lanes on Overland Avenue between Culver Boulevard and the Ballona Creek and path. Bike lanes along Washington Boulevard are inconsistent, changing between Class II and Class III multiple times. The Ballona Creek Bike Path is a popular regional bike route, but there are few access points in Culver City, and most access points are busy arterial streets

with no bike infrastructure (Sepulveda and Overland). Other access points, such as Duquesne, were recently restriped with green pavement and Class II bike lanes, providing a connection to Downtown.

Overall, Culver City's location and boundaries present a challenge for a continuous, connected bike network. Surrounded by the City and County of Los Angeles on all sides, many of Culver City's arterial streets take on the function of regional connectors for motor vehicle traffic in all directions and any reallocation of street space would require significant coordination from a regional traffic perspective. Further, streets such as Overland Avenue, Sepulveda Boulevard, and Washington Place are not contiguously inside the city's boundaries, thus requiring significant regional coordination to design continuous bikeways along these corridors.

Table 6 - Existing Bikeways in Culver City as of May 2019, by Class

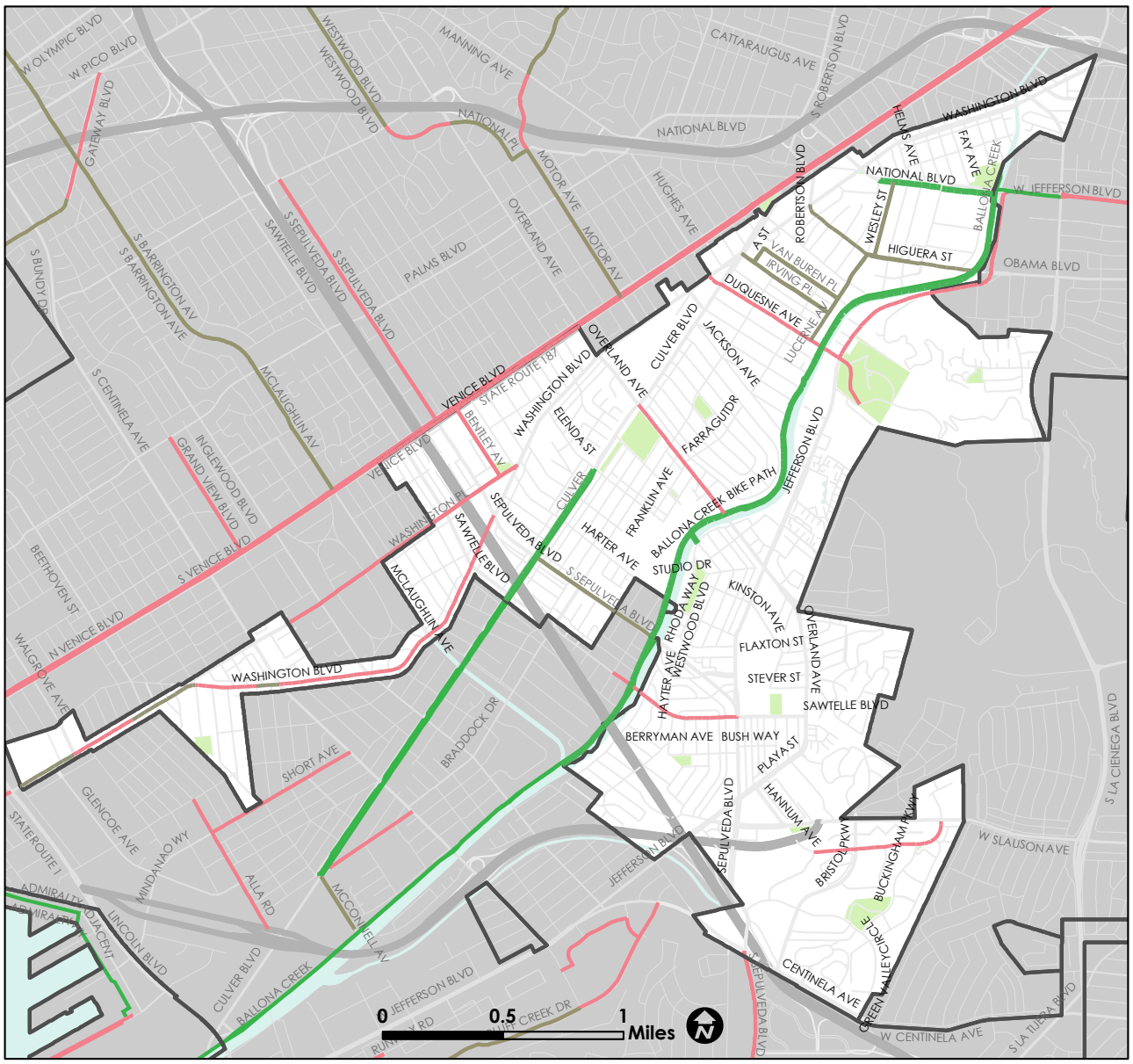
Bikeway Class	Length (Miles)
Shared Use Path (Class I)	4.4
Bike Lane (Class II)	6.5
Bicycle Route (Class III)	3.6
Total	**14.6**

Bicycle Parking

Bicycle parking can be categorized into short-term and long-term parking. Bicycle racks are the preferred device for short-term bicycle parking. Outdoor racks serve people who leave their bicycles for relatively short periods of time—typically for shopping, errands, eating, or recreation. Though they may have a variety of designs, racks should have two points of contact between the bicycle and rack for stability. The rack should be designed to allow for the frame and at least one wheel to be secured with a standard U-lock. A comparison of a variety of bike rack designs can be found in the Design Guidelines (Appendix D).

Long-term bicycle parking typically includes bike lockers and bike rooms and serve people who intend to leave their bicycles for longer periods of time. Long-term parking is typically found at public transit stations, commercial buildings, and multi-family residential buildings. The newly opened Metro Bike Hub at the Metro E (Expo) Line Station and the employee Bike Lockers at City Hall are examples of long-term bicycle parking.

Figure 9 - Map of Existing Bikeways in Culver City



Existing Bikeways

- Class I Shared-Use Path
- Class II Bicycle Lane
- Class III Bicycle Route/Boulevard

Culver CITY
BICYCLE & PEDESTRIAN ACTION PLAN

alta PLANNING + DESIGN

The City has installed over 100 bike racks in locations that were recommended in the 2010 Bicycle and Pedestrian Master Plan, and continues to install bike parking through requests from the public. Though bike parking exists throughout Culver City's commercial corridors, the racks are of varying designs. Several of these existing racks do not meet current best practices of bike rack design. For example, many racks are single-point racks, which do not support the frame of the bicycle because they only allow one wheel to make contact with the rack. These racks allow parked bikes to be easily knocked over, dismantled, and/or stolen.

However, the City's current stockpile of racks consist of inverted U-racks which do conform to national best practices. Many U-racks have already been installed across the city. There are nearly a dozen U-racks installed at Culver City's City Hall, providing greater security. U-racks have a compact design that provides a more reliable structure to keep locked bikes upright, while taking up significantly less space than single-point support racks when vacant. The City is working to standardize street furniture, including bus shelters, benches, and bike racks, and plans to gradually implement these designs throughout the City.

Some bike racks in Downtown Culver City do not provide two points of contact

Long-term bicycle parking, such as bike lockers, are more secure than bike racks. To date, bike lockers have been installed at City Hall for employee use, and at Culver City Metro E (Expo) Line Station for public use. A Metro Bike Hub is also currently located at the Culver City Metro E (Expo) Line Station. Metro Bike Hubs feature 24-hour secure bike parking, on-call mechanics, in-person staff, and classes / events. The Bike Hub opened in 2019 and is operated by Metro. While some businesses may allow staff to bring their bicycle indoors for storage, there is not consistent long-term bike parking at large employment centers, schools, Helms Bakery, or other destinations.

The Public Works Department requires bike parking based upon the type and size of developments. Public Works staff also provide recommendations on convenient locations within the development sites that are accessible and well lit. In addition to implementing new bike parking policies, the City is considering providing consistent bicycle valet at community events and developing bike parking standards for Culver City.

Table 7 - Recommendations for Bicycle Parking Locations and Quantities

Land Use or Location	Physical Location	Quantity
Parks	Adjacent to restrooms, picnic areas, fields, and other attractions	8 bicycle parking spaces per acre
Schools*	Near office and main entrance with good visibility	8 bicycle parking spaces per 40 students
Public Facilities (e.g., libraries, community centers)	Near main entrance with good visibility	8 bicycle parking spaces per location
Commercial, Retail, and Industrial Developments (over 10,000 square feet)	Near main entrance with good visibility	1 bicycle parking space per 15 employees or 8 bicycles per 10,000 square feet
Shopping Centers (over 10,000 square feet)	Near main entrance with good visibility	8 bicycle parking spaces per 10,000 square feet
Transit Stations	Near platform, security or ticket booth	1 bicycle parking space or locker per 30 automobile parking spaces
Multi-Family Residential	Near main entrance with good visibility	1 short-term bicycle parking space per 10 residential units and 1 long-term bicycle parking space per 2 residential units

** School regulations are often outside of the jurisdiction of City regulations.*

Source: APBP, 2015

The Plan recommends that each implementing agency review (and update if necessary) its bicycle parking requirements regularly. While public entities may lack the authority to install bicycle parking on private rights-of-way, this Plan also recommends that Culver City partner with school districts, transit providers, and private property owners to install and retrofit bicycle parking at existing and new destinations as needed.

These guidelines and recommendations are based on industry best practices as well as the Association of Pedestrian and Bicycle Professionals' (APBP) Essentials of Bicycle Parking Recommendations. **Table 7** presents an overview of APBP's recommendations for bicycle parking locations and quantities.

Other Bicycle-Supporting Facilities

To enhance connectivity and support multi-modal trips, every Culver CityBus is equipped with bike racks that can carry up to three bicycles. Also, foldable bikes are allowed inside the bus. Metro's E (Expo) Line allows bicycles at all times, connecting residents and visitors to the wider regional network.

Starting in 2020, Culver City has partnered with Metro to install 12 Bike Share Stations throughout the city. Metro Bike Share is a regional system of both docked and dockless shared bikes which can be rented by the minute for a fee, or with an annual pass. More information on the Metro Bike Share system is available at **bikeshare.metro.net.**

Existing Pedestrian Network

Most streets in Culver City have existing sidewalks in good condition. Downtown Culver City features wide promenade sidewalks, making plenty of room for amenities like seating, planters, and public art. However, there are some locations where sidewalks are lacking. Sidewalks are missing along both sides of Bentley Avenue from Venice Boulevard to Washington Place. Sidewalks are also missing on the south side of Slauson Avenue, east of Hannum Avenue. Further, on Hannum Avenue, sidewalks are being installed to complement new developments, but many gaps still exist. Community members also indicated that sidewalks are too narrow along National Boulevard and Braddock Drive. Culver City's ADA Self Evaluation and Transition Plan identifies specific facilities that do not meet current ADA standards, including sidewalks and curb ramps.

Though marked crosswalks exist at many major intersections across the city, many are simply transverse lines, and should be updated to high-visibility continental or ladder designs to increase visibility. Existing continental crosswalks are primarily concentrated on Washington Boulevard east of Downtown, while Downtown features red brick-patterned crosswalks along Culver Boulevard. Further, many major intersections have one leg that is closed to pedestrian crossing, forcing people to cross multiple times to get to their destination, or even

Two women push a stroller along Duquesne Avenue

A man with visual impairments crosses Culver Boulevard

Traffic circle on Higuera Street

cross at the unmarked leg in violation of posted signs. Community members identified multiple intersections and mid-block locations where new or improved crossings are needed.

Culver City has two locations with a Leading Pedestrian Interval (LPI). One LPI can be found at Washington Boulevard and Motor Avenue, and the other near City Hall at Duquesne Avenue and Culver Boulevard. LPIs give pedestrians a head start of three to seven seconds before the light for automotive traffic traveling in the same direction turns green. They increase visibility of pedestrians in crosswalks and indicate to drivers that pedestrians have the right-of-way.

Various traffic calming measures exist throughout the city. The Hayden Tract, for example, features a diverter and median at Higuera Street and Hayden Place. Higuera Street, between Washington Boulevard and Hayden Place, features mini traffic circles with landscaping, a landscaped median, pinch points, and curb extensions. The intersection of Braddock Drive and Huntley Avenue also features a traffic circle. The City will soon implement a variety of traffic calming devices including center medians and bulb-outs, in addition to enhancements to signage and pavement markings in the La Ballona School area.

In early 2018, new bus stop furniture was installed at 31 bus stops along Sepulveda Boulevard, Washington Boulevard, and at the Robertson Transit Hub at the Metro E (Expo) Line Station. The improved stops feature shade and seating. Additionally, there are numerous benches and public seating in Downtown and along Sepulveda Boulevard. The City is also in the process of developing standards for bus stop designs and furnishings.

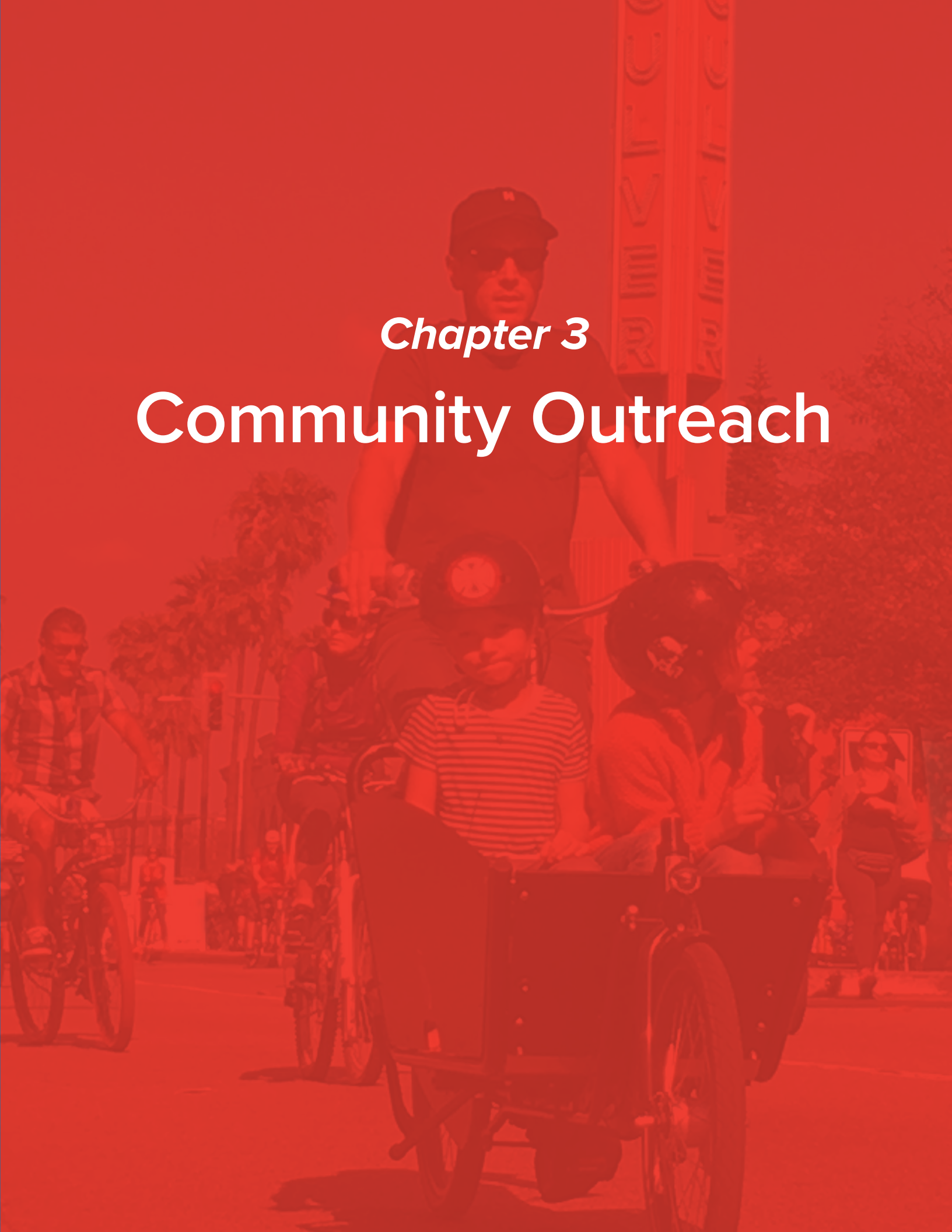
High levels of pedestrian activity have been identified along Culver Boulevard (in Downtown), Washington Boulevard (at Sawtelle Boulevard, Harter Avenue, Higuera Street, and La Cienega Boulevard), Braddock Drive (near Culver City High School), and Sepulveda Boulevard (at Overland Avenue, Culver Boulevard, and Playa Street). In 2020, the Downtown development, Culver Steps, opened and provided additional public space for people to congregate and walk in areas away from vehicular traffic. On the other hand, parts of the city west of Interstate 405 experience lower volumes of pedestrian activity, as the area offers a less pleasant walking environment.

Multiple studio lots in the city serve as major employment centers but are closed campuses with few pedestrian entrances. There are also 13 City parks and multiple commercial / retail centers (e.g., Westfield Culver City, Downtown) that are currently more vehicle- rather than pedestrian-oriented. Similarly, many schools in the city lack complete pedestrian networks to serve the high levels of walkers and other pedestrian activity in the vicinities. It should be noted that City staff is currently reviewing school areas throughout the City. Recommendations in the areas of El Rincon and El Marino Elementary Schools including improvements to signage, pavement markings, curb ramps and temporary narrowing devices and channelization at a number of intersections will be implemented in 2020.

Lighting

Acorn and Ameron street light poles are most commonly used in the City. A large number of induction lights that were installed within the last ten years still remain. The City also still has some old high pressure sodium street lights and a few mercury vapor street lights. It should be noted that the City is gradually upgrading the street lights to LED as budget permits. The City is also currently investigating the application of smart street lights in key areas such as Downtown. In Fiscal Year 2020/2021, new pedestrian-scale street lights will be installed along the Elenda Street cycle track and other street segments as provided by the Council approved La Ballona Safe Routes to School project.

Tree-lined street with pedestrian lighting in the Carlson Park Neighborhood



Chapter 3

Community Outreach

IN-PERSON OUTREACH

The project team led outreach efforts to gather community input throughout the development of the Culver City Bicycle and Pedestrian Action Plan. This engagement helped the project team understand barriers and opportunities for walking and biking in Culver City and gave stakeholders a chance to respond to the draft plan and provide additional input on their needs and desires. These efforts included conducting surveys, hosting an online public input map, and attending various stakeholder meetings, and over a dozen community events. More than 5,000 community stakeholders were informed of the process or engaged in this plan. The project team also collected stakeholder contact information for updates about the plan, including links to the draft and final plan.

This chapter details the many events the project team attended – from formal presentations at City Council to pop-up outreach at community events.

A Technical Advisory Committee (TAC) was formed to provide input on the Plan throughout its development. The committee consisted of City staff from Transportation Planning, Economic Development, Public Works, Fire, Planning, and Parks. Throughout the planning process, the project team attended multiple Bicycle & Pedestrian Advisory Committee (BPAC) meetings to gain additional input from stakeholders including local residents and representatives from Culver City Unified School District, Chamber of Commerce, and local businesses. The project team also met with City Council, Culver City Chamber of Commerce Governmental Affairs Committee, and other stakeholder groups.

Community members discuss Elenda Street changes during an outreach event

Table 8 - Outreach Meetings and Events

Date	Description	Number of People Reached
July 20, 2017	Bicycle & Pedestrian Advisory Committee Meeting: General	10
October 9, 2017	City Council Meeting	120
October 17, 2017	Culver City Chamber of Commerce Governmental Affairs Committee	10
October 25, 2017	Technical Advisory Committee Meeting	20
November 4, 2017	Citywide Stakeholder 1: La Ballona Fall Festival	300+
November 16, 2017	Bicycle & Pedestrian Advisory Committee Meeting: Vision Zero	30+
January 24, 2018	Bicycle & Pedestrian Advisory Committee Meeting: Opportunity Corridors	13
March 23, 2018	Baldwin Hills Conservancy Board Meeting	25
March 27, 2018	Culver City Chamber of Commerce: Issues & Eggs Breakfast	75+
April 24, 2018	Culver City Unified School District Board Meeting	100+
May 6, 2018	5th Annual Art Walk + Roll Festival	125
August 24 - 26, 2018	Fiesta La Ballona	5,000+
November 29, 2018	Bicycle & Pedestrian Advisory Committee Meeting: Opportunity Corridors Update	15
May 18, 2019	Jackson Avenue Gate Opening Community Meeting	50

Project staff also identified numerous existing community events that provided an opportunity to reach people who may not typically attend City or stakeholder meetings. At each event, community members provided input, identifying opportunities and challenges to walking and biking in Culver City. Boards were designed to aid the community members in understanding the types of bicycle and pedestrian facilities that were being considered for inclusion in the Plan. A summary of these events and stakeholder meetings described are listed in **Table 8**, with a detailed description of each event found in Appendix C.

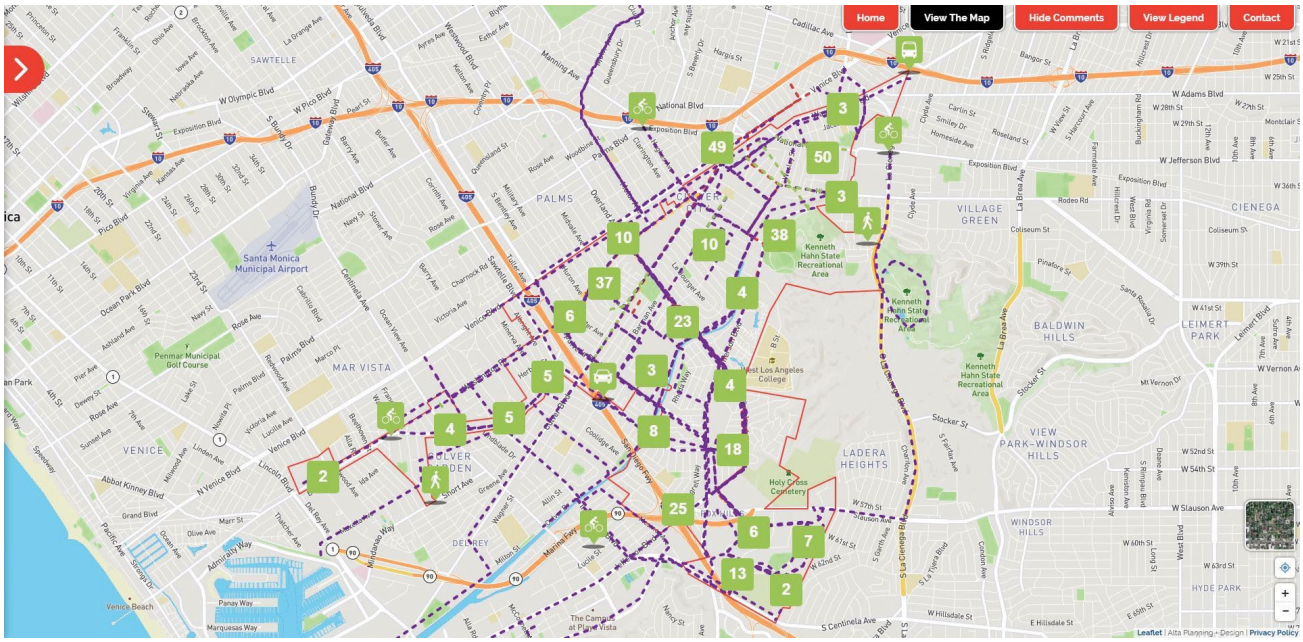
ONLINE ENGAGEMENT

To engage the widest audience possible, the project team utilized the City's existing social media channels and email listservs. Additionally, a project website was developed to provide the public with updates to the plan. The website featured an interactive mapping tool that allowed community members to draw preferred walking and biking routes and comment on areas of concern or opportunity.

Public Input Map

Nearly 600 comments were collected on a live interactive map on the project website from October 2017 through June 2018. These comments were viewable on an online map at CulverCity.BikePedPlan.com.

Residents were asked to provide their bike and pedestrian recommendations throughout the city, and were encouraged to vote for or 'like' comments given by fellow community members to increase priority. One comment frequently received included advocating for a protected bikeway on Overland Avenue. Other residents



Stakeholders left nearly 600 comments regarding biking and walking in Culver City on an interactive map featured on the project website

requested an extension of the existing median bike path on Culver Boulevard to Downtown Culver City. While increasing connectivity within the City was a popular topic, participants also indicated a desire for connections to the Los Angeles City Master Bike Plan facilities, such as from Culver Boulevard to Beethoven Street.

Pedestrian safety was also heavily emphasized in stakeholders' comments. For example, comments identified the intersection of Green Valley Circle and Fox Hills Drive as dangerous due to heavy traffic and the curvature of the roadway. The residents suggested traffic lights or stop signs with additional crosswalks. Multiple comments advocated for a safe crossing near Culver City's library on Overland Avenue, just north of Ballona Creek.

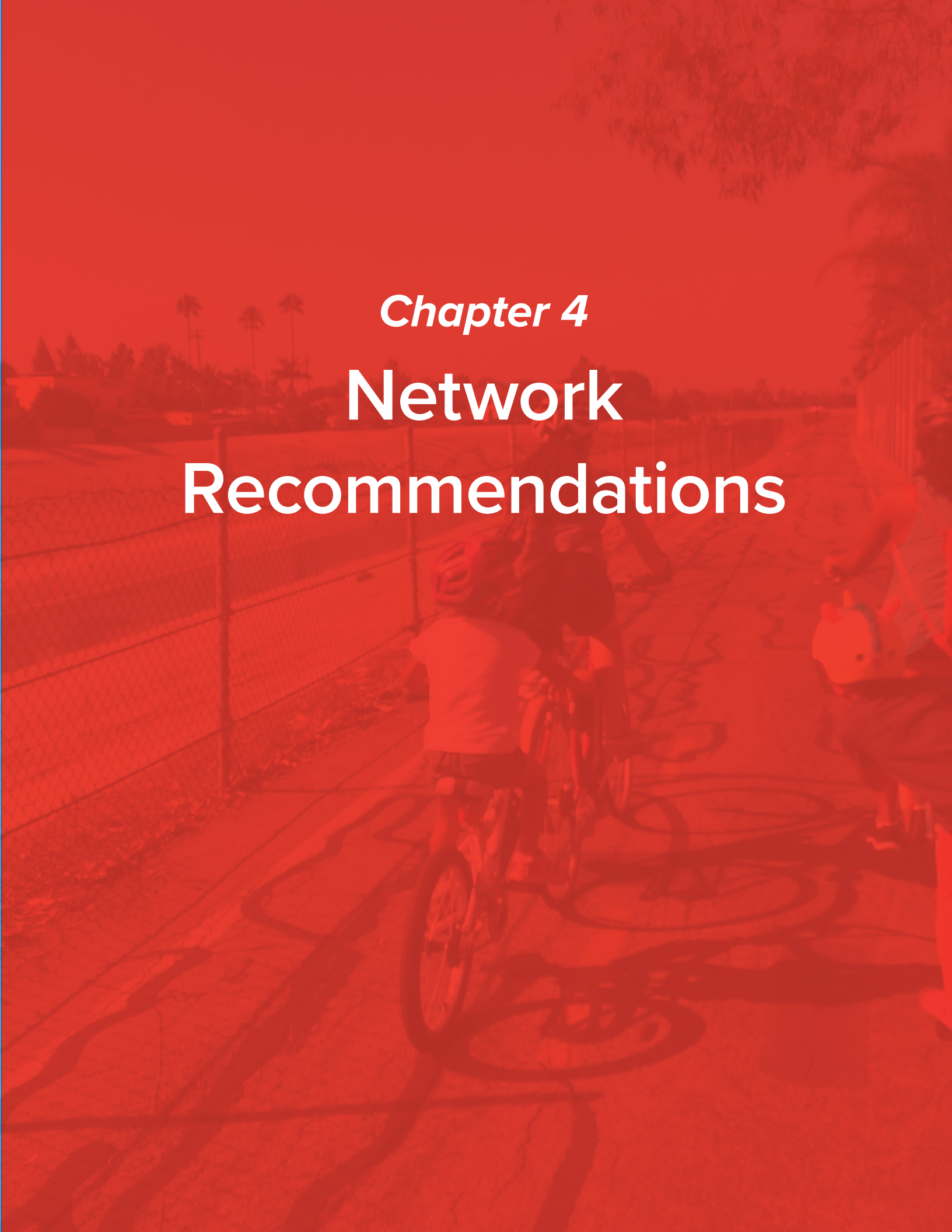
Access and better connections to and from the Ballona Creek path was also a popular topic indicated on the interactive map and at in-person outreach. One resident suggested adding an exit from the Ballona Creek path on the opposite side of Duquesne Avenue because it is dangerous for bicyclists making left turns coming off the path. Residents also noted that the gate at Jackson Avenue along the path should be opened, as well as the east side gate of Sawtelle Boulevard.

People of all ages were invited to comment on the plan at La Ballona Fall Festival (left) and a BPAC meeting (right)

Community Survey

The project team conducted a community survey to gather input on challenges and opportunities, walking and bicycling travel patterns, preferred bicycle and pedestrian facilities, and specific locations where active transportation improvements are needed. In addition to an online presence via the project website, the project team also administered the survey during the first round of community outreach events.

During the outreach efforts, 235 people completed the survey. Nearly a quarter of respondents reported that they commute to work or school by walking at least one day per week, while 27% bike to work or school at least one day per week. An additional 55% of respondents ride a bike and 79% walk at least once a week for recreation or exercise. Survey respondents identified a lack of time, destinations that are too far, and concerns about safety as the primary reasons they do not walk more often. They also indicated that a lack of dedicated bikeways, concerns about safety, and not having enough time or destinations that are too far as the top reasons they do not bike in Culver City more often.



Chapter 4

Network Recommendations

This chapter introduces the bicycle and pedestrian infrastructure and supporting amenities that Culver City intends to implement in the coming years, and the overall strategy the project team employed in evaluating which type of facility should be recommended at specific locations, guided by the community input throughout the outreach process

A family rides along Higuera Street

HOW WE DEVELOPED THE RECOMMENDED PEDESTRIAN & BICYCLE PROJECTS

Public Input

Demand for new and improved bicycle and pedestrian facilities was recorded through community meetings and outreach events, the website comment feature, online community input map, and the community survey. Roadways and areas that were mentioned multiple times across different outreach methods were examined as highest priority for inclusion in the recommended projects.

WHAT WE HEARD	WHAT WE'VE PROPOSED
Access is limited	Multiple cross-town corridors that help people bicycle and walk safely to schools, parks, commercial centers, the library, Ballona Creek, and other key destinations from as many parts of Culver City as possible.
Biking and walking can be uncomfortable	When possible, bikeways on high-stress corridors should provide separation from vehicles and other connections should be made on calmer residential streets. New and improved crossings and walking paths will help people walking feel more comfortable.
Interactions with vehicle traffic can deter biking and walking	Traffic calming is recommended at various locations across the city, particularly in the form of curb extensions and traffic circles. Physical separation from moving vehicles is important to people of all ages.
Ballona Creek is a key network link, but does not serve local trips well	The Ballona Creek Path is a great foundation for a network, but requires more points of entry and exit, and a more connected network of bikeways to properly serve as a connection for trips originating or ending in Culver City.

2010 Bicycle and Pedestrian Master Plan

The project team began by identifying completed projects and re-examined uncompleted recommendations from the 2010 plan, where possible.

Connections to Local Destinations

The project team identified bicycle and pedestrian projects that better connect users to parks, commercial centers, transit stops, and local schools.

Gap Closure

The project team identified where new facilities were needed to close key gaps in the existing bicycle and pedestrian networks.

Concurrent Planning Efforts

The project team incorporated other active transportation projects that were part of recent or upcoming planning efforts, including neighboring jurisdictions.

A family rides along a demonstration of a Class IV bikeway on Elenda Street

Two children enjoy a ride on the back of a bucket bike

GUIDING PRINCIPLE FOR RECOMMENDATIONS: A COMMITMENT TO MOBILITY FOR ALL

In 2014, California passed a law allowing cities to install Class IV Bikeways, which are on-street bicycle facilities that include a vertical physical barrier between the bikeway and moving auto traffic, such as flexible bollards, a raised curb, on-street parking, or planter boxes. Depending on the agency or jurisdiction, Class IV bikeways may also be referred to as "protected bikeways" or "two-way cycle tracks." In California, the preferred term is "separated bikeway." These types of facilities were not permitted in California when the previous Bicycle and Pedestrian Master Plan was adopted, so this is a new type of facility to be considered in Culver City.

Class IV Bikeways can be designed to allow for either one- or two-way travel. Two-way travel can be considered a special treatment that is only recommended with specific roadway characteristics and conditions. Both types of Class IV Bikeways often require more road width than Class II non-buffered bike lanes due to added barriers, buffers, and other traffic control devices. They also generally require the removal of more parking than Class II bikeways at mixing zones like driveways or intersections in order to increase visibility and reduce potential for conflicts between bicyclists, moving motor vehicles, and doors of parked motor vehicles. Class IV bikeways often require signal modifications, and can be accompanied with protected intersections that have added physical devices and channelizing islands.

Separated bikeways provide increased safety and comfort for bicyclists beyond more traditional facilities like Class III bicycle routes or Class II bicycle lanes. While these treatments may be sufficient to support bicycling on streets with relatively low traffic speeds and volumes, increased operating space and physical separation of bikeways have been shown to increase bicyclist comfort and safety.[6] Only a small percentage of the population is likely to be comfortable bicycling in the roadway with vehicles or near traffic in a standard bicycle lane, a sentiment shared by community members during the engagement process. Separated bikeways can close key gaps and provide connectivity along corridors that would otherwise be unusable for most people.

The overall benefits of separated bikeways should be considered as Culver City evaluates projects, and additional consideration should be given to these benefits when reallocating road space from solely auto-dominated spaces to create dedicated spaces for bicycling or reducing pedestrian exposure to vehicle traffic. While introducing some bike facilities may be possible with lane narrowing, transformative projects like Class IV bikeways usually require the reduction of a general flow traffic

6 Teschke, Kay, M. Anne Harris, Conor C. O. Reynolds, Meghan Winters, Selina Babul, Mary Chipman, and Michael D. Cusimano. 2012. "Route Infrastructure and the Risk of Injuries to Bicyclists: A Case-Crossover Study." American Journal of Public Health 102 (12): 2336 – 2343. https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2012.300762.

lane or curbside parking. While the City understands the desire of people who wish to minimize delays in motor vehicle travel or those who wish to store their vehicle on the public right-of-way, the City intends to prioritize the safety of all people traveling on roadways–no matter what mode they are using. As the vast majority of streets in Culver City and throughout the region are designed for the primary (and in many cases exclusive) use of motor vehicles, these projects will require some trade-offs; however, Culver City reaffirms that the safety of our residents and visitors must be of the utmost priority when redesigning our streets, and will take appropriate measures to ensure roadways reflect these priorities.

INCREASING BICYCLING & WALKING

Expanding the network of pedestrian facilities and bikeways brings Culver City closer to achieving the goals described in Chapter 1 of this Plan. More bikeways and pedestrian facilities increase access and connectivity for residents and visitors. The ultimate goal, however, is that more people use these facilities and improve their health and wellbeing by walking and bicycling more often. It is the goal of this Plan that bicycling and walking trips increase by at least 30% in the next 10 years as we implement these projects.

Walking, bicycling, and scooting as people head toward downtown from the Expo (E) Station

DESIGN GUIDELINES

In order to achieve the goals of the plan as well as the guiding principle of mobility for all, the City needs to remain at the leading edge of facility design. While walking is the oldest form of transportation, and bicycling has been popular for more than 100 years, the engineering and design of facilities for walking and bicycling is still a relatively nascent field. The Plan includes Appendix D, the Bicycle & Pedestrian Facility Guidelines, which details the types of facilities proposed in our recommendations and provides detailed design features, and typical uses. It should also be noted that the City adopted a Complete Streets Policy in January 2020 and is pursuing the establishment of Complete Streets Design Guidelines and recently applied for the Sustainable Transportation Planning grant to assist in funding its development.

BICYCLE RECOMMENDATIONS

In 2010, at the time Culver City adopted its last Bicycle and Pedestrian Master Plan, the City had just over four miles of existing bikeways. Today, there are over 14 miles of bikeways in Culver City and a corresponding increased desire among residents for bicycle infrastructure that provides greater safety and comfort for bicycle riders of varying ages and abilities. Building off of this momentum, an additional 22 miles are proposed in this Plan, including over seven miles of separated bike lanes on the most high-stress corridors (see **Figure 10** and **Table 9**). The majority of recommended bikeways are new projects where bikeways do not exist today, though a portion of existing bikeways are recommended for an upgrade.

Figure 10 - Miles of Recommended Bikeways by Type

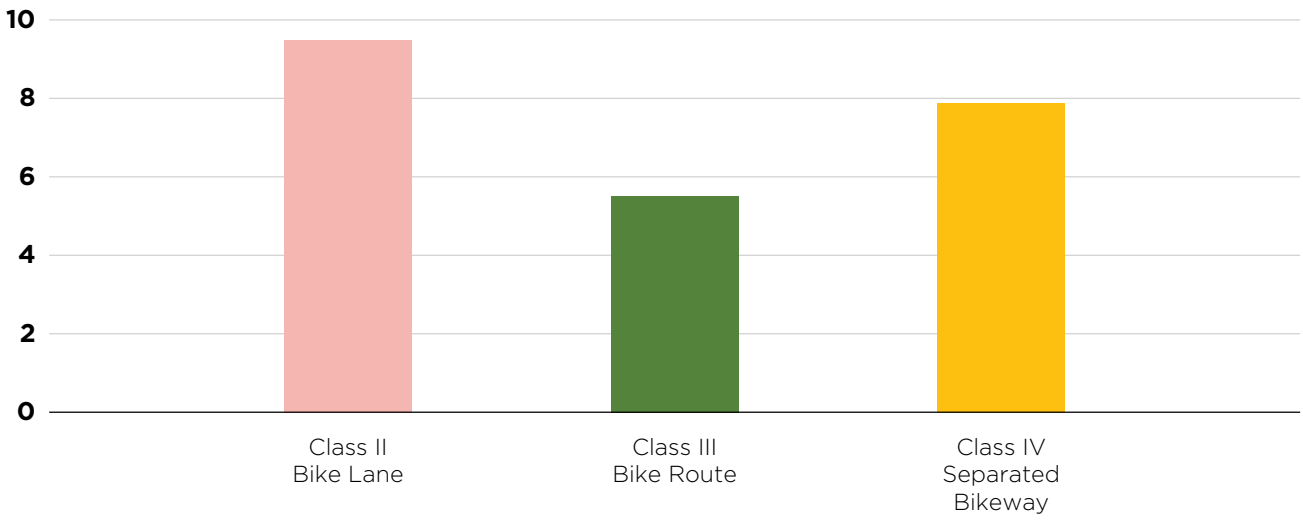


Table 9 - Miles of Recommended Bikeways by Type

Facility Recommendation Type	Total Length (Miles)	Number of Recommended Projects
Class II Bike Lane	9.5	18
Class III Bike Route/Boulevard	5.46	18
Class IV Separated Bikeway	7.91	10
Grand Total	**22.85**	**46**

When surveyed, only 34% of Culver City stakeholders stated that they feel 'comfortable' biking and only 12% reported feeling 'safe' from motor vehicles. Over half of community members attributed a lack of dedicated bikeways – and particularly connections to their destinations – as their reasons for not biking more often (or at all). The proposed bikeway network provides a variety of options for riding across the city for people of varying comfort levels, abilities, and ages. When making recommendations, the project team also explored how new bikeways could better connect people to transit, schools, libraries parks, and commercial centers, among other destinations.

The city's larger arterials have high volumes of vehicle traffic, but also connect to many priority community destinations and thus, could serve as convenient routes for bicycling. Due to posted speed limits and the amount of traffic on these roads, physically-separated bicycle lanes (Class IV) would make traveling by bike a safer, more comfortable option for many people. Where existing right-of-way does not allow for a physical barrier, painted bicycle lanes (Class II) could be installed to create useful connections, albeit with less comfort than facilities with physical separation.

The citywide network is augmented by low-stress Bike Routes and Bike Boulevards (Class III) that allow for families and less confident bicyclists to reach their destinations using local neighborhood streets instead of busy arterials. While a Bike Boulevard often involves bicycle traffic sharing the roadway with motor vehicles, these projects are designed to reduce the dominance of motor vehicles on the roadway, provide a more relaxed riding experience, and reduce cut-through traffic in neighborhoods. Through a variety of traffic calming elements like plantings, chicanes, speed humps, and diverters, the built environment can reinforce that these streets are not intended for cut-through vehicle traffic and reduce the impetus for drivers to speed. These Bike Boulevard elements not only improve bicycling, but also improve the safety of pedestrians and have the potential to reduce noise and pollution by reducing both the volumes and speed of cut-through vehicle traffic on residential streets.

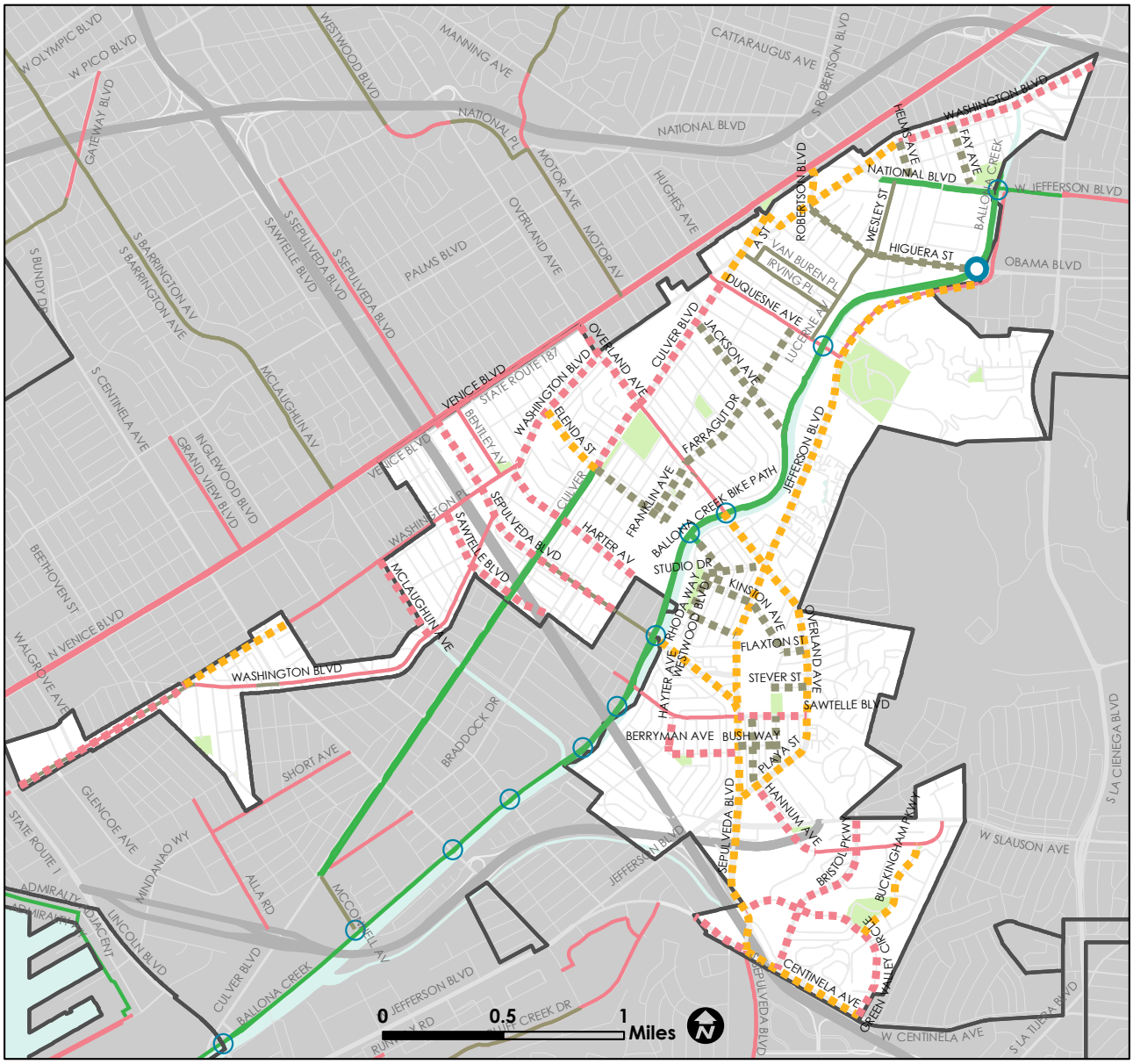
Depending on future available funding and additional public outreach, Bike Boulevards can also feature amenities like wayfinding and landscaping. Recommended bikeway projects are shown in **Figure 11** and detailed in **Table 10**. For an overview of bicycle facility types, see Appendix D.

Not Just for Bicyclists

Although called "bikeways," such facilities are frequently used not just by people riding bikes, but also by other small-wheeled devices such as mobility scooters, skateboards, roller skates, and more. California vehicle Code also requires pedestrians use bike lanes if the sidewalk is unavailable. Further, bikeways may be used by other modes as new technologies emerge, such as shared E-scooters.

The Class II Bike Lane on Duquesne Avenue includes green markings.

Figure 11 - Recommended Bicycle Facilities



Recommended Bikeways

- Class I Shared-Use Path
- Class II Bicycle Lane
- Class III Bike Route/Boulevard
- Class IV Separated Bikeway
- New Entrance to Bike Path

Existing Bikeways

- Class I Shared-Use Path
- Class II Bicycle Lane
- Class III Bike Route/Boulevard
- Entrance to Bike Path

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BICYCLE & PEDESTRIAN ACTION PLAN

alta PLANNING + DESIGN

Table 10 - Recommended Bikeway Projects

Corridor (A-Z)	From	To	Facility Type	Length (Miles)
Berryman Ave	Hayter Ave	Sepulveda Blvd	Class II Bicycle Lane	0.32
Bristol Pkwy	Slauson Ave	Centinela Ave	Class II Bicycle Lane	0.76
Buckingham Pkwy	Hannum Ave	Green Valley Circle	Class IV Separated Bikeway	0.45
Bush Way	Sepulveda Blvd	Malat Way	Class III Bike Route	0.16
Centinela Ave	Sepulveda Blvd	Green Valley Circle	Class IV Separated Bikeway	0.54
Centinela Ave	Mesmer Ave	Sepulveda Ave	Class II Bicycle Lane	0.26
Cota St	Rhoda Way	Jefferson Blvd	Class III Bike Route	0.20
Culver Blvd	Elenda St	Overland Ave	Class II Bicycle Lane	0.32
Culver Blvd	Overland Ave	Duquesne Avenue	Class II Bicycle Lane	0.61
Culver Blvd	Duquesne Avenue	Washington Blvd	Class IV Separated Bikeway	0.33
Elenda St	Culver Blvd	Farragut Dr	Class III Bike Route	0.35
Elenda St	Washington Blvd	Culver Blvd	Class IV Separated Bikeway	0.32
Farragut Dr	Overland Ave	Duquesne Ave	Class III Bike Route	0.72
Farragut Dr	Elenda St	Overland Ave	Class III Bike Route	0.23
Fay Ave	Washington Blvd	National Blvd	Class III Bike Route	0.25
Flaxton St	Kinston Ave	Overland Ave	Class III Bike Route	0.09
Franklin Ave	Elenda St	Overland Ave	Class III Bike Route	0.25
Green Valley Circle	Sepulveda Blvd	Centinela Ave	Class II Bicycle Lane	0.91
Hannum Ave	Playa St	Slauson Ave	Class II Bicycle Lane	0.36
Hannum Ave	Sawtelle Blvd	Playa St	Class III Bike Route	0.28
Harter Ave	Washington Blvd	City Limit	Class II Bicycle Lane	0.67
Hayter Ave	Sawtelle Blvd	Port Road	Class II Bicycle Lane	0.12
Helms Ave	Washington Blvd	National Blvd	Class III Bike Route	0.15
Higuera St	Washington Blvd	City Limit	Class III Bike Route	0.77
Jackson Ave	Culver Blvd	Ballona Creek Bike Path	Class III Bike Route	0.59
Jefferson Blvd	City Limit	Sepulveda Blvd	Class IV Separated Bikeway	2.20
Kinston Ave	Rhoda Way	Flaxton St	Class III Bike Route	0.46
Malat Way	Sawtelle Blvd	Playa St	Class III Bike Route	0.21
McLaughlin Ave	Washington Pl	Washington Blvd	Class II Bicycle Lane	0.37
Overland Ave	Ballona Creek Bike Path	Play a St	Class IV Separated Bikeway	1.07
Overland Ave	Venice Blvd	Culver Blvd	Class II Bicycle Lane	0.40
Playa St	Sepulveda Blvd	Overland Ave	Class IV Separated Bikeway	0.35
Rhoda Way	Studio Dr	Cota St	Class III Bike Route	0.18

Table 10 - Recommended Bikeway Projects (*continued*)

Corridor (A-Z)	From	To	Facility Type	Length (Miles)
Robertson Blvd	Venice Blvd	Washington Blvd	Class II Bicycle Lane	0.15
Sawtelle Blvd	Sepulveda Blvd	Overland Ave	Class II Bicycle Lane	0.29
Sawtelle Blvd	Washington Place	City Limit	Class II Bicycle Lane	0.62
Sepulveda Blvd	Ballona Creek Bike Path	Centinela Ave	Class IV Separated Bikeway	1.46
Sepulveda Blvd	Venice Blvd	City Limit	Class II Bicycle Lane	1.10
Stever St	Kinston Ave	Overland Ave	Class III Bike Route	0.15
Studio Dr	Rhoda Way	Jefferson Blvd	Class III Bike Route	0.20
Washington Blvd	Culver Blvd	Helms Ave	Class IV Separated Bikeway	0.67
Washington Blvd	Helms Ave	Fairfax Ave	Class II Bicycle Lane	0.87
Washington Blvd	Lincoln Blvd	Zanja St	Class II Bicycle Lane	0.80
Washington Blvd	Harter Ave	Overland Ave	Class II Bicycle Lane	0.57
Washington Pl	Zanja St	Grand View Blvd	Class IV Separated Bikeway	0.50
Westwood Blvd	Ocean Dr	Studio Drive	Class III Bike Route	0.22

The Importance of a Connected Network

Much like transit, or a highway system, bikeways should not simply end and start at points without connecting the user to the larger network. Like many cities in the United States, Culver City installed bikeways throughout the last 30 years, where they fit easily with minimal impacts to motor vehicle space. This strategy has provided Culver City with some bikeways, but the city lacks a coherent, continuous network of bikeways. The recommended bikeways listed in this chapter seek to complete that network as a whole, but will be completed on a project-by-project basis. Chapter 7, which discusses prioritization and implementation, is designed to help policymakers and community members see a path forward to realizing a more complete, connected network.

Additionally, recommended bikeways with potential alteration to existing transit operations/facilities will be coordinated with the Transportation Department that operates Culver CityBus. The City's Public Works Department will also coordinate with other agencies with regards to the Metro, Big Blue, and LADOT Commuter Express lines.

Supporting Bicycle Infrastructure

Building out a comfortable, safe bikeway network is an essential step in supporting existing bicyclists and attracting more people to ride a bike in Culver City. Additional supporting infrastructure could further add to a the enjoyment and safety of a trip. Bike riders need a safe, convenient place to store their bicycle once they reach their destination. This may be short-term parking (2 hours or less) or long-term parking for employees, students, residents, and commuters. Orderly bicycle parking also helps improve the pedestrian experience by keeping sidewalks clear – especially for people with limited vision or those who use mobility devices.

The City currently accepts requests for sidewalk bicycle parking from businesses and residents. Culver City also has an ordinance requiring bicycle parking for new and intensifying development (Culver City Municipal Code section 17.320.045 Bicycle Parking). Public Works staff currently utilize requirements practiced in the San Francisco Bay Area and the City of Los Angeles. In addition, and this Plan includes draft Planning Code language to increase the number of bike parking in a variety of land uses.

Other bicycle-supporting amenities may include wayfinding signage that can direct people to nearby destinations and showers/restrooms at key destinations. Water fountains and shade structures on paths can create rest areas for bicyclists,

and bike racks on buses (racks already exist on Culver City buses) can support integrated trips between modes. Additional intersection enhancements like bike boxes, signals, light timing adjustments and dynamic light timing can also improve safety and user experience. The City will also complete upgrading the Downtown Wayfinding signage project in 2020. The sign locations and sizes were designed to serve auto traffic, as well as pedestrian and bicycle traffic with the indications of travel time to the various destinations.

People walk along Washington Boulevard while others wait for the bus

PEDESTRIAN RECOMMENDATIONS

During outreach, 65% of Culver City stakeholders indicated that they feel 'comfortable' walking in Culver City, though less than half reported feeling 'safe' from motor vehicles when walking. The proposed pedestrian projects provide a variety of options for people walking at locations throughout the city for people of varying abilities and ages. When making recommendations, the project team prioritized projects that connect people walking to key community destinations like schools, parks, and commercial centers, among others.

In general, recommended pedestrian projects aim to improve safety and comfort throughout Culver City. Types of recommended pedestrian projects include:

- **CROSSING FACILITIES** that make crossing the street at intersections and mid-block easier, including high-visibility continental crosswalks, advance stop or yield markings, and modifying signals to allow a pedestrian to begin crossing before traffic signals change through the deployment of LPI (Leading Pedestrian Interval) operation
- **CURB TREATMENTS** such as curb extensions and curb ramps that increase accessibility for people crossing the street. Curb extensions can also help calm traffic and reduce crossing distances
- **BEACONS AND PEDESTRIAN ACTIVATED WARNING DEVICES** to help people safely cross the street at mid-block or uncontrolled locations, particularly where high traffic volumes or speeds are prevalent
- **NEW SIDEWALKS/PATHS** that make walking along the street safer, more comfortable, and accessible for people using mobility devices
- **TRAFFIC CALMING** facilities such as traffic circles and speed humps that encourage drivers to travel at a speed appropriate for the surrounding land uses and users
- **NEW PEDESTRIAN-SCALE LIGHTING** to improve visibility for people walking, as opposed to those at heights and directions intended to light the roadway for motorists

Improving access to key destinations was a priority based on community feedback during outreach. Improved crossings near schools, parks, and commercial centers like Downtown Culver City and Westfield Mall will offer better access for people shopping and dining and strengthen the local economy. At various intersections and mid-block locations, new or updated crosswalks would improve conditions for people crossing the street. At mid-block and uncontrolled intersections, advance yield markings and pedestrian signals would

increase the visibility of people crossing the street and clearly identify the right-of-way. Curb extensions would also increase the visibility of pedestrians, shorten crossing distances, and reduce vehicle speeds.

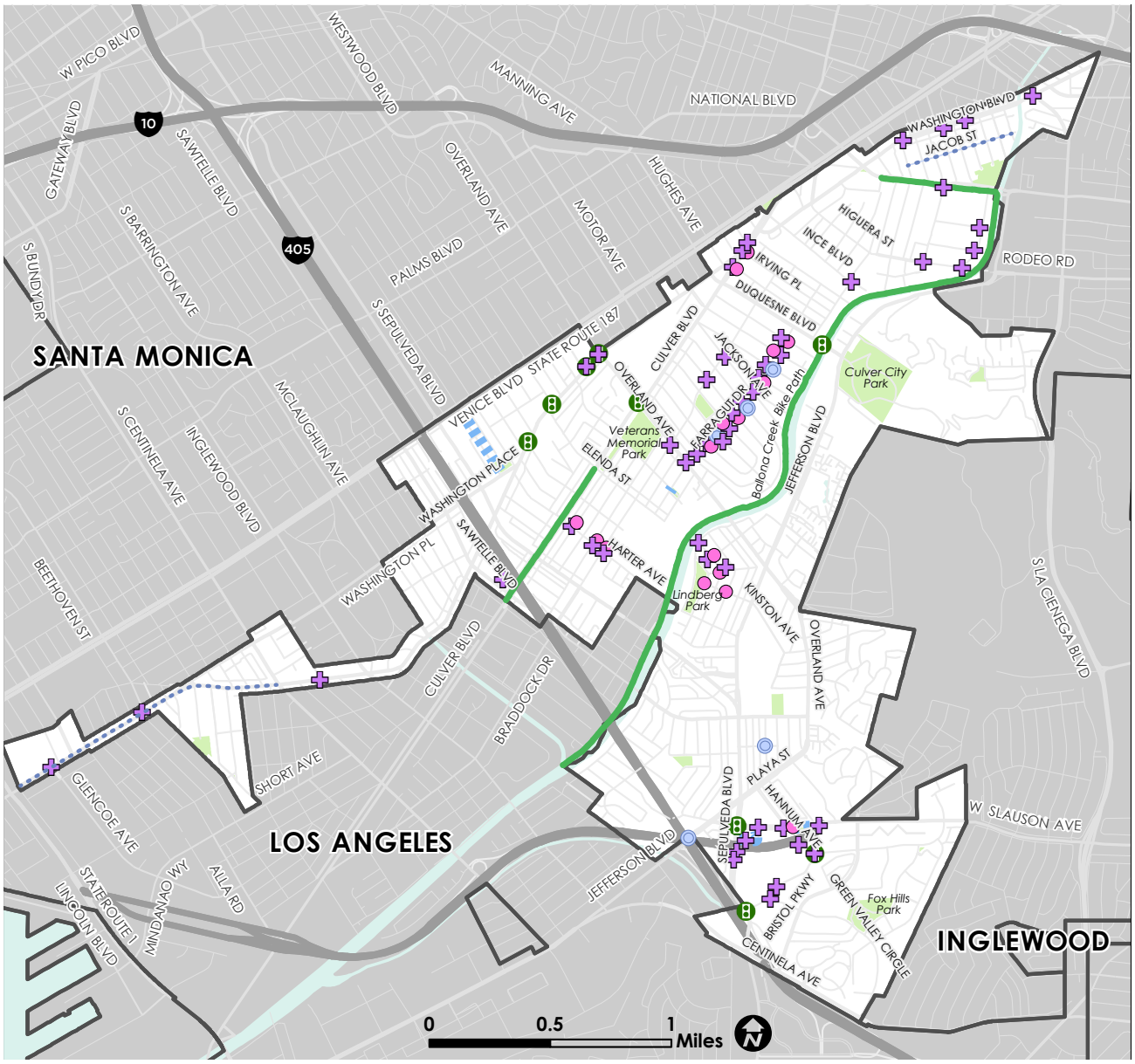
Further, at select major intersections in areas with high volumes of foot traffic, Leading Pedestrian Intervals are recommended to give people crossing the street priority and to reduce conflicts with turning vehicles. At certain busy intersections, the City will determine whether scramble crosswalks, which allow pedestrians to cross in all directions (including diagonally) at the same time while vehicle traffic is stopped, are feasible.

As discussed previously, neighborhood streets can be made more comfortable with additional pedestrian improvements. For example, along Farragut Drive, Cota Street, and Harter Avenue, facilities such as curb extensions, traffic circles, and high-visibility continental crosswalks would help reduce speeding and cut-through traffic, increasing comfort and safety for people walking and biking.

Recommended pedestrian facilities are shown in **Figure 12** and detailed in **Table 11**. Additional information about pedestrian facility design can be found in Appendix D.

Walking the dog along Higuera Street

Figure 12 - Recommended Pedestrian Facilities



Recommended Pedestrian Facilities

- New or Improved Crossings
- Beacon/Signal
- Traffic Calming (e.g., traffic circles or speed humps)
- Curb Treatment (curb extensions or curb ramps)
- New Sidewalk

Existing

- Class I Shared-Use Path
- Park

Culver CITY
BICYCLE & PEDESTRIAN ACTION PLAN

Table 11 - Recommended Pedestrian Projects

Corridor (A-Z)	Facility Type	Quantity	Length (Miles)
Bentley Avenue (Venice Boulevard to Washington Place)	New sidewalks on both sides between the alleways	-	0.6
Braddock Drive / Overland Avenue	Restripe existing crosswalks as continental	4	-
Braddock Drive / Vinton Avenue	Continental crosswalk (all legs)	4	-
Bush Way / Stevens Avenue	Traffic circle	1	-
Culver Boulevard / Irving Place	Restripe existing crosswalk as continental	1	-
	Curb extension (southeast corner)	1	-
Culver Boulevard/ Lafayette Place	Restripe existing crosswalks as continental	3	-
	Curb extensions (southwest corner, northwest and northeast midblock)	3	-
Culver Boulevard / Main Street	Test feasibility of a pedestrian scramble crossing	1	-
Culver Boulevard / Overland Avenue	Leading Pedestrian Interval	4	-
Duquesne Avenue / Ballona Creek Bike Trail	Continental crosswalk (midblock)	1	-
	Evaluate feasibility of a Pedestrian Activated Warning Device	1	-
Eastham Drive / Stellar Drive	Continental crosswalk (west leg)	1	-
Eastham Drive / Warner Drive	Continental crosswalk (west leg)	1	-
Farragut Drive / Baldwin Avenue	Continental crosswalk (west and east legs)	2	-
	Curb extensions (all corners)	4	-
Farragut Drive / Keystone Avenue	Continental crosswalk (north and south legs)	2	-
Farragut Drive / Le Bourget Avenue	Install traffic circle	2	-
	Continental crosswalk (all legs)	4	-
Farragut Drive / Jackson Avenue	Continental crosswalk (north and east legs)	2	-
Farragut Drive / Jasmine Avenue	Install traffic circle	1	-
	Continental crosswalk (all legs)	4	-
Farragut Drive / La Salle Avenue	Stripe continental crosswalks on all legs	4	-
	Install traffic circle	1	-
Farragut Drive / Lincoln Avenue	Continental crosswalk (west and east legs)	2	-
	Curb extensions (all corners)	4	-
Farragut Drive / Madison Avenue	Continental crosswalk (all legs)	4	-
	Curb extensions (all corners)	4	-
Farragut Drive / Mentone Avenue	Restripe existing crosswalks as continental	4	-
	Curb extensions (northeast and southeast corners)	2	-
Farragut Drive / Motor Avenue	Continental crosswalk (all legs)	4	-
	Curb extensions (northwest and southwest corners)	2	-

Table 11 - Recommended Pedestrian Projects (*continued*)

Corridor (A-Z)	Facility Type	Quantity	Length (Miles)
Farragut Drive / Vinton Avenue	Continental crosswalk (west and east legs)	2	-
	Curb extensions (all corners)	4	-
Fox Hills Drive / Mall Parking Lot (between Green Valley Circle and Hannum Avenue)	Restripe existing crosswalk as continental	1	-
Fox Hills Drive / Hannum Avenue	Restripe existing crosswalks as continental	3	-
	Leading Pedestrian Interval	4	-
Franklin Avenue (Coombs Avenue to Coombs Park)	New sidewalk	-	0.02
Franklin Avenue / Coombs Avenue	Curb extensions (all corners)	6	-
	Continental crosswalk (all legs)	5	-
Green Valley Circle / Fox Hills Drive	Restripe existing crosswalk as continental	1	-
Hannum Avenue / Westfield Drive (between Slauson and Fox Hills Drive)	Restripe existing crosswalks as continental	2	-
Harter Avenue / Barman Avenue	Curb extensions (all corners)	4	-
	Continental crosswalks (all legs)	4	
Harter Avenue / Braddock Drive	Curb extensions (all corners)	4	-
	Restripe existing crosswalks as yellow continental	4	-
Harter Avenue / Wagner Street	Curb extensions (all corners)	4	-
	Continental crosswalks (all legs)	4	
Helms Avenue (Washington Boulevard to Jacob Street)	Speed humps	-	0.1
Higuera Street / Eastham Drive	Restripe existing crosswalks as continental	2	-
Higuera Street / Hayden Avenue	Restripe existing crosswalks as continental	4	-
Ince Boulevard / Lucerne Street	Assess the need and feasibility of a redesign of entire intersection	1	-
Jacob Street (Helms Avenue to Cattaraugus Avenue)	Curb extensions (all corners)	4	-
Kinston Avenue / Fairbanks Way	Curb extensions (all corners)	4	-
National Boulevard / Hayden Avenue	Restripe existing crosswalk as continental	1	-
Ocean Drive / Westwood Boulevard	Restripe existing crosswalks as yellow continental	2	-
	Continental crosswalk (south leg)	1	-
Overland Avenue / Farragut Drive	Restripe existing crosswalks as continental	4	-
Rhoda Way / Kinston Avenue	Curb extensions (northeast and southeast corners)	2	-

Table 11 - Recommended Pedestrian Projects (*continued*)

Corridor (A-Z)	Facility Type	Quantity	Length (Miles)
Sawtelle Boulevard / I-405 South Ramp	Restripe existing crosswalks as continental	4	-
	Evaluate this area for traffic calming opportunities and associated coordination with the City of Los Angeles	-	
Sepulveda Boulevard / 230' south of Slauson Avenue	Continental crosswalk (east leg/driveway)	1	-
	New sidewalk between Sepulveda and transit stop in mall parking lot	-	0.02
Slauson Avenue / 350' east of Sepulveda Boulevard	Restripe existing crosswalk as continental	1	-
Slauson Avenue (Hannum Avenue to Marina Freeway)	New sidewalk (south side of street)	-	0.1
Sepulveda Boulevard / Green Valley Circle	Restripe existing crosswalks as continental	2	-
	Leading Pedestrian Interval	4	-
Sepulveda Boulevard / Westfield Drive	Restripe existing crosswalks as continental	3	-
Slauson Avenue / Hannum Avenue	Restripe existing crosswalks as continental (north leg)	1	-
	Continental crosswalk (south legs)	2	-
	Curb ramps (both sides of concrete refuge island)	2	-
Slauson Avenue / Marina Freeway	Restripe existing crosswalk as continental	1	-
Sepulveda Boulevard / Marina Freeway eastbound ramp	Restripe existing crosswalk as continental	1	-
Slauson Avenue / Sepulveda Boulevard	Restripe existing crosswalks as continental	4	-
	Leading Pedestrian Interval	4	-
	Extend medians to create refuge island, subject to turning templates (east and west legs)	2	-
Sepulveda Boulevard / Westfield Drive	Restripe existing crosswalks as continental	3	-
Washington Boulevard / Beethoven Street	Restripe existing crosswalks	2	-
Washington Boulevard / Cattaraugus Avenue (south jog)	Continental crosswalk (west and south legs)	2	-
	Pedestrian Activated Warning Device (west leg)	2	-
Washington Boulevard / Culver Center	Leading Pedestrian Interval	1	-
	Restripe existing crosswalks as continental	3	-
Washington Boulevard / Glencoe Avenue	Restripe existing crosswalks as continental (across Glencoe and driveway)	2	-
Washington Boulevard / Grand View Boulevard	Restripe existing crosswalk as continental (north and south legs)	2	-
Washington Boulevard / Girard Avenue	Leading Pedestrian Interval	1	-
Washington Boulevard / Helms Avenue	Restripe existing crosswalk as continental	2	-
	Continental crosswalk (new)	1	-

Table 11 - Recommended Pedestrian Projects (*continued*)

Corridor (A-Z)	Facility Type	Quantity	Length (Miles)
Washington Boulevard / Huron Avenue	Upgraded signal crossing (pending City assessment of warrants for intersection signalization)	1	-
Washington Boulevard / La Cienega Boulevard	Restripe existing crosswalks as continental	3	-
Washington Boulevard / McManus Avenue	Restripe existing crosswalks as continental	2	-
Washington Boulevard / Overland Avenue	Leading Pedestrian Interval	4	-
	Restripe existing crosswalks as continental	4	-
Washington Boulevard (West City Limit to Centinela Avenue)	New center median	-	0.3
Westfield-Culver City Transit Center	Continental crosswalk (north legs, connecting to existing sidewalk). Coordination between Culver City Public Works, Culver City Transportation Department, and the Mall will be required	4	-
Westfield Mall entrance (off of Slauson)	New sidewalk on both sides and on the north side of the internal street leading to the bus stops. Coordination between Culver City Public Works, Culver City Transportation Department, and the Mall will be required	-	0.1
Westwood Boulevard / Studio Drive	Continental crosswalk (north and south legs)	2	-
	Curb extensions (all corners)	4	-
Westwood Boulevard / Virginia Avenue	Continental crosswalk (south and north legs)	2	-
	Curb extensions (all corners)	4	-

OPPORTUNITY CORRIDORS

In addition to the citywide recommendations, the project team created planning-level plans for three 'Opportunity Corridors.' As part of the Plan, these three projects received a more intense review of project concepts than the citywide recommendations. This included a review of existing conditions, planning-level street designs, and photosimulations of possible project designs. These materials can provide the basis for public outreach and funding applications, if the City plans to conduct additional outreach or apply for funding. By developing these materials in concert with the entire Plan, the City has the opportunity to seek funding quickly and build some of these projects quickly.

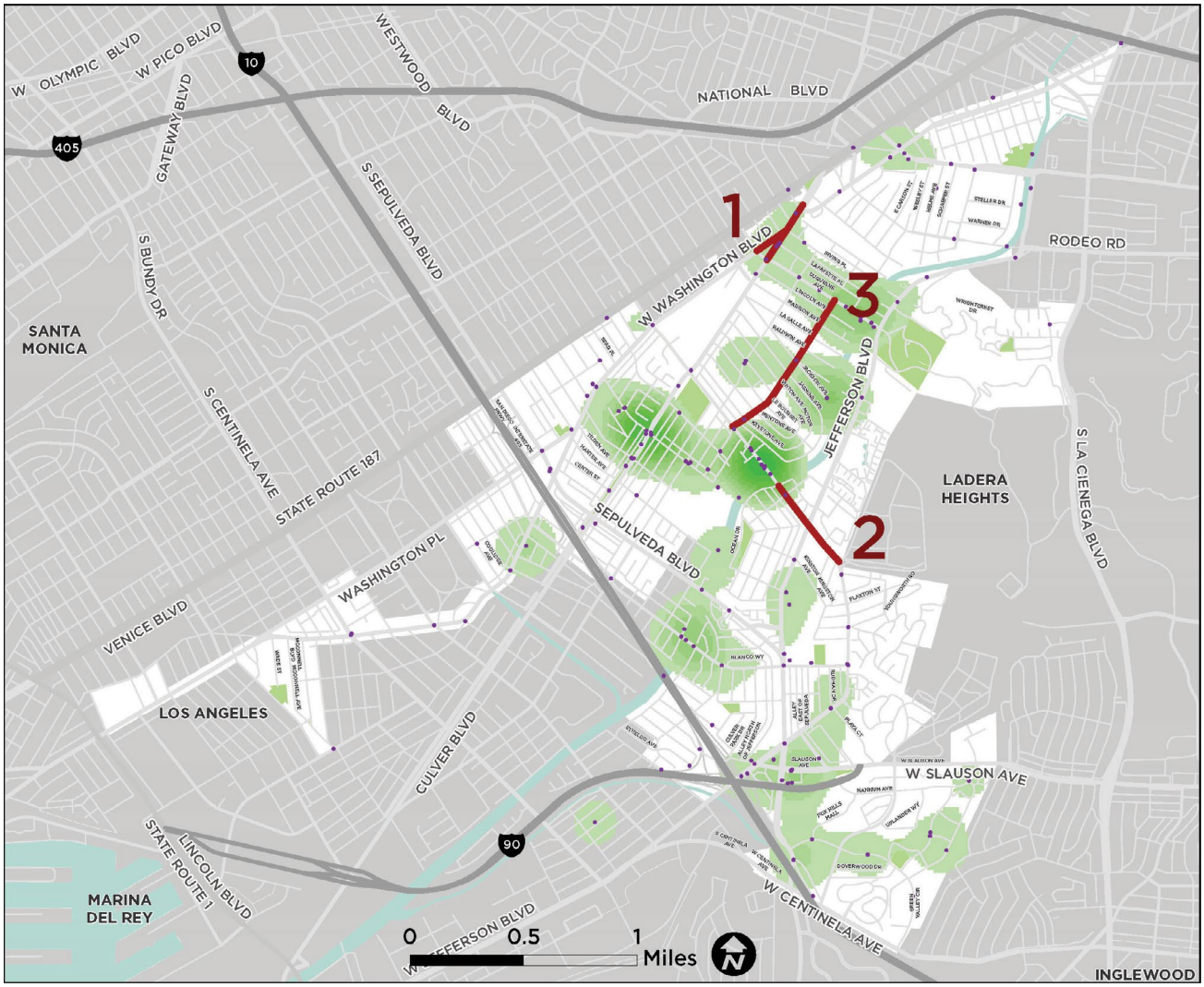
The three Opportunity Corridors selected were:

1. **THE DOWNTOWN CORE**, defined as Culver Boulevard & Washington Avenue, between Duquesne Avenue east, following Washington Boulevard to Ince Boulevard (0.6 miles in total). This corridor focus was pedestrian safety and improving crossing and connections.
2. **OVERLAND AVENUE**, from Ballona Creek Path to Freshman Drive (0.5 miles). This corridor focus was a Class IV bikeway from Ballona Creek to West LA City College.
3. **FARRAGUT DRIVE**, from Overland Avenue to Duquesne Avenue (0.75 miles), complemented by an exploration of Jackson Avenue intersection. This corridor focus was a Class III BIke Route/ Boulevard on a residential street.

The three corridors, as shown in **Figure 13**, were chosen using a combination of: the popularity of public comments, rates of severe and fatal injuries, corridors where there was not existing project work underway, and a diversity of types of street classifications and land use. The project team conducted bicycle, pedestrian, and vehicle counts and looked at existing conditions as well as collision history of each of the corridors. Then, planners and engineers created planning-level designs for additional improvements for bicycling and walking.

Appendix E includes the memorandum of the projects, with a detailed description of each corridor, design sheets, and more.

Figure 13 - Opportunity Corridor Projects



OPPORTUNITY CORRIDOR PROJECTS

Opportunity Corridors

Public Comments

As of December 3, 2017

Public Comment Heatmap

Density of Comments Weighted by "Likes"

Fewest Likes

Most Likes

Culver CITY
BICYCLE & PEDESTRIAN ACTION PLAN

alta
PLANNING + DESIGN

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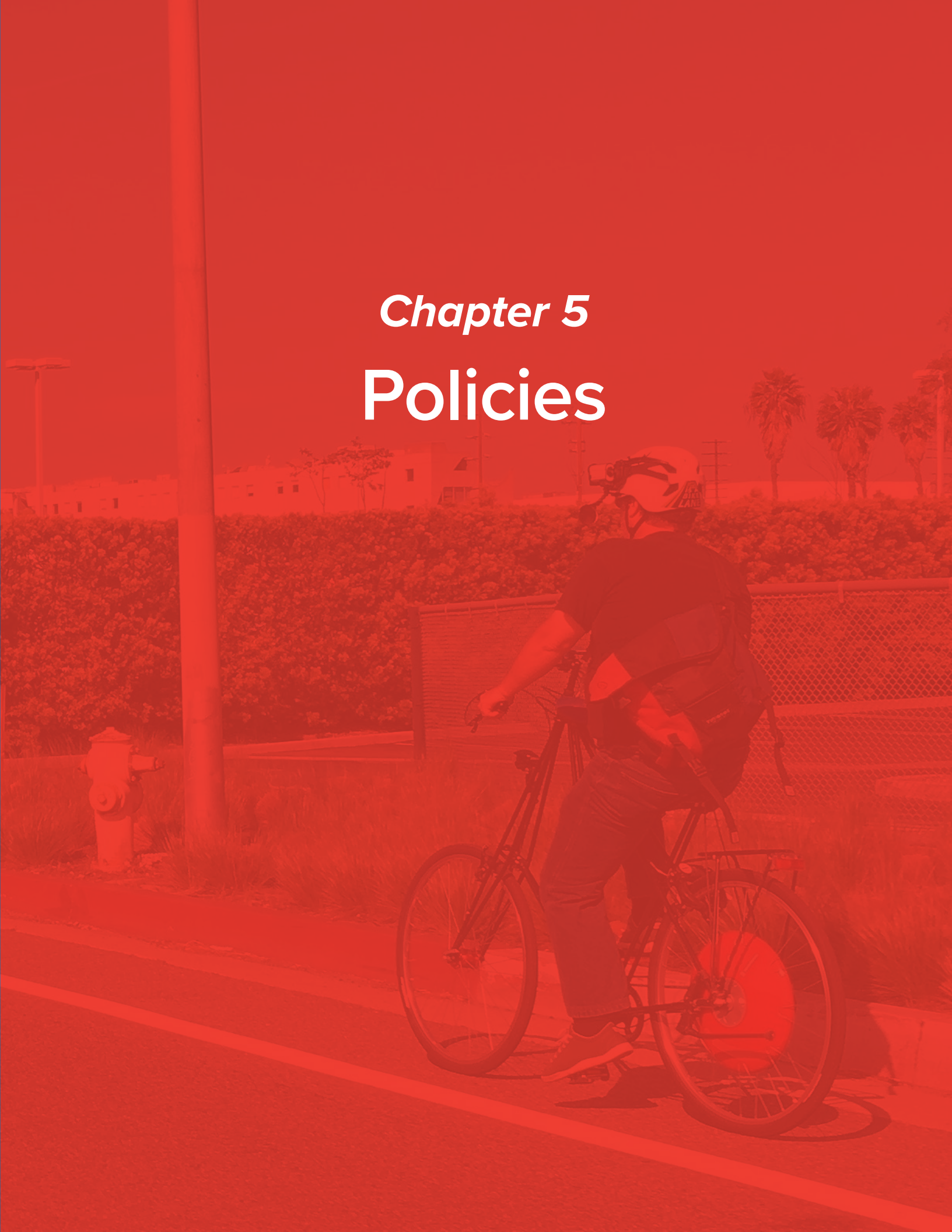
Chapter 5

Policies



POLICIES

Policies are a necessary complement to the recommended infrastructure projects presented in this Plan and set the foundation for particular design solutions. Successful active transportation plan implementation requires a comprehensive set of policies that ranges from general to specific facility design to programmatic, focusing on both streets and development. Policies can help ensure that active transportation planning, implementation, and maintenance occur on a regular basis, not just in one-off efforts.

Building off of input from Culver City stakeholders and residents, the City developed four goals to enhance the safety and convenience of using active transportation throughout the city. To meet these goals, active transportation-focused objectives and actions are identified. Many of the actions will require coordination with additional local, regional, and state agencies.

Goal 1 – Access and Connectivity

Objective AC-1. Increase access and connectivity to jobs, education, retail, parks and libraries, schools, recreation centers, transit, and other neighborhood destinations.

Action AC-1.1 Develop an active transportation network that safely and comfortably connects residential neighborhoods to destinations like employment centers, grocery stores, community centers, schools, shopping areas, and transit stops.

Action AC-1.2. Prioritize projects that create safe welcoming spaces for all people, with an added focus on ways to serve those who have the least access to financial and social resources.

Action AC-1.3. Increase the supply of bicycle parking at neighborhood destinations like schools, medical centers, grocery stores, transit stations, and government offices.

Action AC-1.4. Establish a transportation impact fee ordinance to leverage funding for installation of new bicycle and pedestrian facilities.

Action AC-1.5. Work with local businesses to prevent obstruction of pedestrian walkways by items such as restaurant seating and merchandise.

Action AC-1.6. Evaluate all streets during pavement resurfacing to determine if pedestrian or bicycle facilities can be provided (e.g. bike lanes, wider curb lanes or shoulders) on an ongoing basis.

Objective AC-2. Support public transit service.

Action AC-2.1. Design bikeways on transit streets using best practices that do not impact transit reliability while improving access to transit.

Action AC-2.2. Increase the provision of secure, long-term bicycle parking at Culver City Metro E (Expo) Line station, bus depots, and bus stops.

Action AC-2.3. Work with Culver CityBus and other transit agencies to improve bicycle and pedestrian access (first/last mile connections) to transit station/centers and the comfort of transit stops and onboard transit vehicles, especially during peak commute hours, and to provide secure bike parking, benches, and covered waiting areas at stations and stops.

Objective AC-3. Serve people with disabilities, youth, and seniors.

Action AC-3.1. Ensure that active transportation facility designs do not create additional barriers for people with disabilities, but instead create safer more welcoming public spaces for everyone.

Action AC-3.2. Install or upgrade curb ramps to comply with current Americans with Disabilities Act standards at locations identified in the City's 2017 ADA Transition Plan.

Action AC-3.3. Repair potholes and pavement cracking, including those in crosswalks, during routine maintenance.

Action AC-3.4. Provide ample crossing time at signalized crossings, particularly those adjacent to destinations heavily used by people with lower mobility speeds, including youth, seniors, and people with disabilities.

Action AC-3.5. Review signal timing and operation, where feasible, for additional opportunities and allotment of time for pedestrian crossings in order to encourage walking.

Goal 2 – Health and Safety

Objective HS-1. Reduce collisions involving bicyclists and pedestrians through safe and comfortable bicycle and pedestrian facilities.

Action HS-1.1. Prioritize quick implementation of active transportation facilities on Culver City's high-injury network to rapidly address known safety issues.

Action HS-1.2. Adopt active transportation design guidelines that guide planners and engineers in designing streets with facilities such as separated bikeways and high-visibility crossings.

Action HS-1.3. Fund education programs for people driving, biking, and walking that encourage safe behaviors.

Action HS-1.4. Adopt a policy that establishes a 15-mph speed limit when children are present, and expand 25-mph school zones, in accordance with California AB 321.

Action HS-1.5. Expand data analysis for project and program prioritization to include additional sources beyond that of roadway collision data. Other sources could include, but are not limited to, pedestrian counts, emergency medical services and hospital data, and citation data.

Action HS-1.6. At intersections with a history of bicyclist- and pedestrian-involved collisions resulting from right-turning vehicles, evaluate the prohibition of right-turns on red.

Objective HS-2. Enhance the active transportation experience by updating intersection crossings and implementing traffic calming measures.

Action HS-2.1. Adopt updated engineering and planning design standards that consider the guidelines from the NACTO Urban Streets Design Guide, nearby agencies, and other best practices to ensure bicyclist- and pedestrian-friendly designs.

Action HS-2.2. Install Leading Pedestrian Intervals (LPI) at intersections with high rates of pedestrian activity.

Action HS-2.3. Install bicycle-sensitive loop detectors with pavement markings to improve timing of crossings for bicyclists.

Action HS-2.4. Establish criteria to determine if/which locations would best be served by pedestrian scrambles and/or pedestrian-only signal phases.

Objective HS-3. Use infrastructure and programs to promote an active lifestyle that includes bicycling and walking.

Action HS-3.1. Conduct regular pedestrian and bicycle counts pursuant to regional methodology as part of before and after project implementation.

Action HS-3.2. Use current design guidelines to encourage development patterns that promote active transportation and allow for short trips between destinations.

Action HS-3.3. Dedicate City staff resources to continue to host an open streets program, such as CicLAvia, that encourage Culver City residents to walk and bike together on city streets.

Action HS-3.4. Continue to fund programs that incorporate bicycling and walking into physical education and encouragement programs within Culver City, and in coordination with the Culver City Unified School District.

Action HS-3.5. Pursue grant funding to develop a citywide wayfinding program. Work with Culver City residents to develop wayfinding signage that incorporate local identity to direct pedestrians and bicyclists to key destinations including commercial areas, schools, and parks.

Action HS-3.6. Develop sidewalk furniture design guidelines to include elements that enhance the active transportation experience, such as signage, seating, bike parking, and shelters. Such new standards should take into account the Culver CityBus' Bus Stop Standard for the bus stop locations.

Action HS-3.7. In partnership with local community-based organizations, promote and support programs that incentivize the public to track the amount of walking and biking trips taken.

Action HS-3.8. Encourage the use of active transportation for City employee commute and work travel purposes so that the City is seen as a model employer.

Objective HS-4. Reduce air pollution, asthma rates, and greenhouse gas emissions.

Action HS-4.1. Build an active transportation network that encourages Culver City residents to use means of transportation other than driving by providing safer, more comfortable biking and walking facilities.

Action HS-4.2. To meet the goals of the City's Urban Forest Master Plan, install trees as part of sidewalk, shared-use path, and trail projects.

Action HS-4.3. Develop Low Impact Development standards, which could include permeable pavement for construction of sidewalks and shared-use paths.

Goal 3 – Affordability

Objective A-1. Reduce long-term transportation costs by reducing the need for vehicle ownership or for parking in new developments.

Action A-1.1. Update the Culver City Zoning Code to eliminate parking minimums.

Action A-1.2. Update the Culver City Planning Code to require more bicycle parking in major development projects.

Action A-1.3. Update the Culver City Planning Code to require end-of-trip-facilities, such as showers and changing rooms, in major non-residential developments.

Action A-1.4. Update the Culver City Planning Code to require pedestrian improvements, such as sidewalks and ADA compliant curb ramps, in major development projects.

Action A-1.5. Revise the menu of transportation demand management (TDM) options to include bike-share passes, fix-it stations, and hydration stations.

Goal 4 – Collaboration

Objective C-1. ***Increase public participation throughout the planning process.***

Action C-1.1. Create a process to enable City departments to more easily contract with local non-profits and community-based organizations to assist with community engagement for the planning, design, and implementation of projects.

Action C-1.2. Ensure project-based outreach for any plan recommendations follows inclusive public engagement practices, including communicating to the public in both English and Spanish.

Action C-1.3. Ensure all project and program outreach materials are translated to all predominant languages spoken by Culver City residents, including people with visual and aural impairments.

Action C-1.4. Track demographic information at education and outreach events and compare with the demographics of Culver City as a whole.

Action C-1.5. Identify opportunities to pilot active transportation treatments using semi-permanent materials to receive input on and build support for permanent improvements.

Objective C-2. ***Government follows through on project commitments.***

Action C-2.1. Dedicate a percentage of the established transportation impact fee program to the implementation of active transportation projects.

Action C-2.2. Coordinate the implementation of active transportation facilities with the City's roadway repaving program to deliver enhancements in a cost-effective manner and improve roadway condition.

Action C-2.3. Develop a maintenance plan that specifies timeline for repainting of roadway markings, sweeping equipment and schedule, specifications for vertical elements, and opportunities for coordination with paving projects.

Action C-2.4. Coordinate implementation of the Culver City Bicycle and Pedestrian Action Plan with other City, County, and regional planning efforts.

Action C-2.5. Coordinate with neighboring jurisdictions in places where Culver City shares authority of traffic control and maintenance of roadways, to seek funding opportunities and implement active transportation projects jointly.

Goal 5 – Equitable

Objective E-1. ***Prioritize and pursue pedestrian and bicycle infrastructure improvements that will improve mobility, health and safety for all community members including low-income residents***

Objective E-1.1. Implement bicycle and pedestrian projects that address disparities in access to sustainable and low-cost transportation options in neighborhoods with higher concentrations of economically disadvantaged or historically underrepresented populations.

Objective E.1.2. Increase convenience, comfort and safety of bicycling and walking and waiting for transit around key regional transit facilities to expand access to schools, jobs and key destinations for everyone.

Objective E-1.3. Comprehensively identify and address non-ADA-compliant sidewalks, curb ramps and other facilities, especially in areas in close proximity to schools, jobs and social service providers.

Objective E-1.4. Work with community members to identify their needs and develop projects around these needs, including exploring how active transportation projects can provide co-benefits to support housing affordability, address climate change and improve health.

Objective E-2. ***Build a network of active transportation facilities that serve all residents, especially those with limited mobility options.***

Objective E-2.1. Strive to achieve demographic representation of those using active transportation modes to mirror demographics of the overall society.

Objective E-2.2. Incorporate opportunities to enhance neighborhood vitality and livability as part of active transportation projects, such as incorporating public art, traffic calming, landscaping and other elements. Endeavor to design and implement active transportation projects with specific design elements that best fit the unique character of the neighborhood.

Objective E-2.3. Where allowed and appropriate, use traffic signs that communicate the intended message visually without text, which helps with conveying messages to non-English speakers.

Objective E-3. ***Build trust, inclusion in planning efforts, community participation and support, and a continued commitment to improving the lives of residents.***

Objective E-3.1. Foster relationships and community trust by following through on commitments to the community and proactively work to improve the city's bicycle and pedestrian network for residents and other community members.

Objective E-3.2. Engage and collaborate with community members early, often, and throughout projects to create projects that meet the needs of residents of all ages, incomes and ethnicities.

Objective E-3.3. After a project is complete, continue dialogue with community members to make sure it is working as intended and be prepared to address concerns or issues should they arise.

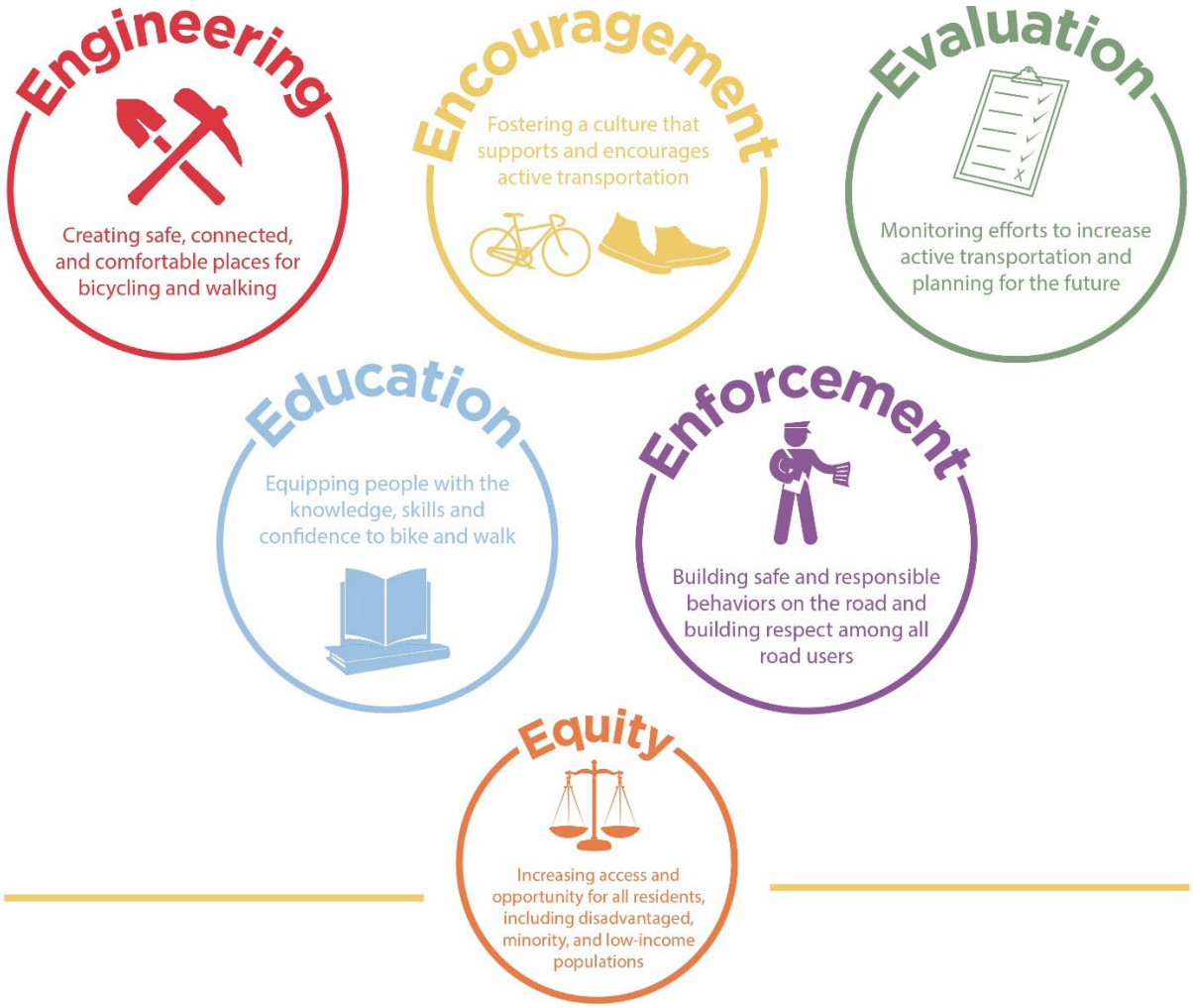
Objective E-3.4. As a strategy to solicit thorough and comprehensive input from the community, design robust and well promoted engagement tools to get representative feedback on potential city investments in active transportation projects.

Objective E-3.5. Partner with community and advocacy groups to provide educational resources and walking and biking safety devices (lights, helmets, etc.) to residents of disadvantaged and low-income communities that are culturally-appropriate and in native languages.

Chapter 6

Non-Infrastructure Programs

Infrastructure alone will not create and foster a pedestrian- and bike-friendly Culver City. Programs can complement infrastructure investments by encouraging more people to use active transportation more often, educating all roadway users to enhance bicyclist and pedestrian safety, and addressing both perceived and real personal safety issues. The City aims to develop a culture of safe and enjoyable walking and biking built on comprehensive actions and initiatives by diverse groups of people. A model used to describe this comprehensive approach is called the 6 E's: Education, Encouragement, Enforcement, Engineering, Equity, and Evaluation, as shown in the diagram below. Each of these components will not work individually, and



each component should be designed to complement the other. Similarly, each is as important as the rest.

The programs identified in this chapter aim to improve safety, increase access to walking and biking, and encourage community and economic development. The actions will increase the visibility of people who walk and bike, communicate that all road users are expected to look out for each other no matter how they travel, create safer streets, and develop a common understanding of traffic safety. During the development of this Plan, stakeholders were invited to provide input and recommendations on programs and activities to support walking and biking in their communities. The programs described in this chapter reflect input received from stakeholders, and are a mix of existing and new City-led and community-run programs in Culver City.

POTENTIAL PARTNERS & STAKEHOLDERS

Existing and potential partners for Culver City active transportation programs include:

Culver City Unified School District

Culver City Unified School District is an important partner for creating safe pedestrian and bicycling environments and programming for schools. Safe Routes to School programming is a vital component of successful pedestrian and bicycling plans. Partnering with the school district, as well as individual member schools, is important for creating programs that are appropriate and coordinated with schools' curricula. Throughout the outreach process, the project team has held meetings at CCUSD property, promoted meetings at nearby schools, and presented on the project's goals at meetings of the CCUSD Board of Education.

Culver City Parks, Recreation, and Community Services

The Parks, Recreation, and Community Services Department has also been an important partner for creating educational and encouragement programs for walking and biking in Culver City. The department has attended Technical Advisory Committee (TAC) meetings to coordinate internal decisions for this plan.

Culver City Police Department

The Culver City Police Department is a key partner for creating an enforcement campaign that encourages safe driving, walking, and biking practices. Enforcement campaigns can reduce speeding in school zones, encourage proper yielding to pedestrians in crosswalks, and generally promote a sense of respect for all travelers regardless of whether one drives, walks, or bikes in Culver City. The department has attended TAC meetings to coordinate internal decisions for this plan.

Culver CityBus & Dial-A-Ride

The Culver City Transportation Department coordinates the City's bus fleet and dial-a-ride paratransit services. Staff continue to review proposed plans and provide input on how these recommendations may affect bus service and access to bus service. The department has attended TAC meetings to coordinate internal decisions for this plan.

Culver City Businesses

There are multiple groups of businesses in Culver City that have been instrumental in improving the sidewalks in their neighborhood and will be important partners in continuing that momentum to create a more walkable, vibrant business districts. These groups include Culver City Arts District, Culver Village, Downtown Business Association, and Washington West Business District.

Culver City Chamber of Commerce

The Chamber of Commerce is a key partner for creating relationships with local businesses and community leaders. These relationships can help support the City's pedestrian and bicycling programming. Throughout the development of this plan, members of the Culver City Chamber have been welcomed to provide feedback and the project team has presented at multiple meetings hosted by the Chamber.

BikeCulverCity (local chapter of the Los Angeles County Bicycle Coalition)

BikeCulverCity encourages local bicycling, educates bicyclists and motorists for safer streets, and advocates to make Culver City more bike-friendly. They will continue to be a key partner for leading education, enforcement, and evaluation programs in Culver City. As people who use Culver City's streets by bicycle, their input has – and will continue to be – a valuable resource in the planning of bicycle facilities.

Walk 'n Rollers

The Walk 'n Rollers is a non-profit dedicated to create a community environment where children and parents alike are comfortable using alternative modes of transportation, whenever they choose. As Culver City's primary traffic safety education provider and Safe Routes to School coordinator, staff have provided feedback on the Plan's recommendations near schools and informed the education and encouragement portion of the Programs Chapter. This program is funded and sponsored in partnership with the City and the Culver City Unified School District.

Women on Bikes - Culver City

Women on Bikes is a group of female bicyclists who aim to:

- Support fellow women who choose to use bicycles for transportation, not only recreation
- Serve as a model of encouragement for women who want to use bicycles for transportation but do not know how to get started
- Be visible in the community while supporting small businesses and getting to know each other
- Share information about safe and efficient bicycle routes
- Educate and learn from other women about safe bicycling

PROGRAM TOOLKIT

Safe Routes to School

Safe Routes to School (SRTS) programs have many goals including: (1) teaching students the rules of the road, so they are more prepared to navigate their community via active transportation and eventually become safe drivers; (2) encouraging active modes of getting to school, which will help students arrive at school more alert and ready to learn; (3) decreasing the prevalence of childhood obesity through increased physical activity; and (4) reducing traffic congestion around schools and cut-through traffic on residential streets due to school drop-off and pick-up.

Metro provides regional SRTS resources including: a SRTS Resource Manual that guides schools on building successful SRTS programs; a SRTS Action Route Map that outlines methods for implementing a SRTS program; and educational, encouragement, trainer/teacher, and evaluation materials.[7]

Culver City's existing Safe Routes to School program involves multiple City agencies to implement infrastructure projects around schools, in conjunction with school-based education and encouragement programs in partnership with local advocates. The City has implemented infrastructure improvements in the neighborhood around Linwood E. Howe Elementary School, including curb extensions and refreshed roadway and crosswalk striping, and is in the process of constructing improvements around La Ballona Elementary School. Additionally, the City is systematically conducting safety audits of school areas throughout the City and recommending relatively low cost operational safety and design improvements, with plans for Rancho Higuera already in development. The City and School District currently fund a citywide education and encouragement program at elementary and middle schools in Culver City. Walk 'n Rollers, a local nonprofit, runs the programs at participating schools and works to establish new programs at other schools.[8] As part of the SRTS program, a "3 Block Challenge" was presented to encourage parents to park with their student and walk three blocks to their school to reduce traffic and pollution around the school.

Additionally, the existing La Ballona Elementary Safe Routes to School Project was underway through much of this Plan development. The project includes proposed infrastructure improvements including curb extensions, high-visibility crossings, ADA ramps, street trees, improved lighting, crossing improvements on Washington Boulevard, and a protected bike lane on Elenda Street between Culver and Washington Boulevards.

7 These resources can be found on Metro's website at: www.metro.net/ projects/srts-manual/

8 More information about Walk n' Rollers and Safe Routes to School is available at: http://www.ccwalkandroll.com/

The City is committed to continuing and expanding upon the efforts of the existing SRTS program and can do so by:

- Seeking additional funding in the future to expand the program efforts and supporting overall program growth
- Updating existing Suggested Routes to School maps and redistributing to Culver City schools as new infrastructure improvements are implemented
- Evaluating participation in programs, such as Walk to School Day, using national best practices for SRTS program evaluation
- Continuing to implement local SRTS plans and to update regularly

Education Classes

Bicycling education for adults can build confidence and improve safety by incorporating both presentations and on-bike practice covering rules of the road and safe bicycling skills. The League of American Bicyclists offers multiple curricula that can be taught by League Certified Instructors in the area.[9] Additionally, Metro's Bicycle Education Safety Training (BEST) program, BikeCulverCity, and the Los Angeles County Bicycle Coalition (LACBC) lead classes that teach people to bike on city streets safely, how to maintain their bike, and bicycling etiquette.[10] The City can support these efforts by funding classes or providing meeting space or other in-kind donations to support education opportunities.

While the aforementioned classes tend to be better for adults or teenagers, younger children can benefit from in-classroom education related to safe walking and bicycling. As part of school curriculum in Culver City, students learn basic traffic laws and safety rules in addition to incorporating lessons across biology, earth science, math, and art that focus on the benefits of active transportation.

The City currently supports a Safe Routes to School program by partnering with Walk 'n Rollers and the School District to host on-campus education, conduct walk audits, and provide encouragement campaigns for parents and students.

Safe Routes for Seniors

A program providing active opportunities for seniors in Culver City could foster healthy aging and longer years of independent living. A Safe Routes for Seniors program develops tools and services to help seniors find ways to meet their transportation needs through trips that primarily include walking and transit, both by bus or light rail. Developing programs that include group walks geared towards seniors will also encourage social bonding. The program can include key awareness topics such

9 More information on the League of American Bicyclists courses is available at: bikeleague.org/ridesmart

10 More information on BikeCulverCity and LACBC is available at: http://www.bikeculvercity.org/

The Pasadena Safe School Zones campaign targeted motorists and encouraged them to drive slowly and cautiously near schools

as education for drivers to pay particular attention to senior pedestrians and specific improvements such as increasing crossing time in areas that experience a high number of seniors walking. Feedback received from the program can inform future infrastructure improvements that further address needs of seniors.

Additional focus on the safety of Culver City's senior population and other vulnerable populations are under consideration in the City's Local Road Safety Plan, kicking off concurrently with this Plan. The Local Road Safety Plan will complement the BPAP and include additional recommendations for both non-infrastructure and facility recommendations to improve the safety of seniors while traveling around their communities.

Bicycle and Pedestrian Safety Campaign

Bicycle and pedestrian safety campaigns encourage all road users to abide by local laws and to be courteous to other users. They can be targeted at just one user type (e.g., motorists) or at multiple users. Local resources for conducting a public awareness campaign can be maximized by assembling a group of local experts, law enforcement officers, business owners, civic leaders, and dedicated community volunteers. These stakeholders can assist with successful safety campaign goals based on the local concerns and issues. It may be necessary to develop creative strategies for successful media placement in order to achieve campaign goals.

Outreach campaigns should be concentrated in central business districts like Downtown Culver City and near

Westfield Mall, near schools, and at other high collision locations. Campaign materials can include posters, bus shelter ads, banners, yard signs, spoke cards, and more. These campaigns should be deployed regularly to promote an attitude of roadway safety and awareness. Culver City could also consider coordinating these efforts with the Southern California Association of Governments (SCAG) Go Human campaign, which provides existing materials to member agencies, such as Culver City.

Bicycle and Pedestrian Wayfinding

Wayfinding systems help people biking and walking navigate to community destinations such as transit stations, parks, libraries, schools, and business districts. They can also serve as an encouragement program by providing walking or biking time to destination information, helping people orient themselves, and encouraging the discovery of new places or services. Wayfinding can also be used to highlight the local identity of a community.

The City can engage communities in a collaborative design process to develop wayfinding that has unifying characteristics citywide but allows neighborhood customization along specific routes. To do so, the City can work with community members and local organizations to develop wayfinding signage that incorporates community identity.

As part of the Take the Friendly Road campaign, Santa Monica residents were given yard signs to encourage motorists to drive slowly and safely throughout the city

The city of Allendale, South Carolina installed these low-cost unique signs throughout their city to encourage residents and visitors to walk more often to key destinations

To provide a low-stress experience, sometimes bike facilities are shifted off of high stress roads onto parallel routes. When bikeways change designations, it is not always clear how to navigate to the nearest route. Culver City can evaluate wayfinding needs where low-stress bikeways end and install wayfinding to nearby or parallel routes.

Neighborhood Bike Stops

Bike parking is located at numerous locations throughout Culver City, but there is a lack of other amenities like bike self-repair/fix-it stations. Being able to fix bikes and have access to water in a secure and welcoming place would allow Culver City residents and visitors to engage in outdoor physical activity more frequently and more comfortably. The City can add bicycle fix-it stations and hydration stations to various key destinations in the city. For example, Culver City Public Library would be an ideal location for a neighborhood bike stop due to its proximity to the Ballona Creek Bike Path and its secure and welcoming presence in the community.

Open Streets and Demonstration Projects

Open streets events temporarily close streets to car traffic, allowing people to use the streets for activities like walking, bicycling, skating, and other social and physical activities. These events are great for bringing the community together and promoting transportation options and public health. Open streets events are also excellent at building community; they bring together neighborhoods, businesses, and visitors alike. In March 2019, Culver City hosted CicLAvia, a free open streets event that regularly occurs across Los Angeles County, for the third time (previous events took place in 2015 and 2017).

CicLAvia Culver City meets Mar Vista and Palms, March 2019

Open streets events can also serve as a tool to engage with the public about how their roadways can better serve their needs. For example, the City can use open streets events as an opportunity to demonstrate new infrastructure ideas such as traffic circles or separated bicycle lanes. They provide an opportunity for the City to directly engage with residents and local businesses and receive feedback on new ideas at the moment people are experiencing their streets and community in a new way.

Demonstration projects can also be done as standalone events (i.e., without an open streets event). Unlike open streets events, demonstration projects typically maintain vehicle access so community members are able to experience how an existing roadway could function with projects such as new crossings, bike lanes, and more. Demonstrating potential future projects enables the City to work with

local stakeholders to test out infrastructure ideas for a day or a few weeks to inform permanent projects.

In September 2018, the City partnered with Southern California Association of Governments (SCAG) to showcase potential improvements to Elenda Street, including a separated bike lane and new crossings. The demonstration, which was part of the La Ballona SRTS program, gave local residents and stakeholders the opportunity to test out the facilities in normal vehicle traffic and provide their feedback. More than 600 attendees experienced how a re-imagined Elenda Street could improve safety for students and residents.

The City can continue to partner with neighboring jurisdictions, local stakeholders, and regional agencies like Metro and SCAG to plan and implement open streets events and demonstration projects. To build off of lessons learned, the City can document procedures from previous events and create an open streets and demonstration projects toolkit. The toolkit will help streamline implementation of these events in the future.

How will active transportation programs achieve the goals of the Plan?

Access and Connectivity

The programs proposed in this Plan should expand the reach of the active transportation network with information and support facilities that make bicycling and walking preferred travel options for more trips.

Health and Safety

The programs proposed in this Plan should both support safe bicycling and walking behaviors and address unsafe driving behaviors. Programs should also encourage physical activity for Culver City residents and visitors.

Affordability

The programs proposed in this Plan should be designed to reduce the cost of travelling throughout the city and encourage Culver City residents to use active transportation more, reducing their overall transportation costs.

Collaboration

The programs proposed in this Plan should be rooted in best practices and community needs, build trust in the city, and be a collaborative effort between City departments.

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Chapter 7

Implementation & Prioritization

This chapter provides a roadmap for achieving the vision and goals established at the beginning of the Plan by outlining a prioritization strategy, cost estimates, maintenance, and funding sources. Culver City is responsible for the implementation of active transportation infrastructure projects within the city boundaries. Programs to encourage walking, bicycling, and using other active modes or to provide safety education are the responsibility of City departments and of regional agencies such as Metro and the LA County Flood Control District. Additionally, a safer and more active Culver City is not possible without the involvement of community members. Residents of Culver City know the streets in their community best. As the City moves forward with the implementation of active transportation projects, additional community engagement and outreach will be essential.

As a general strategy, the City should regularly evaluate how well recommendations are met and whether these recommendations still meet the needs of their residents and visitors. The Plan's goals also identify specific benchmarks defined for infrastructure and non-infrastructure improvements. Implementation progress should be regularly tracked on at least an annual basis.

In addition, best practices in bicycle and pedestrian planning and engineering is a rapidly-evolving field. The recommendations in this Plan should be re-evaluated at least every five years to ensure that these still constitute best practices and reflect Culver City's long-term vision for a safer and more active community.

ADMINISTRATION

CEQA

The California Environmental Quality Act (CEQA) provides a process for evaluating the environmental effects of plans or applicable projects undertaken or approved by public agencies. Active Transportation Plans, such as this one, are generally exempt from the CEQA process and do not require an Environmental Impact Report (EIR). Additionally, when implementing this Plan, specific projects that do not significantly alter land, water, or vegetation (e.g., striping bikeways or crosswalks) are also exempt from the environmental review process. For pedestrian and bicycle facilities that are not exempt from CEQA review but are initially shown to not have a significant impact on the environment, the City can file either a Categorical Exemption or a Mitigated Negative Declaration in lieu of completing an EIR. When implementing specific infrastructure projects, jurisdictions should consult CEQA guidelines and Senate Bill 1380 for further information.

Active Transportation Plan Compliance

The Active Transportation Program (ATP) is a Caltrans program with specific requirements for bicycle and/or pedestrian plans. Although Plans are no longer required to comply with the ATP guidelines in order to receive Caltrans funding, it is strongly recommended that communities have an approved Plan prior to applying for implementation funds. This Culver City Bicycle & Pedestrian Action Plan is in compliance with ATP guidelines as shown in Appendix A.

PRIORITIZATION FRAMEWORK

To guide implementation, a prioritization framework was developed to evaluate proposed bicycle and pedestrian projects. This methodology enables the City to identify priority projects and phase the implementation of projects over the years. Some projects can also be implemented as part of routine roadway maintenance programs.

Furthermore, this prioritization plan is aligned with the State's Active Transportation Program grant criteria, which is the primary source of state funding the City pursues for pedestrian and bicycle infrastructure. Proposed pedestrian and bicycle improvements are listed and mapped in Chapter 4. The prioritization methodologies for bicycle and pedestrian improvements are described below.

For pedestrian projects, this Plan recommends that Culver City follow the recommendations and processes identified in Culver City's adopted "ADA Self Evaluation and Transition Plan" which examined each panel of sidewalks, all road crossings, and other pedestrian amenities throughout the city. As the City responds to recommendations in that plan, this document can help inform and, perhaps, enhance projects beyond the baseline of universal access.

For bicycle projects, the prioritization matrix is a bit more complex than the pedestrian recommendations, since there was not a concurrent planning process for bicycle facilities. The Plan conducted significant outreach throughout the planning process, through online, in-person, and written comments from hundreds of individuals. Utilizing those comments, the project team created a map of recommended bikeways, with a focus on building a continuous network of facilities that reduces gaps in infrastructure. The team also identified differing types of facilities based upon the posted speed limits and volume of vehicular traffic on streets. Streets with faster traffic and more vehicles were recommended for greater physical separation of modes using industry standards as a guide.

Next, the number of comments each project received during outreach were quantified. Though the length of the 46 roadway segments varied greatly, the project team felt that the overall amount of comments was enough of an indicator of public interest in improvements without a need to normalize by feet or mile. The highest count of comments received on one project was 6 (Elenda Street and Washington Boulevard); 17 recommended facilities had no comments recorded.

Then, the team overlaid these recommendations with the High Injury Network (HIN), which identified streets with high rates of Killed or Severely Injured (KSI) collisions. The corridors that were included on the HIN received an additional 3 points toward priority, resulting in a highest score of 9 points.

Lastly, the consultant team reviewed the feasibility of the projects from two key angles: overall cost and the extent of work that would be required to complete the project. For example, a Class III bikeway generally has a lower cost estimate than a Class II bikeway simply because there is less roadway work required. A Class II bike lane that could be completed with lane narrowing has a lower cost estimate than a Class II bike lane that would necessitate the removal of a lane of traffic or parking along a commercial street, since there would be a need for additional outreach and traffic analysis. Lastly, Class IV bikeways often have a larger physical footprint and usually require a significant amount of design, engineering, and outreach work – as well as greater construction costs to install a barrier such as a curb or planted median. In general, the more significant and transformative the project, the higher the cost estimate is.

In conclusion, it should be noted that the prioritization list is at best a guide for the City. When funding sources become available, the City should take all available opportunities to propose the most competitive projects. Should opportunities arise to complete projects on lower tiers of the prioritization list, they should be taken. For example, if a new development is required to provide a public benefit along these corridors, proposed bikeways should be considered as an option. If the City plans to repave a corridor that has a recommended bikeway or pedestrian project, it should explore ways to complete projects as the street is repaved.

Project Priorities & Tiers

The recommended bikeways, along with their prioritization, can be found on the following pages (**Table 12**). The projects have been broken down into three tiers taking into account factors that include safety conditions, connectivity within the grid, connectivity to transit (first mile/last mile), access to employment centers, and access to schools and parks:

- **Tier 1: High Priority Projects**
  These are projects that the City should actively seek funding for and dedicate resources to planning and implementation in the immediate years. Since many of these projects are of a large-scale, transformational nature, they will require significant outreach and funding. Timelines for outreach, and identification of funding sources should be a high priority and immediate next step. The Tier 1 projects that are lower-scale and cost should be considered for immediate implementation in the coming fiscal years.
- **Tier 2: Priority Projects**
  These are projects that the City should maintain as potential projects, in the event that funding sources (such as developer impact fees) become available. The City's repaving plan should also take these projects into account as street repaving plans are implemented. These projects may be combined with Tier 1 projects to strengthen the network and gap closure portions of grant applications, and to complement other projects.
- **Tier 3: Other Projects**
  These are projects that will require more study and outreach to determine if there is a demand for these projects, compared to the first two tiers. Many of the projects in Tier 3 did not receive any public comments in our lengthy outreach process, so further work identifying community needs will be essential to these projects.

As stated previously, the prioritization structure is not intended as a tool to say 'no' to lower tier projects, but as a way for City staff to prioritize funding requests and how to dedicate staff time. All projects on this list should be considered as opportunities arise, and ongoing collision analysis may provide additional context to modify the priority rankings. **Table 12** lists the projects by Prioritization Score, then in alphabetical order. For example, the Expo-Downtown Multi-modal Connector with Class IV bikeways on Washington Boulevard and Culver Boulevard between Duquesne Avenue and Helms Avenue is a high priority due to its connectivity with the E Line and bus services (first mile/last mile). This is despite that it is listed under Tier 2 based on the collisions data. Similarly the Class IV bikeways and Class II bike lanes along the Overland Avenue-Playa Street-Hannum Avenue corridor between Downtown Culver City and the Westfield/Culver City Transit Center is a high priority.

Table 12 - Prioritization of Recommended Bikeway Projects

Corridor	From	To	Recommended Facility Type	Length (mi)	Part of High Injury Network?	Public Comments	Priority Score (Max 9)
Tier 1: High Priority Projects (Priority Score of 6 or greater)							
Elenda Street	Washington Boulevard	Culver Boulevard	Class IV Separated Bikeway	0.32	Y	6	9
Washington Boulevard	Lincoln Boulevard	Zanja Street	Class IV Separated Bikeway	0.8	Y	6	9
Harter Avenue	Washington Boulevard	S. City Limit	Class III Bicycle Boulevard	0.67	Y	4	7
Playa Street	Sepulveda Boulevard	Overland Avenue	Class IV Separated Bikeway	0.35	Y	4	7
Bristol Parkway	Slauson Avenue	Centinela Avenue	Class II Bicycle Lanes	0.76	Y	3	6
Jefferson Boulevard	City Limit	Sepulveda Boulevard	Class IV Separated Bikeway	2.2	Y	3	6
Overland Avenue	Ballona Creek Bike Path	Playa Street	Class IV Separated Bikeway	1.07	Y	3	6
Sepulveda Boulevard	Washington Place	City limit (200' north of Greenlawn Ave)	Class IV Separated Bikeway	1.05	Y	3	6
Tier 2: Priority Projects (Priority Score ranging from 5 to 3)							
Centinela Avenue	Sepulveda Boulevard	Green Valley Circle	Class IV Separated Bikeway	0.54	Y	2	5
Hannum Avenue	Sawtelle Boulevard	Playa Street	Class III Bicycle Boulevard	0.28	Y	2	5
Overland Avenue	Venice Boulevard	Culver Boulevard	Class II Bicycle Lanes	0.4	Y	2	5
Studio Drive	Rhoda Way	Jefferson Boulevard	Class III Bicycle Boulevard	0.2	Y	2	5
Washington Boulevard	Culver Boulevard	Helms Avenue	Class IV Separated Bikeway	0.67	Y	2	5
Washington Boulevard	Helms Avenue	Fairfax Avenue	Class II Bicycle Lanes	0.87	Y	2	5
Washington Place	Zanja Street	Grand View Boulevard	Class IV Separated Bikeway	0.5	Y	1	4
Washington Place	McLaughlin Avenue	Harter Avenue	Class IV Separated Bikeway	0.69	Y	1	4
Adams Boulevard	Washington Boulevard	Fairfax Avenue	Class II Bicycle Lanes	0.15	Y	0	3

Corridor	From	To	Recommended Facility Type	Length (mi)	Part of High Injury Network?	Public Comments	Priority Score (Max 9)
Centinela Avenue	Mesmer Avenue	Sepulveda Boulevard	Class II Bicycle Lanes	0.26	Y	0	3
Cota Street	Rhoda Way	Jefferson Boulevard	Class III Bicycle Boulevard	0.2		3	3
Elenda Street	Culver Boulevard	Farragut Drive	Class III Bicycle Boulevard	0.35		3	3
Sawtelle Boulevard	Sepulveda Boulevard	Overland Avenue	Class II Bicycle Lanes	0.29		3	3
Sepulveda Boulevard	Ballona Creek Bike Path	Centinela Avenue	Class IV Separated Bikeway	0.44	Y	0	3
Tier 3: Other Projects (Priority Score ranging from 2 to 0)							
Culver Boulevard	Overland Avenue	Washington Boulevard	Class IV Separated Bikeway	0.94		2	2
Metro E (Expo) Line Path	Venice Boulevard	National Boulevard	Fill gap in Metro E (Expo) Line Bike Path	0.24		2	2
Hannum Avenue	Playa Street	Slauson Avenue	Class II Bicycle Lanes	0.36		2	2
Jackson Avenue	Culver Boulevard	Ballona Creek Bike Path	Class III Bicycle Boulevard	0.59		2	2
Farragut Drive	Elenda Street	Duquesne Avenue	Class III Bicycle Boulevard	0.95		1	1
Flaxton Street	Kinston Avenue	Overland Avenue	Class III Bicycle Boulevard	0.1		1	1
Hayter Avenue	Sawtelle Boulevard	Port Road	Class III Bicycle Boulevard	0.12		1	1
Jacob Street	Helms Avenue	Reid Avenue	Class III Bicycle Boulevard	0.4		1	1
Robertson Boulevard	Venice Boulevard	Washington Boulevard	Class IV Separated Bikeway	0.15		1	1
Berryman Avenue	Hayter Avenue	Sepulveda Boulevard	Class III Bicycle Boulevard	0.32		0	0
Buckingham Parkway	Hannum Avenue	Green Valley Circle	Class IV Separated Bikeway	0.45		0	0
Bush Way	Hannum Avenue	Malat Way	Class III Bicycle Boulevard	0.1		0	0
Culver Boulevard	Elenda Street	Overland Avenue	Class II Bicycle Lanes	0.32		0	0
Franklin Avenue	Elenda Street	Overland Avenue	Class III Bicycle Boulevard	0.25		0	0
Green Valley Circle	Sepulveda Boulevard	Centinela Avenue	Class II Bicycle Lanes	0.91		0	0

Corridor	From	To	Recommended Facility Type	Length (mi)	Part of High Injury Network?	Public Comments	Priority Score (Max 9)
Helms Avenue	Washington Boulevard	National Boulevard	Class III Bicycle Boulevard	0.15		0	0
Higuera Street	Ballona Creek Path	n/a	Entrance to bike path	-		0	0
Kinston Avenue	Rhoda Way	Flaxton Street	Class III Bicycle Boulevard	0.46		0	0
Malat Way	Sawtelle Boulevard	Playa Street	Class III Bicycle Boulevard	0.21		0	0
McLaughlin Avenue	Washington Place	Washington Boulevard	Class II Bicycle Lanes	0.37		0	0
Reid Avenue	Washington Boulevard	National Boulevard	Class III Bicycle Boulevard	0.2		0	0
Rhoda Way	Studio Drive	Cota Street	Class III Bicycle Boulevard	0.18		0	0
Sawtelle Boulevard	Venice Boulevard	Ballona Creek Bike Path	Class II Bicycle Lanes	0.62		0	0
Washington Boulevard	Harter Avenue	Overland Avenue	Class IV Separated Bikeway	0.57		0	0
Westwood Boulevard	Ocean Drive	Studio Drive	Class III Bicycle Boulevard	0.15		0	0

COST ESTIMATES

Planning-level cost assumptions can be used to determine general cost estimates for particular infrastructure projects, based on additional information as projects are further developed and designed. The cost assumptions in Appendix G show the estimated costs in 2020 dollars for some of the types of treatments recommended in this Plan. While the estimates reflect typical costs, unit costs do not consider project-specific factors such as right-of-way acquisition, intensive grading, landscaping, intensive utility relocation, or other location-specific factors that may increase actual costs. For some projects, costs may be significantly greater. City staff may use these numbers when estimating a project cost.

Bikeway network and sidewalk costs are identified on a scale of 1 to 5, with 5 being the highest cost. Any facility that would require significant amounts of new concrete, plantings, or road reconstruction tend be on the higher end. Projects that would require minimal work, such as simply repainting lane lines or adding new pavement markings are on the lower end. Distance was also considered in these general estimates.

It is important to note the following general assumptions about the cost estimates. First, all cost estimates are conceptual, since there is no feasibility or preliminary design completed, and second, the design and administration costs included in these estimates may not be sufficient to fund environmental clearance studies. Costs do not include environmental remediation or acquisition of right-of-way. Finally, cost estimates fluctuate over time as construction costs escalate quickly, and as such, the costs presented should be considered as rough order of magnitude only.

MAINTENANCE & OPERATIONS

Maintaining active transportation networks is equally as important as building out the system. Keeping infrastructure in good working order enables communities to derive an ongoing return on their investment, while demonstrating cities' ongoing commitment to providing a safe and functional system for their residents and visitors.

Regular active transportation facility maintenance includes sweeping, maintaining a smooth pavement and street surface, ensuring that the gutter-to-pavement transition remains relatively flush, trash collection, and restriping.

Maintenance costs almost exclusively rely on local funding. The 2019-2020 Fiscal Year budget set aside for maintenance programs are listed in the table below (**Table 13**). Additional information regarding maintenance and operations of active transportation facilities can be found in Appendix F.

Table 13 - FY19-20 Maintenance Program Budget

MAINTENANCE ACTIVITY	AVERAGE ANNUAL BUDGET
Street Maintenance (including pavement, sidewalk, traffic painting, traffic signs, street furniture, bike racks, bike signage)	$2.37 million
Urban Forestry	$390,000

FUNDING

Coordination with other Agencies & Departments

Culver City is fully surrounded by the City and County of Los Angeles, and all modes of traffic tend to flow between the jurisdictions with users rarely recognizing they have crossed into other jurisdictions. Therefore, Culver City should continue to work with the adjacent city to align priorities for projects where facilities reach the city boundaries and should continue to coordinate integration of the projects in this document with the regional network of walkways and bikeways in partnership with the City of Los Angeles, the County of Los Angeles, and regional bodies such as Metro and SCAG. Lastly, since Caltrans is a large funding source for active transportation projects, and Caltrans maintains freeways inside the Culver City boundaries, additional coordination with this agency is important.

Funding Sources

As with many jurisdictions in the region, Culver City relies heavily on regional, state, and federal funding sources to implement bicycle and pedestrian infrastructure projects and programs. Typically, these dollars are distributed to jurisdictions throughout California through a competitive grant process. The City has a successful track record of securing funding from these sources for pedestrian and bicycle infrastructure projects and programs, however, these funding sources continue to become increasingly competitive.

Transportation funding can change drastically when there are modifications to policies and new taxes and fees are adopted. Regionally, transportation funding increased with the approval of Measure M in 2016 by Los Angeles County voters. A portion of Measure M dollars are granted to the City as local return funding, and an additional two percent of County funding is specifically set aside for active transportation projects, similar to those identified in this plan.

In 2017, state-level funding for transportation increased through increases in the statewide gas tax and vehicle registration fee (SB 1). The California State Legislature passed these increases to address the growing backlog of roadway maintenance issues statewide, coupled with the adoption

of several climate initiatives, such as cap-and-trade, which brings new revenue to the state from the sale and transfer of emission credits.

Federal transportation funding is primarily secured through grant programs run by state and regional agencies such as Metro, SCAG (Southern California Association of Governments), and Caltrans (State of California Department of Transportation). Federal funding is perhaps the most uncertain, as the primary federal source of funding—the gas tax—has not been raised since 1993. Federal revenue for transportation is allocated through the Fast America's Surface Transportation (FAST), which is developed and authorized by Congress infrequently.

A full list of potential funding sources and the types of projects eligible for these sources is provided in Appendix H. As the funding environment is constantly changing, many of the sources identified in the appendix may be discontinued or new funding opportunities may become available. The City staff should remain vigilant and maintain focus on adapting to secure funding from sources of revenue as opportunities arise.

DESIGN GUIDELINES

While Appendix D of the Plan details design templates for bicycle and pedestrian infrastructure found in the recommendations, this section also includes an inventory of pedestrian and bicycle design guidelines that present tools for creating a pedestrian- and bicycle-friendly, safe, and accessible community. These guidelines are not a substitute for a more thorough evaluation by a professional upon implementation of facility improvements, but an overview of best practices established across the nation. The design guidelines and recommendations in this Plan are not intended to replace existing state or national mandatory or advisory standards nor the exercise of engineering judgment by licensed professionals. National and state design guidance and details can be found in the following documents.

National Guidance

The **American Association of State Highway and Transportation Officials (AASHTO) Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004)** provides comprehensive guidance on planning and designing for people on foot and using other mobility devices such as wheelchairs.

Offering similar guidance for bicycle facility design, the **AASHTO Guide for the Development of Bicycle Facilities (2012)** provides guidance on dimensions, use, and layout of specific bicycle facilities.

The **National Association of City Transportation Officials' (NACTO) Urban Street Design Guide (2013)** and **Urban Bikeway Design Guide (2014)** are two nationally-recognized urban street design standards, and offers guidance on the current state of the practice designs.

AASHTO's A **Policy on Geometric Design of Highways and Streets (2011)**, commonly referred to as the "Green Book," contains current design research and practices for highway and street geometric design.

The Federal Highway Administration's **Small Town and Rural Multimodal Networks Report (2016)** is a resource to help small towns and rural communities support safe, accessible, comfortable, and active travel for people of all ages and abilities. It provides an overview of bicycle and pedestrian designs for these communities, as well as examples of peer communities.

State Guidance

The **California Manual on Uniform Traffic Control Devices (CA MUTCD) (2014)** is an amended version of the FHWA MUTCD 2009 edition modified for use in California. While standards presented in the CA MUTCD substantially conform to the FHWA MUTCD, the state of California follows local practices, laws, and requirements with regards to signing, striping, and other traffic control devices. As of publication, the document has been published as Revision 5 in March 2020.

The **California Highway Design Manual (HDM) (Updated 2015)** establishes uniform policies and procedures to carry out highway design functions for Caltrans.

Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians (2010) is a reference guide presenting information and concepts related to improving conditions for pedestrians and bicycle riders at major intersections and interchanges. The guide can be used to inform minor signage and striping changes to intersections, as well as major changes and designs for new intersections.

Main Street, California: A Guide for Improving Community and Transportation Vitality (2013) reflects California's current manuals and policies that improve multimodal access, livability, and sustainability within the transportation system. The guide recognizes the overlapping and sometimes competing needs of main streets, especially those that are operated as part of the State's highway system.

Caltrans Memo: Design Flexibility in Multimodal Design (2014) encourages flexibility in highway design. The memo stated that "Publications such as NACTO's Urban Street Design Guide and Urban Bikeway Design Guide... are resources that Caltrans and local entities can reference when making planning and design decisions on the State highway system and local streets and roads."

Appendices

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Appendix A

ATP Compliance Checklist

ATP Compliance Checklist

Subject	Requirement	Section(s)
Mode Share	The estimated number of existing bicycle trips and pedestrian trips in the plan area, both in absolute numbers and as a percentage of all trips, and the estimated increase in the number of bicycle trips and pedestrian trips resulting from implementation of the plan.	Chapter 2 & 4
Description of Land Use/Destinations	A map and description of existing and proposed land use and settlement patterns which must include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, major employment centers, major transit hubs, and other destinations. Major transit hubs must include, but are not limited to, rail and transit terminals, and ferry docks and landings.	Chapters 2 & 4
Pedestrian Facilities	A map and description of existing and proposed pedestrian facilities, including those at major transit hubs and those that serve public and private schools.	Chapters 2 & 4
Bicycle Facilities	A map and description of existing and proposed bicycle transportation facilities including those at major transit hubs and those that serve public and private schools.	Chapters 2 & 4
Bicycle Parking	A map and description of existing and proposed end-of-trip bicycle parking facilities. Include a description of existing and proposed policies related to bicycle parking in public locations, private parking garages and parking lots and in new commercial and residential developments. Also include a map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These must include, but not be limited to, bicycle parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.	Chapters 2, 4 & 5, and Appendix D
Wayfinding	A description of proposed signage providing wayfinding along the bicycle transportation network to designated destinations	Chapter 2, 4, & Appendix D
Non-Infrastructure	A description of existing and proposed bicycle and pedestrian education, encouragement, enforcement, and evaluation programs conducted in the area included within the plan. Include efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the law impacting bicycle and pedestrian safety, and the resulting effect on collisions involving bicyclists and pedestrians	Chapter 6
Collision Analysis	The number and location of collisions, serious injuries, and fatalities suffered by bicyclists and pedestrians in the plan area, both in absolute numbers and as a percentage of all collisions and injuries, and a goal for collision, serious injury, and fatality reduction after implementation of the plan.	Chapter 2
Equity Analysis	Identify census tracts that are considered to be disadvantaged or low-income and identify bicycle and pedestrian needs of those disadvantaged or low-income residents.	Chapter 2
Community Engagement	A description of the extent of community involvement in development of the plan, including disadvantaged and underserved communities.	Chapter 3 & Appendix C
Coordination	A description of how the active transportation plan has been coordinated with neighboring jurisdictions, including school districts within the plan area, and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, general plans and a Sustainable Community Strategy in a Regional Transportation Plan	Chapter 2, 6, 7, Appendix B & D
Prioritization	A description of the projects and programs proposed in the plan and a listing of their priorities for implementation, including the methodology for project prioritization and a proposed timeline for implementation.	Chapter 7

Subject	Requirement	Section(s)
Funding	A description of future financial needs for projects and programs that improve safety and convenience for bicyclists and pedestrians in the plan area. Include anticipated cost, revenue sources and potential grant funding for bicycle and pedestrian uses	Chapter 7 & Appendix G & H
Implementation	A description of steps necessary to implement the plan and the reporting process that will be used to keep the adopting agency and community informed of the progress being made in implementing the plan.	Chapter 7, Appendix B, D, F, G, & H
Maintenance	A description of the policies and procedures for maintaining existing and proposed bicycle and pedestrian facilities, including, but not limited to, the maintenance of smooth pavement, ADA level surfaces, freedom from encroaching vegetation, maintenance of traffic control devices including striping and other pavement markings, and lighting	Chapter 7, Appendix D, & F

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Appendix B

Existing Plans & Policies

CITY DOCUMENTS

Local Road Safety Plan (LRSP) (2020)

The LRSP covers assessment of citywide safety conditions and an associated collisions analysis. It also contains an action plan measures covering engineering improvements, data-based enforcement, safety education, encouragement, equity, and evaluation.

Complete Streets Policy (2020)

In January 2020, the City adopted a Complete Streets policy intended to establish guiding principles for transportation improvements to accommodate people of all ages and abilities traveling by the different modes of transportation. The policy aims to promote healthy and sustainable multimodal mobility for Culver City residents and visitors. To accomplish this, the Complete Street policy guides the provision of a safe, convenient, and comfortable street system throughout the city that provides for the needs of road users of all ages, abilities, and backgrounds including bicyclists, pedestrians, drivers, and transit users.

ADA Transition Plan (2018)

The ADA Transition Plan aims to assess curb ramps, intersections, sidewalk barriers, and transit stops in an effort to identify facility needs, prioritize implementation and funding, and make recommendations to improve the safety and comfort of walking and wheelchair use in Culver City.

TOD Visioning Study (2017)

The TOD Visioning Study focuses on evaluating Transit Oriented Development (TOD) around the Metro E (Expo) Line Station. The study will provide recommendations on improving connections to the station area for pedestrians, bicyclists, transit, and automobile traffic. The principles of the mobility framework helped to define the goals, objectives, and recommendations into the following categories:

Pedestrians: Improve walkability and pedestrian safety

Transit: Improve the efficiency and convenience of transit as a mobility option

Bicycling: Improve convenience, safety, and efficiency of a cycling infrastructure and encourage bicycling

Traffic: Improve mobility for pedestrians, transit, and bikes, as well as to relieve certain traffic congestion conditions on local streets

Washington Boulevard: Establish Washington Boulevard, from Downtown to its crossing at Ballona Creek, as the principal “spine” of the TOD area

Transit-Oriented Development (TOD) District Policies: Guide development within the TOD area, to define and design improvements that address mobility, and to clarify the City’s expectations regarding conditions for new development

Transportation Demand Management (TDM) Policies: To encourage, facilitate, and promote the use of alternative mobility modes

Assembly Bill 321 Legislature Feasibility Study Draft (2017)

The feasibility study determines whether 15 miles per hour (mph) school zone speed limits are feasible per the conditions outlined in Assembly Bill No. 321. The study included five schools within the Culver City School District:

- El Marino Elementary School
- El Rincon Elementary School
- Farragut Elementary School/Culver City Middle School/High School
- Linwood E. Howe Elementary School
- La Ballona Elementary School

The findings suggest that it is feasible to apply a 15-mph speed limit within 500 feet of school grounds and a 25 mph speed limit within 500 to 1,000 feet of the school grounds on the streets studied except for the following:

- Hayter Avenue - Does not qualify as a "residence district"
- Coolidge Avenue - Does not qualify as a "residence district"
- Overland Avenue - Exceeds maximum speed limit and travel lanes
- Sawtelle Avenue - Does not qualify as a "residence district"
- Washington Boulevard - Exceeds maximum speed limit and travel lanes

Bike Share Feasibility Study (2017)

The purpose of this study is to evaluate the feasibility of operating a bike share system in Culver City, to evaluate which system would best serve the City's goals and interests. As a result, the Study recommended that Culver City pursue a smart bike system in partnership with Metro. The implementation of a bike share system in Culver City would encourage bicycling as a mode of transportation and could greatly increase connections to local destinations and regional transit.

Expo-Downtown Bicycle Connector Study (2017)

In 2012, the Metro E (Expo) Line opened to Culver City, creating additional demand for walking and bicycling in Downtown and spurred transit-oriented development along the corridor. The goals of this study are to evaluate safe family-friendly connections between the Metro E (Expo) Line Bike Path and Downtown Culver City, to promote mobility, increase access to local businesses, and to promote community health and sustainability. The study does include information to seek right-of-way dedications and other mitigations from pending developments to enable the future implementation of the recommended project.

Washington National Transit Oriented Development District: Streetscape Plan (2016)

The purpose of the Streetscape Plan is to create a series of principles to guide the streetscape design near the Metro E (Expo) Line Station and the emerging Transit Oriented Development (TOD) district. A series of new TOD developments are planned near Washington and National Blvd. These mixed-use developments will require

enhancing the common public spaces and pedestrian environment. The Plan promotes revitalization through the implementation of pedestrian friendly streetscapes enhancements. The Streetscape Plan conforms to the 2010 Bicycle Pedestrian Master Plan.

Urban Forest Master Plan (2016)

The objective of this Plan is to facilitate the preservation, management, and enhancement of Culver City's urban forest. The Plan further relates to the 2010 Bicycle and Pedestrian Master Plan, 2009 Parks and Recreation Master Plan, and the 1995 General Plan (Open Space, Circulation, and Land Use Elements). The City has a goal to create a more pedestrian- and bike-friendly urban environment and street trees can support this goal by providing shade and calming traffic.

Culver City Strategic Plan FY 2016-17 to FY 2020-21 (2016)

The plan includes multiple goals related to the subjects in the BPAP. Goal Two seeks to enhance the restoration and utilization of Ballona Creek, Goal Three seeks to limit increases in Average Daily Traffic (ADT) for motor vehicles, identify barriers to walking and bicycling, and pursue the elimination of death and severe injury crashes on roadways.

Parkway Design Guidelines (2016)

The Parkway Design Guidelines supports the creation and maintenance of parkways in Culver City that are safe, accessible, resource efficient, ecologically responsible, and preserve the health of City trees. The green infrastructure provides not only important ecological services to the City such as cooling, stormwater runoff reduction, and energy use reduction, but further impact the pedestrian and bicycling environment in a positive way.

Green Street Policy (2015)

The Green Street Policy is implemented by the City's Public Works Department and will follow Green Street Best Management Practices for the addition of new streets, redevelopment projects, and roadway improvement projects, including Capital Improvement Projects. This policy was enacted to demonstrate compliance with the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit for the Los Angeles Region (Order No. R4-2012-0175). Green streets are an amenity that provides many benefits including water quality improvement, groundwater replenishment, creation of attractive streetscapes, creation of parks and wildlife habitats, and pedestrian and bicycle accessibility.

In 2018, the City began the process of creating a Storm Water Quality Plan. This Plan will align with the Ballona Creek Enhanced Watershed Management Program and will review streets in terms of pollutant loading.

Culver City Bicycle/Pedestrian Safety Assessment (2014)

The objectives of the BSA and PSA are to improve pedestrian and bicyclist safety, enhance walkability and bike-ability, and to increase accessibility for all pedestrians and bicyclists. The study analyzed the City's existing and future pedestrian and bicycle demands, which included local Safe Route to School programs, the 2010 Bicycle and Pedestrian Master Plan, and the review of collision data. This study focused on identifying opportunities to build on these existing efforts and offered recommendations for potential improvements. Walking and bicycle study areas included, Washington Boulevard, Culver Boulevard, the Tri-School area, and the Fox Hills Park. Additional bicycle studies were conducted at Washington Boulevard from the Metro E (Expo) Line to Downtown Culver City, the Ballona Creek Bike Path at Duquesne Avenue, and Elenda Street from La Ballona Elementary School to Farragut Elementary School.

Procedures and Regulations for Residential Permit Parking Districts (2013)

The purpose of the Preferential Parking Districts is to limit the intrusion of non-residential parking into parking-restricted residential streets and neighborhoods. These Districts were adopted to limit the negative impacts to residential areas.

Culver City Bicycle and Pedestrian Master Plan (2010)

The Culver City Bicycle and Pedestrian Master Plan (BPMP) emphasizes the concept of "Complete Streets" and provides guidance for the future development of bicycle and pedestrian facilities. The BPMP further includes education, enforcement, and encouragement programs that aim to reduce congestion; lower greenhouse gas emissions; create a thriving, walkable business environment; and the promotion of healthier lifestyles and improved quality of life in Culver City and adjacent communities.

Outdoor Dining Standards and Procedures on the Public Right-of-Way (2009)

Culver City updated its Outdoor Dining Standards (ODS) in 2009 in conjunction with the development of the Downtown Culver City Design Guidelines. The popularity and demand for restaurant outdoor seating have the potential to encroach into the public right-of-way, while livening the public realm and creating more walkable areas. These standards regulate the design and operation of the outdoor dining areas in such a way to enhance the pedestrian experience.

Neighborhood Traffic Management Program (NTMP) (2004)

The Neighborhood Traffic Management Program (NTMP) aims to improve the quality of life in our neighborhoods by implementing transportation solutions to make streets safer and more comfortable.

The NTMP allows Culver City residents and the City to work together to address traffic problems, such as speeding or cut-through traffic, on local streets by considering various traffic calming solutions.

Ballona Creek and Trail: Focused Special Study and Ballona Creek Related City Council Resolution No. 2004-R044 (2004)

One of the key goals of this Focused Study was to "promote the development of a pedestrian and bicycle path system that will be safe, secure and meet ADA accessibility requirements." The City Council Resolution No. 2004-R044 amends the Land Use, Open Space and Circulation Elements of the Culver City General Plan as they pertain to Ballona Creek.

The study recognized the use of Ballona Creek Bike Path for both commuting and recreational purposes. Accessibility to and the safety of the trail for pedestrians, bicyclists, and others with impaired mobility was a primary concern. The study also provides guiding principles for improvements that will connect the Ballona Creek Bike Path with the rest of the City Bicycle Network. Major themes of the Resolution include:

- Protecting the surrounding neighborhoods from externalities of trail access and use
- Establishing guidelines that direct future improvements/additions to the trail
- Safety, maintenance, and crime prevention
- Including surrounding communities in the improvement process
- Installing Class II bike lanes along major arterials to facilitate bicycle travel to/from the Ballona Creek Bike Path

Culver City General Plan (1996)

The following plan elements were amended in 2004:

Circulation Element:

The Circulation Element of the General Plan identifies transportation systems and facilities in correlation with the Land Use Element. Legislation requires that the County adopt a Congestion Management Plan (CMP) addressing the linkage between land use, regional roadways, transit performance, air quality objectives, and Transportation Demand Management (TDM).

Objective 3: outlines policies that support a bikeway system and facilitates the expansion of connections to Ballona Creek Bicycle Path, expands linear routes for improved connectivity, and includes the adoption of a comprehensive bikeway plan (adopted in 2010)

Objective 4: outlines policies that support pedestrian access though improved streetscapes and connectivity, enhanced transit access, and through crime prevention measures and education that support pedestrian safety

Objective 9: outlines streetscape enhancements that integrate

transportation and urban design systems through streetscape improvements. This includes enhancing the aesthetics of the City's streetscape to be consistent with the Streetscape Master Plan

Land Use Element:

The Land Use Element intends to guide land use and development to achieve the goals of improving the physical, social, and economic needs of the community as outlined in the General Plan. The Land Use Vision builds upon the City's small-town character, peaceful tree-lined neighborhoods, and a diverse economic base that is supported by City services.

Open Space Element:

The Open Space Element supports natural habitats, agricultural production, outdoor recreation and environmental health issues. The intent is to protect, expand, and enhance visible and usable open space resources.

Policy 2D: proposes bikeway connectivity to Downtown from the Ballona Creek Bike Path

Policy 2E: discusses Overland Avenue and Culver Boulevard. Overland Avenue is a major component of Culver City's transportation system, connecting to:

- Ballona Creek Bike Path
- Venice Boulevard Bike Lanes
- Employment (Sony)
- Civic/public life (Veteran's Center, Senior Citizen Center)
- Recreation (Ballona Creek Bike Path, Veteran's Park)
- Commercial Centers (Culver Center, Ralphs, Best Buy, Bally Fitness)
- West Los Angeles College
- Residential neighborhoods

Policy 2F: calls for the development of a bike path along National Boulevard and pre-dates the Metro E (Expo) Line Light Rail Transit Project plans

Policy 2H: discusses Syd Kronenthal Park and its connectivity to the Ballona Creek Bike Path

Policy 3C: discusses the concept of "Parkettes." These small-scale parks cab take advantage of underutilized parcels of property

In 2004, the amendment outlined policy updates to Ballona Creek connections in relation to both the Open Space and Land Use elements:

Policy 2G: maintains and enhances the active recreation opportunities along Ballona Creek bike path while ensuring the safety and privacy of adjoining neighborhoods

Policy 2I: develops a safe and convenient pedestrian and bicycle link between the Lucerne-Higuera neighborhood, south of National Boulevard, and Syd Kronenthal Park

Culver City Municipal Codes

There are several sections of the Culver City Municipal Code (CCMC) that relate to the provision and design of bicycle parking, riding, and walking.

The 2010 Bicycle and Pedestrian Master Plan improved bicycling and walking opportunities, showing significant process in expanding active transportation in Culver City. Below is a list of current CCMC as they relate to walking and bicycling in Culver City.

Bicycle Parking

CCMC §7.03.535: expressly prohibits using parking meters as bicycle parking

CCMC §7.05.015: Transportation Demand and Trip Reduction Measures (TDM) requires all new non-residential developments that equal or exceed 50,000 gross square feet provide bicycle racks or other secure bicycle parking as a way to encourage bicycling as an alternative mode of transportation and reduce the use of automobiles

CCMC §9.10.055: expressly prohibits leaving a bicycle on the ground, pavement, or against a tree in a public park when a bicycle rack is provided and there is space available. Additionally, this code prohibits riding a bicycle other than on the right-hand side of the road, and bicycles shall be kept in single file when two or more are operating as a group

CCMC §17.320.045: states that bicycle parking is to be provided at most multi-family and non-residential uses. Generally, bicycle parking is required at rates that vary between 5-10% of the motor vehicle parking provided at the respective facility

Bicycle Riding

CCMC §7.02.050: prohibits bicycling upon any pedestrian walkway, which the Council, by resolution, has specifically designated as reserved for pedestrian use only

CCMC §7.04.250: prohibits bicyclists from riding on a sidewalk within any business district or upon the sidewalk adjacent to any public-school building, church, recreation center or playground. Additionally, if a person is riding a bicycle upon a sidewalk they must yield to pedestrians, give an audible signal, and pass on the left of the pedestrian

Walking

CCMC §9.08.035: authorizes the administrative licensing of outdoor dining areas where they will promote commercial revitalization and business opportunities in a manner that is consistent with public welfare and safety

CCMC §7.05.015: (Transportation Demand and Trip Reduction Measures) requires all new non-residential developments that equal or exceed 100,000 gross square feet to provide direct and safe pedestrian access to/ from vehicle and bicycle parking and transit facilities

ACTIVE TRANSPORTATION PLANS OF NEIGHBORING JURISDICTIONS

Jefferson Blvd Pedestrian and Bicycle Access Improvements (2017)

This Project provides a separate pedestrian walking and jogging trail that starts near Jefferson Boulevard and terminates at a point beyond the last residential access from Hetzler Road. The purpose of the Project is to provide a safer route than the Hetzler Road roadway for pedestrians and joggers. Pedestrian use of the section of the Hetzler Road roadway adjacent to the new walkway is no longer authorized. The Project location is in Culver City but is entirely under the jurisdiction of California Department of Parks and Recreation (State Parks).

Exposition Corridor Transit Neighborhood Plan (2017)

The Exposition Corridor Streetscape Plan is a vision document that provides guidance for streetscape improvements in the public right-of-way. The Plan aims to improve the walking environment of the corridor and to link rail stations, through improving connections and pedestrian safety. This Plan reflects the Mobility Plan street designations and street standards, and the Mobility Plan's enhanced street networks, including the Bicycle Lane Network, where applicable.

City of Los Angeles Mobility Plan 2035 (2016)

In 2008, the California State Legislature adopted AB 1358, The Complete Streets Act, which requires local jurisdictions to plan for a balanced, multimodal transportation network that meets the needs of all users of streets. The Mobility Plan meets this requirement through a series of goals that represent transportation and public health. The Plan provides the policy foundation for achieving a transportation system that balances the needs of all road users by incorporating "Complete Streets" principles, and further addresses historic inequities to low-income communities by placing a citywide emphasis on safety, access, and health in socioeconomically disadvantaged areas with the highest need to connect people through increased mobility.

Westside Cities Long Range Transportation Plan Project List (2015)

The below project list is not exhaustive, but does highlight the projects that pertain to the Pedestrian and Bicycle Action Plan:

- WSCCOG Bicycle Infrastructure Priority Gap Closure — Beverly Drive/Beverwil Drive/Duquesne Ave./Jefferson Blvd./ Overland Ave. (from San Vicente to Westfield/Culver City Transit Center)
- Streetscape improvements (street trees, landscaping, street furniture, special lighting, decorative paving, or screening walls) and facade improvements along commercial corridors that complement each focus area and improve the physical environment
- Continue efforts to eliminate barriers to wheelchairs in the public and private pedestrian rights-of-way

- Proposed Class III bikeway on Hannum Ave
- Proposed Class III bikeway on Bristol Pkwy
- Proposed Class III bikeway on Green Valley Cir
- Proposed Class III bikeway on Duquesne Ave
- Sign Class II and III bikeways on Washington, Jefferson, and Sepulveda Boulevards, Overland and Duquesne Avenues, Washington Place, Playa Street and any future adopted routes
- Provide bike lockers and staging areas for public use in safe and convenient locations within commercial corridors
- Promote public education programs regarding bicycle safety and the City's bicycle resources
- Establish pedestrian access across existing barriers such as freeways, Ballona Creek, and long, uninterrupted blocks, and require pedestrian links across potential future access barriers
- Promote public education programs regarding the City's pedestrian resources and pedestrian safety, especially the use of pedestrian signals at street intersections
- Develop Safe Routes to School plans. Implement construction projects around various school sites in Culver City
- Develop a Class II bicycle connection between Expo/Culver City Station and Downtown Culver City (Washington Boulevard between National Boulevard and Ince Boulevard); enhance pedestrian environment to encourage pedestrian movement between Expo and Downtown
- Ballona Creek Bike Path Extension: This project would study and create plans to extend the bike path further east along Ballona Creek between Syd Kronenthal Park and Fairfax
- Overland Bike Facilities: This project will add bike facilities on Overland between Venice and Playa
- Develop a bikeway loop connecting Ballona Creek Path to Downtown (Class II bicycle lane along Overland Avenue, Culver Boulevard, and Washington Boulevard through Downtown connecting to Ballona Creek and Exposition right-of-way)
- Reduce automobile travel by establishing a context for TDM programs, capitalizing on the CityBus transit system and the Ballona Creek Bike Path, and studying appropriate limits on the number of parking spaces for specific uses and areas
- Improve aesthetic, safety and traffic conditions in the area between La Cienega Boulevard and Fairfax Avenue and between La Cienega and Ballona Creek

REGIONAL PLANS & POLICIES

Westside Cities Bicycle Safety Awareness Coordination Plan (2012)

The Westside Cities Council of Governments (WSCCOG) identified and prioritized five corridors that would close gaps in the current bicycle infrastructure. These recommended gap closures would create a regional bicycle system that provides both north/south and east/west connections, and also connects all the WSCCOG jurisdictions with each other and the City of Los Angeles. Of the five identified bicycle network gaps, Beverly Dr./Beverwil Dr./Duquesne Ave./ Jefferson Blvd./Overland Ave. from San Vicente to Westfield/Culver City Transit Center was a prioritized gap.

Park to Playa Trail Feasibility Study and Wayfinding Plan (2011)

The Park to Playa Trail is a regional network that ties together trails and paths across several jurisdictions and park facilitates. The trail and wayfinding feasibility study, commissioned by the Mountains Recreation and Conservation Authority, studied seven miles of the “Park to Playa” corridor within Baldwin Hills. This study advances the Park to playa vision by connecting 13 miles of trails within the Ballona Wetlands that connect to parks and open spaces in Baldwin Hills, along Ballona Creek, to the Ballona Wetlands, and the Marvin Braude Bike Trail along the beach.

Los Angeles Metro Active Transportation Strategic Plan (2016)

The Active Transportation Strategic Plan (ATSP) is Metro's county-wide effort to identify strategies to increase walking, bicycling and transit use in Los Angeles County. The Plan focuses on improving first and last mile access to transit and propose a regional network of active transportation facilities, including shared-use paths and on-street bikeways. The ATSP analyzed locations and provided recommendations for infrastructure near major transit destinations, including locations in Culver City.

Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) (2016)

The SCAG Regional Transportation Plan includes a commitment to reduce transportation related emissions to comply with California Senate Bill 375. This Plan will help Culver City contribute to this goal.

Los Angeles County Metro First Last Mile Strategic Plan (2013)

Los Angeles County Metropolitan Transportation Authority (Metro) continues to develop a world-class rail system with stations that will be a short distance (three miles or less) from the homes of 7.8 million people, nearly 80 percent of Los Angeles County residents. Over time, this number will continue to grow as cities modify their land-use plans to provide more housing

and jobs near stations, consistent with market demand and regional goals for more sustainable communities.

County of Los Angeles Bicycle Master Plan (2012)

The County of Los Angeles Bicycle Master Plan is intended to guide the development and maintenance of a comprehensive bicycle network and set of programs throughout the unincorporated communities of the County of Los Angeles for 20 years (2012 to 2032). The Plan provides direction for improving mobility of bicyclists and encouraging more bicycle ridership within the County by expanding the existing bikeway network, connecting gaps, addressing constrained areas, providing for greater local and regional connectivity, and encouraging more residents to bicycle more often. Programs identified for Culver City:

- Multi-Modal Access Campaign to be developed in partnership with local partners to highlight the availability of multiple transportation options

Metro Bicycle Transportation Strategic Plan (2006)

The Los Angeles County Bicycle Transportation Strategic Plan identifies gaps in the regional bikeway network. In Culver City the Strategic Plan shows the following gap:

- Connection along Jefferson Blvd. between Culver City (Fox Hills mall/ Transit Center) and Playa del Rey

STATE PLANS & POLICIES

California State Bicycle & Pedestrian Plan (2017)

The California State Bicycle and Pedestrian Plan is a visionary and comprehensive policy plan to promote a multi-modal transportation system that supports active modes of transportation and creates a framework to increase safe bicycling and walking. The plan contains:

- Strategies to achieve the goals and objectives outlined in the plan
- Performance measures and data needs to evaluate success
- Recommendations for improved Caltrans processes
- Safety statistics and a safety awareness brochure
- Investment strategies

This plan will help Culver City to work with the local Caltrans office to implement projects on Caltrans rights-of-way.

Complete Streets Implementation Action Plan 2.0 (2017)

The intent of the Complete Streets Implementation Action Plan 2.0 is to describe the current California Department of Transportation (Caltrans) Complete Streets policy framework and to provide an overview of Caltrans' complete streets efforts. This policy directs Caltrans to provide for the needs of all travelers of all ages and ability in all planning, programming, design, construction,

operations, and maintenance activities, and products on the State highway system. This update of the plan lays out the structure for monitoring, reporting, and overcoming barriers to further integrate Complete Streets into all Caltrans functions and processes.

Senate Bill 99 - Active Transportation Program Act (2013)

SB 99 establishes the Active Transportation Program for the state, in accordance with the federal Moving Ahead for Progress in the 21st Century (MAP-21) legislation, to encourage increased use of active modes of transportation and create a mechanism for distributing federal funds to local and regional efforts. The bill includes the following goals for the Active Transportation Program:

- Increase the proportion of trips accomplished by bicycling and walking
- Increase safety and mobility for non-motorized users
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction
- Enhance public health, including reduction of childhood obesity through the use of programs including, but not limited to, projects eligible for Safe Routes to School Program funding
- Ensure that disadvantaged communities fully share in the benefits of the program
- Provide a broad spectrum of projects to benefit many types of active transportation users

Caltrans Deputy Directive 64 – Complete Streets (2008)

In 2001, the California Department of Transportation (Caltrans) adopted Deputy Directive 64, "Accommodating Non-Motorized Travel," which contained a routine accommodation policy. The directive was updated in 2008 as "Complete Streets – Integrating the Transportation System." The new policy includes the following language:

> The Department views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.
>
> The Department develops integrated multimodal projects in balance with community goals, plans, and values. Addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian and transit travel is facilitated by creating "complete streets" beginning early in system planning and continuing through project delivery and maintenance operations.

The directive establishes Caltrans' own responsibilities under this policy. The responsibilities Caltrans assigns to various staff positions under the policy include the following:

- Ensure bicycle, pedestrian, and transit interests are appropriately represented on interdisciplinary planning and project delivery development teams.
- Ensure bicycle, pedestrian, and transit user needs are addressed and deficiencies identifies during system and corridor planning, project initiation, scoping, and programming.
- Ensure incorporation of bicycle, pedestrian, and transit travel elements in all Department transportation plans and studies.
- Promote land uses that encourage bicycle, pedestrian, and transit travel.
- Research, develop, and implement multimodal performance measures.

Assembly Bill 1358 - Complete Streets Act (2008)

In September 2008, California adopted a new law that requires cities and counties to include Complete Streets policies as part of their general plans so that roadways are designed to safely accommodate all users, including bicyclists, pedestrians, transit riders, children, older adults, and people with mobility impairments, as well as motorists.

Senate Bill 375 - California Sustainable Communities Strategy (2008)

SB 375 is the first law in the nation that attempts to control greenhouse gas emissions by curbing sprawl. The law requires the California Air Resources Board (CARB) to develop regional targets for reductions in greenhouse gas emissions from passenger vehicles for 2020 and 2035. Each of the 18 metropolitan planning organizations in California will need to prepare a "sustainable communities strategy" for meeting the emissions reductions target in its region through transportation and land use actions that reduce the number of vehicle miles traveled. SB 375 establishes per-capita greenhouse gas emission reduction targets of seven percent by the year 2020 and 15 percent by the year 2035, using 2005 levels as the base year.

FEDERAL PLANS AND POLICIES

Assembly Bill 32 - California Global Warming Solutions Act (2006)

The California Global Warming Solutions Act aims to reduce the state's emissions of greenhouse gases to 1990 levels by 2020 and to 80% below 1990 levels by 2050. The law requires the California Air Resources Board (CARB) to adopt a "scoping plan" indicating how the 2020 target for emission reductions may be achieved from significant greenhouse gas sources through regulations, market mechanisms, and other actions. One of the recommended actions in the CARB scoping plan is to "develop regional greenhouse gas emissions reduction targets for passenger vehicles." The mechanism for developing these targets was established by separate legislation, Senate Bill 375.

US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (2010)

The United States Department of Transportation (US DOT) issued this Policy Statement to support and encourage transportation agencies at all levels to establish well-connected walking and bicycling networks. The DOT encourages States, local governments, professional associations, community organizations, public transportation agencies, and other government agencies, to adopt similar policy statements on bicycle and pedestrian accommodation as an indication of their commitment to accommodating bicyclists and pedestrians as an integral element of the transportation system.

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Appendix C

Community Outreach Details

IN-PERSON OUTREACH

City Agency Meetings

City Council Meeting (October 9, 2017)

Approximately 120 people attended the Council Meeting on October 9, 2017. Project staff members gave a presentation that reviewed the project's Public Outreach Plan and provided an overview of a proposed Vision Zero strategy. The meeting updated the council of BPAC's work progress and gave details of the outreach plan, allowing council members and members of the public an opportunity to review and comment on the Public Outreach Plan. This meeting was a duly noticed, public City Council meeting, in the goal of satisfying requirements of Section 21080.20 of the Public Resources Code.

Culver City Chamber of Commerce Governmental Affairs Committee (October 17, 2017)

The project team presented on the BPAP to approximately 10 members of the Culver City Chamber of Commerce who attended the Governmental Affairs Committee. The meeting took place at the Chamber's offices in the Westfield Culver City Mall and was rather brief. Some members of the Chamber of Commerce noted that the following roads have speeding issues: Centinela Ave, Slauson Ave, Jefferson Blvd, and Sepulveda Blvd. Others also noted that the western portion of town needed additional prioritization. Members were surprised that

this area is the safest in the city (referring to the southern side of Culver City). There was a general agreement that there must be training for cyclists and drivers. One identified problem the group noted is the excessive drive-through traffic, which makes people unable to bike and therefore drive. The overall vision discussed was a need for safe mobility for cyclists and pedestrians.

Culver City Chamber of Commerce: Issues & Eggs Breakfast (March 27, 2018)

More than 75 people attended the Culver City Chamber of Commerce "Issues & Eggs" Breakfast event at the Courtyard Marriott Los Angeles Westside. The project team presented an overview of bicycle and pedestrian facility types, and invited the business community to provide input on projects in the plan. The meeting was well attended, with generally positive support, while a few individuals expressed concern about lane removals.

Bicycle & Pedestrian Advisory Committee Meetings

BPAC Meeting (July 20, 2017)

Approximately 10 people attended the Bicycle & Pedestrian Advisory Committee Meeting on Thursday, July 20, 2017. Project staff members provided a summary of the project goals, timeline, and asked the committee members and other stakeholders present to help identify key outreach opportunities. The BPAC Meeting was the public's first opportunity to help identify priorities for improvements and collaborate with the community. Project team prompted the BPAC members to identify who was an important stakeholder (individuals and organizations), and which events should be included in our Public Outreach Plan.

BPAC: Vision Zero (November 16, 2017)

To complement the outreach at Saturday daytime La Ballona Fall Festival, the project team repeated the same materials a week later at a weekday evening event. The BPAC meeting took place at City Hall, and was again publicly noticed via the City's Active Transportation email. More than 30 people attended the meeting. At this meeting, at least one person recommended reconfiguring the Expo Path to National from current Wesley/Washington route. This person also felt there is a need for more pedestrian crosswalks all over the city. Others felt the Culver Blvd bike path should be extended to Downtown Culver City and emphasized additional bicycle connections from the west side of Culver City to Downtown. Some also requested more access points to the bicycle path along National Blvd.

Other comments were also recorded in a community survey. Fifteen surveys were gathered at this meeting. Based on the survey, the majority of residents walked when making trips less than one mile. This changes when the trip is less than 5 miles. Majority of people use their personal vehicle to travel less than 5 miles instead. Residents also felt they had enough time to cross roads at traffic signals. Furthermore, people felt the destinations are too far which prevents them from walking more often. Residents selected a variety of places and streets they disliked walking. Some of these places are major intersections such as Culver Blvd, Venice Blvd, Overland Ave, and Washington Blvd.

BPAC Opportunity Corridors (January 24, 2018)

Approximately a dozen people attended the BPAC Opportunity Corridors meeting on Wednesday, January 24, 2018. The project team presented and gathered recommendations from the public on which corridors should be chosen as 'opportunity corridors.' The majority of people were supportive of improving and expanding the city's bike path network but were concerned about lane removal. Others were pleased to see the project potentially increasing parking. Some residents also addressed how they struggle crossing in their community and want a safer infrastructure. Several people wanted to see access to the Ballona Bike Path beyond Duquesne Ave and Overland Ave. Although many people mentioned they wanted to see improvements on Overland Ave, the removal of the street's travel lanes may tough because the number of lanes varies. Overland Ave, between Culver and Creek, are areas where vehicles speed; residents want better crossings in this area. One person suggested looking into Higuera Neighborhood ten-point plan for funding these improvements. Furthermore, people wanted more connections to Exposition from Hayden as well as Downtown Culver City. Moreover, the Palm Court Retirement Community needs better connections to bike paths and amenities such as the City's library and schools. After the meeting was adjourned, community members also mentioned that connecting Fox Hills to Culver City would require lane reconfiguration of Hannum and Overland.

BPAC Opportunity Corridor Update (November 29, 2018)

Approximately 15 people attended the BPAC Opportunity Corridors Update meeting on Thursday, November 29, 2018 where the project team walked the public through the project concepts and diagrams for each of the three Opportunity Corridors: Downtown Core, Overland Avenue, and Farragut Drive. The Downtown core opportunity corridor project will focus on pedestrian access. Overland Avenue improvements will include a bikeway north of Ballona Creek and connect to West LA College and southwest neighborhoods. A proposed bikeway on Overland Ave is also considered. Farragut Drive corridor is a key connector with the potential to become a bike boulevard and/or Bike Boulevard. Twenty-five concept designs were also presented during the meeting.

Technical Advisory Committee Meetings

TAC Meeting # 1 (October 25, 2017)

Approximately 20 Culver City staff members attended the first TAC Meeting on Tuesday, October 25, 2017. Representatives from the following departments attended the meeting: City Manager, Community Development - Advance Planning, Community Development - Current Planning, Community Development - Economic Development, Culver CityBus,

Fire Department, Parks, Recreation, & Community Services, Police Department, Public Works – Administration, Public Works – Engineering, Public Works - Maintenance Operations, Public Works - Environmental Programs & Operations, Public Works - Transportation. The agency staff received an update on the plan's goals and provided feedback on High Injury Networks and Opportunity Corridor selection. After the presentation staff discussed Vision Zero and suggested building an alternate network to make corridors safer. Furthermore, staff also discussed keeping the Bicycle & Pedestrian Plan tied to the General Plan as well find a way to tie the plan to entitlements currently being approved.

Community Events

Citywide Stakeholder Event: La Ballona Fall Festival (November 4, 2017)

In alignment with the Public Outreach Plan, the project team held an outreach event in partnership with an existing community event. The meeting announcement was sent to more than 3,400 people on the City's Active Transportation outreach list, and the reach was greatly expanded thanks to the more than 300 attendees of the La Ballona Elementary Fall Festival.

The project team created boards to highlight the plan timeline, goals, and existing bicycle and pedestrian networks and solicited feedback on areas of the community that the public felt unsafe or unwelcome to bicycle and walk. City and

consultant staff were present to answer community questions and gather community feedback through various ways. Written comment cards were collected, surveys were distributed and other comments were also recorded via two boards -- all materials were translated into Spanish. The meeting was scheduled at a school event to provide child-friendly activities and food was available for purchase. The event took place in the afternoon of a Saturday to allow for a wide range of participants, and the meeting materials were repeated a week later at a weekday evening event to maximize the opportunities for public participation.

5th Annual Walk + Roll Festival (May 6, 2018)

Approximately 125 people attended the 5th Annual Walk + Roll Festival, organized by the non-profit Culver City Walk & Rollers. The event took place at Culver City Middle School, and while families learned how to bike and walk safely, the BPAP project team was there with four boards asking residents to provide feedback and ideas on how to make streets safer for each of city's public schools. Written comment cards were collected as well as surveys. The public provided recommendations such as placing flashing red lights on Culver and Harter because it's unsafe to walk there. A resident also mentioned Braddock Dr, near Lincoln Ave, has a glob of asphalt on the road while heading west; this is dangerous for cyclists if one doesn't see the road bump.

Residents also shared recommendations in the community survey. One resident would like a crossing guard on Elenda and Culver Blvd since they've witnessed several near accidents. The least favorite places and streets are major intersections such as Sepulveda Blvd, Jefferson Blvd, Overland Blvd, and Washington Blvd. Residents also asked for protected bike lanes and better lighting on the Ballona Creek Bike Path and improve the connection to Culver City's Metro station.

Fiesta La Ballona (August 24 - 26, 2018)

The BPAP project team shared a booth with the team working on the Citywide General Plan Update at the popular Fiesta La Ballona on the weekend of August 24 - 26, 2018. More than 5,000 people attended the event and many stopped by the booth to learn about the BPAP and other planning efforts underway in the city. The team shared boards with the High Injury Network and solicited feedback from the public on areas they would like to see safety improved.

Other Groups

Baldwin Hills Conservancy (March 23, 2018)

Approximately 25 people attended the Baldwin Hills Conservancy meeting, where project staff presented a 15-minute presentation on the Culver City Bicycle & Pedestrian Action Plan. The members of the committee and public expressed concerns over environmental damage caused by mountain biking, and were assured that the project did not include any trail planning in their jurisdiction. The community was supportive of the project overall.

Culver City Unified School District Board Meeting (April 24, 2018)

The project team presented on the BPAP to the members of the Culver City Unified School District Board of Education at a regularly scheduled meeting. More than 100 members of the public were in attendance to hear information on a variety of topics. The project team presented on the plan's overall goals and encouraged everyone present to consider how the plan could improve safety near schools. The committee members were interested to learn about ways we are working to reduce speeding and cut-through car traffic near schools in order to improve safety. The team also used the opportunity to promote the 5th Annual Walk + Roll Festival scheduled shortly after, where the project team would continue to solicit feedback from parents and caregivers.

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Appendix D

Bicycle & Pedestrian Facility Design Guidelines

TABLE OF CONTENTS

Section I

Context

INTRODUCTION

Updating the Culver City's Bicycle & Pedestrian Action Plan is intended to promote pedestrian and bicycle activity and comfort level by identifying policies, programs, and infrastructure improvements in the City.

This Design Guide has been developed to complement the City's Bicycle & Pedestrian Action Plan update and other nationally recognized efforts to promote pedestrian and bicycle comfort level. This appendix will present a toolbox of current engineering standards and design approaches to implement bicycle and pedestrian enhancements.

What, Why, Where, When and How?

Future roadway planning, engineering, design and construction will continue to strive for a balanced transportation system that includes a seamless, accessible bicycle and pedestrian network and encourages bicycle and pedestrian travel wherever possible.

There are many reasons to integrate bicycle and pedestrian facilities into typical roadway development policy. The goal of a transportation system is to better meet the needs of people - whether in vehicles, bicyclists or pedestrians - and to provide access to goods, services, and activities.

Supporting active modes gives users important transportation choices, whether it is to make trips entirely by walking or cycling, or to access public transit. Often in urban or suburban areas, walking and cycling are the fastest and most efficient ways to perform short trips.

Convenient non-motorized travel provides many benefits, including reduced traffic congestion, user savings, road and parking facility savings, economic development, and a healthier environment.

Compatible design does more than help those who already walk or bicycle. It encourages greater use of non-motorized transportation and makes the street safer for everyone.

The design guidelines and recommendations in this document are for use on Culver City roadways. Projects must not only be planned for their physical aspects as facilities serving specific transportation objectives; they must also consider effects on the aesthetic, social, economic and environmental values, needs, constraints and opportunities in a larger community setting. This is commonly known as Context Sensitive Design, and should be employed when determining which standard is applicable in each scenario.

All walkway and bikeway design guidelines in this document meet or exceed the minimums set by the Americans with Disabilities Act Accessible Design.

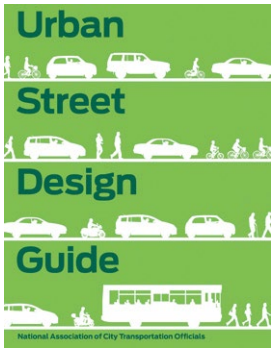
All traffic control devices, signs, pavement markings used and identified in this document must conform to the "California Manual on Uniform Traffic Control Devices" (CAMUTCD) as supplemented and adopted by Caltrans and Caltrans Design Manual.

Whenever possible and appropriate Culver City's Traffic & Construction Standards, the California Building Code (CBC), and the National Association of City Transportation Officials (NACTO)'s standards should be used for all facilities. There are situations where standards cannot be achieved due to geometric or environmental constraints, or may not be appropriate, due to a special situation. Engineering judgment may determine that for specific situations, the dimensions may be reduced.

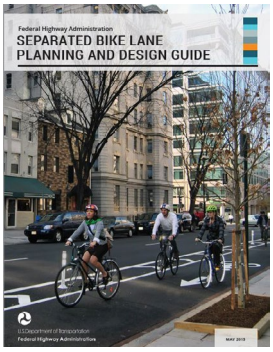
GUIDANCE BASIS

The sections that follow serve as an inventory of pedestrian and bicycle design treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent the tools for creating a pedestrian- and bicycle-friendly, accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a professional engineer prior to implementation of facility improvements. The following guidelines are referred to in these guidelines.

National Guidance



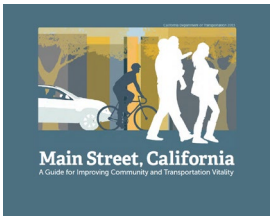
The National Association of City Transportation Officials' **(NACTO) Urban Bikeway Design Guide (2012) and Urban Street Design Guide (2013)** *are collections of nationally recognized street design standards, and offers guidance on the current state of the practice designs.*



Separated Bike Lane Planning and Design Guide (2015) *is the latest national guidance on the planning and design of separated bike lane facilities released by the Federal Highway Administration (FHWA). The resource documents best practices as demonstrated around the U.S., and offers ideas on future areas of research, evaluation and design flexibility.*

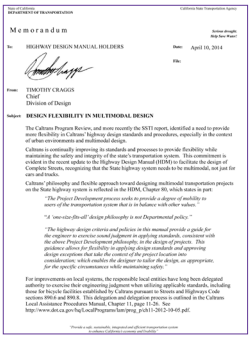
California Guidance

The **California Manual on Uniform Traffic Control Devices (CAMUTCD) (2014)** *is an amended version of the FHWA MUTCD 2009 edition modified for use in California. While standards presented in the CA MUTCD substantially conform to the FHWA MUTCD, the state of California follows local practices, laws and requirements with regards to signing, striping and other traffic control devices.*

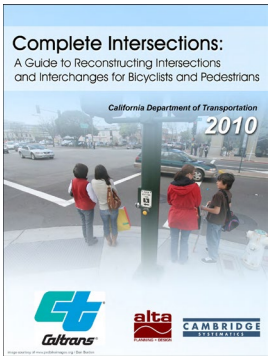


Main Street, California: A Guide for Improving Community and Transportation Vitality (2013) *reflects California's current manuals and policies that improve multimodal access, livability and sustainability within the transportation system. The guide recognizes the overlapping and sometimes competing needs of main streets.*

The **California Highway Design Manual (HDM) (Updated 2015)** *establishes uniform policies and procedures to carry out highway design functions for the California Department of Transportation.*



The Caltrans Memo: **Design Flexibility in Multimodal Design (2014)** *encourages flexibility in highway design. The memo stated that "Publications such as the National Association of City Transportation Officials (NACTO) "Urban Street Design Guide" and "Urban Bikeway Design Guide," ... are resources that Caltrans and local entities can reference when ma king planning and design decisions on the State highway system and local streets and roads."*



Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians (2010) *is a reference guide presents information and concepts related to improving conditions for bicyclists and pedestrians at major intersections and interchanges. The guide can be used to inform minor signage and striping changes to intersections, as well as major changes and designs for new intersections.*

Design Needs of Pedestrians

The CA MUTCD recommends a normal walking speed of 3.5 ft per second when calculating the pedestrian clearance interval at traffic signals. The walking speed can drop to 3 ft per second for areas with older populations and persons with mobility impairments. While the type and degree of mobility impairment varies greatly across the population, the transportation system should accommodate these users to the greatest reasonable extent.

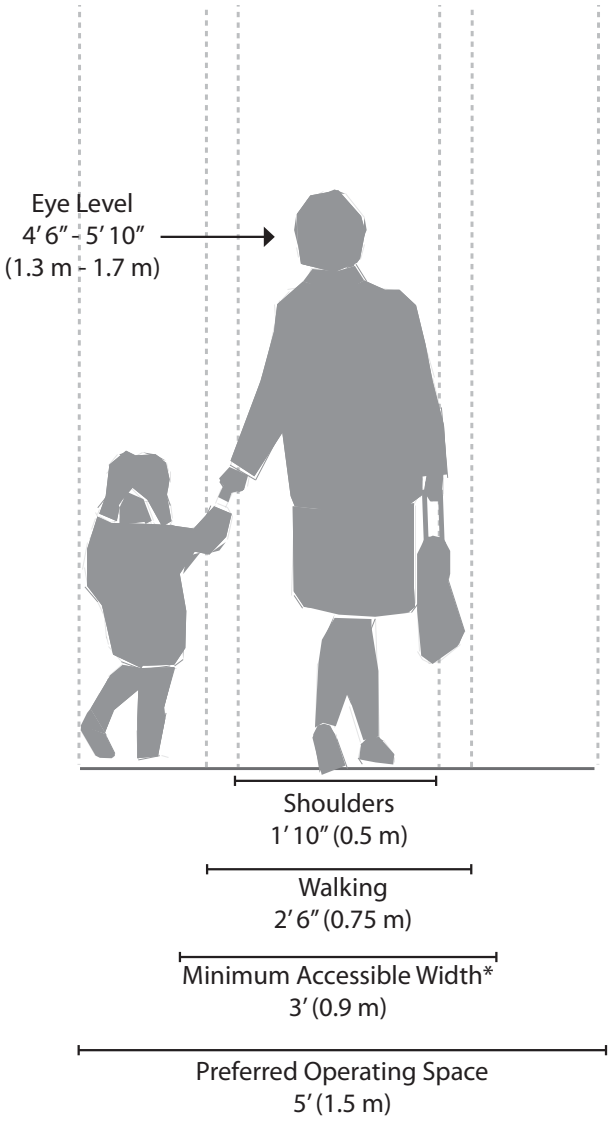
Types of Pedestrians

Pedestrians have a variety of characteristics and the transportation network should accommodate a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians' physical characteristics, walking speed, and environmental perception. Children have low eye height and walk at slower speeds than adults. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assistive devices for walking stability, sight, and hearing.

Disabled Pedestrian Design Considerations

The table below summarizes common physical and cognitive impairments, how they affect personal mobility, and recommendations for improved pedestrian-friendly design.

Impairment	Effect on Mobility	Design Solution
Physical Impairment Necessitating Wheelchair and Scooter Use	Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
	Cross-slopes cause wheelchairs to veer downhill or tip sideways.	Cross-slopes of less than two percent.
	Require wider path of travel.	Sufficient width and maneuvering space.
Physical Impairment Necessitating Walking Aid Use	Difficulty negotiating steep grades and cross slopes; decreased stability and tripping hazard.	Cross-slopes of less than two percent. Smooth, non-slippery travel surface.
	Slower walking speed and reduced endurance; reduced ability to react.	Longer pedestrian signal cycles, shorter crossing distances, median refuges, and street furniture.
Hearing Impairment	Less able to detect oncoming hazards at locations with limited sight lines (e.g. driveways, angled intersections, channelized right turn lanes) and complex intersections.	Longer pedestrian signal cycles, clear sight distances, highly visible pedestrian signals and markings.
Vision Impairment	Limited perception of path ahead and obstacles; reliance on memory; reliance on non-visual indicators (e.g. sound and texture).	Accessible text (larger print and raised text), accessible pedestrian signals (APS), guide strips and detectable warning surfaces, safety barriers, and lighting.
Cognitive Impairment	Varies greatly. Can affect ability to perceive, recognize, understand, interpret, and respond to information.	Signs with pictures, universal symbols, and colors, rather than text.



*At point of contact

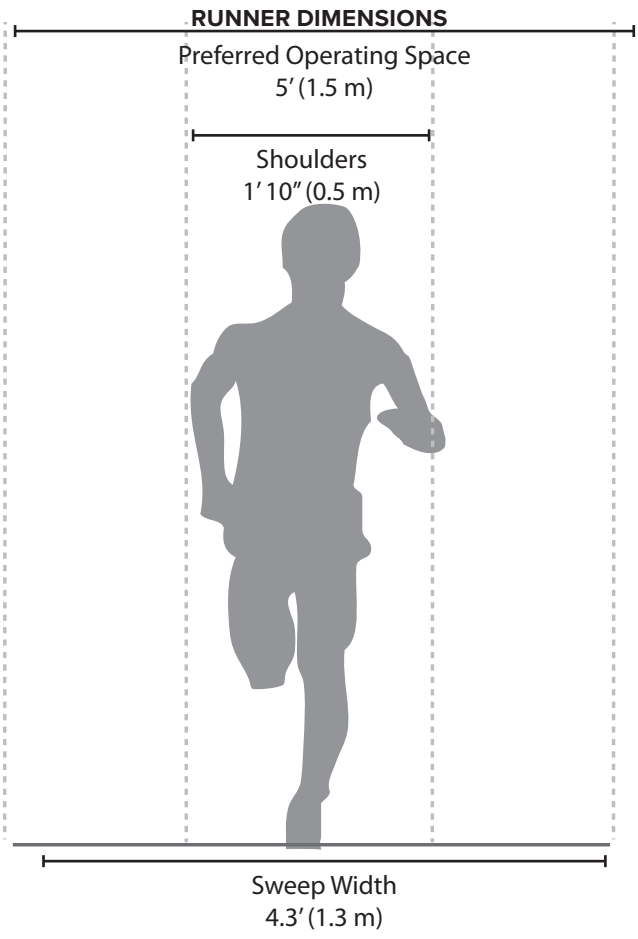
Pedestrian Characteristics by Age

Age	Characteristics
0-4	Learning to walk
	Requires constant adult supervision
	Developing peripheral vision and depth perception
5-8	Increasing independence, but still requires supervision
	Poor depth perception
9-13	Susceptible to "darting out" in roadways
	Insufficient judgment
	Sense of invulnerability
14-18	Improved awareness of traffic environment
	Insufficient judgment
19-40	Active, aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street
	Vision loss
	Difficulty hearing vehicles approaching from behind

Source: AASHTO. Guide for the Planning, Design, and Operation of Pedestrian Facilities, Exhibit 2-1. 2004.

Design Needs of Runners

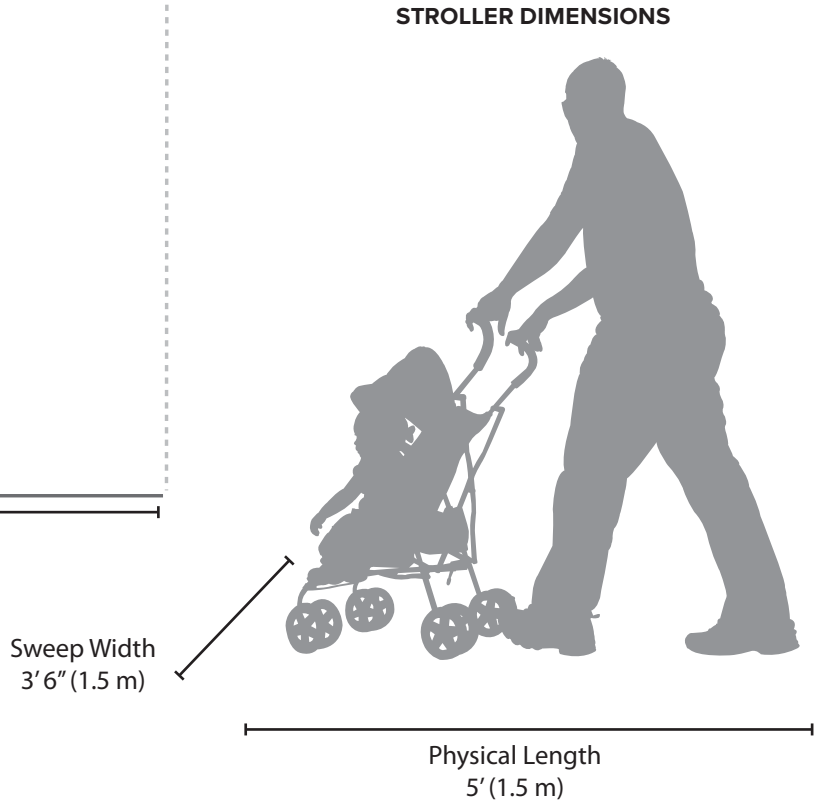
Running is an important recreation and fitness activity commonly performed on shared use paths. Many runners prefer softer surfaces (such as rubber, bare earth or crushed rock) to reduce impact. Runners can change their speed and direction frequently. If high volumes are expected, controlled interaction or separation of different types of users should be considered.



Design Needs of Strollers

Strollers are wheeled devices pushed by pedestrians to transport babies or small children. Stroller models vary greatly in their design and capacity. Some strollers are designed to accommodate a single child, others can carry 3 or more. Design needs of strollers depend on the wheel size, geometry and ability of the adult who is pushing the stroller.

Strollers commonly have small pivoting front wheels for easy maneuverability, but these wheels may limit their use on unpaved surfaces or rough pavement. Curb ramps are valuable to these users. Lateral overturning is one main safety concern for stroller users.



Design Needs of Wheelchair Users

As the American population ages, the age demographics in Culver City may also shift, and the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs) will increase.

Manual wheelchairs are self-propelled devices. Users propel themselves using push rims attached to the rear wheels. Braking is done through resisting wheel movement with the hands or arm. Alternatively, a second individual can control the wheelchair using handles attached to the back of the chair.

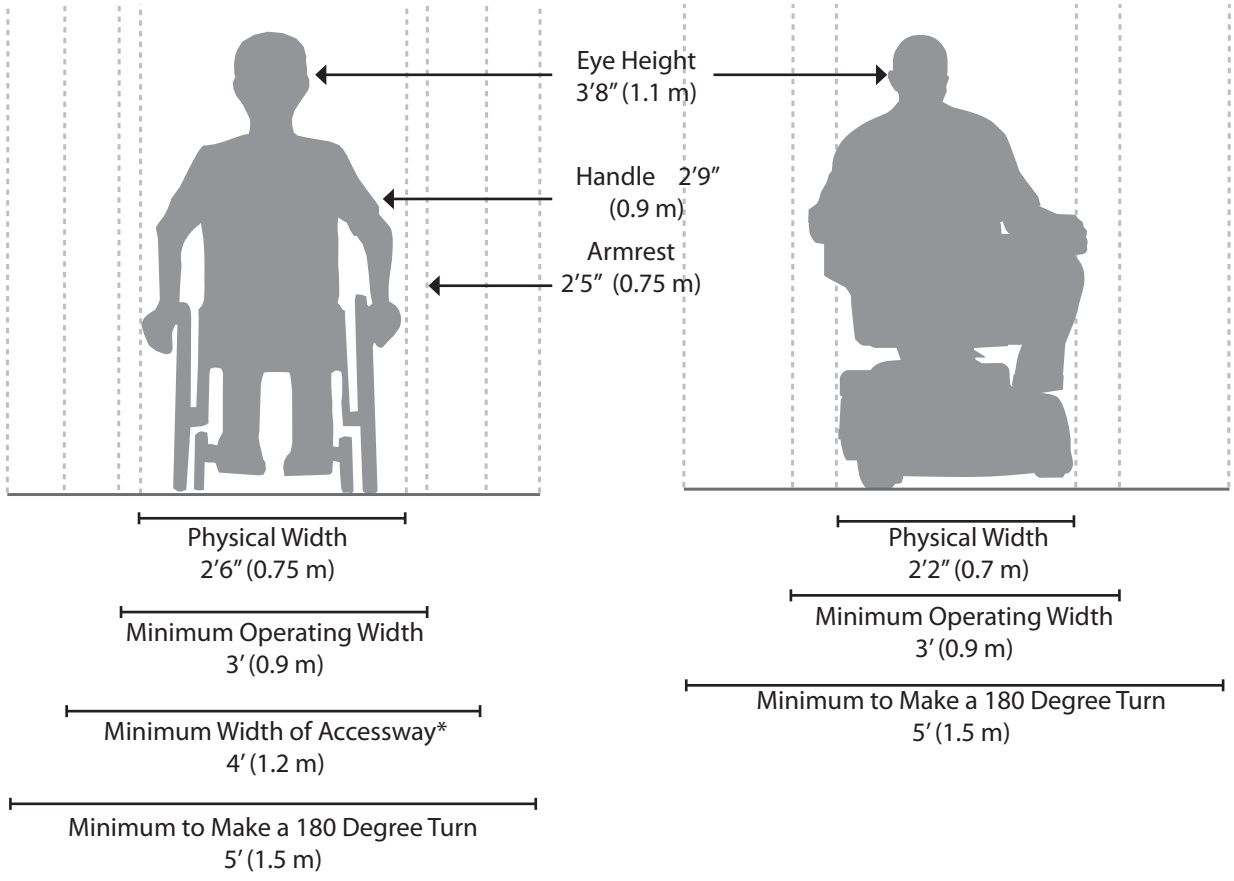
Power wheelchairs use battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement, based on their ability (e.g., joystick control, breath controlled, etc).

Maneuvering around a turn requires additional space for wheelchair devices. Providing adequate space for 180 degree turns at appropriate locations is an important element of accessible design.

Wheelchair User Design Considerations

Effect on Mobility	Design Solution
Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
Cross-slopes cause wheelchairs to veer downhill.	Cross-slopes of less than two percent.
Require wider path of travel.	Sufficient width and maneuvering space.

Wheelchair User Dimensions



*Provide 5' x 5' passing zone every 200' if travel way is at minimum width

DESIGN NEEDS OF BICYCLISTS

The facility designer must have an understanding of how bicyclists operate and how their bicycle influences that operation. Bicyclists, by nature, are much more affected by poor facility design, construction and maintenance practices than motor vehicle drivers.

By understanding the unique characteristics and needs of bicyclists, a facility designer can provide quality facilities and minimize user risk

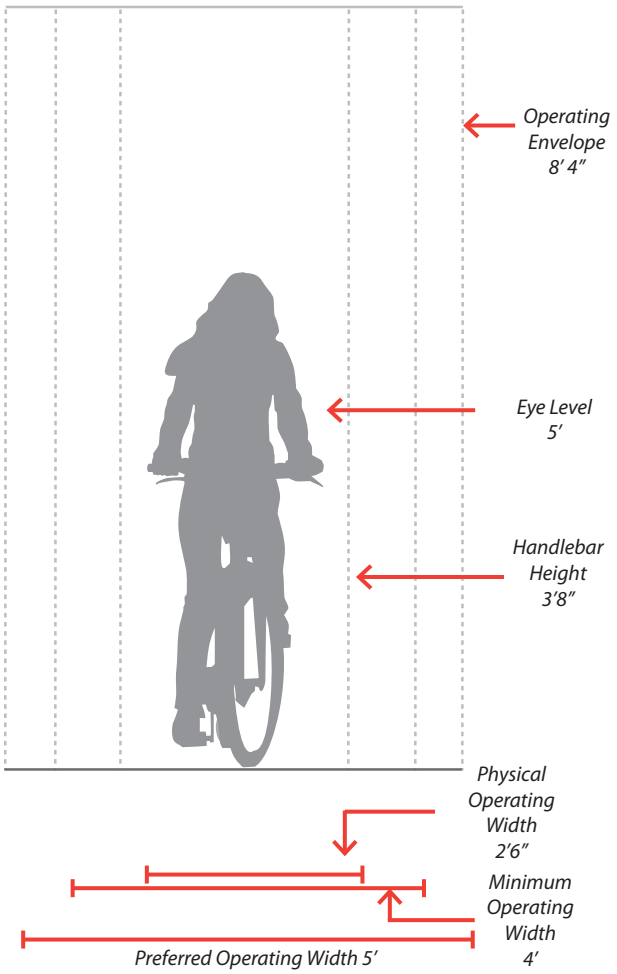
Bicycle as a Design Vehicle

Similar to motor vehicles, bicyclists and their bicycles exist in a variety of sizes and configurations. These variations occur in the types of vehicle (such as a conventional bicycle, a recumbent bicycle or a tricycle), and behavioral characteristics (such as the comfort level of the bicyclist). The design of a bikeway should consider reasonably expected bicycle types on the facility and utilize the appropriate dimensions.

The Bicycle Rider figure illustrates the operating space and physical dimensions of a typical adult bicyclist, which are the basis for typical facility design. Bicyclists require clear space to operate within a facility. This is why the minimum operating width is greater than the physical dimensions of the bicyclist. Bicyclists prefer five feet or more operating width, although four feet may be minimally acceptable.

In addition to the design dimensions of a typical bicycle, there are many other commonly used pedal-driven cycles and accessories to consider when planning and designing bicycle facilities. The most common types include tandem bicycles, recumbent bicycles, and trailer accessories.

Bicycle Rider - Typical Dimensions



Bicycle as Design Vehicle - Design Speed Expectations

BICYCLE TYPE	FEATURE	TYPICAL SPEED
Upright Adult Bicyclist	Paved level surfacing	8-12 mph*
	Crossing Intersections	10 mph
	Downhill	30 mph
	Uphill	5 -12 mph
Recumbent Bicyclist	Paved level surfacing	18 mph

** Typical speed for causal riders per AASHTO 2013.*

Section 2

Pedestrian Toolbox

MARKED CROSSWALKS

A marked crosswalk signals to motorists that they must yield to pedestrians and encourages pedestrians to cross at designated locations. Installing crosswalks alone will not necessarily enhance the comfort level of crossings. At mid-block locations, crosswalks can be marked where there is a demand for crossing and there are no nearby marked crosswalks.

Typical Use

All crosswalks should be marked at signalized intersections. At unsignalized intersections, crosswalks may be marked under the following conditions:

- At a complex intersection, to orient pedestrians in finding their way across.
- At an offset intersection, to show pedestrians the shortest route across traffic with the least exposure to vehicular traffic and traffic conflicts.
- At an intersection with visibility constraints, to position pedestrians where they can best be seen by oncoming traffic.
- At an intersection within a school zone on a walking route.

Design Features

- The crosswalk should be located to align as closely as possible with the through pedestrian zone of the sidewalk corridor.
- Users should not have to leave the crosswalk or reorient themselves from the crosswalk when accessing the curb ramp onto the sidewalk.

Marked crosswalk at Sony Studios on Madison Avenue. Source: Google Streetview

Further Considerations

Pedestrians are sensitive to out-of-direction travel, and reasonable accommodations should be made to make crossings both convenient at locations with adequate visibility.

Continental crosswalk markings should be used at crossings with high pedestrian use or where vulnerable pedestrians are expected, including: school crossings, across arterial streets for pedestrian-only signals, at mid-block crosswalks, and at intersections where there is expected high pedestrian use and the crossing is not controlled by signals or stop signs. High-visibility crosswalks are not appropriate for all locations. Other crosswalk marking patterns are provided for in the CA MUTCD.

Some cities prohibit omitting or removing a marked crosswalk at intersections in order to require a three-stage pedestrian crossing. Intersections with three-stage crossings lead to arduous and increased crossing distances, pedestrian frustration, encourages jaywalking, and exhibits modal bias favoring motor vehicle level-of-service over other modes. There are circumstances when only three crosswalks are utilized and typically occur at or near interchanges and freeway ramps.

Materials and Maintenance

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority. Thermoplastic markings offer increased durability than conventional paint.

RAISED PEDESTRIAN CROSSINGS

A raised crosswalk or intersection can eliminate grade changes from the pedestrian path and give pedestrians greater prominence as they cross the street. Raised crosswalks also functions as speed tables, and encourage motorists to slow down. As such, they should be used only in cases where a special emphasis on pedestrians is desired.

Raised crosswalks are typically implemented on low-speed streets, bike boulevards and other areas of very high pedestrian activity. They are often paired with other treatments such as curb extensions for greater traffic calming effect.

Typical Use

Like a speed hump/table, raised crosswalks have a traffic slowing effect which may be unsuitable on high-speed streets, roadways with sharp curves, designated transit or freight routes, and in locations that would reduce access for emergency responders. Use detectable warnings at the curb edges to alert vision-impaired pedestrians that they are entering the roadway.

Approaches to the raised crosswalk may be designed to be similar to speed humps/tables.

Design Features

- Use detectable warnings at the curb edges to alert vision-impaired pedestrians that they are entering the roadway.
- Approaches to the raised crosswalk may be designed to be similar to speed humps.
- Drainage improvements may be required depending on the grade of the roadway.
- Special paving materials can be used to increase conspicuity of the crossing, and alert drivers to the presence of pedestrians.

Raised pedestrian crossing in Culvery City, CA.

Further Considerations

- The noise of vehicles traveling over raised crosswalks may be of concern to nearby residents and businesses.
- Refer to Americans with Disabilities Act (ADA) and California Building Code (CBC) for additional requirements.

Materials and Maintenance

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority. Ensure drainage pipes used to channel stormwater past the raised intersection are kept free of debris, to prevent stormwater from backing up and pooling.

SIDEWALK ZONES & WIDTHS

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved accessibility, and the creation of social space.

Curbside Lane	Buffer Zone	Pedestrian Through Zone	Frontage Zone
The curbside lane can act as a flexible space to further buffer the sidewalk from moving traffic., and may be used for a bike lane. Curb extensions and bike corrals may occupy this space where appropriate. In the **edge zone** there should be a 6 inch wide curb.	The buffer zone, also called the furnishing or landscaping zone, buffers pedestrians from the adjacent roadway, and is also the area where elements such as street trees, signal poles, signs, and other street furniture are properly located.	The through zone is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects. Wide through zones are needed in downtown areas or where pedestrian flows are high.	The frontage zone allows pedestrians a comfortable “shy” distance from the building fronts. It provides opportunities for window shopping, to place signs, planters, or chairs.

Street Classification	Parking Lane/ Enhancement Zone	Buffer Zone	Pedestrian Through Zone	Frontage Zone
Local Streets	Varies	4 - 6 ft	6 ft	N/A
Downtown and Pedestrian Priority Areas	Varies	4 - 6 ft	12 ft	2.5 - 10 ft
Arterials and Collectors	Varies	4 - 6 ft	6 - 8 ft	2.5 - 5 ft

Typical Uses

- Wider sidewalks should be installed near schools, at transit stops, in downtown areas, or anywhere high concentrations of pedestrians exist.
- At transit stops, an 8 ft by 5 ft clear space is required for accessible passenger boarding/ alighting at the front door location per ADA requirements.
- Sidewalks should be continuous on both sides of urban commercial streets, and should be required in areas of moderate residential density (1-4 dwelling units per acre).
- When retrofitting gaps in the sidewalk network, locations near transit stops, schools, parks, public buildings, and other areas with high concentrations of pedestrians should be the highest priority.

Materials and Maintenance

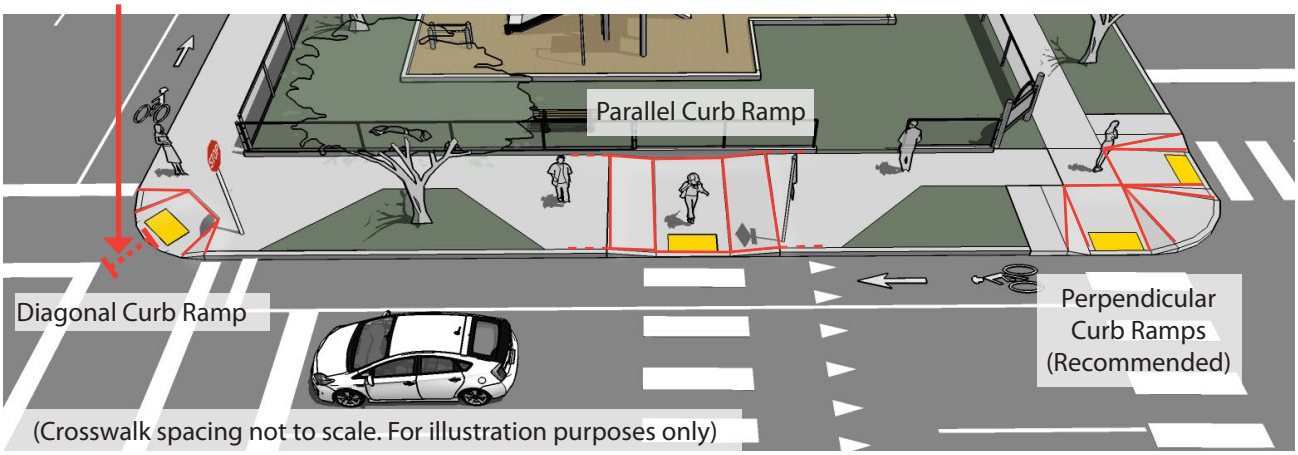
Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped boulevard. Less expensive walkways constructed of asphalt, crushed stone, or other stabilized surfaces may be appropriate. Ensure accessibility and properly maintain all surfaces regularly. Surfaces must be firm, stable, and slip resistant. Colored, patterned, or stamped concrete can add distinctive visual appeal.

CURB RAMPS

Curb ramps are the design elements that allow all users to make the transition from the street to the sidewalk. A sidewalk without a curb ramp can be useless to someone in a wheelchair, forcing them back to a driveway and out into the street for access. There are a number of factors to be considered in the design and placement of curb ramps.

Diagonal ramps shall include a clear space of at least 48" within the crosswalk for user maneuverability

Curb ramps shall be located so that they do not project into vehicular traffic lanes, parking spaces, or parking access aisles. Three configurations are illustrated below.



(Crosswalk spacing not to scale. For illustration purposes only)

Typical Use

- Curb ramps must be installed at all intersections and midblock locations where pedestrian crossings exist, as mandated by federal legislation (1973 Rehabilitation Act and ADA 1990). All newly constructed and altered roadway projects must include curb ramps. In addition, existing facilities must be upgraded to current standards when appropriate.
- The edge of an ADA compliant curb ramp shall be marked with a tactile warning device (also known as truncated domes) to alert people with visual impairments to changes in the pedestrian environment. Contrast between the raised tactile device and the surrounding infrastructure is important so that the change is readily evident to partially sighted pedestrians. These devices are most effective when adjacent to smooth pavement so the difference is easily detected.

Design Features

- The level landing at the top of a ramp shall be at least 4 feet long and at least the same width as the ramp itself. The slope of the ramp shall be compliant to current standards.
- If the ramp runs directly into a crosswalk, the landing at the bottom will be in the roadway.
- If the top landing is within the sidewalk or corner area where someone in a wheelchair may have to change direction, the landing must be a minimum of 4'-0" long (in the direction of the ramp run) and at least as wide as the ramp, although a width of 5'-0" is preferred.

Not recommended: diagonal curb ramp configuration at Jefferson Boulevard and Duquesne Avenue. Source: Google Streetview

Recommended: Bulb-Out with bidirectional curb ramps for crossing in both directions at Duquesne Avenue and Lucerne Avenue. Source: Google Streetview

Further Considerations

Where feasible, separate directional curb ramps for each crosswalk at an intersection should be provided rather than having a single ramp at a corner for both crosswalks. Although diagonal curb ramps might save money, they orient pedestrians directly into the traffic zone, which can be challenging for wheelchair users and pedestrians with visual impairment. Diagonal curb ramp configurations are not recommended.

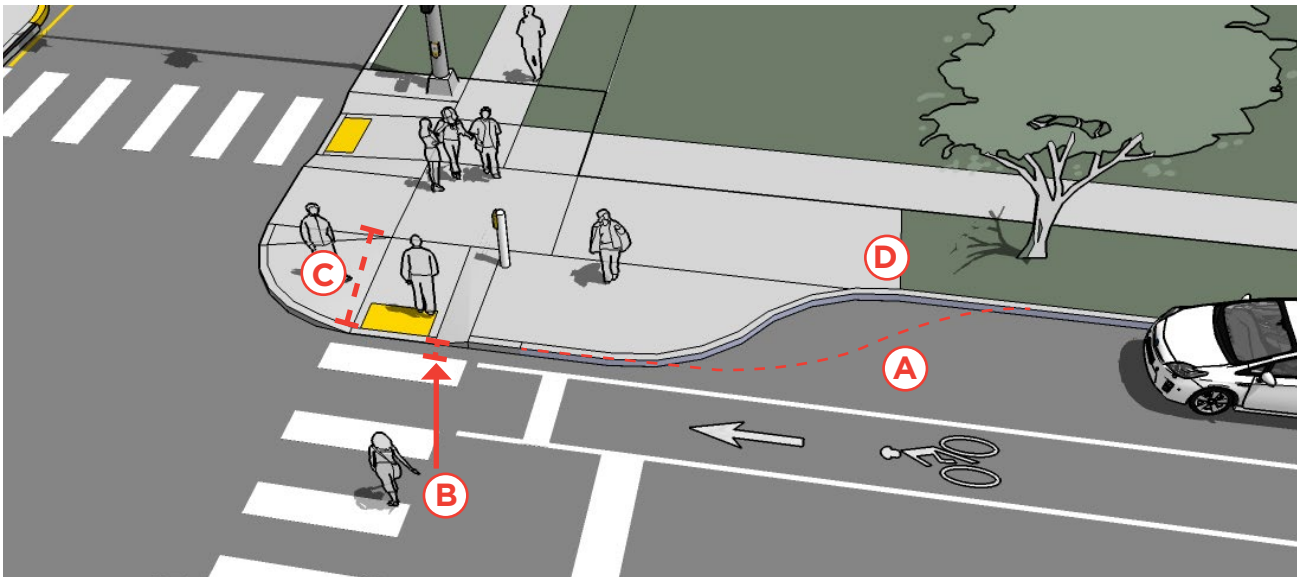
Curb return radii need to be considered when designing directional ramps. While curb ramps are needed for use on all types of streets, the highest priority locations are in downtown areas and on streets near transit stops, schools, parks, medical facilities, shopping areas.

Materials and Maintenance

It is critical that the interface between a curb ramp and the street be maintained adequately. Asphalt street sections can develop potholes at the foot of the ramp, which can catch the front wheels of a wheelchair.

CURB EXTENSIONS

Curb extensions minimize pedestrian exposure during crossing by shortening crossing distance and giving pedestrians a better chance to see and be seen before committing to crossing.



Typical Use

- Within parking lanes appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.
- May be possible within non-travel areas on roadways with excess space.
- Particularly helpful at midblock crossing locations.
- Curb extensions should not impede bicycle travel in the absence of a bike lane.
- Curb extensions are often utilized as in-lane transit stops, allowing passengers to board and alight outside of the pedestrian through zone.

Materials and Maintenance

Planted curb extensions may be designed as a bioswale, a vegetated system for stormwater management. To maintain proper stormwater drainage, curb extensions can be constructed as refuge islands offset by a drainage channel or feature a covered trench drain.

Design Features

(A) For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.

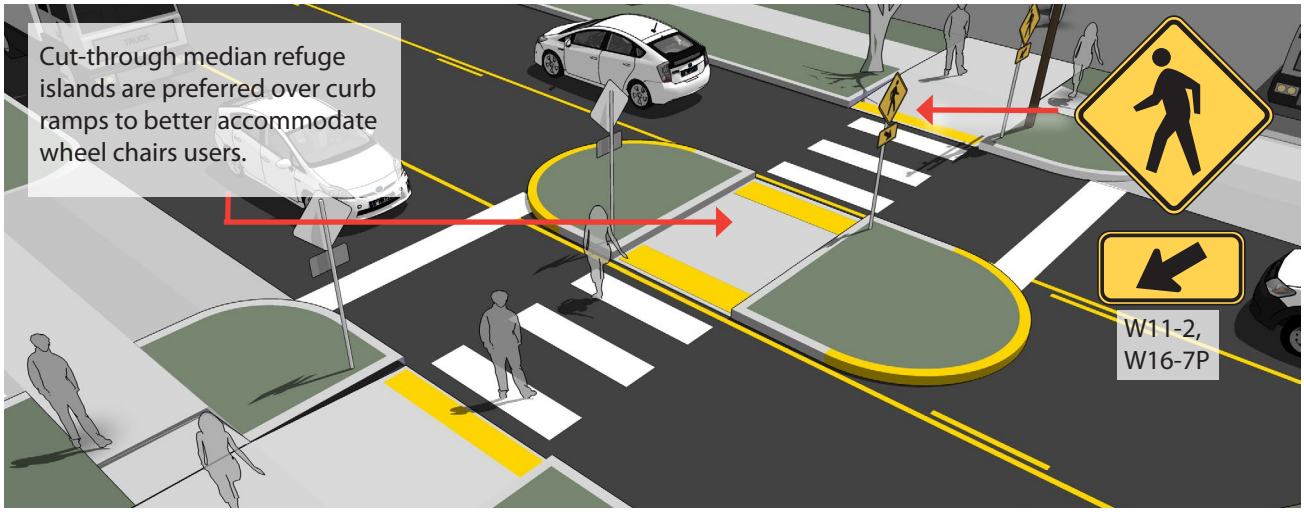
(B) When a bike lane is present, the curb extensions should terminate one foot short of the parking lane to enhance bicyclist access.

(C) Reduces pedestrian crossing distance by 6-8 ft.

(D) Planted curb extensions may be designed as a bioswale for stormwater management.

MEDIAN REFUGE ISLANDS

Median refuge islands are located at the mid-point of a marked crossing and help improve pedestrian access by increasing pedestrian visibility and allowing pedestrians to cross one direction of traffic at a time. Refuge islands minimize pedestrian exposure at mid-block crossings by shortening the crossing distance and increasing the number of available gaps for crossing.



Typical Use

- Refuge islands an be applied on any roadway with a left turn center lane or median that is at least 6' wide. Islands are appropriate at signalized or unsignalized crosswalks.
- The refuge island must be accessible, preferably with an at-grade passage through the island rather than ramps and landings.
- The island should be at least 6' wide between travel lanes (to accommodate wheelchair users) and at least 20' long (40' minimum preferred).
- Provide double centerline marking, reflectors, and "KEEP RIGHT" signage (CA MUTCD R4-7a)in the island on streets with posted speeds above 25 mph.

Materials and Maintenance

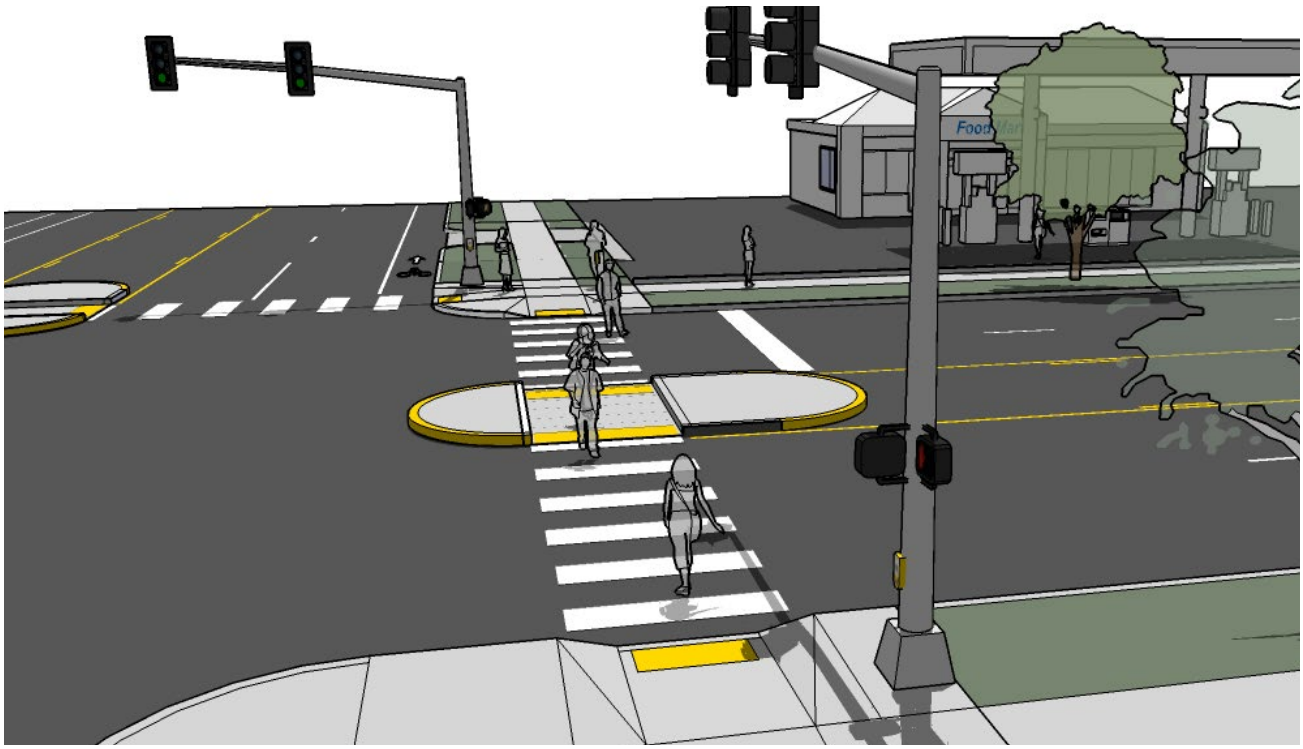
Refuge islands may require frequent maintenance of road debris. Trees and plantings in a landscaped median must be maintained so as not to impair visibility, and should be no higher than 1 foot 6 inches.

Design Features

- Median refuge islands can be installed on roadways with existing medians or on multi-lane roadways where adequate space exists
- Median Refuge Islands should always be paired with crosswalks, and should include advance pedestrian warning signage when installed at uncontrolled crossings.
- On multi-lane roadways, consider configuration with active warning beacons for improved yielding compliance.

PEDESTRIAN SIGNALIZATION IMPROVEMENTS

Pedestrian signal heads indicate to pedestrians when to cross at a signalized crosswalk. All traffic signals should be equipped with pedestrian signal indications except where pedestrian crossing is prohibited by signage. Pedestrian signals should be used at traffic signals wherever warranted, according to the CA MUTCD.



Typical Use

- Countdown pedestrian signals are particularly valuable for pedestrians, as they indicate whether a pedestrian has time to cross the street before the signal phase ends. Countdown signals should be used at all new and rehabilitated signalized intersections. Countdown timers are now standard at all signalized crossings in Culver City.
- Adequate pedestrian crossing time is a critical element of the walking environment at signalized intersections. The length of a signal phase with parallel pedestrian movements should provide sufficient time for a pedestrian to safely cross the adjacent street.
- There are several types of signal timing for pedestrian signals, including concurrent, exclusive, “Leading pedestrian interval” (LPI), and all-red interval. In general, shorter cycle lengths and extended walk intervals provide better service to pedestrians and encourage better signal compliance. For optimal pedestrian service, fixed-time signal operation usually works best.
- Leading Pedestrian Intervals (LPI) are used to reduce right turn and permissive left turn vehicle and pedestrian conflicts. The through pedestrian interval is initiated first, in advance of the concurrent through/right/permissive left turn interval. The LPI minimizes vehicle-pedestrian conflicts because it gives pedestrians a 3-10 second headstart into the intersection, thereby making them more visible, and reducing crossing exposure time. Accessible Pedestrian Signals (APS) are recommended with an LPI.

A Pedestrian Island with pedestrian actuation buttons in Downtown Culver City. Source: Google StreetView

Design Features

- The CA MUTCD recommends that traffic signal timing assumes a pedestrian walking speed of 3.5 ft per second.
- At crossings where older pedestrians or pedestrians with disabilities are expected, crossing speeds as low as 3 ft per second should be assumed. Special pedestrian phases can be used to provide greater visibility or more crossing time for pedestrians at certain intersections.
- Pedestrian pushbuttons may be installed at locations where pedestrians are expected intermittently. When used, pushbuttons should be well signed and within reach and operable from a flat surface for pedestrians in wheelchairs and with visual disabilities. They should be conveniently placed in the area where pedestrians wait to cross. Section 4E.09 within the CA MUTCD provides detailed guidance for the placement of push buttons to ensure accessibility.

Further Considerations

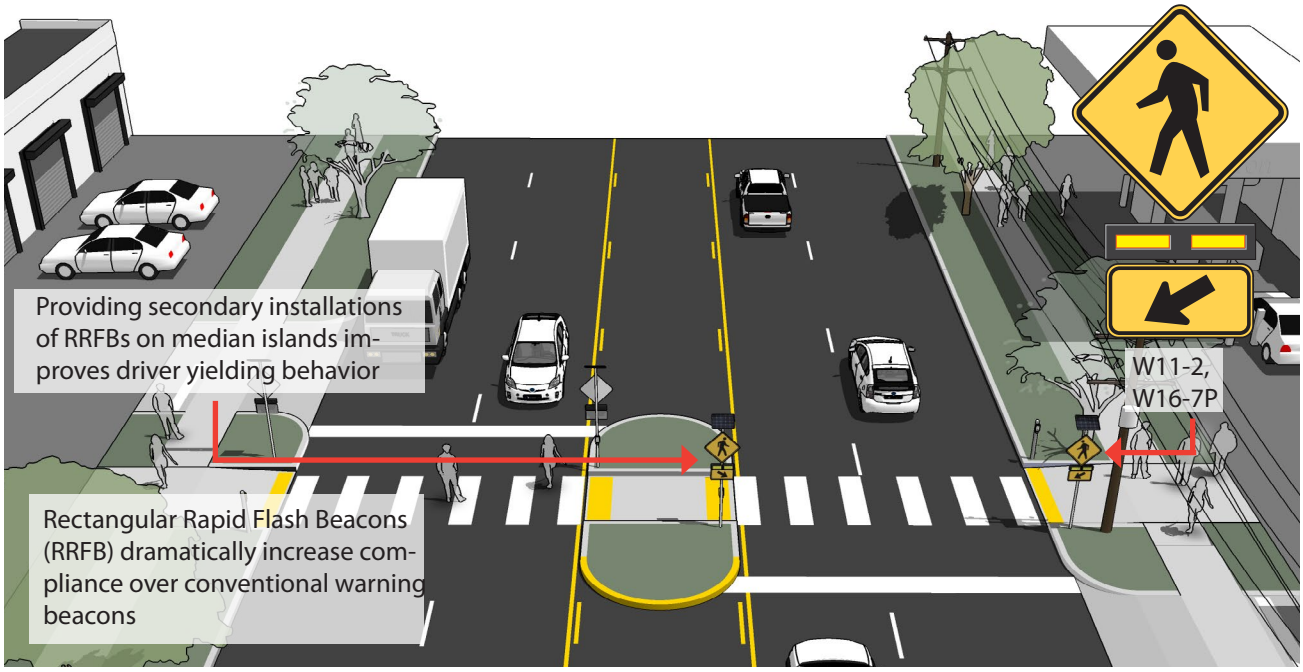
- When push buttons are used, they should be located so that someone in a wheelchair can reach the button from a level area of the sidewalk without deviating significantly from the natural line of travel into the crosswalk. Push button should be marked (for example, with arrows) so that it is clear which signal is affected.
- In areas with very heavy pedestrian traffic, consider an all-pedestrian signal phase to give pedestrians free passage in the intersection when all motor vehicle traffic movements are stopped.
- At locations with very high pedestrian volumes, such as downtown, an exclusive pedestrian signal phase called a “Pedestrian Scramble” can be provided to reduce vehicle turning conflicts.

Materials and Maintenance

It is important to perform ongoing maintenance of traffic control equipment. Consider semi-annual inspections of controller and signal equipment, intersection hardware, and detectors.

RECTANGULAR RAPID FLASHING BEACONS (RRFB)

Rectangular Rapid Flash Beacons (RRFB) are a type of active warning beacon used at unsignalized crossings. They are designed to increase motor vehicle yielding compliance on multi-lane or high-volume roadways. Guidance for marked/unsignalized crossings applies.



Typical Use

RRFBs are typically activated by pedestrians manually with a push button, or can be actuated automatically with passive detection systems.

RRFBs shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.

RRFBs shall initiate operation based on user actuation and shall cease operation at a predetermined time after the user actuation or, with passive detection, after the user clears the crosswalk.

Materials and Maintenance

RRFBs should be regularly maintained to ensure that all lights and detection hardware are functional.

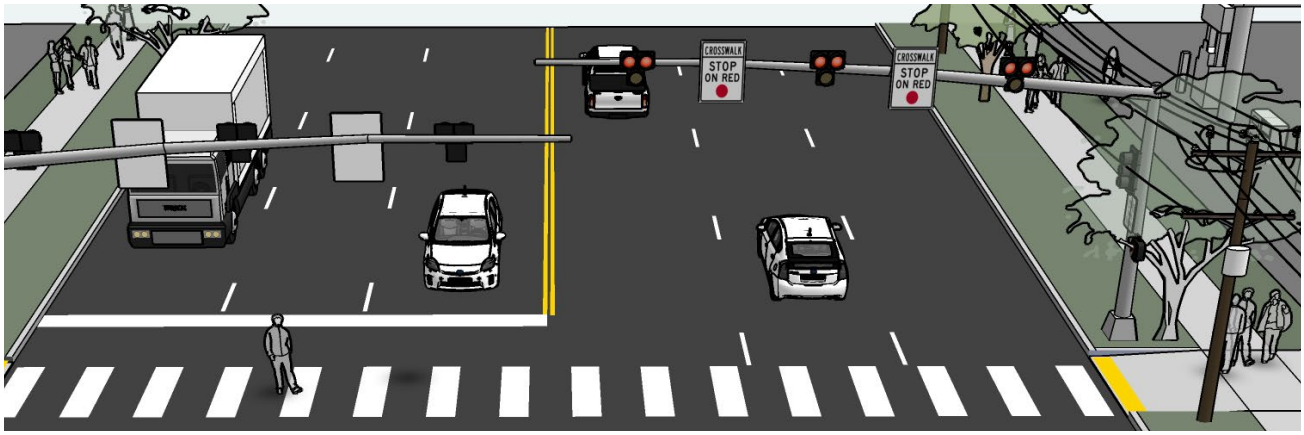
Design Features

Guidance for marked/unsignalized crossings applies.

- A study of the effectiveness of going from a no-beacon arrangement to a two-beacon RRFB installation increased yielding from 18 percent to 81 percent. A four-beacon arrangement raised compliance to 88%. Additional studies of long term installations show little to no decrease in yielding behavior over time.
- See FHWA Interim Approval 21 (IA-21) for more information on device application standards.

PEDESTRIAN HYBRID BEACON (HAWK)

Hybrid beacons or High-Intensity Activated Crosswalk (HAWK) beacons are used to improve unsignalized intersections or midblock crossings of major streets. It consists of a signal head with two red lenses over a single yellow lens on the major street, and a pedestrian signal head for the crosswalk. The signal is only activated when a pedestrian and/or bicyclist is present, resulting in minimal delay for motor vehicle traffic.



Typical Use

HAWK beacons are only used at marked mid-block crossings or unsignalized intersections. They are typically activated with a pedestrian pushbutton at each end. If a median refuge island is used at the crossing, another pedestrian pushbutton can be located on the island to create a two-stage crossing.

Design Features

- Hybrid beacons may be installed without meeting traffic signal control warrants if roadway speed and volumes are excessive for comfortable pedestrian crossings.
- If installed within a signal system, signal engineers should evaluate the need for the hybrid signal to be coordinated with other signals.
- HAWK beacons should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs. Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance. **(CA MUTCD 4F)**

Further Considerations

- HAWK beacons may also be actuated by infrared, microwave, or video detectors.
- Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity, and safety.
- The installation of HAWK beacons should also include public education and enforcement campaigns to ensure proper use and compliance.

Materials and Maintenance

Hybrid beacons are subject to the same maintenance needs and requirements as standard traffic signals. Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

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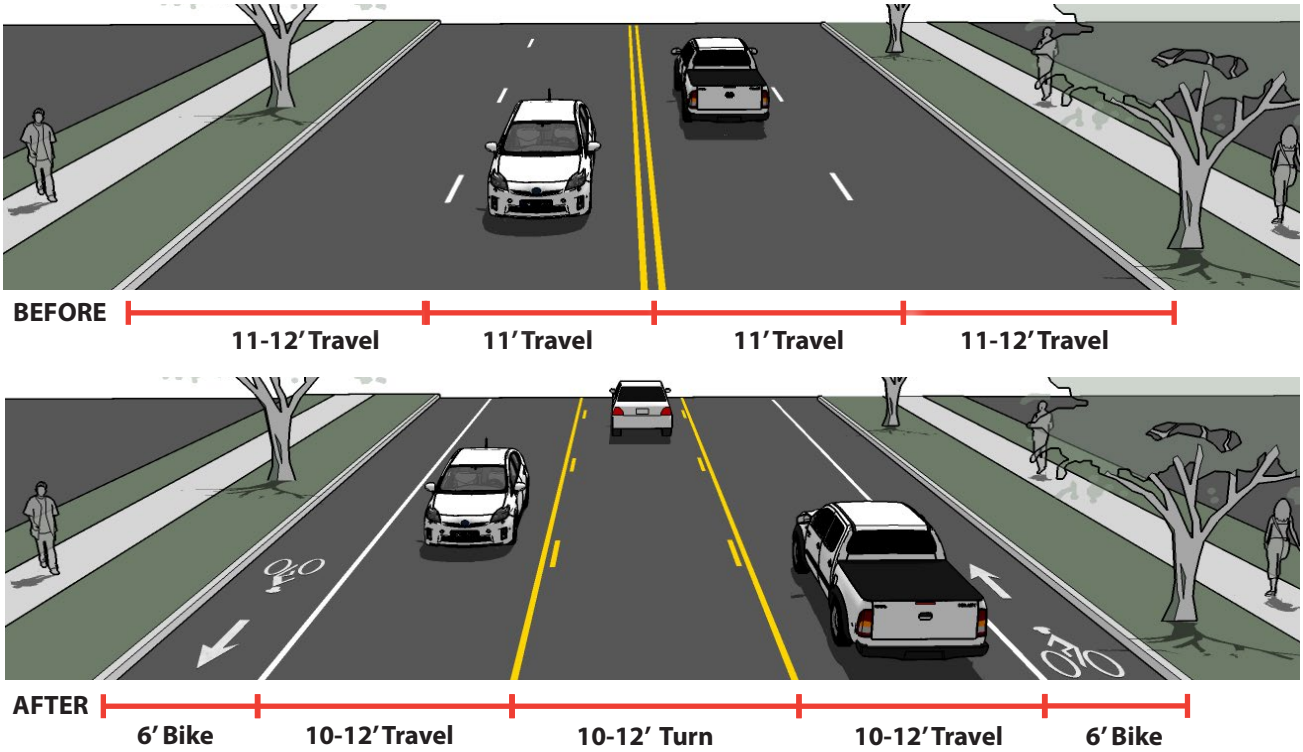
Section 3

Bicycle Toolbox

LANE RECONFIGURATION

Streets with excess roadway capacity or wider lanes often make excellent candidates for lane reconfigurations projects. The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street. Even if the width of the sidewalk does not increase, pedestrians benefit from the buffer that the new bike lanes create between the sidewalk and travel lanes. Although the actual roadway crossing distance has not been reduced, the addition of bike lanes reduces the number of vehicle travel lanes pedestrians must cross.



Typical Use

- Depending on a street's existing configuration, traffic operations, user needs, and comfort level, various lane reconfigurations may be appropriate.
- For instance, a four-lane street (with two travel lanes in each direction) could be modified to provide one travel lane in each direction, a center turn lane, and bike lanes.
- Prior to implementing this measure, a traffic analysis should identify potential impacts, including diversion to other parallel neighborhood streets. Road reconfigurations should also consider school, city bus, emergency service access, and other truck volumes.

Design Features

- Narrower lanes generally encourage slower vehicle speeds, higher comfort for people walking and biking.
- Vehicle lane width: Width depends on project. No narrowing may be needed if a lane is removed. Lanes along transit and freight routes may need a minimum of 11 feet to accommodate larger vehicles.
- Bicycle lane width: Standard bicycle lane width is 5-6 feet. A buffered bike lane requires an additional 2-3 feet.
- Number of Lanes: Generally, 3 lanes with a center turn lane can support 20,000 vehicles per day.

Before-and-after road reconfiguration on Duquesne Avenue. General Flow lanes were narrowed to make way for a Class II bike lane while retaining parking.

Materials and Maintenance

Road configurations are often paired with the road repaving schedule to reduce costs. Repair rough or uneven pavement surface. Use bicycle compatible drainage grates, and ensure they are flush with the pavement.

BIKE BOULEVARDS

A Bike Boulevard is a low-speed, low-volume roadway that is designed to enhance comfort and convenience for people bicycling. It provides better conditions for bicycling while improving the neighborhood character and maintaining emergency vehicle access. Bike Boulevards are intended to serve as a low-stress bikeway network, providing direct, and convenient routes across Culver City. Key elements of Bike Boulevards are unique signage and pavement markings, traffic calming and diversion features to maintain low vehicle volumes, and convenient major street crossings.

Typical Use

- Parallel with, and in close proximity to major thoroughfares (1/4 mile or less) on low-volume, low-speed streets.
- Follow a desire line for bicycle travel that is ideally long and relatively continuous (2-5 miles).
- Avoid alignments with excessive zigzag or circuitous routing. The bikeway should have less than 10% out of direction travel compared to shortest path of primary corridor.
- Local streets with traffic volumes of fewer than 2,500 vehicles per day. Utilize traffic calming to maintain or establish low volumes and discourage vehicle cut through / speeding.

Design Features

- Signs and pavement markings are the minimum treatments necessary to designate a street as a bike boulevard.
- Implement volume control treatments based on the context of the bike boulevard, using engineering judgment. Motor vehicle volumes should not exceed 1,500 vehicles per day.
- Intersection crossings should be designed to enhance comfort and minimize delay for bicyclists of diverse skills and abilities

A Painted Intersection, planters, and curb extensions to reinforce that the street is intended for local, slow-speed use instead of cut-through vehicle traffic.

An example of an large pavement marking to reinforce that the street is a Bike Boulevard or Bicycle Boulevard.

Further Considerations

- Bike Boulevards are established on streets that improve connectivity to key destinations and provide a direct, low-stress route for bicyclists, with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority over other modes.
- Bike Boulevard retrofits to local streets are typically located on streets without existing signalized accommodation at crossings of collector and arterial roadways. Without treatments for bicyclists, these intersections can become major barriers along the Bike Boulevard.
- Traffic calming can deter motorists from driving on a street. Anticipate and monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis.

Materials and Maintenance

Bike Boulevards require few additional maintenance requirements to local roadways. Signage, signals, and other traffic calming elements should be inspected and maintained according to local standards.

BICYCLE BOULEVARD WAYFINDING GUIDELINES

Culver CITY

Bike Boulevard Sign Conceptual Design 04.07.2020

alta PLANNING + DESIGN

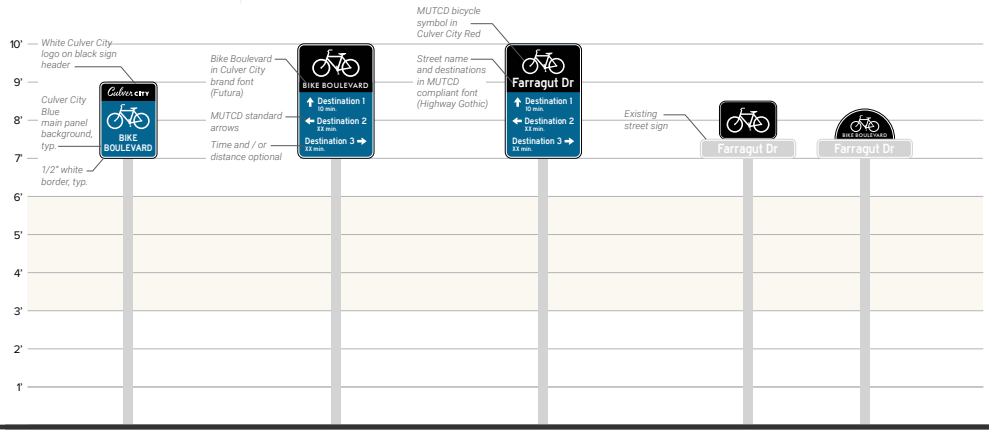
01 | Design Concept

BRANDED

Optional Elements

The **Simple / Iconic** concept prioritizes clear graphics and legibility, and minimizes text and sign clutter. Culver City branding is established through limited use of the logo and existing vehicular signage color palette.

Existing Culver City sign



Culver CITY

Bike Boulevard Sign Conceptual Design 04.07.2020

DESIGN CONCEPT: **SIMPLE / ICONIC** Alternate Color

SHEET 2.1

Culver CITY

Bike Boulevard Sign Conceptual Design 04.07.2020

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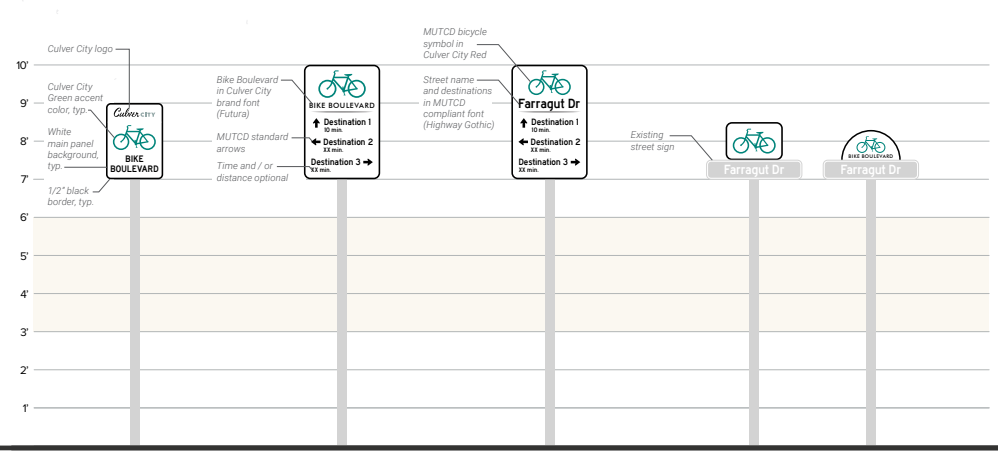
Design Concept

02 SIMPLE / ICONIC

Optional Elements

The **Simple / Iconic** concept prioritizes clear graphics and legibility, and minimizes text and sign clutter. Culver City branding is established through color and limited use of the logo.



Culver CITY

Bike Boulevard Sign Conceptual Design 04.07.2020

DESIGN CONCEPT: **SIMPLE / ICONIC**

SHEET 1.1

Culver CITY

Bike Boulevard Sign Conceptual Design 04.07.2020

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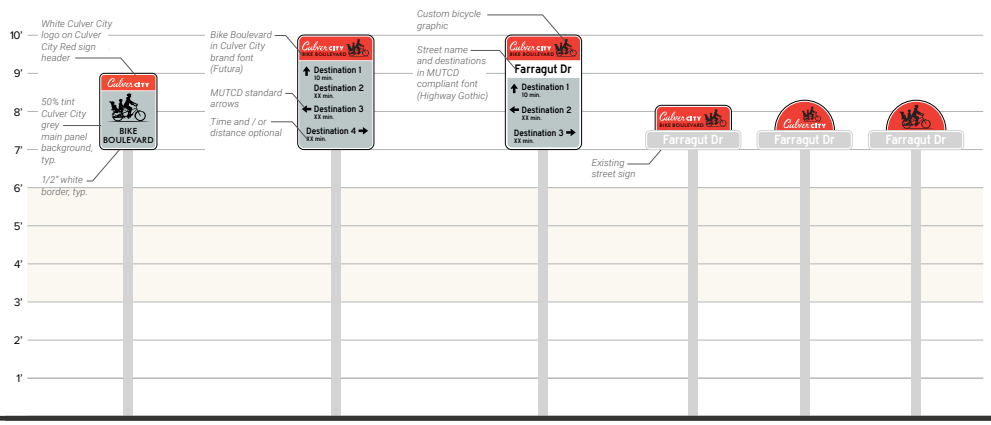
Design Concept

03 BRANDED

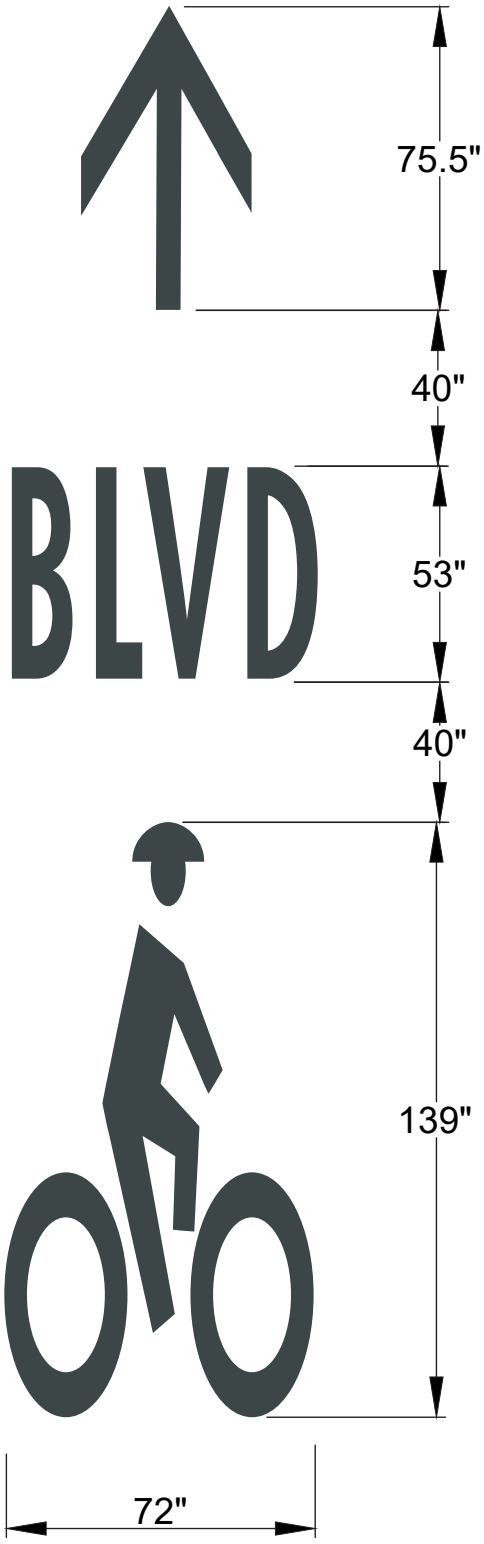
Alternative Design

Optional Elements

The **Branded** concept prioritizes Culver City branding through the use of brightly colored sign toppers, consistent use of the logo, and custom graphics.

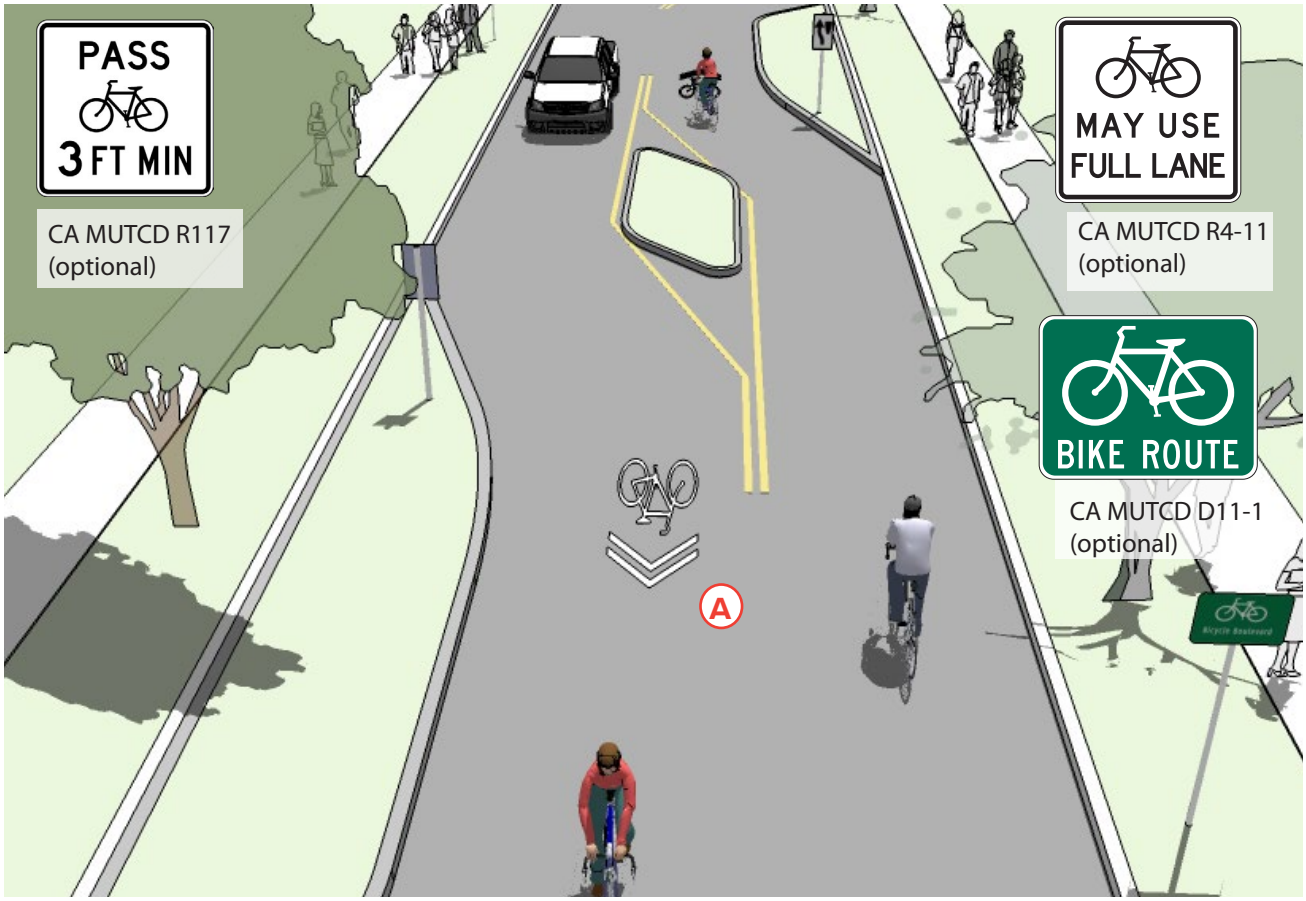


CONFIRMATION | DECISION | DECISION (Alternate with integrated street name) | STREET SIGN TOPPER (Alternates) | PAVEMENT MARKING


75.5"
40"
BLVD
53"
40"
139"
72"

SHARED LANE MARKINGS

Shared Lane Marking (SLM) or "Sharrow" stencils are used in California as an additional treatment for Bike Route facilities and are currently approved in conjunction with on-street parking. The CA MUTCD approved pavement marking can serve a number of purposes, such as making motorists aware of the need to share the road with bicyclists, showing bicyclists the direction of travel, and, with proper placement, reminding bicyclists to bike further from parked cars to prevent collisions with drivers opening car doors.



Typical Use

- Shared Lane Markings are not appropriate on paved shoulders or in bike lanes, and should not be used on roadways that have a posted speed greater than 35 mph.
- Shared Lane Markings should be implemented in conjunction with BIKES MAY USE FULL LANE signs.

Design Features

(A) Placement in the center of the travel lane is preferred in constrained conditions.

- Markings should be placed immediately after intersections and spaced at 250 foot intervals thereafter.
- When placed adjacent to parking, markings should be outside of the "door zone". Minimum placement is 11 feet from the curb face.

Sharrows also serve as positional guidance and raise bicycle awareness where there isn't space to accommodate a full-width bike lane. Center lane markings may or may not be necessary depending on travel lane widths. Narrower two way residential streets (less than 22 ft between parked cars) have a natural traffic calming effect without center turn lanes. Pictured above: sharrows on Sonoma Ave.

Further Considerations

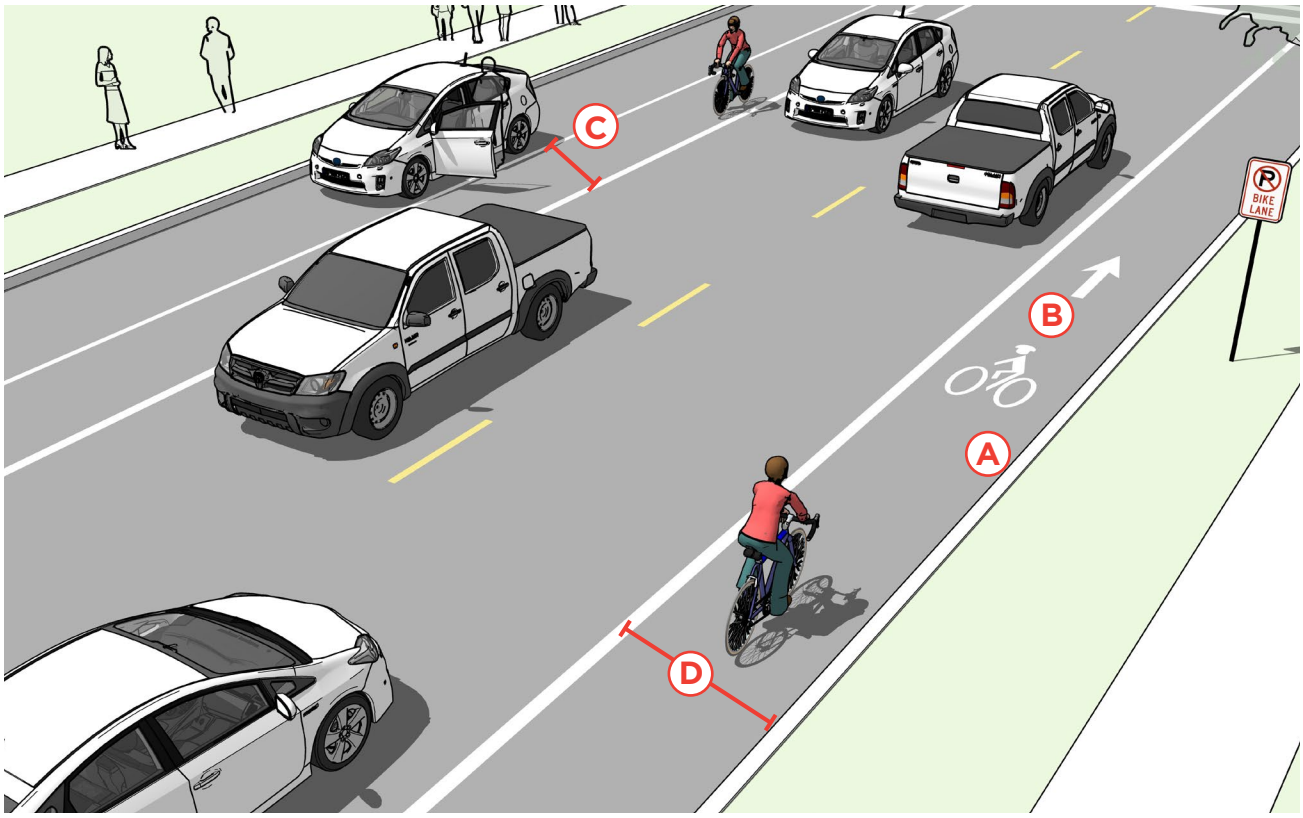
- Consider modifications to signal timing to induce a bicycle-friendly travel speed for all users.
- Though not always possible, placing the markings outside of vehicle tire tracks will increase the life of the markings and the long-term cost of the treatment.
- A green thermoplastic background can be applied to further increase the visibility of the shared lane marking.
- A "Pass Bicycle 3 FT MIN" sign (R117(CA)) can be installed to indicate to drivers the required passing distance per California Vehicle Code section 21760.

Materials and Maintenance

- Shared lane markings should be inspected annually and maintained accordingly, especially if located on roadways that feature high vehicle turning movements, or bus, or truck traffic. They can be placed in the center of the lane of travel to reduce wear from vehicles.

BICYCLE LANES

On-street bike lanes (Class II Bikeways) designate an exclusive space for bicyclists through the use of pavement markings and signs. The bike lane is located directly adjacent to motor vehicle travel lanes and is used in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge or parking lane.



Typical Use

- Bike lanes may be used on any street with adequate space, but are most effective on streets with moderate traffic volumes ≤ 6,000 ADT (≤ 3,000 preferred).
- Bike lanes are most appropriate on streets with lower to moderate speeds ≤ 25 mph.
- Appropriate for skilled adult riders on most streets.
- May be appropriate for children when configured as 6+ ft wide lanes on lower-speed, lower-volume streets with one lane in each direction.

Design Features

(A) Mark inside line with 6" stripe. **(CA MUTCD 9C.04)** Mark 4" parking lane line or "Ts".[1]

(B) Include a bicycle lane marking **(CA MUTCD Figure 9C-3)** at the beginning of blocks and at regular intervals along the route. **(CA MUTCD 9C.04)**

(C) 6 foot width preferred adjacent to on-street parking, (5 foot min.) **(City of Culver City, HDM)**

(D) 5–6 foot preferred adjacent to curb and gutter (4 foot min.) or 4 feet more than the gutter pan width.

1 Studies have shown that marking the parking lane encourages people to park closer to the curb. FHWA. Bicycle Countermeasure Selection System. 2006.

Further Considerations

- On high speed streets (≥ 40 mph) the minimum bike lane should be 6 feet. **(HDM 301.2)**
- It may be desirable to reduce the width of general purpose travel lanes in order to add or widen bicycle lanes. **(HDM 301.2 3)**
- On multi-lane streets, the most appropriate bicycle facility to provide for user comfort may be buffered bicycle lanes or physically separated bicycle lanes.

Manhole Covers and Grates:

- Manhole surfaces should be manufactured with a shallow surface texture in the form of a tight, nonlinear pattern
- If manholes or other utility access boxes are to be located in bike lanes within 50 ft. of intersections or within 20 ft. of driveways or other bicycle access points, special manufactured permanent nonstick surfaces are required to ensure a controlled travel surface for cyclists breaking or turning.
- Manholes, drainage grates, or other obstacles should be set flush with the paved roadway. Roadway surface inconsistencies pose a threat to safe riding conditions for bicyclists. Construction of manholes, access panels or other drainage elements should be constructed with no variation in the surface. The maximum allowable tolerance in vertical roadway surface will be 1/4 of an inch.

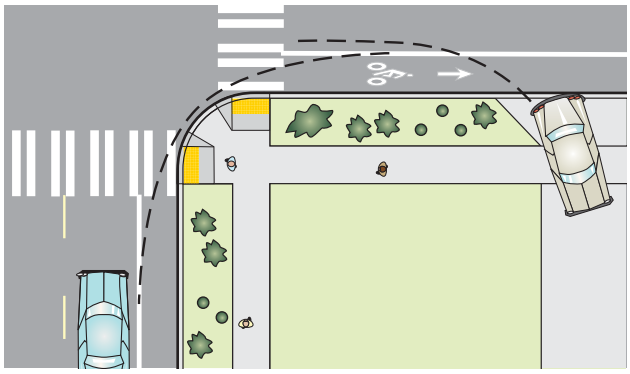
Materials and Maintenance

Bike lane striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway.

Bike lanes should also be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

Standard Class II Bike Lane on Jefferson Boulevard

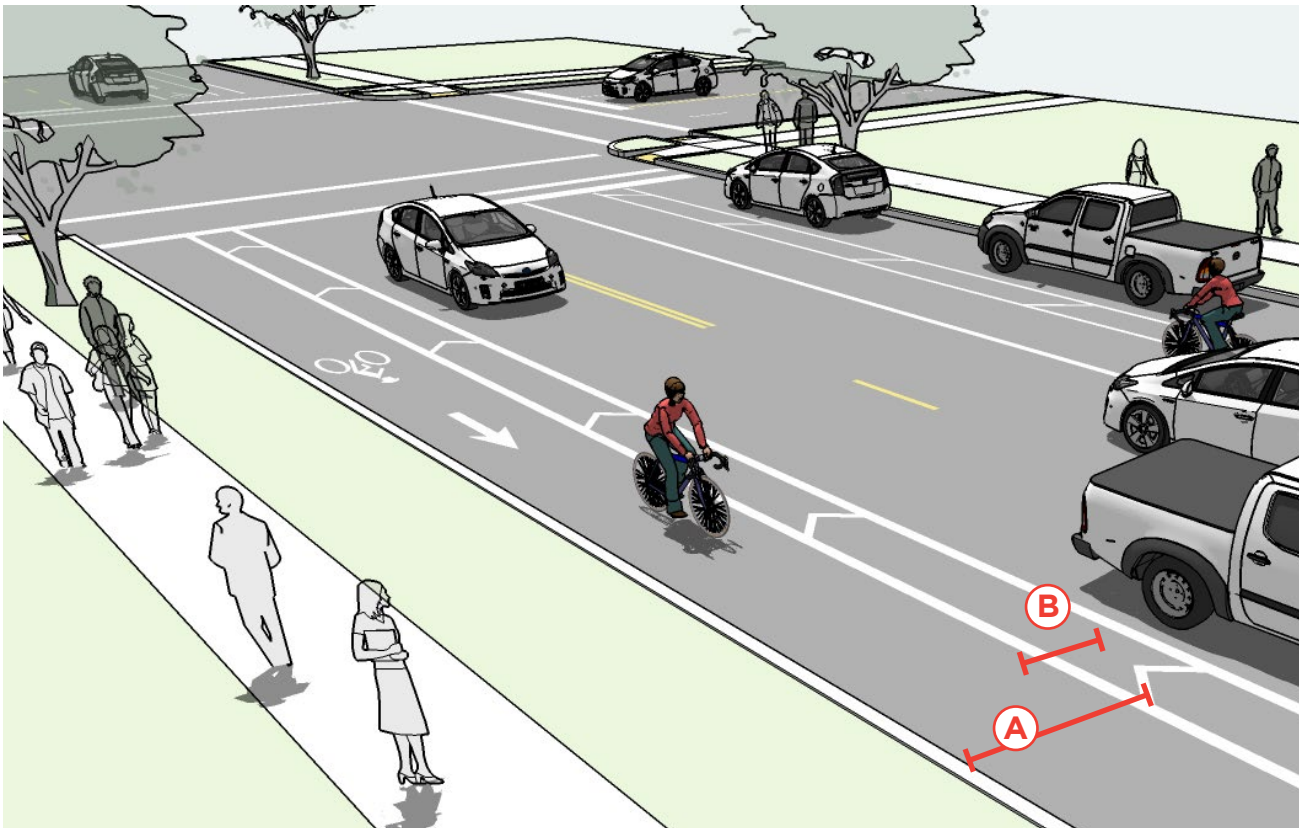
Place Bike Lane Symbols to Reduce Wear



Bike lane word, symbol, and/or arrow markings ***(MUTCD Figure 9C-3)*** *shall be placed outside of the motor vehicle tread path in order to minimize wear from the motor vehicle path.* **(NACTO 2012)**

BUFFERED BICYCLE LANES

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



Typical Use

- Anywhere a conventional bike lane is being considered.
- While conventional bike lanes are most appropriate on streets with lower to moderate speeds (≤ 25 mph), buffered bike lanes are appropriate on streets with higher speeds (+25mph) and high volumes or high truck volumes (up to 6,000 ADT).
- On streets with extra lanes or lane width.
- Appropriate for skilled adult riders on most streets.

Design Features

(A) The minimum bicycle travel area (not including buffer) is 5 feet wide.

(B) Buffers should be at least 2 feet wide. If buffer area is 4 feet or wider, white chevron or diagonal markings should be used. **(CA MUTCD 9C-104)**

- For clarity at driveways or minor street crossings, consider a dotted line.
- There is no standard for whether the buffer is configured on the parking side, the travel side, or a combination of both.

Buffered bike lanes transition into conflict markings.

The use of additional pavement markings delineates space between vehicles and cyclists.

Further Considerations

- Color may be used within the lane to discourage motorists from entering the buffered lane.
- A study of buffered bicycle lanes found that, in order to make the facilities successful, there needs to also be driver education, improved signage and proper pavement markings.[11]
- On multi-lane streets with high vehicles speeds, the most appropriate bicycle facility to provide for user comfort may be physically separated bike lanes.
- NCHRP Report #766 recommends, when space is limited, installing a buffer space between the parking lane and bicycle lane where on-street parking is permitted rather than between the bicycle lane and vehicle travel lane.[12]

Materials and Maintenance

Bike lane striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway.

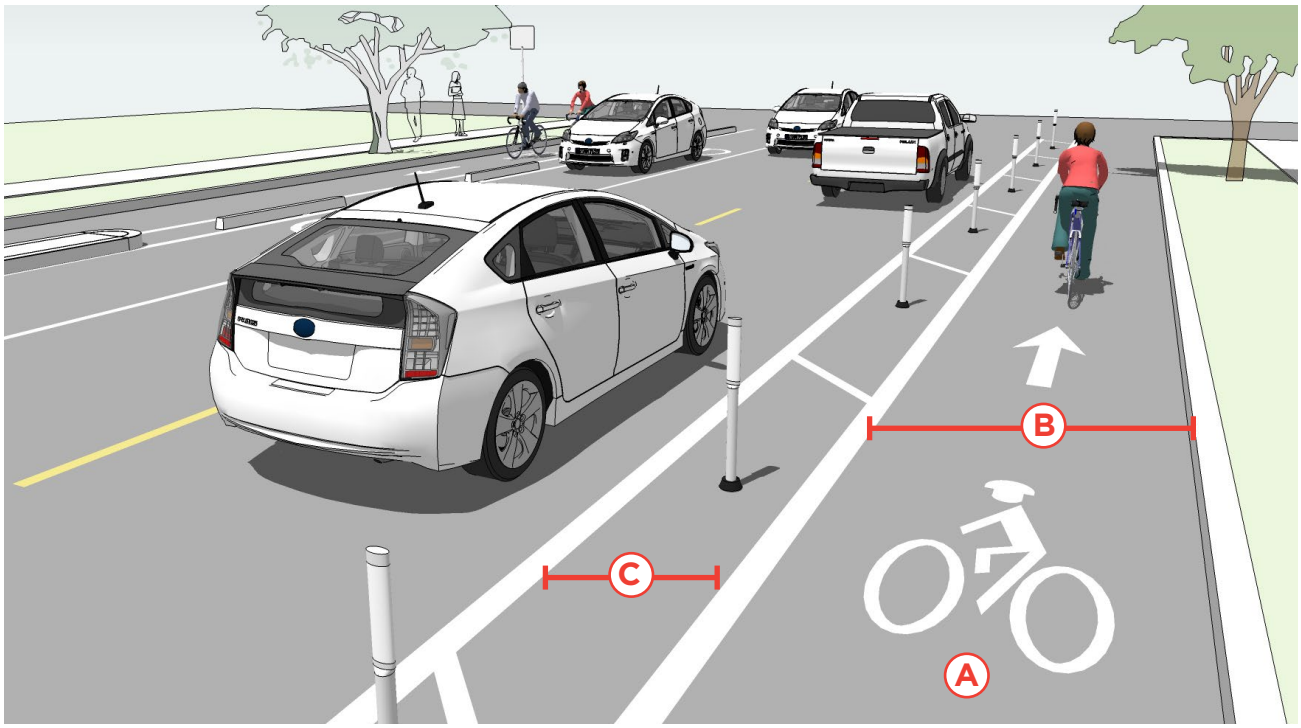
Bike lanes should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

11 Monsere, C.; McNeil, N.; and Dill, J., "Evaluation of Innovative Bicycle Facilities: SW Broadway Cycle Track and SW Stark/Oak Street Buffered Bike Lanes. Final Report" (2011).Urban Studies and Planning Faculty Publications and Presentations.

12 National Cooperative Highway Research Program. Report #766: Recommended Bicycle Lane Widths for Various Roadway Characteristics.

ONE-WAY SEPARATED BIKEWAY

One-way separated bikeways, also known as protected bikeways or cycle tracks, are on-street bikeway facilities that are separated from vehicle traffic. Physical separation is provided by a barrier between the bikeway and the vehicular travel lane. These barriers can include flexible posts, bollards, parking, planter strips, extruded curbs, or on-street parking. Separated bikeways using these barrier elements typically share the same elevation as adjacent travel lanes, but the bikeway could also be raised above street level, either below or equivalent to sidewalk level.



Typical Use

- Along streets on which conventional bicycle lanes would cause many bicyclists to feel stress because of factors such as multiple lanes, high bicycle volumes, high motor traffic volumes (9,000-30,000 ADT), higher traffic speeds (25+ mph), high incidence of double parking, higher truck traffic (10% of total ADT) and high parking turnover.
- Along streets for which conflicts at intersections can be effectively mitigated using parking lane setbacks, bicycle markings through the intersection, and other signalized intersection treatments.

Design Features

(A) Pavement markings, symbols and/or arrow markings must be placed at the beginning of the separated bikeway and at intervals along the facility based on engineering judgment to define the bike direction. **(CA MUTCD 9C.04)**

(B) 7 foot width preferred in areas with high bicycle volumes or uphill sections to facilitate safe passing behavior (5 foot minimum). **(HDM 1003.1(1))**

(C) 3 foot minimum buffer width adjacent to parking lines (2 foot minimum when adjacent to travel lanes), marked with 2 solid white **(DIB 89, 2015)**.

Parked cars serve as a barrier between bicyclists and the vehicle lane. Barriers could also include flexible posts, bollards, planters, or other design elements
Source: Bike East Bay.

Further Considerations

- Separated bikeway buffers and barriers are covered in the CAMUTCD as preferential lane markings **(section 3D.01)** and channelizing devices **(section 3H.01).** If the buffer area is 4 feet or wider, white chevron or diagonal markings should be used **(section 9C.04)**. Curbs may be used as a channeling device, see the section on islands **(section 3I.01)**. Grade-separation provides an enhanced level of separation in addition to buffers and other barrier types.
- Where possible, physical barriers such as removable curbs should be oriented towards the inside edge of the buffer to provide as much extra width as possible for bicycle use.
- A retrofit separated bikeway has a relatively low implementation cost compared to road reconstruction by making use of existing pavement and drainage and using a parking lane as a barrier.
- Gutters, drainage outlets and utility covers should be designed and configured as not to impact bicycle travel.
- For clarity at major or minor street crossings, consider a dotted line **(CA MUTCD Detail 39A** - Bike Lane Intersection Line) for the buffer boundary where cars are expected to cross.
- Special consideration should be given at transit stops to manage bicycle and pedestrian interactions.

Materials and Maintenance

Bikeay striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway. Green conflict striping (if used) will also generally require higher maintenance due to vehicle wear.

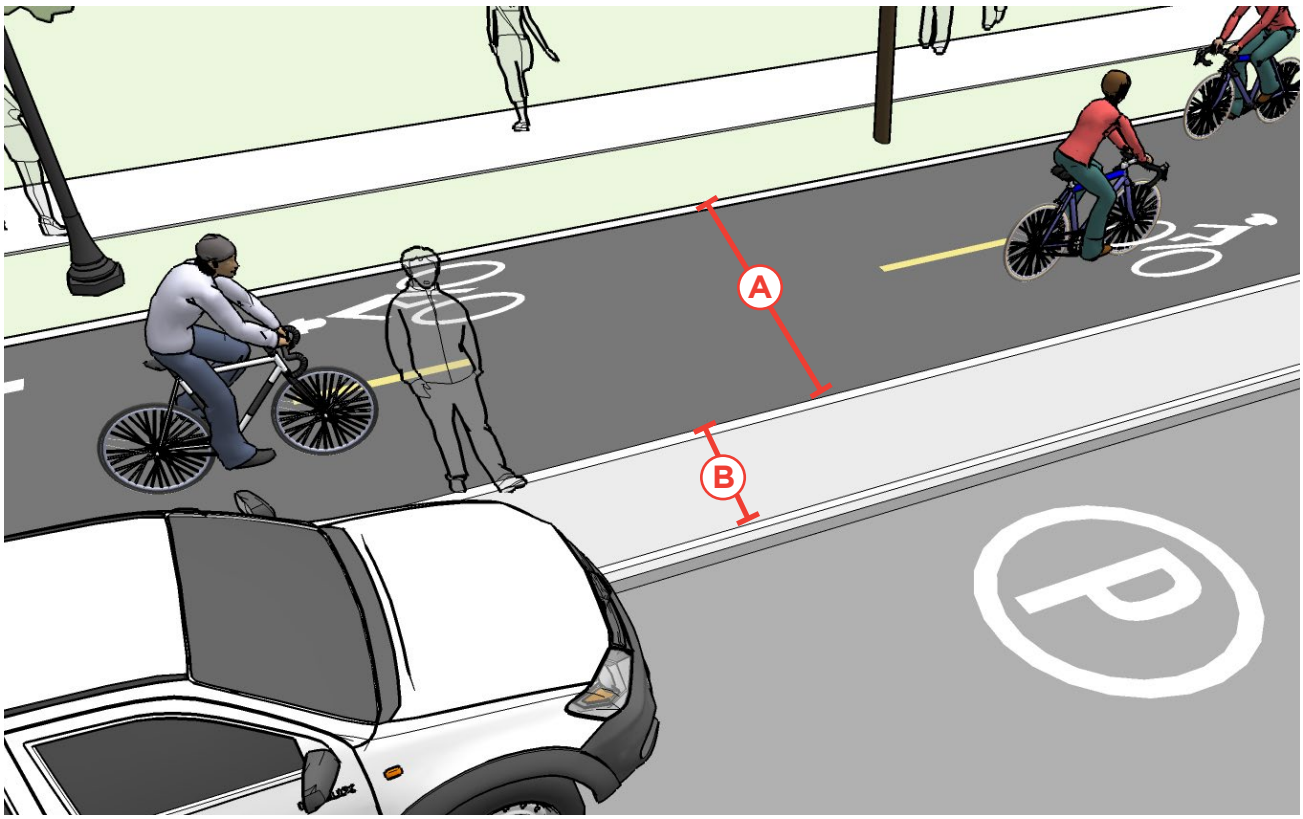
Bikeways should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

Access points along the facility should be provided for street sweeper vehicles to enter/exit the separated bikeway,

Approximate Cost

TWO-WAY SEPARATED BIKEWAY

Two-Way Separated Bikeways are bicycle facilities that allow bicycle movement in both directions on one side of the road. Two-way separated bikeways share some of the same design characteristics as one-way separated bikeways, but often require additional considerations at driveway and side-street crossings, and intersections with other bikeways.



Typical Use

- Works best on the left side of one-way streets.
- Streets with high motor vehicle volumes and/or speeds
- Streets with high bicycle volumes.
- Streets with a high incidence of wrong-way bicycle riding.
- Streets with few conflicts such as driveways or cross-streets on one side of the street.
- Streets that connect to shared use paths.

Design Features

(A) 12 foot operating width preferred (10 ft minimum) width for two-way facility.

- In constrained locations an 8 foot minimum operating width may be considered **(HDM 1003.1(1))**.

(B) Adjacent to on-street parking a 3 foot minimum width channelized buffer or island shall be provided to accommodate opening doors **(NACTO, 2012) (CA MUTCD 3H.01, 3I.01).**

- A separation narrower than 5 feet may be permitted if a physical barrier is present. **(AASHTO, 2013)**
- Additional signalization and signs may be necessary to manage conflicts.

Two-Way Separated Bikeway

A two-way facility can accommodate cyclists in two directions of travel.

Further Considerations

- On-street bikeway buffers and barriers are covered in the CA MUTCD as preferential lane markings **(section 3D.01)** and channelizing devices, including flexible delineators **(section 3H.01)**. Curbs may be used as a channeling device, see the section on islands **(section 3I.01)**.
- A two-way separated bikeway on one way street should be located on the left side.
- A two-way separated bikeway may be configured at street level or as a raised separated bikeway with vertical separation from the adjacent travel lane.
- Two-way separated bikeways should ideally be placed along streets with long blocks and few driveways or mid-block access points for motor vehicles.
- See Caltrans Design Information Bulletin No. 89 for more details.

Materials and Maintenance

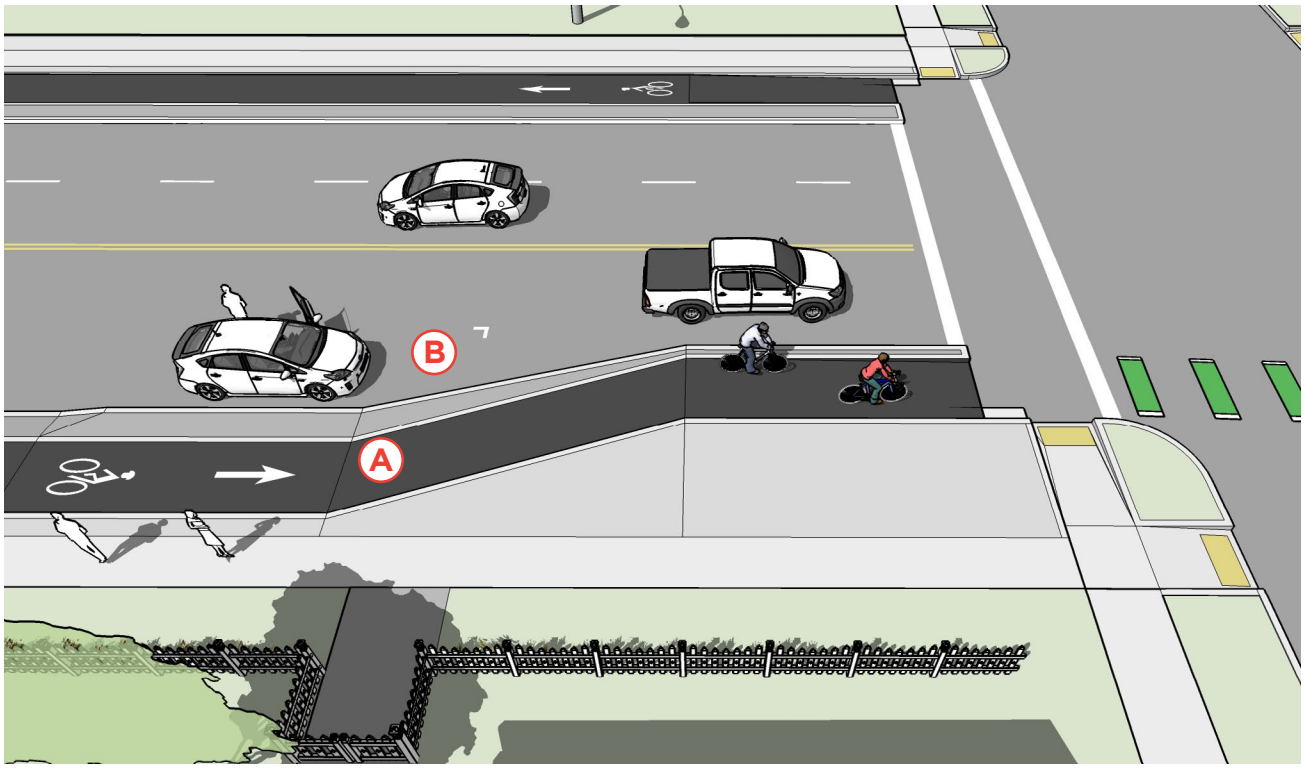
Bikeway striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway. Green conflict striping (if used) will also generally require higher maintenance due to vehicle wear.

Bikeways should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

Access points along the facility should be provided for street sweeper vehicles to enter/exit the separated bikeway.

LATERAL SHIFT

To increase the visibility of bicyclists for turning motorists, a lateral shift in or "bend-in" intersection approach laterally shifts the separated bikeway immediately adjacent to the turning lane.



Typical Use

- Bikeways separated by a visually intensive buffer or on-street parking.
- Where it is desirable to create a curb extension at intersections to reduce pedestrian crossing distance.
- Where space is not available to bend-out the bikeway prior to the intersection.

Design Features

(A) At least 20 ft prior to an intersection, provide between 20 – 40 ft of length to shift the bikeway closer to motor vehicle traffic.

(B) Where the separated bikeway uses parked cars within the buffer zone, parking must be prohibited at the start of the transition.

- Place a "Turning Vehicles Yield to Bikes" sign (modified MUTCD R10-15) prior to the intersection.
- Optional - Provide a narrow buffer with vertical delineators between the travel and lane and bikeway to increase comfort for bicycle riders and slow driver turning speed.

Clear sight lines at intersections and driveways for people on bikes and people driving are an important aspect of this design.

The approach to an adjacent crossing intersection in Vancouver, BC.

Further Considerations

- The design creates an opportunity for a curb extension, to reduce pedestrian crossing distance. This curb extension can also create public space which can be used bike parking corrals, bikeshare stations, parklets, public art exhibits, and/or stormwater features such as bioswales.
- Can be paired with intersection crossing markings such as green colored pavement to raise awareness of conflict points.

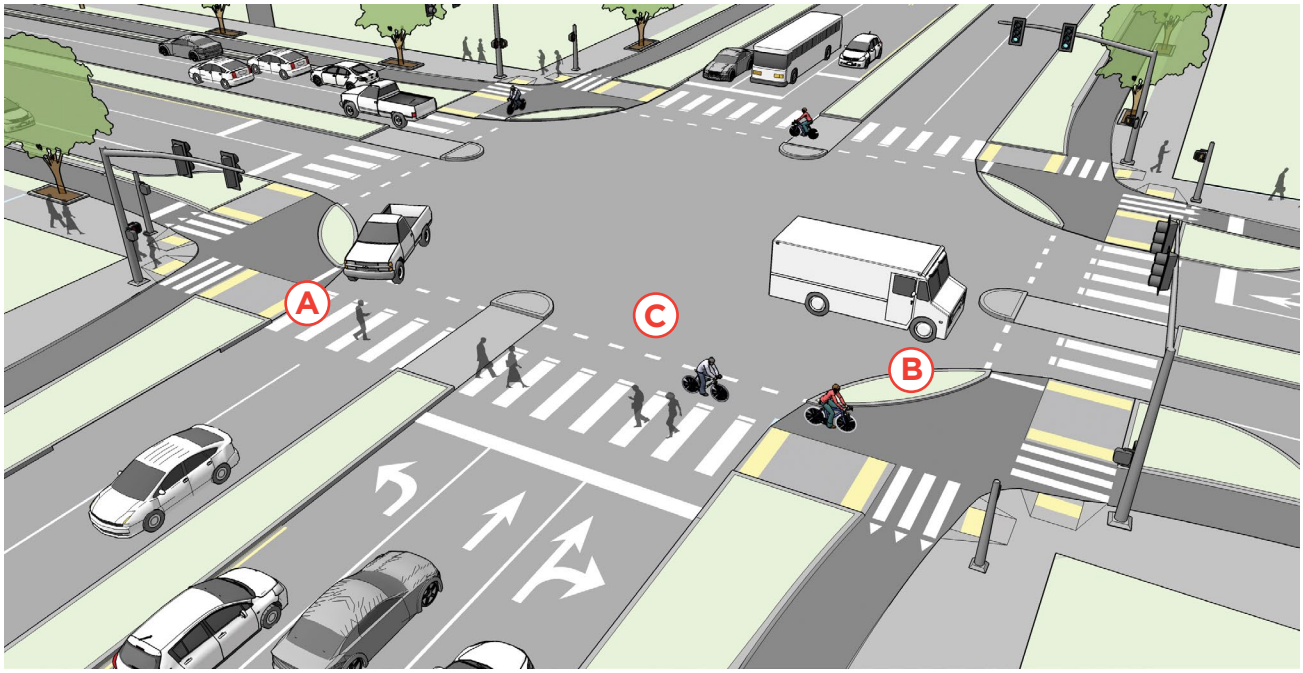
Materials and Maintenance

Bikeway striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway. Green conflict striping (if used) will also generally require higher maintenance due to vehicle wear.

Bikeway should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

PROTECTED INTERSECTION

A protected intersection, or "Bend Out" uses a collection of intersection design elements to maximize user comfort within the intersection and promote a high rate of motorists yielding to people bicycling. The design maintains a physical separation within the intersection to define the turning paths of motor vehicles, slow vehicle turning speed, and offer a comfortable place for people bicycling to wait at a red signal.



Typical Use

- Streets with separated bikeways protected by wide buffer or on-street parking.
- Where two separated bieways intersect and two-stage left-turn movements can be provided for bicycle riders.
- Helps reduce conflicts between right-turning motorists and bicycle riders by reducing turning speeds and providing a forward stop bar for bicycles.
- Where it is desirable to create a curb extension at intersections to reduce pedestrian crossing distance.

Design Features

(A) Setback bicycle crossing of 19.5 feet allows for one passenger car to queue while yielding. Smaller setback distance is possible in slow-speed, space constrained conditions.

(B) Corner island with a 15-20 foot corner radius slows motor vehicle speeds. Larger radius designs may be possible when paired with a deeper setback or a protected signal phase, or small mountable aprons. Two-stage turning boxes are provided for queuing bicyclists adjacent to corner islands.

(C) Use intersection crossing markings.

Protected intersections feature a corner safety island and intersection crossing markings.

Protected intersections incorporate queuing areas for two-stage left turns.

Further Considerations

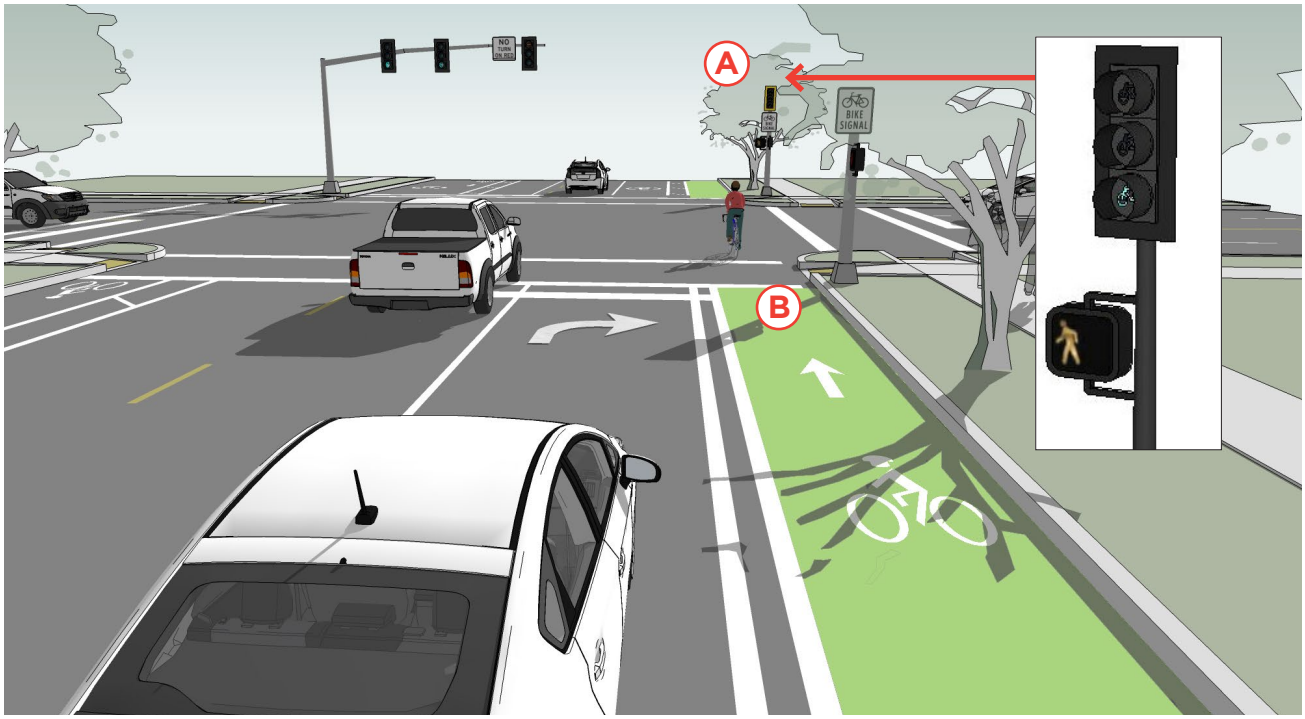
- Pedestrian crosswalks may need to be further set back from intersections in order to make room for two-stage turning queue boxes.
- Wayfinding and directional signage should be provided to help bicycle riders navigate through the intersection.
- Colored pavement may be used within the corner refuge area to clarify use by people bicycling and discourage use by people walking or driving.
- Intersection approaches with high volumes of right turning vehicles should provide a dedicated right turn only lane paired with a protected signal phase. Protected signal phasing may allow different design dimensions than are described here.

Materials and Maintenance

- Green conflict striping (if used) will also generally require higher maintenance due to vehicle wear.
- Bikeways should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.
- Bikeways protected by concrete islands or other permanent physical separation, can be swept by street sweeper vehicles with narrow widths.

SEPARATED BICYCLE SIGNAL PHASE

Separated bicycle lane crossings of signalized intersections can be accomplished through the use of a bicycle signal phase which reduces conflicts with motor vehicles by separating bicycle movements from any conflicting motor vehicle movements. Bicycle signals are traditional three lens signal heads with green, yellow and red bicycle stenciled lenses.



Typical Use

- Two-way protected bikeways where contraflow bicycle movement or increased conflict points warrant protected operation.
- Bicyclists moving on a green or yellow signal indication in a bicycle signal shall not be in conflict with any simultaneous motor vehicle movement at the signalized location
- Right (or left) turns on red should be prohibited in locations where such operation would conflict with a green bicycle signal indication.

Design Features

(A) An additional “Bicycle Signal” sign should be installed below the bicycle signal head.

(B) Designs for bicycles at signalized crossings should allow bicyclists to trigger signals via pushbutton, loop detectors, or other passive detection, to navigate the crossing.

- On bikeways, signal timing and actuation shall be reviewed and adjusted to consider the needs of bicyclists. **(CA MUTCD 9D.02)**

A bicycle signal head at a signalized crossing creates a protected phase for cyclists to safely navigate an intersection.

A bicycle detection system triggers a change in the traffic signal when a bicycle is detected.

Further Considerations

- A bicycle signal should be considered for use only when the volume/collision or volume/geometric warrants have been met. **(CA MUTCD 4C.102)**
- The Federal Highway Administration (FHWA) has approved bicycle signals for use, if they comply with requirements from Interim Approval 16 (I.A. 16). Bicycle Signals are not approved for use in conjunction with Pedestrian Hybrid Beacons.
- Bicyclists typically need more time to travel through an intersection than motor vehicles. Green light times should be determined using the bicycle crossing time for standing bicycles.
- Bicycle detection and actuation systems include user-activated buttons mounted on a pole, loop detectors that trigger a change in the traffic signal when a bicycle is detected and video detection cameras, that use digital image processing to detect a change in the image at a location.

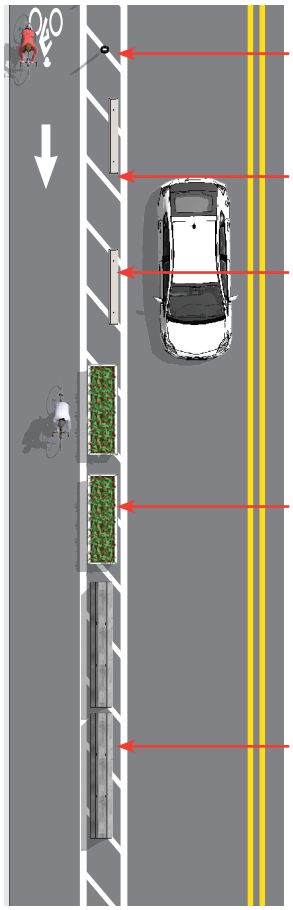
Materials and Maintenance

Bicycle signal detection equipment should be inspected and maintained regularly, especially if detection relies on manual actuation. Pushbuttons and loop detectors will tend to have higher maintenance needs than other passive detection equipment.

SEPARATED BIKEWAY BARRIERS

Separated bikeways may use a variety of vertical elements to physically separate the bikeway from adjacent travel lanes. Barriers may be robust constructed elements such as curbs, or may be more interim in nature, such as flexible delineator posts.

Barrier Separation



3' Buffer and Spatial Envelope for Barriers

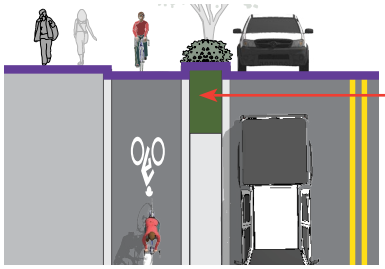
Flexible Delineators (10'-40' spacing)

Wheel Stops (6' spacing, 1' from travel lane)

Planter Boxes (Consistent spacing)

Jersey Barriers (consistent spacing)

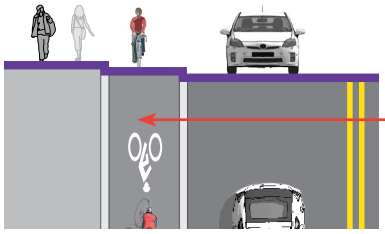
Media Separation



Raised Curb (2' min. width)

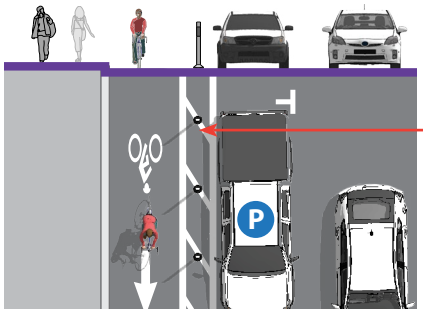
Optional Planting

Grade Separation



Raised Bike Facility

Parking Separation



Buffered Door Zone (2' min. and optional Flexible Delineators)

Typical Use

Appropriate barriers for retrofit projects:

- Parked Cars
- Flexible delineators
- Bollards
- Planters
- Parking stops

Appropriate barriers for reconstruction projects:

- Curb separation
- Medians
- Landscaped Medians
- Raised protected bike lane with vertical or mountable curb
- Pedestrian Refuge Islands

Raised separated bikeways are bicycle facilities that are vertically separated from motor vehicle traffic.

Design Features

- Maximize effective operating space by placing curbs or delineator posts as far from the through bikeway space as practicable.
- Allow for adequate shy distance of 1 to 2 feet from vertical elements to maximize useful space.
- When next to parking allow for 3 feet of space in the buffer space to allow for opening doors and passenger unloading.
- The presences of landscaping in medians, planters and safety islands increases comfort for users and enhances the streetscape environment.

Further Considerations

- Separated bikeway buffers and barriers are covered in the CA MUTCD as preferential lane markings **(section 3D.01)** and channelizing devices **(section 3H.01)**. Curbs may be used as a channeling device, see the section on islands **(section 3I.01)**.
- With new roadway construction a raised separated bikeway can be less expensive to construct than a wide or buffered bicycle lane because of shallower trenching and sub base requirements.
- Parking should be prohibited within 30 feet of the intersection to improve visibility.

Materials and Maintenance

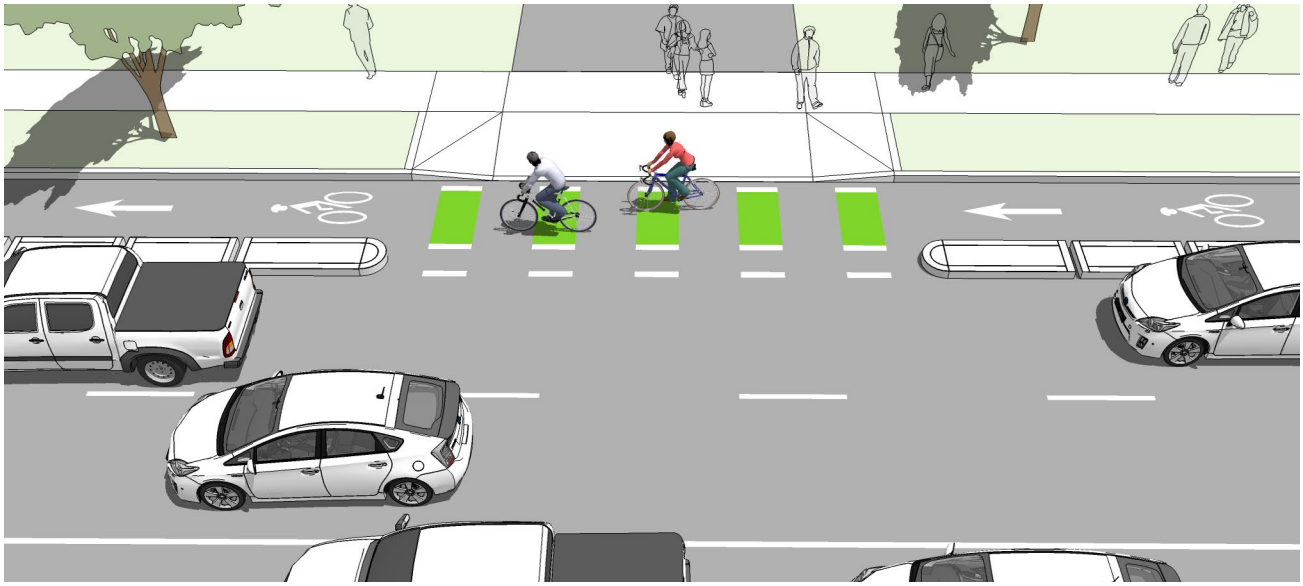
Separated bikeways protected by concrete islands or other permanent physical separation, can be swept by smaller street sweeper vehicles.

Access points along the facility should be provided for street sweeper vehicles to enter/exit the separated bikeway.

SEPARATED BIKEWAYS AT DRIVEWAYS (AND MINOR STREETS)

The added separation provided by separated bikeways creates additional considerations at intersections and driveways when compared to conventional bicycle lanes. Special design guidelines are necessary to preserve sightlines and denote potential conflict areas between modes, especially when motorists turning into or out of driveways may not be expecting bicycle travel opposite to the main flow of traffic.

At driveways and crossings of minor streets, bicyclists should not be expected to stop if the major street traffic does not stop.



Typical Use

- Along streets with separated bikeway where there are intersections and driveways.
- Higher frequency driveways or crossings may require additional treatment such as conflict markings and signs.

Design Features

- Remove parking to allow for the appropriate clear sight distance before driveways or intersections to improve visibility. The desirable no-parking area is at least 30 feet from each side of the crossing.
- Use colored pavement markings and/or shared line markings through conflict areas at intersections.
- If a raised bikeway is used, the height of the lane should be maintained through the crossing, requiring automobiles to cross over.
- Motor vehicle traffic crossing the bikeway should be constrained or channelized to make turns at sharp angles to reduce travel speed prior to the crossing.
- Driveway crossings may be configured as raised crossings to slow turning cars and assert physical priority of travelling bicyclists.
- Motor vehicle stop bar on cross-streets and driveways is setback from the intersection to ensure that drivers slow down and scan for pedestrians and bicyclists before turning.

Intersection crossing markings can be used at high volume driveway and minor street crossings, as illustrated above.

Further Considerations

- Removing obstructions and providing clear sight distance at crossings increases visibility of bicyclists.
- Treatments designed to constrain and slow turning motor vehicle traffic will slow drivers to bicycle-compatible travel speeds prior to crossing the separated bikeway.

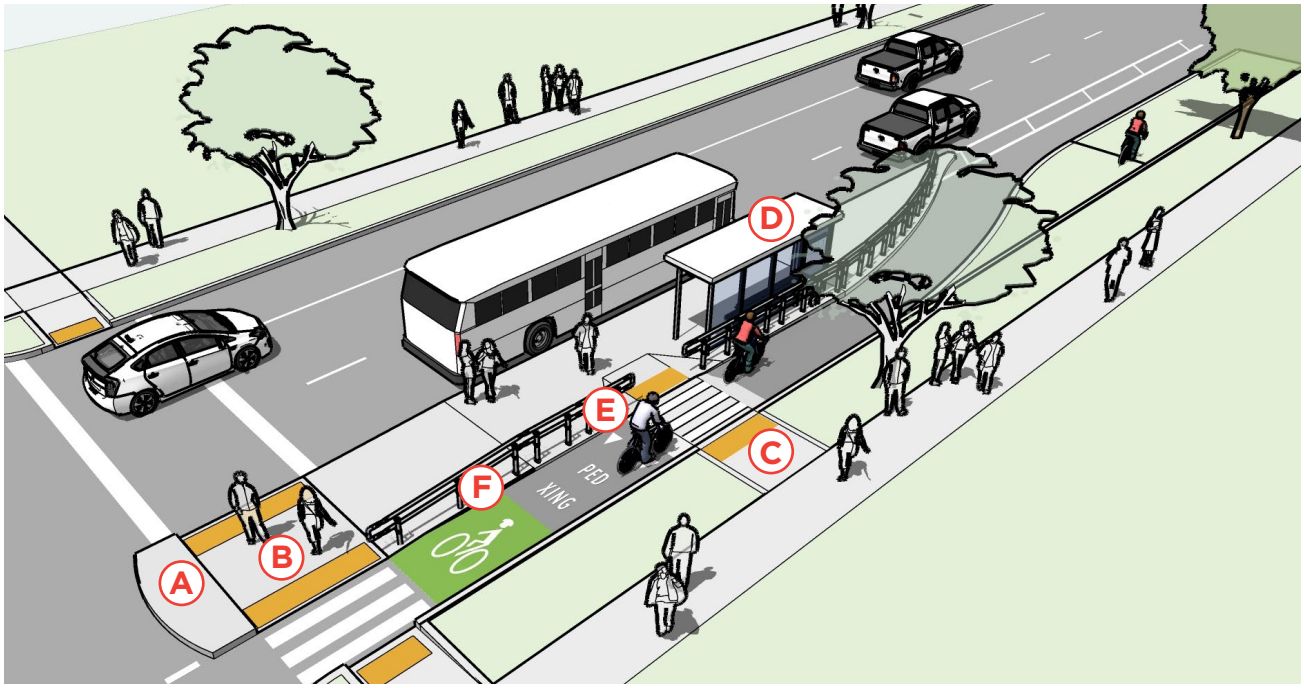
Materials and Maintenance

Green conflict striping and markings, will require higher maintenance where vehicles frequently traverse over them at driveways and minor intersection. Green conflict striping (if used) will also generally require higher maintenance due to vehicle wear.

SEPARATED BIKEWAYS AT TRANSIT SIDE BOARDING ISLANDS

A transit side boarding island is a channelized lane for bicyclists designed to provide a path for bicyclists to pass stopped transit vehicles, and clarify interactions between pedestrians, bicyclists, and passengers, boarding and alighting.

This is particularly helpful on corridors with high volumes of transit vehicles and bicyclists, where "leapfrogging" may occur, and on separated bikeway corridors where maintaining physical separation is important to maintain user comfort.



Typical Use

- Routes where bike lanes or separated bikeways and transit operations overlap.
- Provides an in-lane stop for buses, reducing delay at stops.
- Median refuge also provides a shorter crossing for pedestrians at intersections

Design Features

(A) Pedestrian median refuge island (optional) shortens the crossing distance at intersections.

(B) Pedestrian ramp into crosswalks should be ADA compliant with detectable warning surfaces.

(C) Direct pedestrians to crossing locations to minimize conflicts between modes.

(D) High volume stops should have room for appropriately sized shelters and transit amenities.

(E) Pavement markings and signage should clarify expectations among users. The bikeway could also ramp up to sidewalk level at this crossing to reduce bicycle speeds and enhance ADA access to the stop.

(F) Pavement markings on the bikeway should define the bicycle path of travel to minimize intrusion by pedestrians, except at designated crossings.

A transit side boarding island clarifies user spaces and minimizes conflict between bicyclists. pedestrians, transit passengers, buses, and vehicles.

Further Considerations

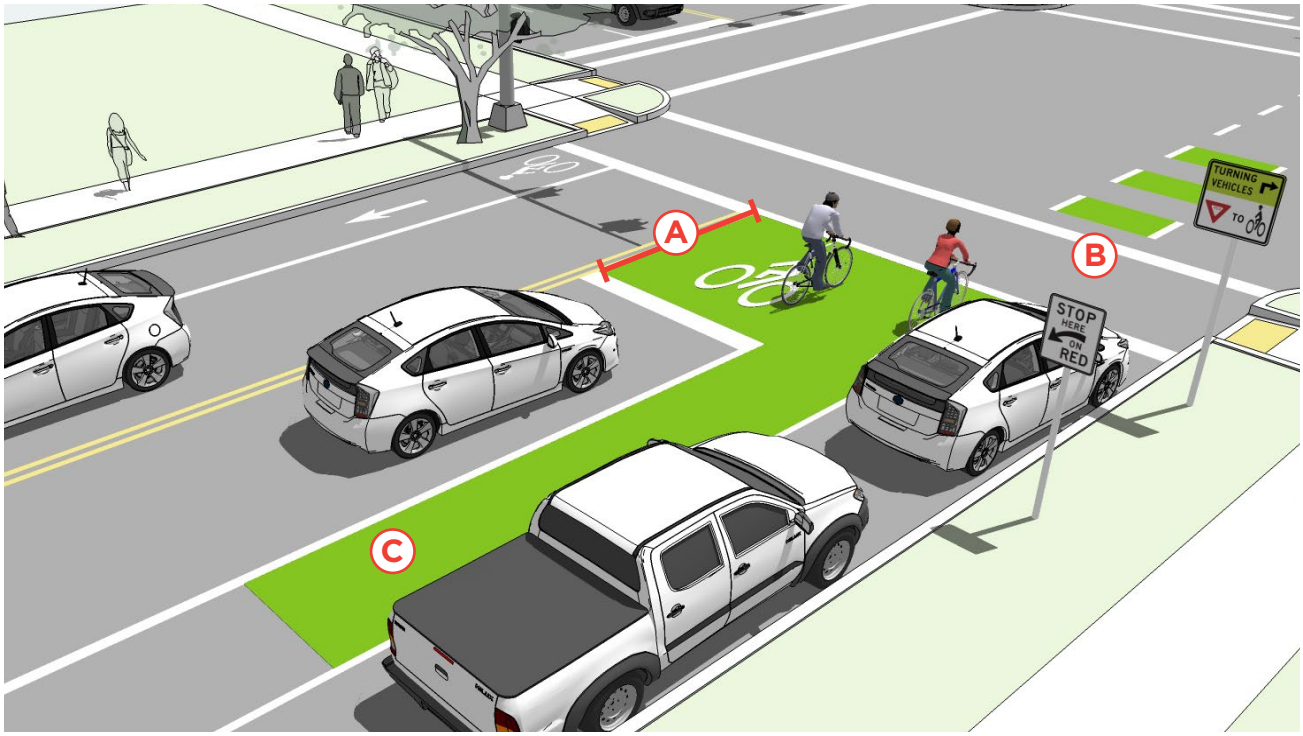
- Transit island should be wide enough to accommodate mobility devices. An 8'x5' accessible clear space is required at the front door per ADA requirements.
- Transit platforms should feature pedestrian scale lighting.
- Side boarding island will require detectable warning surfaces along full length of platform if greater than 6" high.

Materials and Maintenance

Similar to median refuge islands, side boarding islands may require frequent maintenance of road debris. If at street grade, the bikeway can be swept by street sweeper vehicles with narrow widths.

BICYCLE BOX

A bicycle box is an experimental treatment, designed to provide bicyclists with a safe and visible space to get in front of queuing traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box. On a green signal, all bicyclists can quickly clear the intersection. This treatment is currently under experiment, and has not been approved by Caltrans.



Typical Use

- At potential areas of conflict between bicyclists and turning vehicles, such as a right or left turn locations.
- At signalized intersections with high bicycle volumes.
- At signalized intersections with high vehicle volumes.
- Not to be used on downhill approaches to minimize the right hook threat potential during the extended green signal phase.

Design Features

(A) 14 foot minimum depth from back of crosswalk to motor vehicle stop bar. **(NACTO, 2012)**

(B) A "No Turn on Red" **(CA MUTCD R10-11)** or "No Right Turn on Red" **(CA MUTCD R13A)** sign shall be installed overhead to prevent vehicles from entering the Bike Box. (Refer to CVC 22101 for the signage) A "Stop Here on Red" **(CA MUTCD R10-6)** sign should be post mounted at the stop line to reinforce observance of the stop line.

(C) A 50 foot ingress lane should be used to provide access to the box.

- Use of green colored pavement is recommended.

A bike box allows for cyclists to wait in front of queuing traffic, providing high visibility and a head start over motor vehicle traffic.

Further Considerations

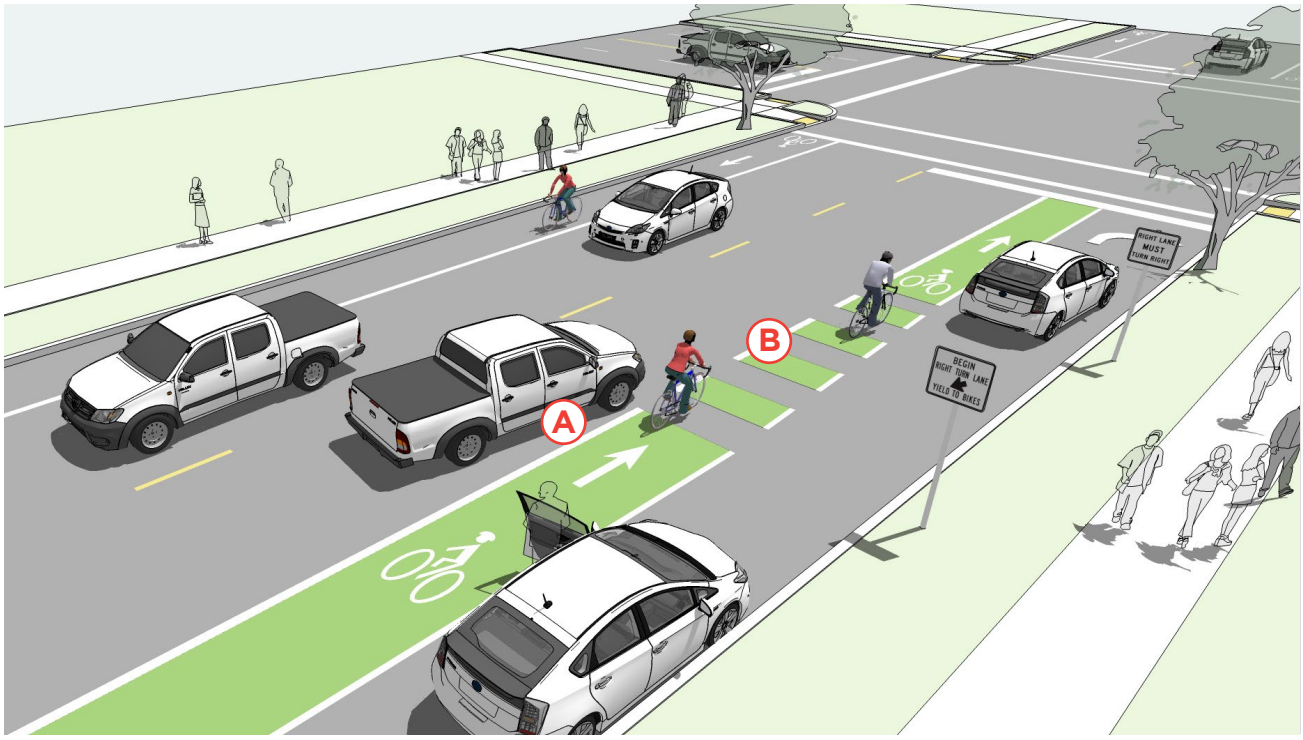
- This treatment positions bicycles together and on a green signal, all bicyclists can quickly clear the intersection, minimizing conflict and delay to transit or other traffic.
- Pedestrian also benefit from bike boxes, as they experience reduced vehicle encroachment into the crosswalk.
- Bike boxes are currently under experiment in California. Projects will be required to go through an official Request to Experiment process. This process is outlined in Section 1A.10 in the CAMUTCD, and jurisdictions must receive approval prior to implementation.

Materials and Maintenance

Bike boxes are subject to high vehicle wear, especially turning passenger vehicles, buses, and heavy trucks. As a result, bike boxes with green coloring will require more frequent replacement over time. The life of the green coloring will depend on vehicle volumes and turning movements, but Thermoplastic is generally a more durable material than paint.

COLORED PAVEMENT TREATMENT

Colored pavement within a bicycle lane may be used to increase the visibility of the bicycle facility, raise awareness of the potential to encounter bicyclists, and reinforce priority of bicyclists in conflict areas.



Typical Use

- Within a weaving or conflict area to identify the potential for bicyclist and motorist interactions and assert bicyclist priority.
- Across intersections, driveways and Stop or Yield-controlled cross-streets.
- At bike boxes and two-stage turn boxes

Design Features

(A) Typical white bike lane striping (solid or dotted 6” stripe) is used to outline the green colored pavement.

(B) In weaving or turning conflict areas, preferred striping is dashed, to match the bicycle lane line extensions.

- The colored surface should be skid resistant and retro-reflective **(MUTCD 9C.02.02).**
- In exclusive use areas, such as bike boxes, color application should be solid green.

Green colored conflict striping indicates the path of travel of people on bicycles, and alerts people intending to turn across the bike lane to yield when bicyclists are present. Pictured left: green conflict striping on Culver City Ave.

Further Considerations

- Green colored pavement shall be used in compliance with FHWA Interim Approval (FHWA IA-14.10).[13]
- While other colors have been used (red, blue, yellow), green is the recommended color in the US.
- The application of green colored pavement within bicycle lanes is an emerging practice. The guidance recommended here is based on best practices in cities around the county.

Materials and Maintenance

As intended, paint or thermoplastic are placed in locations that are trafficked by vehicles, and are subject to high vehicle wear. Colored pavement treatments will experience higher rates of wear at locations with higher turning vehicles, buses, and heavy trucks. At these locations, green coloring will require more frequent replacement over time.

The life of the green coloring will depend on vehicle volumes and turning movements, but thermoplastic is generally a more durable material than paint.

13 FHWA. Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14). 2011.

SHORT-TERM BICYCLE PARKING

People need a safe, convenient place to secure their bicycle when they reach their destination. This may be short-term parking of 2 hours or less, or long-term parking for employees, students, residents, and commuters.

Information on short- and long-term bike parking has been informed by the Association of Pedestrian and Bicycle Professionals (APBP) Bicycle Parking Guide, which is updated frequently and is available online at www.apbp.org.

Application

Bike Racks

- Bike racks provide short-term bicycle parking and are meant to accommodate visitors, customers, and others expected to depart within two hours. It should be an approved standard rack, appropriate location and placement.

Bike Corrals

- On-street bike corrals (also known as on-street bicycle parking) consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking.
- Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking.
- Each motor vehicle parking space can be replaced with approximately 6-10 bicycle parking spaces.

Design Features

Bike Racks

- When placed on sidewalks, 2 feet minimum from the curb face to avoid 'dooring.'
- 4 feet between racks to provide maneuvering room.
- Locate close to destinations; 50 feet maximum distance from main building entrance.
- Minimum clear distance of 6 feet should be provided between the bicycle rack and the property line.
- While bike racks could be installed perpendicular or parallel to the curb, it is important to ensure there is sufficient room for pedestrian traffic, even when a bike is locked to the rack.

Bike Corrals

- Bicyclists should have an entrance width from the roadway of 5-6 feet.
- Can be used with parallel or angled parking.
- Parking stalls adjacent to curb extensions are good candidates for bicycle corrals since the concrete extension serves as delimitation on one side.

Further Considerations

- Where the placement of racks on sidewalks is not possible (due to narrow sidewalk width, sidewalk obstructions, street trees, etc.), bicycle parking can be provided in the street where on-street vehicle parking is allowed in the form of on-street bicycle corrals.
- Some types of bicycle racks may meet design criteria, but are discouraged except in limited situations. This includes undulating "wave" racks, schoolyard racks, and spiral racks. These discouraged racks are illustrated on the following page.
- Bike Racks should be made of thick stainless steel to reduce the chance of thieves cutting through the racks to take bicycles. Square tubing can provide further protection from cutting, as well.
- If a bike rack is installed as surface mount, countersink bolts or expansion bolts should be used to keep the rack in place. Covering the bolts with putty or epoxy can provide additional protection.

Safety Impacts

- N/A

References

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- APBP. Bicycle Parking Guide 2015.

Inverted-U racks in Culver City.

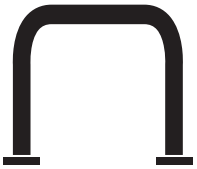
Racks with square tubing good spacing, and a concrete base in Oakland, CA.

Types of Bike Racks to Use

These racks provide two points of contact with the bicycle, accommodate varying styles of bike, allow for the frame of a bicycle and at least one wheel to be secured by most U-locks, and are intuitive to use.

POST & RING

WHEELWELL SECURE



INVERTED-U

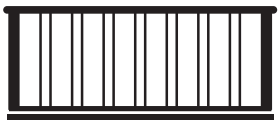
Culver City is considering purchasing branded U-racks for installation on sidewalks.

Types of Bike Racks to Avoid

These racks do not provide support at two places on the bike, can damage the wheel, do not provide an opportunity for the user to lock the frame of their bicycle easily, and are not intuitive to use. Because of performance concerns, the APBP Essentials of Bike Parking Report recommends selecting other racks instead of these.

WAVE

SPIRAL



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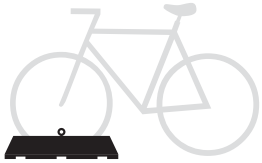


WHEELWELL

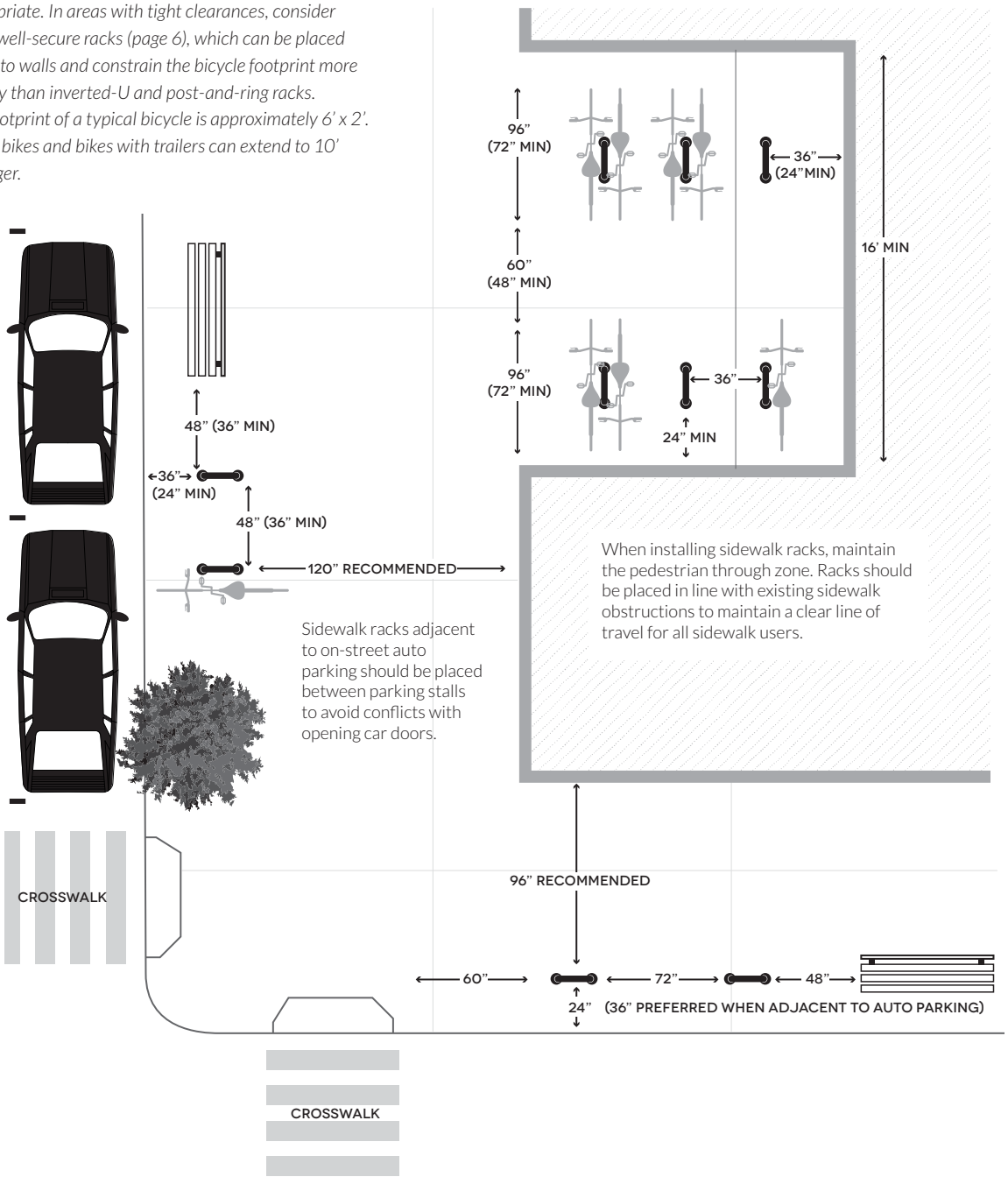
COATHANGER

BOLLARD

Graphics courtesy of Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking report (2015).

Space Requirements

The following minimum spacing requirements apply to some common installations of fixtures like inverted-U or post-and-ring racks that park one bicycle roughly centered on each side of the rack. Recommended clearances are given first, with minimums in parentheses where appropriate. In areas with tight clearances, consider wheelwell-secure racks (page 6), which can be placed closer to walls and constrain the bicycle footprint more reliably than inverted-U and post-and-ring racks. The footprint of a typical bicycle is approximately 6' x 2'. Cargo bikes and bikes with trailers can extend to 10' or longer.



LONG-TERM BICYCLE PARKING

Users of long-term parking generally place high value on security and weather protection. Long-term parking is designed to meet the needs of employees, residents, public transit users, and others with similar needs.

Information on short and long term bike parking has been obtained from the APBP Bicycle Parking Guide, which is updated frequently and is available online at www.apbp.org.

Application

- At transit stops, bike lockers or a sheltered secure enclosure may be appropriate long term solutions.
- On public or private property where secure, long-term bike parking is desired.
- Near routine destinations, such as workplaces, universities, hospitals, etc.

Design Features

Bike Lockers

- Minimum dimensions: width (opening) 2.5 feet; height 4 feet; depth 6 feet.
- 4 foot side clearance and 6 foot end clearance. 7 foot minimum distance between facing lockers.

Secure Parking Area

- Closed-circuit television monitoring or on-site staff with secure access for users.
- Double high racks & cargo bike spaces.
- Bike repair station with bench and bike tube and maintenance item vending machine.
- Bike lock “hitching post” – allows people to leave bike locks.

Further Considerations

- As the APBP Bike Parking Guide notes, increasing density of bike racks in a long-term facility without careful attention to user needs can exclude users with less-common types of bicycles which may be essential due to age, ability, or bicycle type.
- To accommodate trailers and long bikes, a portion of the racks should be on the ground and should have an additional 36” of in-line clearance.

Safety Impacts

- N/A

References

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- APBP. Bicycle Parking Guide 2015.

High Density Bike Racks

Racks may be used that increase bike parking density, like the ones below. While these types of racks provide more spaces, racks that require lifting should not be used exclusively. People with heavier bikes (i.e. cargo bikes) or people with disabilities or people who are simply small in stature may be unable to lift their bikes easily.

STAGGERED WHEELWELL-SECURE

VERTICAL

TWO-TIER

Bike Parking Rooms

Long term bike parking may be available in dedicated rooms in residential and commercial buildings. Bicycle parking can be accommodated in 15 square feet per space or less.

Bike lockers

Secured parking areas

WHERE SHOULD PARKING BE LOCATED?

Well-located bike parking will be:

- Visible to the public.
- Near primary entrances/exits, as close to the entrance as the first motor vehicle parking spot not designated for people with disabilities when possible.
- Easily accessed without dismounting a bike.
- Clear of obstructions which might limit the circulation of users and their bikes.
- In areas that are well-lit.
- Installed on a hard, stable surface that is unaffected by weather.

DRAFT BIKE PARKING REQUIREMENTS

Required Bicycle Parking – Residential Activities

Subject to the calculation rules set forth in Section _____, the following minimum amounts of bicycle parking are required for all Residential Activities and shall be developed and maintained pursuant to the provisions of Article II of this chapter:

Type of Activity	Long-term Bicycle Parking Requirement	Short-term Bicycle Parking Requirement
Permanent and Semi-Transient Residential Activities occupying the specified facilities:		
1) One-Family Dwelling	No spaces required.	No spaces required.
2) One-Family Dwelling with Secondary Unit		
3) Two-Family Dwelling		
4) Multifamily Dwelling a) With private garage for each unit b) Without private garage for each unit c) Senior Housing	No spaces required. 1 space for each 4 dwelling units. Minimum requirement is 2 spaces. 1 space for each 10 dwelling units. Minimum requirement is 2 spaces.	1 space for each 20 dwelling units. Minimum requirement is 2 spaces.
5) Rooming House	1 space for each 8 residents. Minimum requirement is 2 spaces.	No spaces required.
6) Mobile Home	1 per 20 units.	No spaces required.
7) HBX Live/Work Lofts	1 space for each 4 dwelling units. Minimum requirement is 2 spaces.	1 space for each 20 dwelling units. Minimum requirement is 2 spaces.
Residential Care, Service-Enriched Permanent, Transitional Housing, and Emergency Shelter Residential Activities occupying the specified facilities:		
8) Residential Care	1 space for each 20 employees or 1 space for each 70,000 s.f., whichever is greater. Minimum requirement is 2 spaces.	2 spaces.
9) Service-Enriched Permanent Housing		
10) Transitional Housing	1 space for each 8 residents. Minimum requirement is 2 spaces.	1 space for each 20 dwelling units. Minimum requirement is 2 spaces.
11) Emergency Shelter Residential	1 space for each 20 employees or 1 space for each 70,000 s.f., whichever is greater. Minimum requirement is 2 spaces.	1 space for each 5,000 s.f. of floor area. Minimum requirement is 2 spaces.

Required Bicycle Parking – Civic Activities

Subject to the calculation rules set forth in Section _____, the following minimum amounts of bicycle parking are required for the specified Civic Activities and shall be developed and maintained pursuant to the provisions of Article II of this chapter:

Type of Activity	Long-term Bicycle Parking Requirement	Short-term Bicycle Parking Requirement
1) Essential Service	Number of spaces to be prescribed by the Director of City Planning, pursuant to Section _____.	Number of spaces to be prescribed by the Director of City Planning, pursuant to Section _____.
2) Limited Childcare		
3) Community Assembly		
a) Churches, temples, and synagogues	1 space for each 40 fixed seats, or one space for each 4,000 s.f. of floor area, whichever is greater. Minimum requirement is 2 spaces.	1 space for each 40 fixed seats, or one space for each 2,000 s.f. of floor area, whichever is greater. Minimum requirement is 2 spaces.
b) Other	Number of spaces to be prescribed by the Director of City Planning, pursuant to Section _____.	Number of spaces to be prescribed by the Director of City Planning, pursuant to Section _____.
4) Non-Assembly Cultural	1 space for each 20 employees. Minimum requirement is 2 spaces.	Spaces for 2% of maximum expected daily attendance.
5) Administrative	1 space for each 20 employees. Minimum requirement is 2 spaces.	1 space for each 20,000 s.f. of floor area. Minimum requirement is 2 spaces.
6) Health Care	1 space for each 20 employees; or one space for each 70,000 s.f. of floor area, whichever is greater. Minimum requirement is 2 spaces.	1 space for each 40,000 s.f. of floor area. Minimum requirement is 2 spaces.
7) Special Health Care		
8) Utility and Vehicular		
a) Communications equipment installations and exchanges, electrical substations, emergency hospitals operated by a public agency, gas substations, neighborhood newscarrier distribution centers	No spaces required.	No spaces required.
b) Fire Stations and Police Stations	1 space for each 10 employees. Minimum requirement is 2 spaces	6 spaces.
c) Post offices, excluding major mail-processing centers		
d) Publicly operated off-street parking lots and garages available to the general public either without charge or on a fee basis	No spaces required.	Minimum of 6 spaces or 1 per 20 auto spaces (parking lots excepted).

Type of Activity	Long-term Bicycle Parking Requirement	Short-term Bicycle Parking Requirement
9) Community Education		
a) Public, parochial, and private day-care centers for fifteen (15) or more children	1 space for each 10 employees. Minimum requirement is 2 spaces.	1 space per each 20 students of planned capacity. Minimum requirement is 2 spaces.
b) Public, parochial, and private nursery schools, and kindergartens	1 space for each 10 employees. Minimum requirement is 2 spaces.	1 space per each 20 students of planned capacity. Minimum requirement is 2 spaces.
c) Public parochial and private elementary, junior high and high schools	1 space for each 10 employees plus 1 space for each 20 students of planned capacity. Minimum requirement is 2 spaces.	1 space per each 20 students of planned capacity. Minimum requirement is 2 spaces.
10) Extensive impact		
a) Colleges and universities	1 space for each 10 employees plus 1 space for each 10 students of planned capacity; or 1 space for each 20,000 s.f. of floor area, whichever is greater.	1 space for each 10 students of planned capacity.
b) Railroad and bus terminals	Spaces for 3.5% of projected maximum daily ridership.	Spaces for 1.5% of projected maximum daily ridership.
c) Other	Number of spaces to be prescribed by the Director of City Planning, pursuant to Section _____.	Number of spaces to be prescribed by the Director of City Planning, pursuant to Section _____.

Required Bicycle Parking – Commercial Uses

Subject to the calculation rules set forth, the following amounts of bicycle parking are required for the specified Commercial Activities and shall be developed and maintained pursuant to the provisions of Article II of this chapter:

Type of Activity	Long-term Bicycle Parking Requirement	Short-term Bicycle Parking Requirement
Retail		
1. General Food Sales	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 2,000 s.f. of floor area. Minimum requirement is 2 spaces.
2. Convenience Market	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 5,000 s.f. of floor area. Minimum requirement is 2 spaces.
3. Fast-Food Restaurant		
4. Alcoholic Beverage Sales		
5. Convenience Sales and Service		
6. Mechanical or Electronic Games		
7. General Retail Sales		
8. Large-scale combined retail and grocery sales		
9. General Personal Service		
10. Consumer Laundry and Repair Service		
11. Check Cashier and Check Cashing		
12. Retail Business Supply	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 20,000 s.f. of floor area. Minimum requirement is 2 spaces.
13. General Wholesale Sales		
14. Construction Sales and Service		
Office		
1. Consultative and Financial Service	1 space for each 10,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 20,000 s.f. of floor area. Minimum requirement is 2 spaces.
2. Administrative Commercial		
3. Business and Communication Service		
Medical		
1. Medical Service	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 5,000 s.f. of floor area. Minimum requirement is 2 spaces.
2. Animal Care		

Type of Activity	Long-term Bicycle Parking Requirement	Short-term Bicycle Parking Requirement
Auto-Related		
1. Automotive Sales, Rental, and Delivery	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 20,000 s.f. of floor area. Minimum requirement is 2 spaces.
2. Automotive Servicing	1 space for each 20 employees. Mini- mum requirement is 2 spaces.	No spaces required.
3. Automotive Repair and Cleaning		
Other Commercial		
1. Group Assembly	Number of spaces to be prescribed by the Director of City Planning pursuant to Section _____.	Number of spaces to be prescribed by the Director of City Planning pursuant to Section _____.
2. Research Service	1 space for each 10,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 40,000 s.f. of floor area. Minimum requirement is 2 spaces.
3. Transient Habitation	1 space for each 20 rentable rooms. Minimum requirement is 2 spaces.	1 space for each 20 rentable rooms. Minimum requirement is 2 spaces.
4. Automotive Fee Parking	1 space for each 20 automobile spaces. Minimum requirement is 2 spaces.	Minimum of 6 spaces or 1 per 20 auto spaces (parking lots excepted)
5. Transport and Warehousing	1 space for each 40,000 s.f. of floor area. Minimum requirement is 2 spaces.	No spaces required.
6. Undertaking Service	1 space for each 12,000 s.f. of floor area. Minimum requirement is 2 spaces.	2 spaces.
7. Scrap Operation	1 space for each 20 employees. Mini- mum requirement is 2 spaces.	No spaces required.
8. HBX Work/Live	1 space for each 4 dwelling units. Minimum requirement is 2 spaces.	1 space for each 20 dwelling units. Minimum requirement is 2 spaces.

Required Bicycle Parking – Manufacturing and Other Activities

Subject to the calculation rules set forth in Section_____, the following minimum amounts of bicycle parking are required for the specified Manufacturing, Agricultural and Extractive Activities and All Other Activities and shall be developed and maintained pursuant to the provisions of Article II of this chapter:

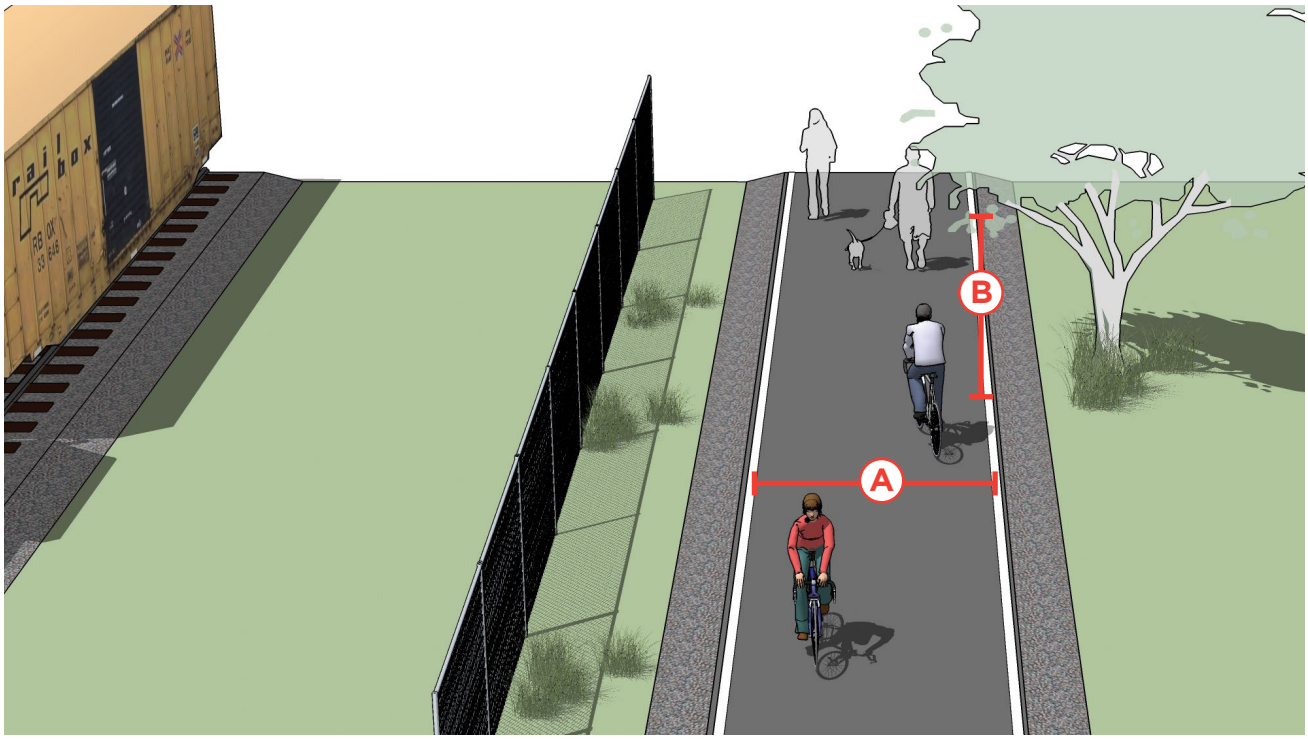
Type of Activity	Long-term Bicycle Parking Requirement	Short-term Bicycle Parking Requirement
Manufacturing and Production		
1. Custom Manufacturing	1 space for each 15,000 s.f. of floor area. Minimum requirement is 2 spaces.	No spaces required.
2. Light Manufacturing		
3. General Manufacturing		
4. Heavy Manufacturing		
5. Small Scale Transfer and Storage Hazardous Waste Management		
6. Industrial Transfer/Storage Hazardous Waste Management		
7. Residual Repositories Hazardous Waste Management		
Agricultural and Extractive		
1. Plant Nursery Agricultural	Number of spaces to be prescribed by the Director of City Planning pursuant to Section _____.	Number of spaces to be prescribed by the Director of City Planning pursuant to Section _____.
2. Crop and Animal Raising Agricultural	No spaces required.	No spaces required.
3. Mining and Quarrying Extractive		
Other Manufacturing		
1. HBX Work/Live	1 space for each 4 dwelling units. Minimum requirement is 2 spaces.	1 space for each 20 dwelling units. Minimum requirement is 2 spaces.

Section 4

Mixed Use Toolbox

SHARED USE PATH

Shared use paths are off-street facilities that can provide a desirable transportation and recreation connection for users of all skill levels who prefer separation from traffic. They often provide low-stress connections to local and regional attractions that may be difficult, or not be possible on the street network.



Typical Use

- In abandoned rail corridors (commonly referred to as Rails-to-Trails or Rail-Trails.
- In active rail corridors, trails can be built adjacent to active railroads (referred to as Rails-with-Trails.
- In utility corridors, such as powerline and sewer corridors.
- In waterway corridors, such as along canals, drainage ditches, rivers, and creeks.
- Along roadways.

Design Features

(A) 8 ft is the minimum width (with 2' ft shoulders) allowed for a two-way bicycle path and is only recommended for low traffic situations. **(Caltrans Design Manual)**

- 10 ft is recommended in most situations and will be adequate for moderate to heavy use.
- 12 ft is recommended for heavy use situations with high concentrations of multiple users. A separate track (5' minimum) can be provided for pedestrian use.

Lateral Clearance

- A 2 ft or greater shoulder on both sides of the path should be provided. An additional ft of lateral clearance (total of 3') is required by the MUTCD for the installation of signage or other furnishings.
- If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

Overhead Clearance

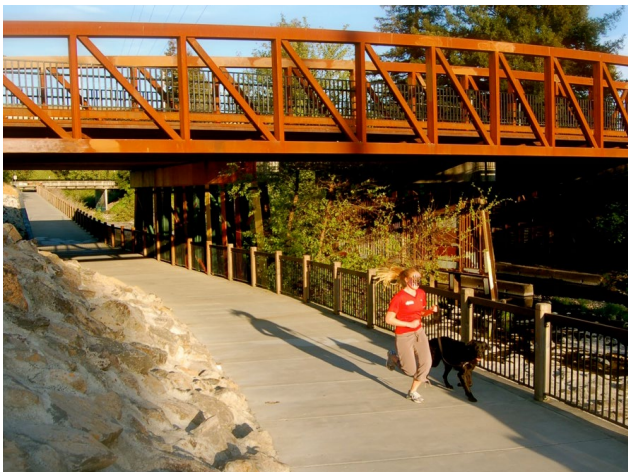
(B) Clearance to overhead obstructions should be 8 ft minimum, with 10 ft recommended.

Striping

- When striping is required, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.

Further Considerations

- The provision of a shared use path adjacent to a road is not a substitute for the provision of on-road accommodation such as paved shoulders or bike lanes, but may be considered in some locations in addition to on-road bicycle facilities.
- To reduce potential conflicts in some situations, it may be better to place one-way sidepaths on both sides of the street.
- The design of the trail should conform to Crime Prevention Through Environmental Design (CPTED) principles. CPTED is a framework that encourages intuitive visual cues to guide path users, increase the visibility of the corridor and adjacent landmarks and properties, careful design that indicates active use and upkeep, and manages conflicting uses, and regular maintenance to prevent improper or illegal uses.



Prince Memorial Greenway connects users to downtown Culver City
Source: Peter Stetson.

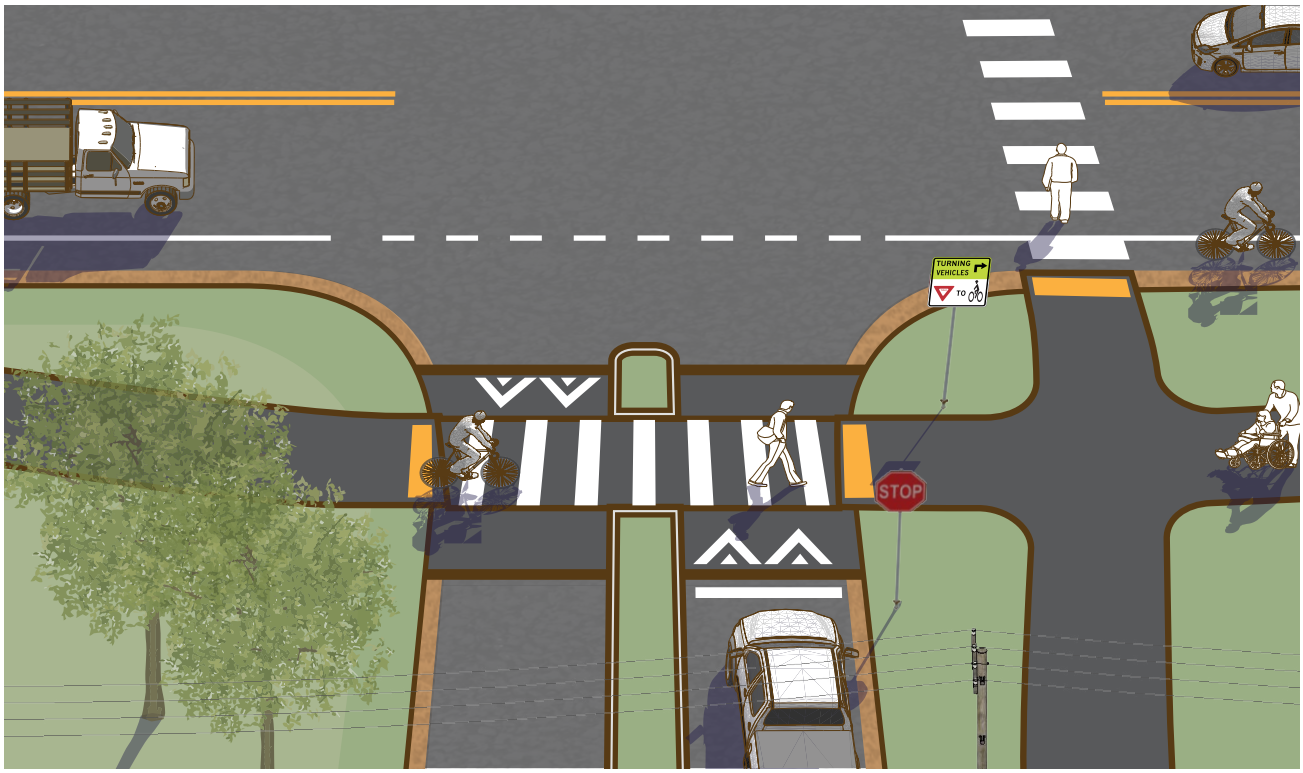
Materials and Maintenance

Shared use paths must be regularly maintained so that they are free of potholes, cracks, root lift, and debris. Signage and lighting should also be regularly maintained to ensure shared use path users feel comfortable, especially where visibility is limited.

Adjacent landscaping should be regularly pruned, to allow adequate sightlines, daylight, and pedestrian-scale lighting, and so as not to obstruct the path of travel of trail users.

SIDEPATH DESIGN

A sidepath is a bidirectional shared use path located immediately adjacent and parallel to a roadway. Sidepaths can offer a high-quality experience for users of all ages and abilities.



Typical Use

Sidepaths should be considered where one or more of the following conditions exist:

- The adjacent roadway has relatively high volume and/or high-speed motor vehicle traffic that might discourage many people bicycling from riding on the roadway to achieve the targeted low stress. Sidepaths do not preclude the installation or maintenance of existing bike lanes.
- Along corridors with few intersections with minor streets and driveways.
- To provide continuity between existing segments of shared use paths.
- For use near schools, neighborhoods, and mixed use commercial areas, where increased separation from motor vehicles is desired, and there are few roadway and driveway crossings.

Design Features

- Sidepaths shall be designed to meet transportation standards as defined by AASHTO, PROWAG, and MUTCD.
- Materials: Asphalt is the standard paving material for sidepaths.
- Minimum Width: Minimum width of a sidepath is 10'. Where user volumes are high, additional width, as well as parallel facilities such as bike lanes and sidewalk can provide needed space.
- Roadway Separation: The preferred minimum roadway separation width is 6.5 - 16.5' **(Schepers, 2011).** Absolute minimum separation width of 5' **(AASHTO Bike Guide 2012, p. 5-11).**
- Roadway Separation: Separation from roadway traffic is an essential design feature of sidepaths. Separation should increase as volumes and speed of adjacent roadway increase **(AASHTO Bike Guide 2012, p. 5-11).**

A sidepath provides a continuous path of travel along roadway corridors with few driveways or intersections. Depending on the anticipated volumes and context, the sidepath can be constructed in lieu of sidewalk and/or bike lanes. Oftentimes, anticipated volumes, mix of skills, or other factors such as route continuity will also be considered in the decision to also include bike lanes and sidewalks.

- Horizontal Clearance: A lateral clearance to landscaping, street furnishings and signs is required. MUTCD identifies minimum clearance. Signs and other street furniture should be placed outside of the minimum path width.
- Vertical Clearance: Standard clearance to overhead obstructions is 10'.
- Cross Slope and Running Slope: As sidepaths are typically located within public rights of way, their designs are governed by ADA guidelines.

Further Considerations

- Sight Lines: It is important to keep approaches to intersections and major driveways clear of obstructions due to parked vehicles, shrubs, and signs on public or private property.
- Corner radii at driveways and minor streets should be minimized to facilitate vehicle turning speeds of 10-15 mph.

Materials and Maintenance

Like shared use paths, Sidepaths must be regularly maintained so that they are free of potholes, cracks, root lift, and debris. Signage and lighting should also be regularly maintained to ensure sidepath users feel comfortable, especially in areas where visibility is limited.

Adjacent landscaping should be regularly pruned, to allow adequate sightlines along the path and at minor street crossings and driveways, allow for daylight, and pedestrian-scale lighting, and so as not to obstruct the path of travel of trail users.

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Appendix E

Opportunity Corridors

OPPORTUNITY CORRIDORS

Summary

As part of the Culver City Bicycle & Pedestrian Action Plan (BPAP), our team conducted a planning-level analysis and recommendations for three 'Opportunity Corridors' including:

1. **The Downtown Core**, defined as Culver Boulevard & Washington Avenue, between Duquesne Avenue east, following Washington Boulevard to Ince Boulevard (0.6 miles in total)
2. **Overland Avenue**, from Ballona Creek Path to Freshman Drive (0.5 miles)
3. **Farragut Drive**, from Overland Avenue to Duquesne Avenue (0.75 miles), complemented by an exploration of Jackson Avenue intersection.

A map of these three corridors is included on the following page. Note that recommended bikeways with potential alteration to existing transit operations/ facilities will be coordinated with the Transportation Department that operates Culver CityBus. The City's Public Works Department will also coordinate with other agencies with regards to the Metro, Big Blue, and LADOT Commuter Express lines.

This memorandum describes the existing traffic conditions and collision history at each of the three locations, as well as recommendations for improving the safety and convenience of people bicycling and walking.

For the Collision History, we analyzed five years of collision data (2013–2017) using the Transportation Injury Mapping System (TIMS) from UC-Berkeley. TIMS allows mapping and analysis of injury collisions collected by the Statewide Integrated Traffic Records System (SWITRS), a publicly available database of historical collision records across California managed and maintained by the California Highway Patrol. Our analysis identified 22 collisions in the study areas which involved a pedestrian or a cyclist.

Appendix A includes a detailed spreadsheet of the collisions.

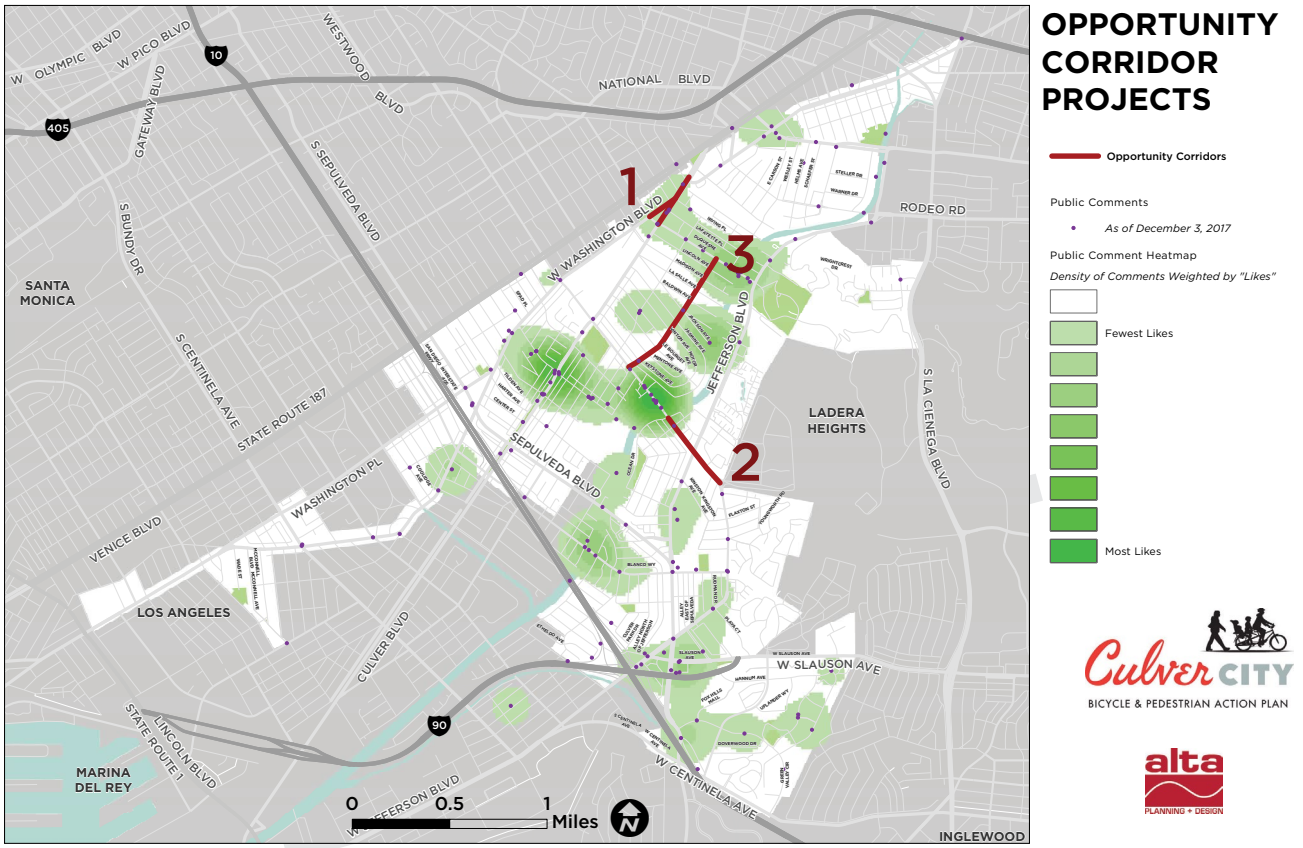
Appendix B includes photosimulations of potential project design from a user perspective.

Appendix C includes cross-sections of existing and recommended street designs.

Appendix D includes conceptual plans for the three corridors.

Downtown Core: Existing Conditions

The study area for the Downtown Core is defined as Culver Boulevard & Washington Boulevard, between Duquesne Avenue east, following Washington Boulevard to Ince Boulevard (0.6 miles in total). The section (Cross Section A) of Culver Boulevard north of Duquesne Avenue is 80' wide. Culver Boulevard increases to 93' across (Cross Section B), before running concurrently with Washington Blvd. to Ince Blvd.



October 2018

Collision History

From 2013 - 2017 there were 10 reported injury collisions involving a pedestrian or bicycle. All but one of the collisions occurred in an intersection, with two of the cases involving a vehicle making a turn. In all pedestrian cases, the Primary Collision Factor involved crosswalk right-of-ways: in two instances the pedestrians failed to yield to the vehicles already in the crosswalk, while in the other case, the driver failed to yield to the pedestrian. Injuries ranged from “complaint of pain” to a visible injury to a severe injury that involved a 19-year old male. Only one collision occurred on the weekend, and many occurred during all hours of the day.

Downtown Core: Recommendations

Note: Since this study area is not a corridor, the comments are more generalized and not presented in a directional order.

As previously proposed in the 2018 Culver City Active Transportation Plan (ATP) application, we recommend that this section

include a bidirectional Class IV bikeway from Duquesne to the extent of the project. Since the bikeway along Washington and Culver has already been discussed during the TOD Visioning Study, and formalized in the Expo to Downtown Connector Feasibility Study as well as the 2018 ATP Application, this memorandum will focus primarily on pedestrian improvements in the Downtown Core, as this is one of the areas of Culver City with the highest amount of pedestrian activity.

To increase pedestrian safety, we recommend consistent high-visibility crosswalks and Leading Pedestrian Intervals (LPI) at all intersections in the Downtown Core. Further, the City should explore opportunities to place some pedestrian signals on recall, allowing a pedestrian signal to turn on automatically, as appropriate.

In our analysis, left turns were identified as a frequent source of conflict between motorists and pedestrians. Marked crosswalks and LPI's should help increase visibility for pedestrians, reducing some of these conflicts. Additionally, further study should be determined whether or not additional restrictions on left turns or adding protected left turn arrows could reduce instance of collisions and improve safety at some intersections. The marked crosswalks at Washington Boulevard and Delmas Terrace will address the common collision pattern of left turning vehicles.

To create a more cohesive sense of place in Downtown Culver City and to remind drivers they are entering an area with high pedestrian volumes and low vehicle speeds, raised crosswalks or all-direction pedestrian phases ("pedestrian scrambles") at key intersections could be considered. A raised crosswalk is proposed at the entrance of the parking lot near Media Park to add connectivity to Downtown. Placemaking opportunities such as an archway, painted intersections, or artistic crosswalks should also be considered to create more vibrancy for pedestrians and reinforce the importance of reduced speeds in the Downtown Core.

At nearly every intersection in Downtown Culver City, the curb return radii is very large, allowing drivers to turn quickly, perhaps without seeing pedestrians. Curb extensions at many corners are recommended, and especially at the skewed intersection of Culver and Washington.

Overland Avenue: Existing Conditions

The study area is defined as Overland Avenue from Ballona Creek Path to Freshman Drive (0.5 miles). Overland Avenue is a 4-lane roadway with a painted and concrete median that divides a residential community to the south with the commercial activity on each side of Overland Avenue. At the northernmost extent, Ballona Creek, Overland Avenue is 60-feet wide, increasing to 70-feet from Ocean Drive to south of Virginia Avenue. The road then widens again to 78 feet in width with a planted median up to Jefferson

Boulevard. South of Jefferson, the road again widens 88 feet across up to Maytime Lane. The road widens to three lanes in the northbound direction with 97 feet of roadway as it approaches Freshman Drive, with a wide slip lane and multiple planted medians. (Note: Los Angeles County is the responsible agency and owner of the right-of-way for roadways within the West Los Angeles College campus. As such, any proposed projects within the County's right-of-way would require coordination with and cooperation from the County.)

Class II bike lanes were recently implemented on the road segment north of Ballona Creek and the Ballona Creek has access points on both sides of the road and crosses underneath the road. There are four signalized intersections in the study area, with few driveways and crossings on the eastern side of Overland Avenue. Most of the eastern curb face is painted red, but where parking is allowed, it is often adjacent to parcels with large on-site surface parking lots. Culver CityBus Route 3 runs along Overland Avenue with stops on both sides of the street.

In the center of this corridor, is the large intersection of Overland Avenue and Jefferson Boulevard, with a significant amount of motor vehicle traffic. A large development in the City of Los Angeles located at the intersection of Jefferson Boulevard and La Cienega Boulevard, the Cumulus project, impacts this intersection. As part of a negotiated settlement with Culver City, the Cumulus project agreed to pay for installation of a second left turn lane on the south bound approach of Overland Avenue. This second left turn lane will be installed as part of an upcoming project to repave Overland Avenue. It is also likely that the completed Culver City Bicycle & Pedestrian Action Plan will include recommendations for a bikeway on Jefferson Boulevard at this intersection, which is not reflected in the conceptual plan documents since this plan has not been adopted.

Collision History

From 2013 - 2017 there were seven reported injury collisions involving either a pedestrian or cyclist. Each incident occurred at an intersection, not mid-block. Four of the incidents occurred at Virginia Avenue, two at Ocean Avenue, and one at Jefferson Boulevard. Four involved a cyclist. Of those, three involved cyclists who were traveling on the wrong side of the road (CVC 21650). One case involved a cyclist being hit by a driver opening their door into the cyclist (CVC 22517).

For all seven collisions, injuries ranged from "complaint of pain" to severe injury. In four cases, the victims were 19-years old or younger. The victim who suffered a severe injury was an 81-year old pedestrian. All but one collision occurred weekday between the hours of 8:00 AM and 6:00 PM.

Overland Avenue: Recommendations

Note: Recommendations for this Opportunity Corridor will begin north at Ballona Creek, and continue south to Freshman Drive.

We recommend that a continuous, bidirectional Class IV bikeway be installed the length of the corridor, from the Ballona Creek path to Freshman Drive, and pending coordination with neighboring jurisdictions, northward to the all-way stop-controlled intersection of A Street. At unsignalized and driveway crossings, we recommend a dashed green paint for improved visibility for all parties. At signalized crossings, the bike traffic will include a bike-specific traffic signal in compliance with engineering standards. The project will create a bike facility that connects with the Ballona Creek Bike Path and major destinations, including West LA College.

Section A: The narrowest section of Overland Avenue in our study area is the bridge over Ballona Creek, at only 60-feet wide. With 2 lanes in each direction and no parking, there is ample room to add a bidirectional Class IV bikeway on the eastern side of the roadway with no impact to existing vehicle flow or parking. The benefit of the bi-directional Class IV bikeway on the eastern side of the roadway would allow for traffic in both directions to feed into the Ballona Creek Bike Path on-ramp. Northbound cyclists will be able to continue into the upcoming Class II bike lanes, while southbound cyclists (on the west side of the roadway) could travel down, under, and back up to connect to the proposed Class IV bikeway. Should a southbound cyclist prefer, a left turn pocket will also be available in the median.

Section B: South of the bridge, Overland Avenue and Virginia Avenue intersection had the highest amount of collisions, with 4 out of the 7 collisions occurring at this location. Given that the width of this section is 70-feet, a high-visibility crosswalk and reduced crossing distance using a curb extension would allow for safer and easier crossings for pedestrians of all abilities.

This section is the only portion of the study area that includes on-street vehicle parking. Over two blocks, approximately 300 feet of curb allow for parking of approximately 15 vehicles on the eastern side of the roadway. If a bi-directional Class IV bikeway were to be installed, these parking spots would need to be eliminated to maintain vehicle lanes. It is worth noting that all of the parking is adjacent to commercial properties with surface parking lots, which have more than 180 parking spots available.

Section C: With 78 feet of roadway from curb to curb (35 of which is east of the center median) at the approach to Jefferson, there is ample room for the bikeway, but not a floating bus island, which requires at least 8 feet in width for boarding for people

in wheelchairs. Further study should be conducted on how best to incorporate the bikeway and bus stops along this corridor, with the possibility of moving the bus stop to the south side of Jefferson Boulevard. The engineering diagram proposes moving the bus stop to the 'near side' of the intersection to improve bus performance, with a mountable bus island that is shared between cyclists and those boarding or alighting the bus.

To maintain vehicle capacity, we recommend removing approximately 200 feet of the center median south of Jefferson Boulevard. A signalized crossing of a bidirectional bikeway requires a Right Turn Only lane with a right turn arrow signal. To maintain the current number of lanes, the general traffic lanes would be shifted to the west, with the Left Turn Only lane replacing the width of median.

For pedestrians, given the width of Jefferson Boulevard, a leading pedestrian interval along with a high-visibility crosswalk would improve visibility. Removal of the slip lanes would reduce potential for high-speed turns at the intersection, reducing the chance of severe injuries or death. While it is recommended that the slip lane be closed to motor vehicles, the design could include a space for westbound cyclists on Jefferson to enter the bikeway.

Section D: South of Jefferson, Overland Avenue widens from 88 feet to 97 feet of roadway curb to curb, connecting northbound traffic into a Right Turn Only lane at Jefferson and a slip lane from Freshman Drive. The bi-directional bikeway would be about the same width as the current Right Turn Only lane, and replacing the entire slip lane with the existing planted median. At Freshman Drive, the bikeway could be continued northeasterly, replacing the existing southbound lane (west side of roadway) which is only present for the 270 feet between A Street and Overland Avenue. This additional space would provide a key connection to West LA College at the all-way stop-controlled intersection at Freshman Drive and A Street. (Note: Ownership of right of way between Culver City and City and County of Los Angeles was considered at a conceptual level, but not verified specifically.)

Summary: Overall, Overland Avenue has varying—but ample—widths and limited vehicle parking, and few driveways making it an ideal location for a bi-directional Class IV bikeway, connecting the popular destinations of Ballona Creek and West LA College. The project could be accomplished with minimal curb work and minimal negative impacts to vehicle parking or removal of travel lanes. This design should be completed in coordination with the Class II bike lanes recently implemented on Overland Avenue north of Ballona Creek.

Farragut Drive: Existing Conditions

The study area is defined as Farragut Drive from Overland Avenue to Duquesne Avenue (0.75 miles), as well as Jackson Avenue. Farragut Drive passes through a largely residential area of Culver City with on-street parking on both sides of the street.

The road is a narrow two-way residential street with no centerline marking. The 0.75-mile stretch of road contains six-intersections and only the intersections with Mentone and Duquesne include a marked crosswalk. There is a continuous sidewalk on the south side of Farragut, but the 1,000 feet between Overland Avenue and Motor Avenue is missing a sidewalk on the north side of the road. There are curb ramps (but no truncated domes) at each of the corners along the corridor.

The street is 35-feet wide from Overland Avenue to Motor Avenue. After Motor Avenue the street width decreases to 29-feet until Jasmine Avenue. As Farragut crosses Jackson, the road continues at 29-feet wide until the road ends at Duquesne Avenue, a key bike route.

Approximately halfway through the study area, there is a pedestrian connector from Jasmine to Jackson Avenue. The Farragut Connector opens to a three-way intersection with Revere Place, allowing only bicycle and pedestrian traffic to continue through the corridor. The connector currently allows bicycles to be walked across the section and has been reinforced to block motorcycles. The limited access for motor vehicles and connection to existing bike lanes on Duquesne Avenue and upcoming bike lanes on Overland Avenue make Farragut a good candidate for a bicycle boulevard that prioritizes slow-speed travel for people bicycling and walking.

Collision History

From 2013 - 2017 there were five reported injury collisions involving a cyclist and a vehicle. In three cases, the collision occurred when the cyclist attempted to make a turn. Four out of the five collisions involved cyclists who were traveling on the wrong side of the road. In the other collision, the cyclist was cited for improper passing of a vehicle.

Injuries ranged from “complaint of pain” to a visible injury. There were no Killed or Severely Injured (KSI) collisions. Two cases involved victims who were minors. All collisions occurred between the hours of 8:00 AM and 5:00 PM, with only one occurring on the weekend.

Farragut Drive: Recommendations

Note: Recommendations for this Opportunity Corridor will begin west at Overland Avenue, and continue east to Duquesne Avenue.

Based on the collision history, this area would benefit with formalized bicycle markings to reinforce proper directional riding and to remind drivers that there is a high likelihood that bicyclists may be present. The conventional option for a bicycle boulevard are signage and

sharrows, perhaps with enhanced markings indicating the street is a 'Bike Boulevard.' The exact design of shared lane markings may vary -- the photosimulation shows a 'Bike Boulevard' stencil, commonly found in Berkeley, California. The engineering drawings show standard 'Sharrows' and speed humps.

A curb extension at the entrance of Farragut Drive from Overland Avenue along with a high visibility crosswalk would further reinforce that drivers are entering a pedestrian-friendly neighborhood street, and discourage speeding. Throughout the corridor, we recommend speed humps with small cut-out slots, to allow bicyclists to stay at street level and marked crosswalks at stop-controlled intersections.

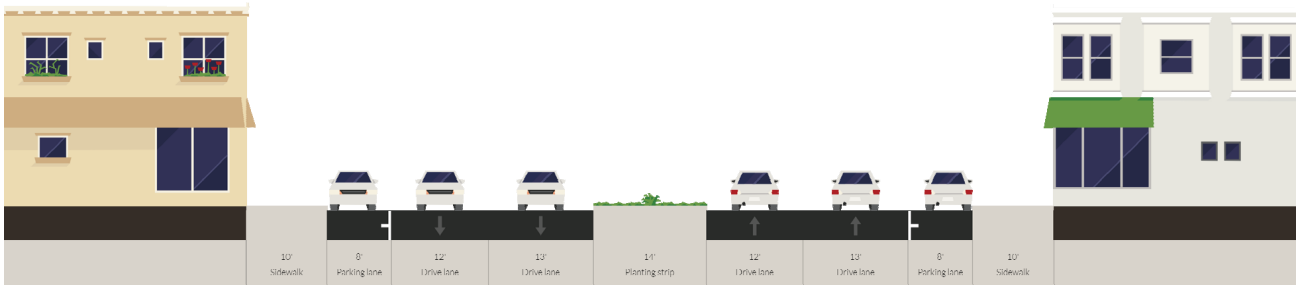
At the Farragut Connector, additional signage and lighting could make it a more appealing to cyclists. Ramps on both sides can provide access for bicycle traffic to continue through without dismounting. Other improvements to increase visibility through the connector could bring about more awareness of the connection and improve people's perceptions of safety.

Given the anticipated increase use of the Farragut Connector with these enhancements and designation as a bicycle boulevard, the intersection of Jackson, Revere, and Farragut should be improved to allow for more cohesive traffic flow for all modes. The diverging intersection multiple skewed intersections poses a challenge for creating a safe crossing for eastbound cyclists leaving the connector. The current design is also insufficient for pedestrian traffic, as there is no marked crosswalks and only two of the seven crossing locations have ramps. After careful study, a new traffic pattern with markings and a mini-roundabout was designed to maintain vehicular access in all directions while significantly reducing the potential conflict points for all modes.

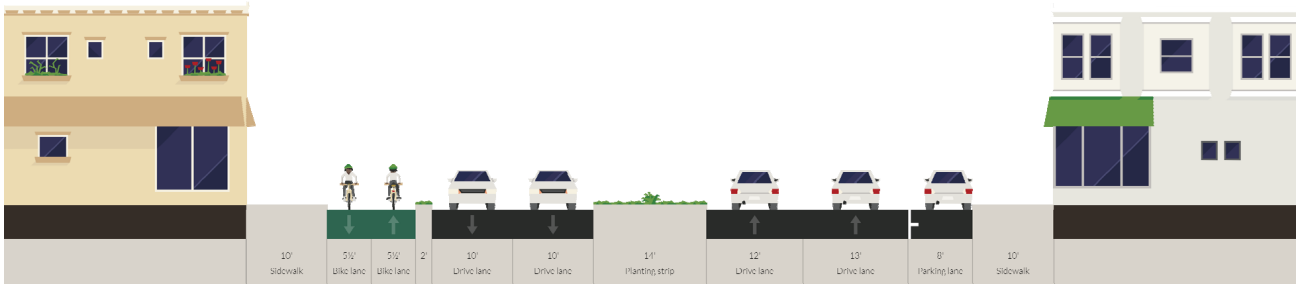
Table 14 - Culver City Opportunity Corridor Collision Summary (2013-2017)

Date	Time	Severity	Killed	Injured	Pedestrian	Bike	DUI	Primary Road	Secondary Road	Distance From Intersection	PCF Violation	CHP Case ID
The Downtown Core												
8/11/2012	1250	3	0	1	Y			CULVER BL	DUQUESNE AV	0	21950	5793165
10/5/2012	1640	4	0	1		Y		WASHINGTON BL	HUGHES AV	0	21453	5890363
5/16/2013	2014	4	0	1		Y		WASHINGTON BL	DELMAS TER	0	21650	6339667
08/14/2013	1442	3	0	1		Y		WATSEKA AV	WASHINGTON BL	425	22517	6242159
8/22/2013	1301	3	0	1		Y	Y	DUQUESNE AV	CULVER BL	5	21650	6272466
1/19/2014	1732	2	0	1	Y			CULVER BL	CARDIFF AV	72	21456	6413812
04/23/2014	0900	3	0	1		Y		WASHINGTON BL	DELMAS TER	0	21650	6537506
9/16/2014	904	3	0	1	Y			DUQUESNE AV	CULVER BL	14	21456	6691004
11/18/2014	1750	4	0	1	Y			WASHINGTON BL	DELMAS TER	0	1	6813243
1/29/2016	1326	4	0	1	Y			WASHINGTON BL	INCE BL	0	21650	8003290
Overland Avenue Corridor												
2/16/2012	1755	4	0	1		Y		OVERLAND DR	VIRGINIA AV	120	22517	5518431
8/26/2012	1526	3	0	1		Y		OVERLAND AV	VIRGINIA AV	0	21650	5793141
10/15/2013	1252	4	0	1		Y		VIRGINIA AV	OVERLAND AV	9	21650	6355183
11/17/2014	810	4	0	1	Y			OVERLAND AV	JEFFERSON BL	0	21456	6813259
10/2/2015	1340	2	0	1	Y			VIRGINIA AV	OVERLAND AV	0	21950	7135479
11/19/2015	1132	4	0	1		Y		OCEAN DR	OVERLAND AV	21	21650	7167880
9/9/2016	755	4	0	1		Y		OCEAN DR	OVERLAND AV	3	21650	8139150
Farragut Drive Corridor												
2/16/2014	1649	4	0	1		Y		FARRAGUT DR	JASMINE AV	131	21750	6440652
2/2/2015	1759	3	0	1		Y		OVERLAND AV	FARRAGUT DR	0	21650	6881118
3/17/2015	1229	3	0	1		Y		BRADDOCK DR	JACKSON AV	0	21650	6951548
5/12/2016	1056	3	0	1		Y		FARRAGUT DR	MENTONE AV	100	21650	8064377
6/23/2016	1306	4	0	1		Y		FARRAGUT DR	OVERLAND AV	2	21650	8092048

Culver Blvd Section A (80') - Existing

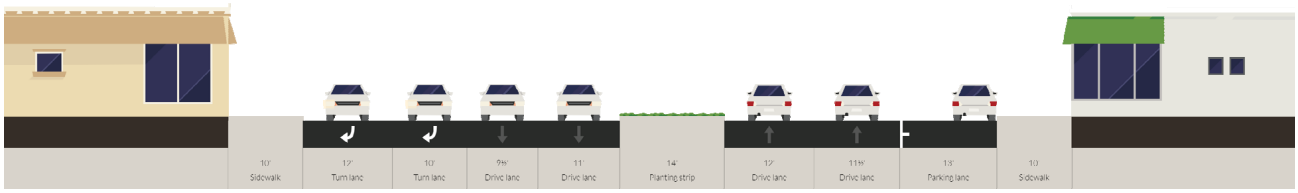


Culver Blvd. Section A (80') - Recommendation

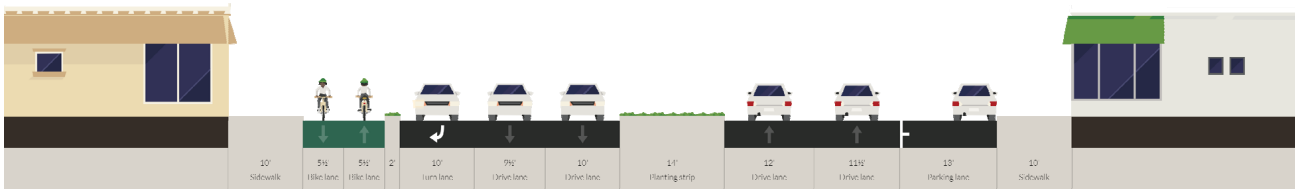


Appendix C: Cross Sections of Streets

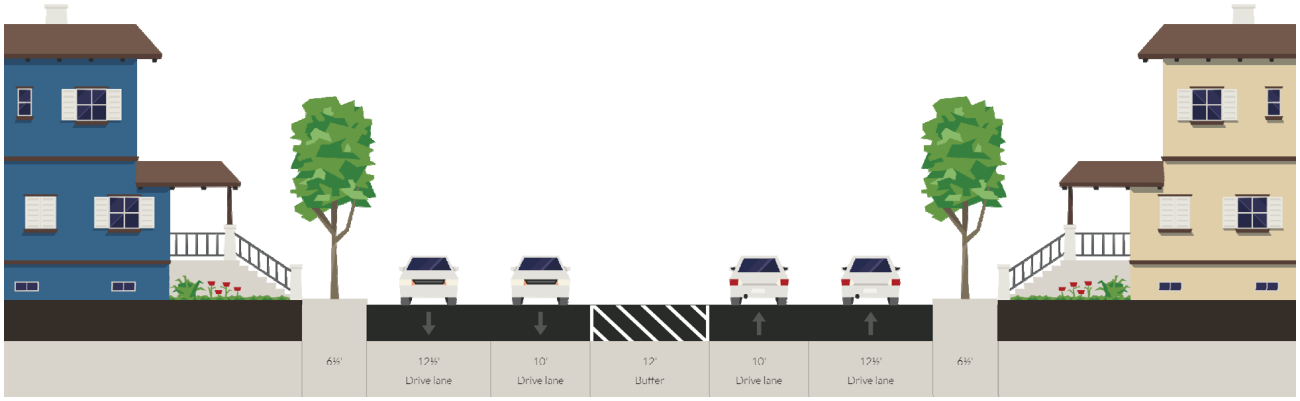
Culver Blvd. Section B (93') - Existing



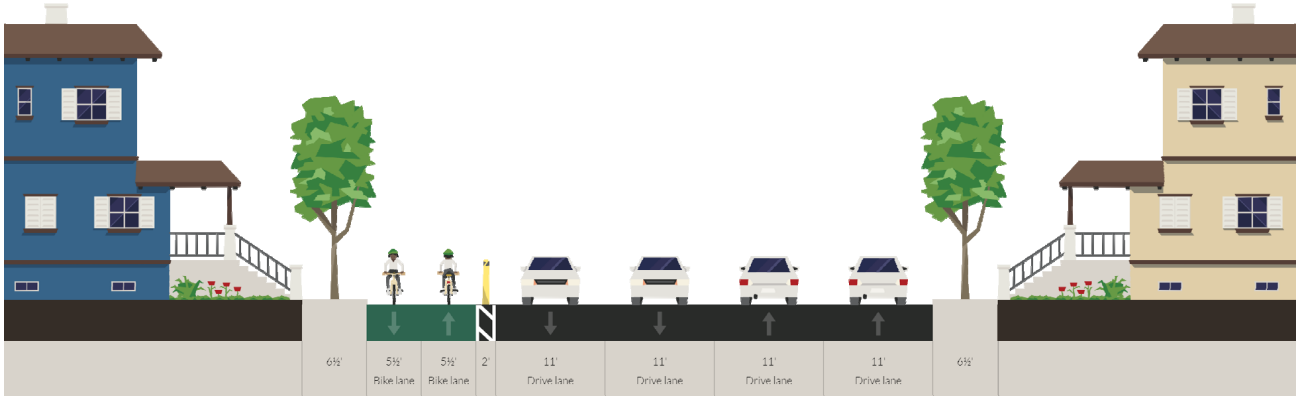
Culver Blvd. Section B (93') - Recommendation



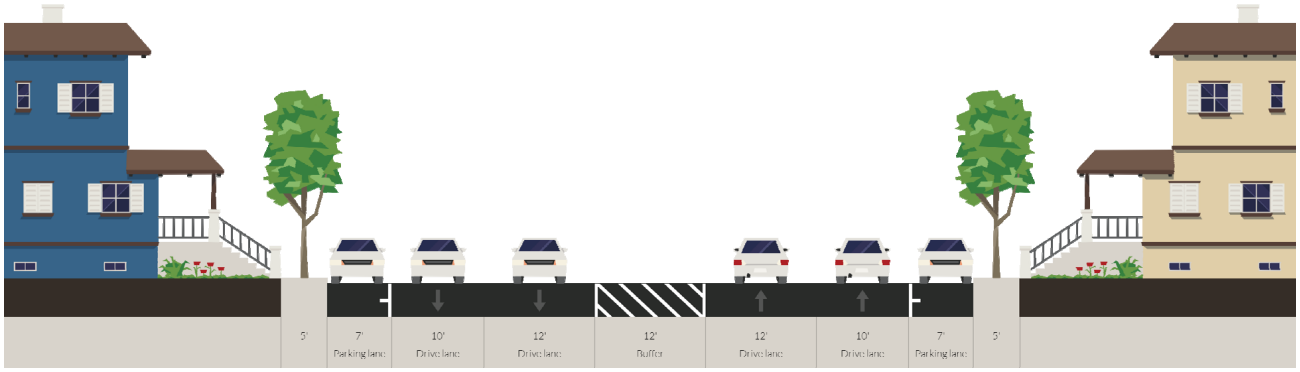
Overland Section A (60') – Existing



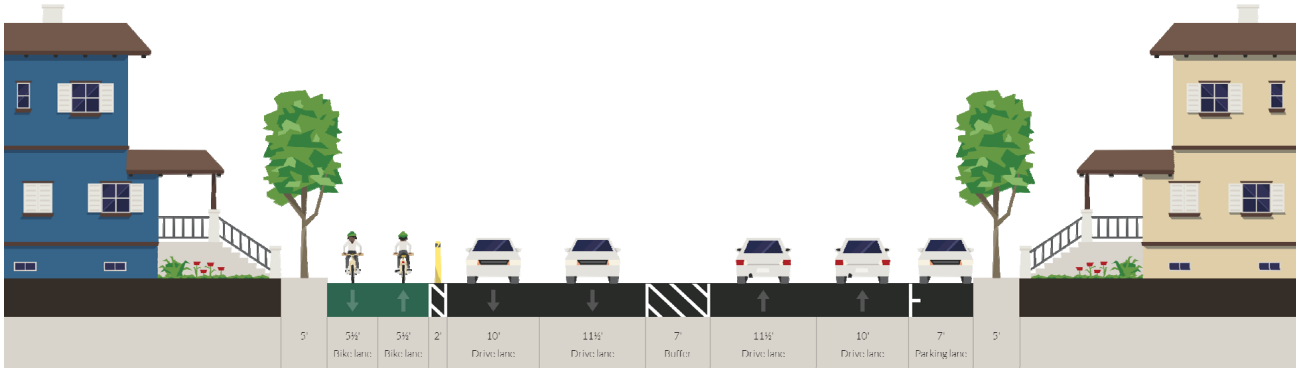
Overland Section A (60') – Recommendation



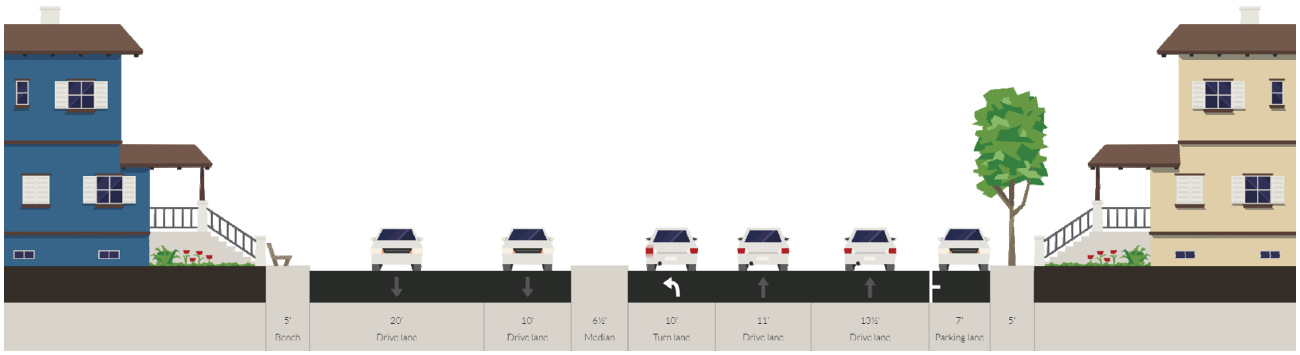
Overland Section B (70') – Existing



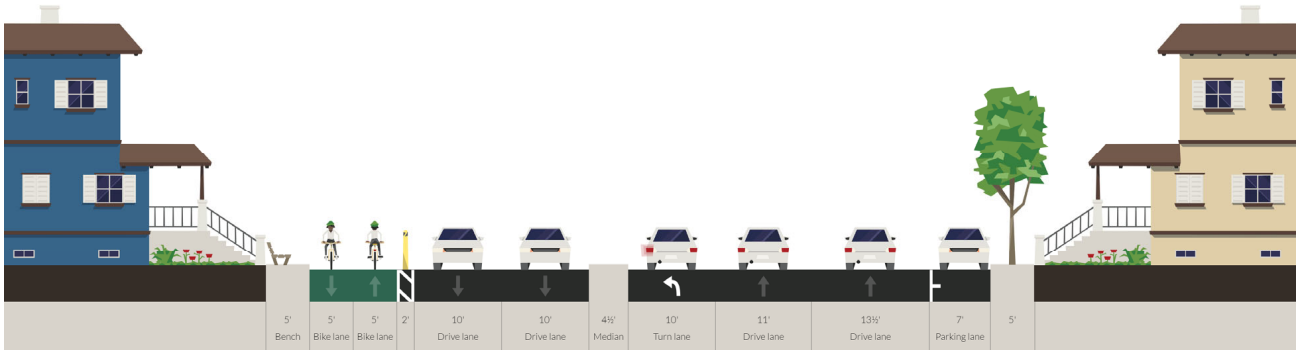
Overland Section B (70') – Recommendation



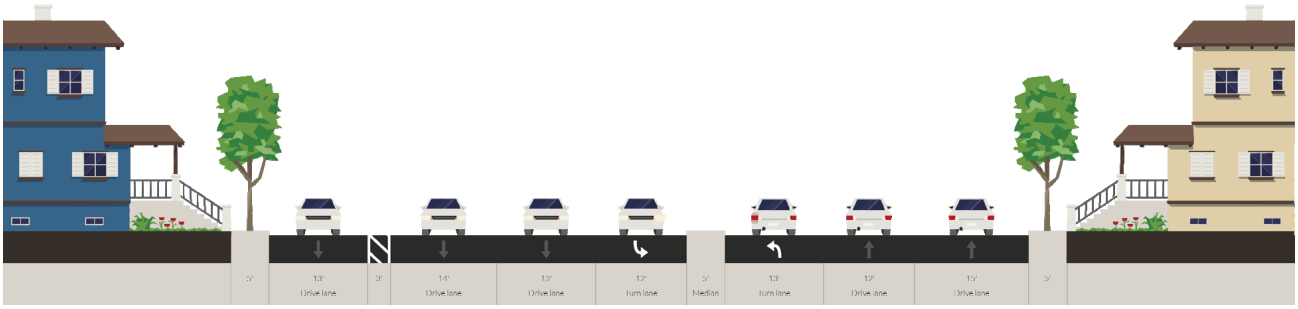
Overland Section C (78') - Existing



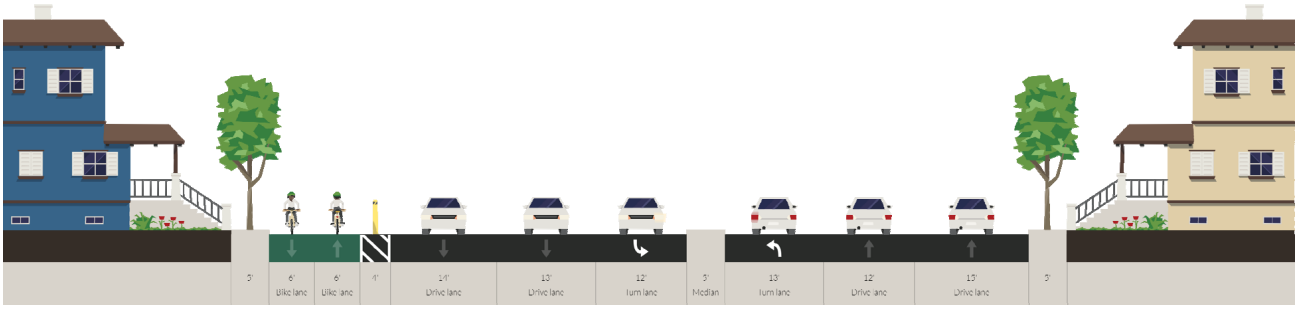
Overland Section C (78') - Recommendation



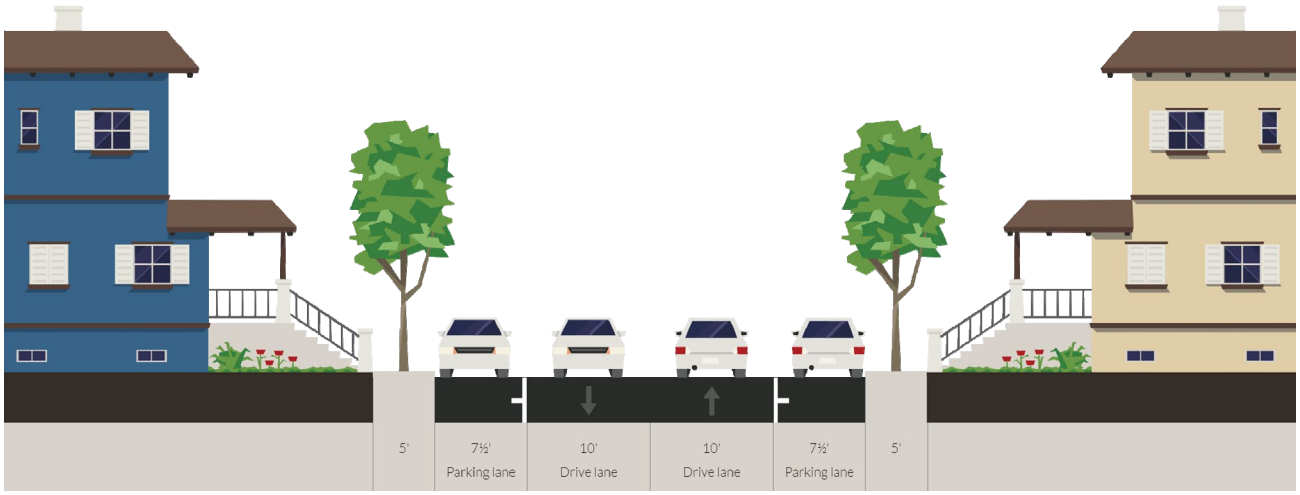
Overland Section D (100') – Existing



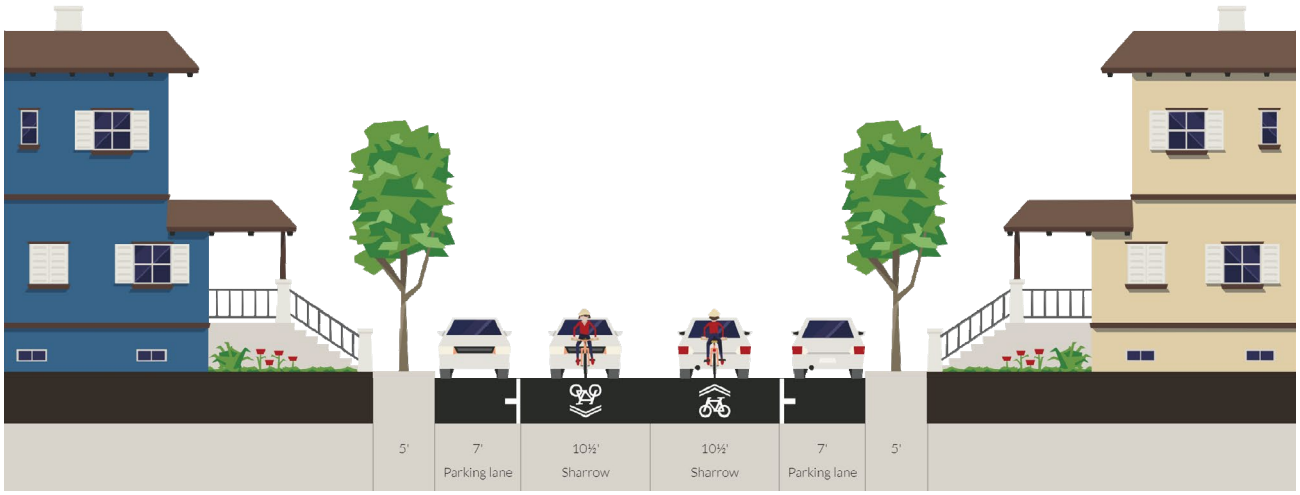
Overland Section D (100') – Recommendation



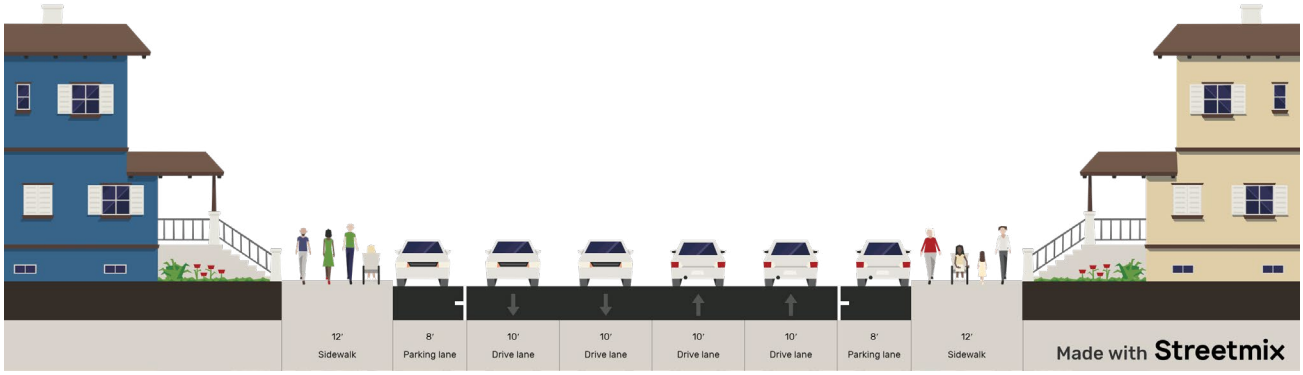
Farragut Section A (35') – Existing



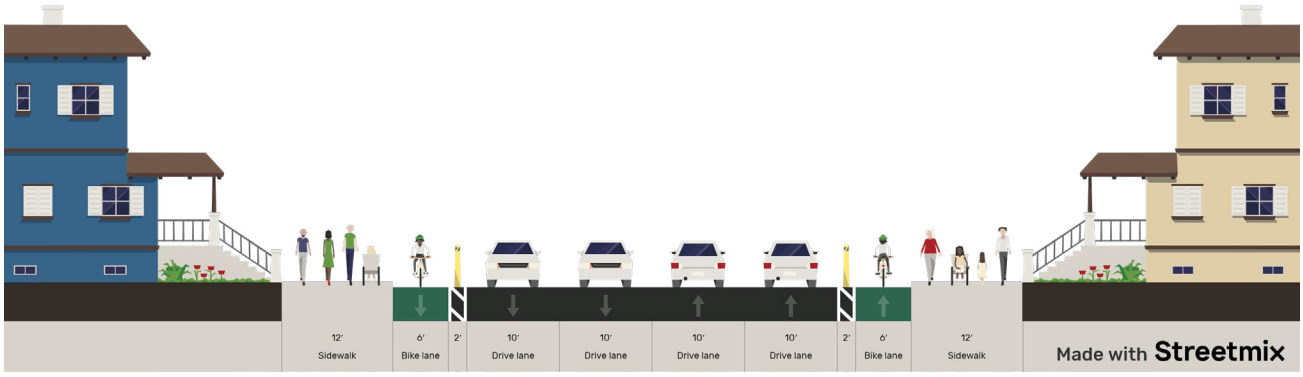
Farragut Section A (35') – Option A

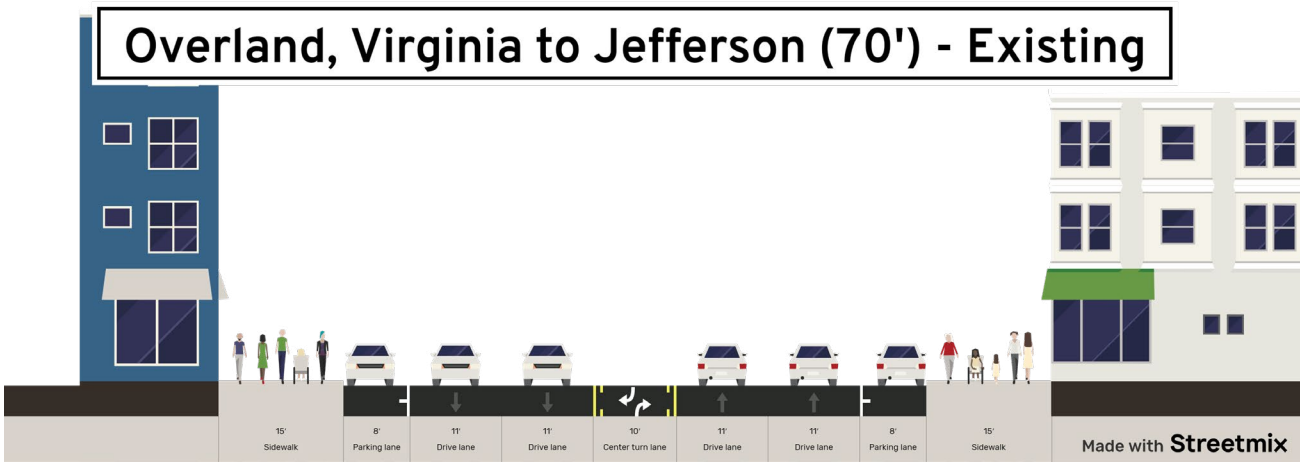


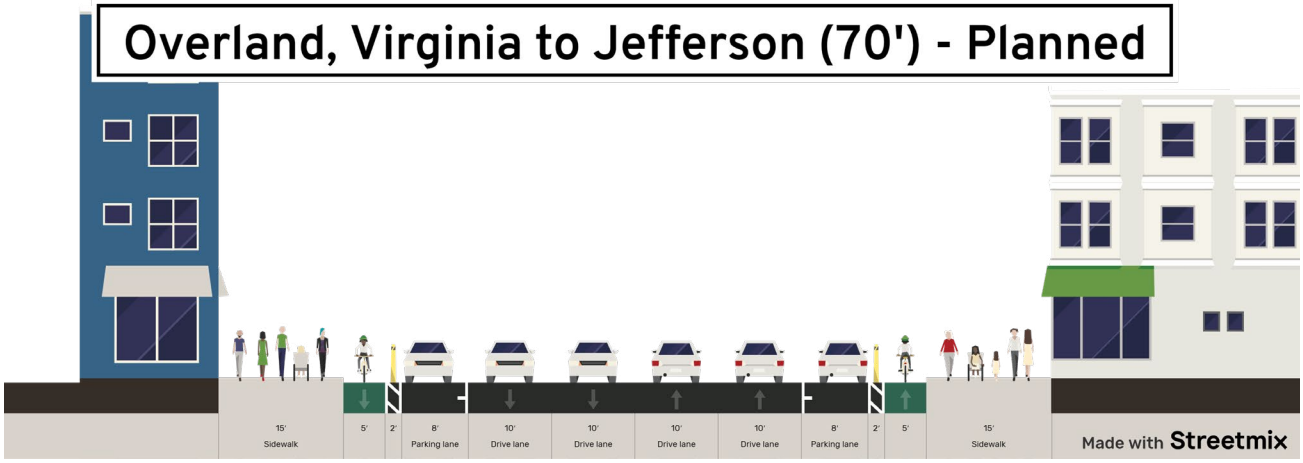
Overland, Freshman to Playa (56') - Existing



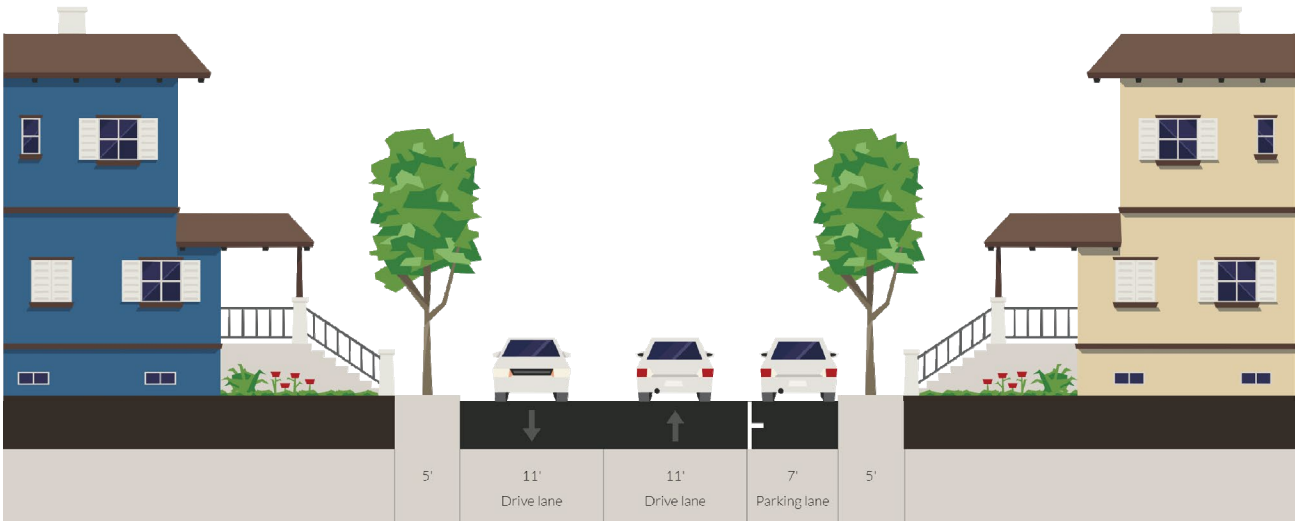
Overland, Freshman to Playa (56') - Planned



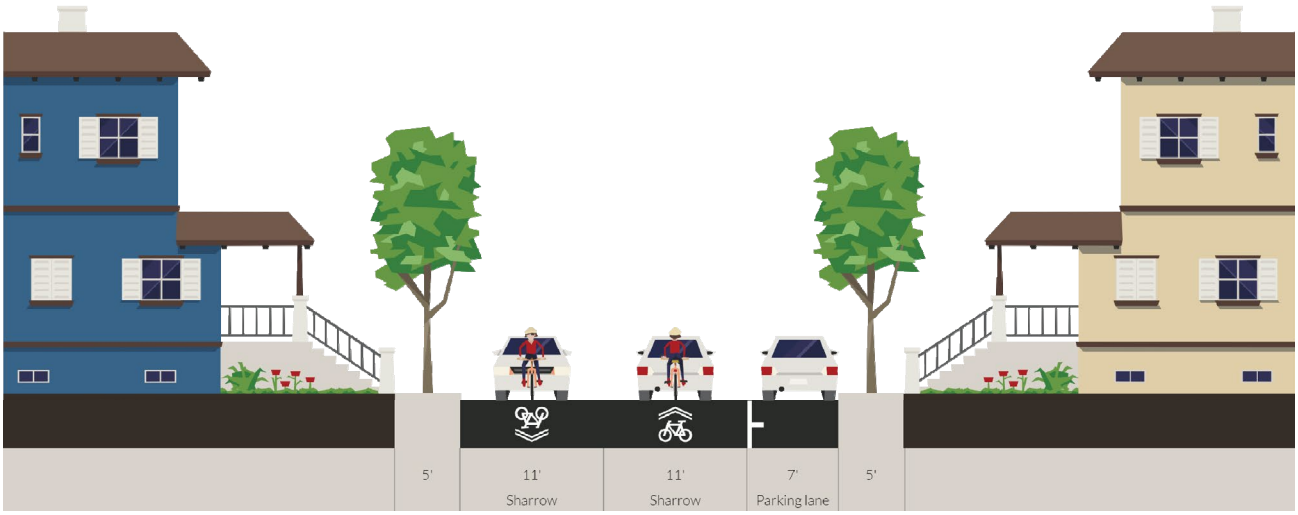

Overland, Virginia to Jefferson (70') - Existing
15' Sidewalk
8' Parking lane
11' Drive lane
11' Drive lane
10' Center turn lane
11' Drive lane
11' Drive lane
8' Parking lane
15' Sidewalk
Made with Streetmix

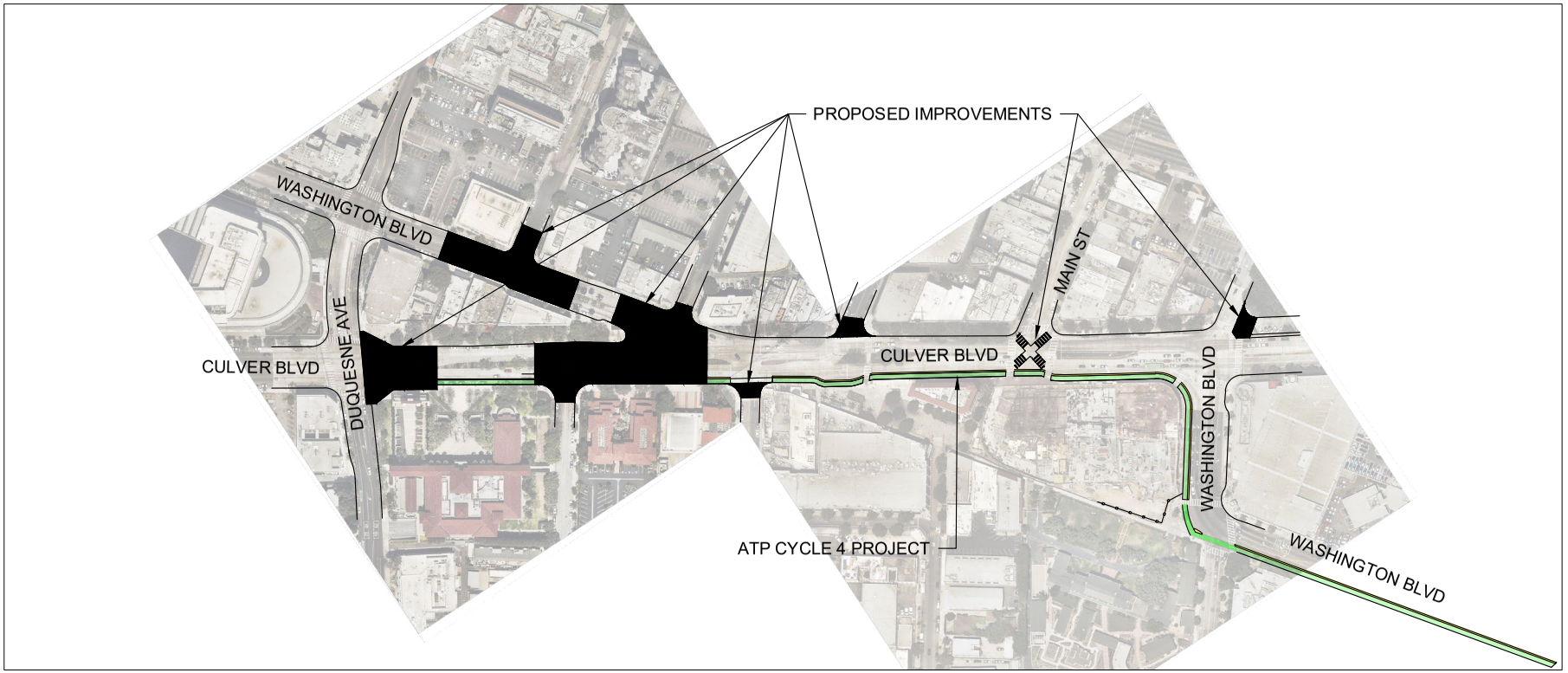

Overland, Virginia to Jefferson (70') - Planned
15' Sidewalk
5'
2'
8' Parking lane
10' Drive lane
10' Drive lane
10' Drive lane
10' Drive lane
8' Parking lane
2'
5'
15' Sidewalk
Made with Streetmix

Farragut Section B (29') – Existing



Farragut Section B (29') – Option A





GENERAL NOTES:

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2. CONFLICTING STRIPING TO BE REMOVED, NON-CONFLICTING STRIPING TO BE REFRESHED.

CONCEPTUAL
NOT FOR CONSTRUCTION

Culver City Opportunity Corridors

Culver City, CA

SHEET 1 OF 25

Scale: 1" = 200'
0 100 200
October, 2018

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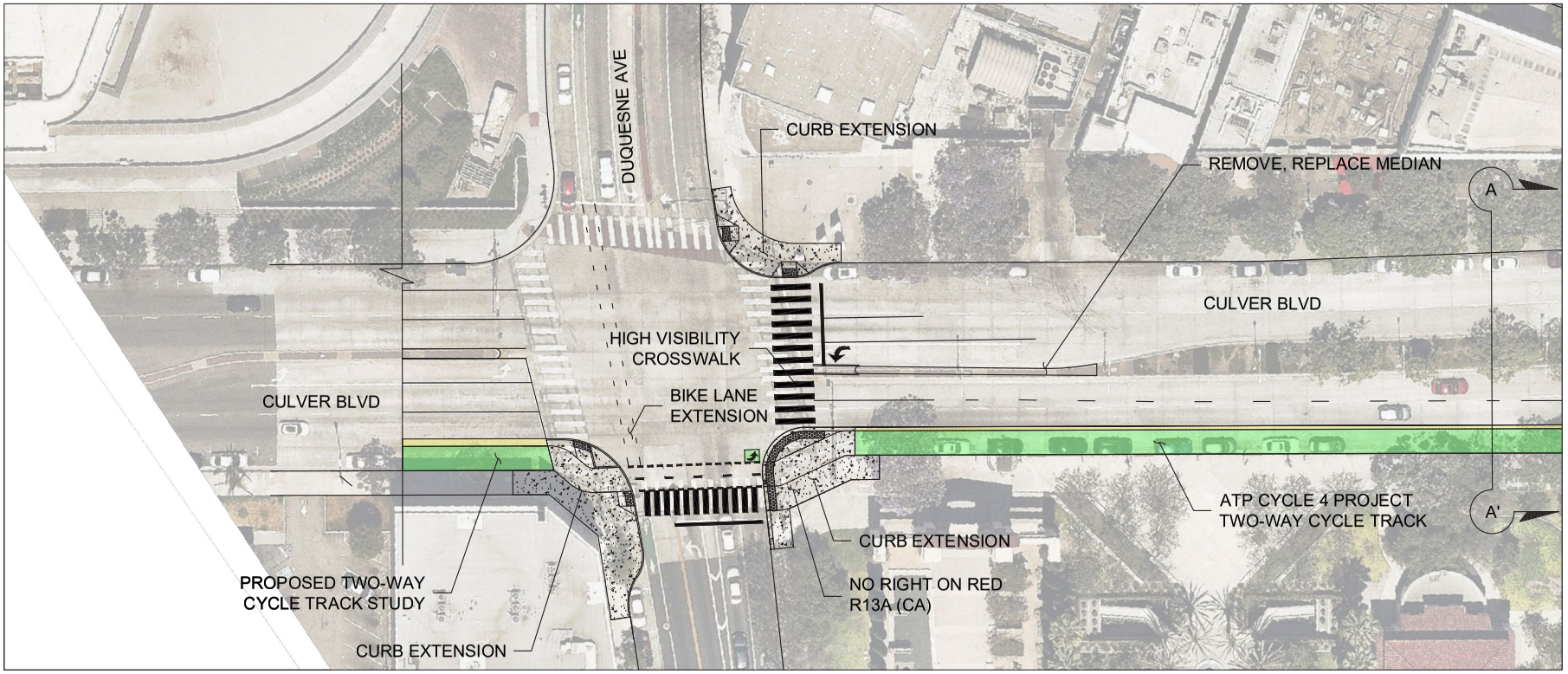

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Culver City Opportunity Corridors

Culver City, CA

SHEET 2 OF 25

Scale: 1" = 40'
0 20 40

October, 2018

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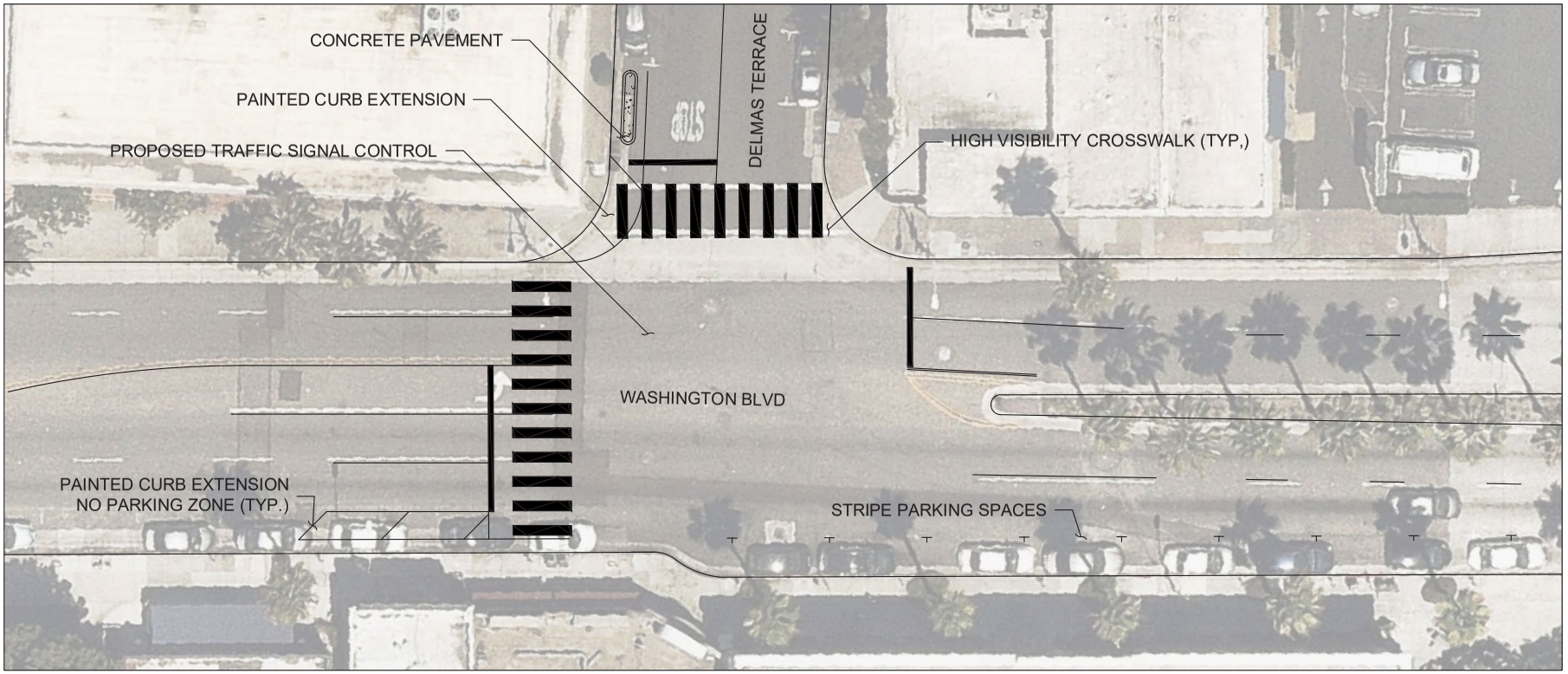

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Culver City Opportunity Corridors

Culver City, CA

SHEET 3 OF 25

Scale: 1" = 20'
0 10 20

October, 2018

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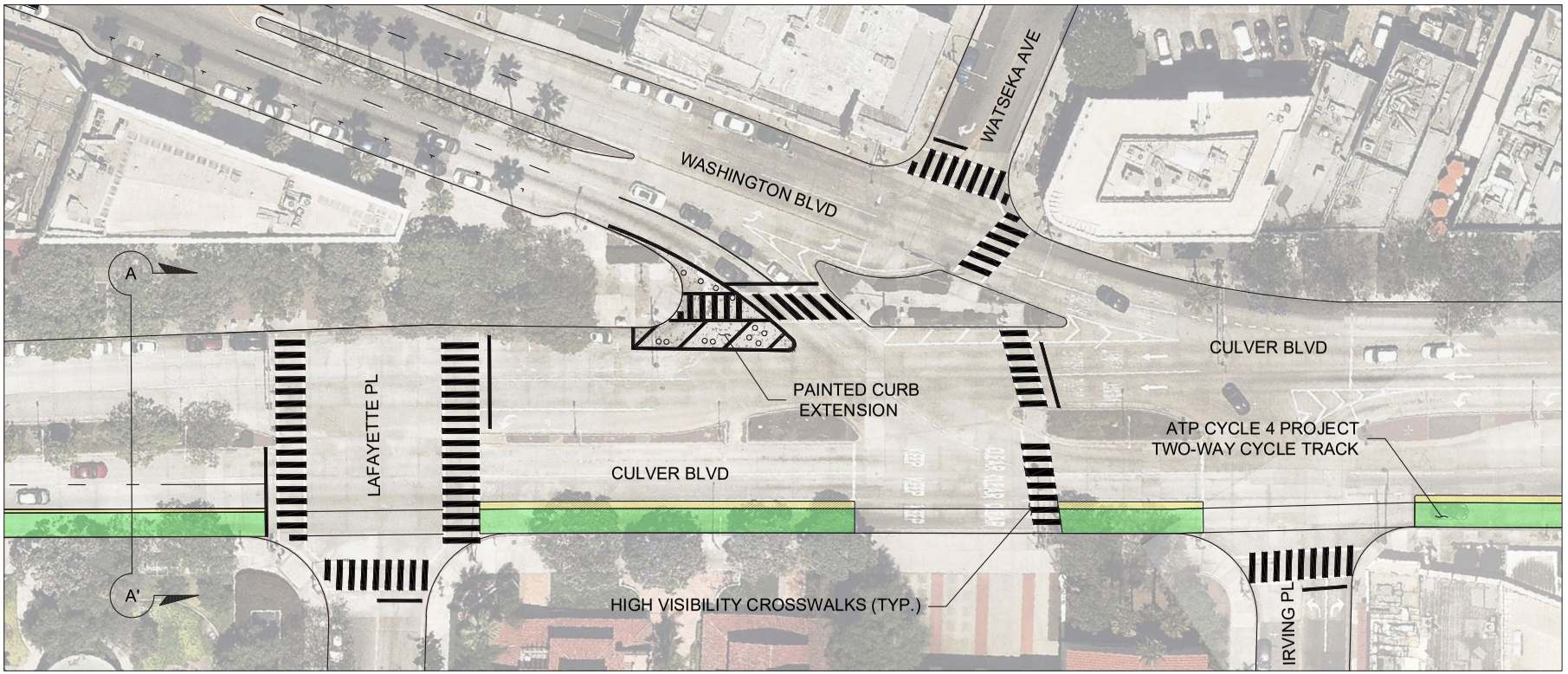

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CONCEPTUAL NOT FOR CONSTRUCTION

Culver City Opportunity Corridors

Culver City, CA

SHEET 4 OF 25

Scale: 1" = 40'
0 20 40

October, 2018

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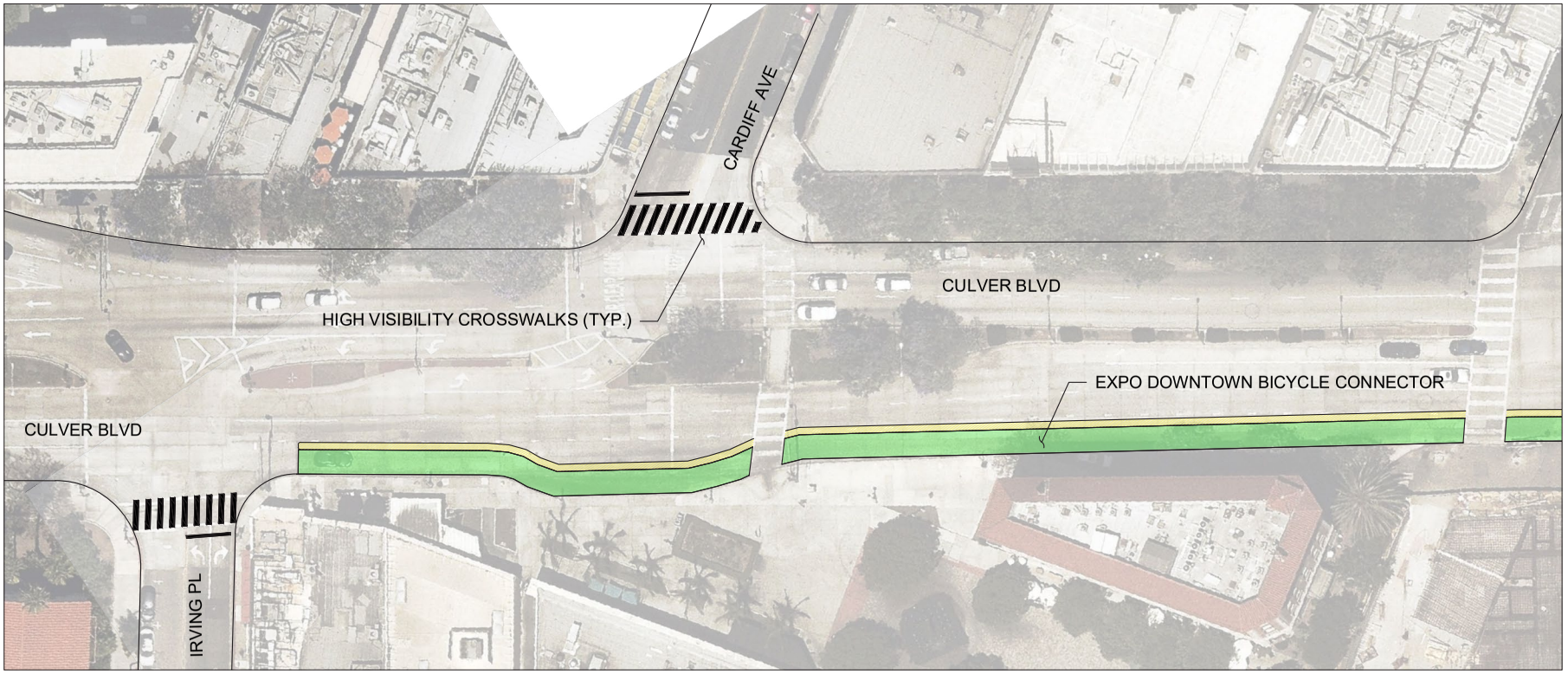

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CONCEPTUAL
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Culver City Opportunity Corridors

Culver City, CA

SHEET 4 OF 23

Scale: 1" = 40'
0 20 40

October, 2018

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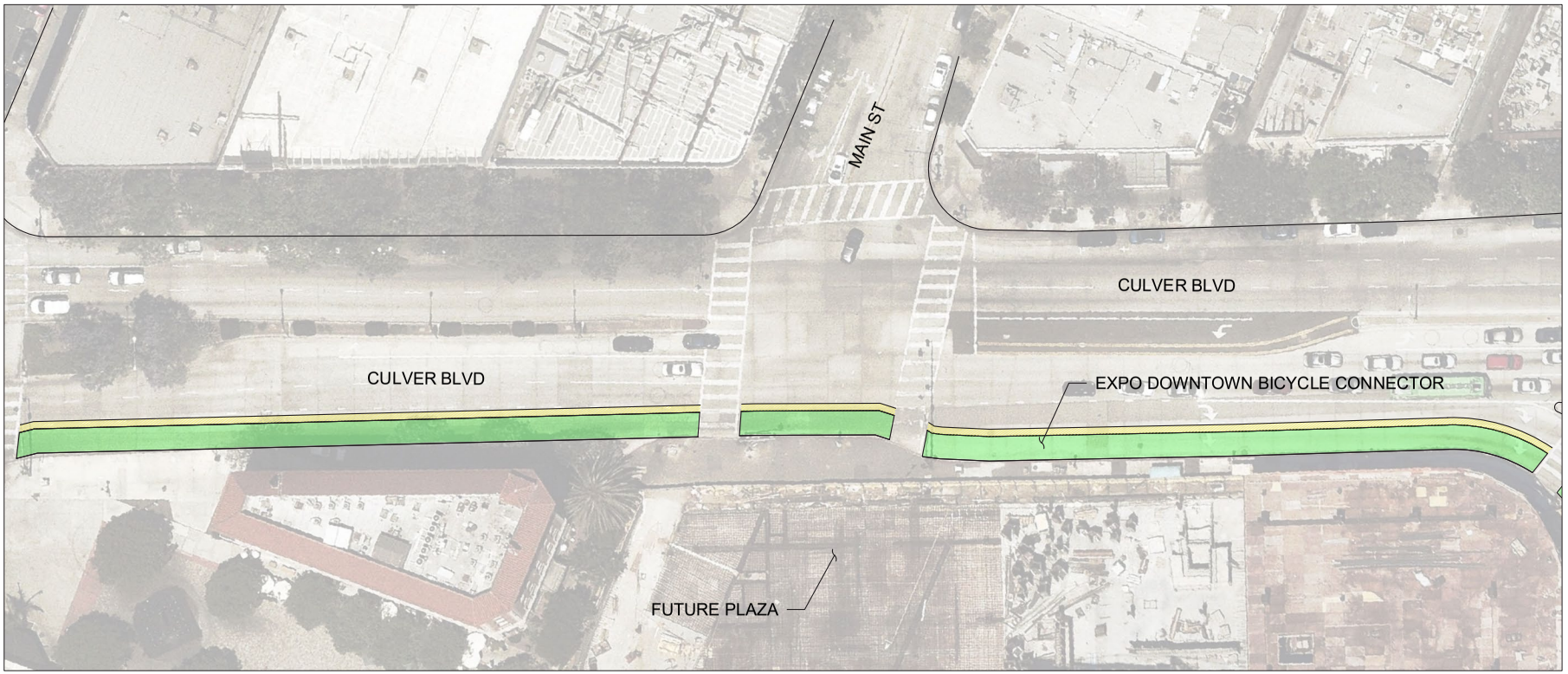

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Culver City Opportunity Corridors

Culver City, CA

SHEET 5 OF 23

Scale: 1" = 40'
0 20 40

October, 2018

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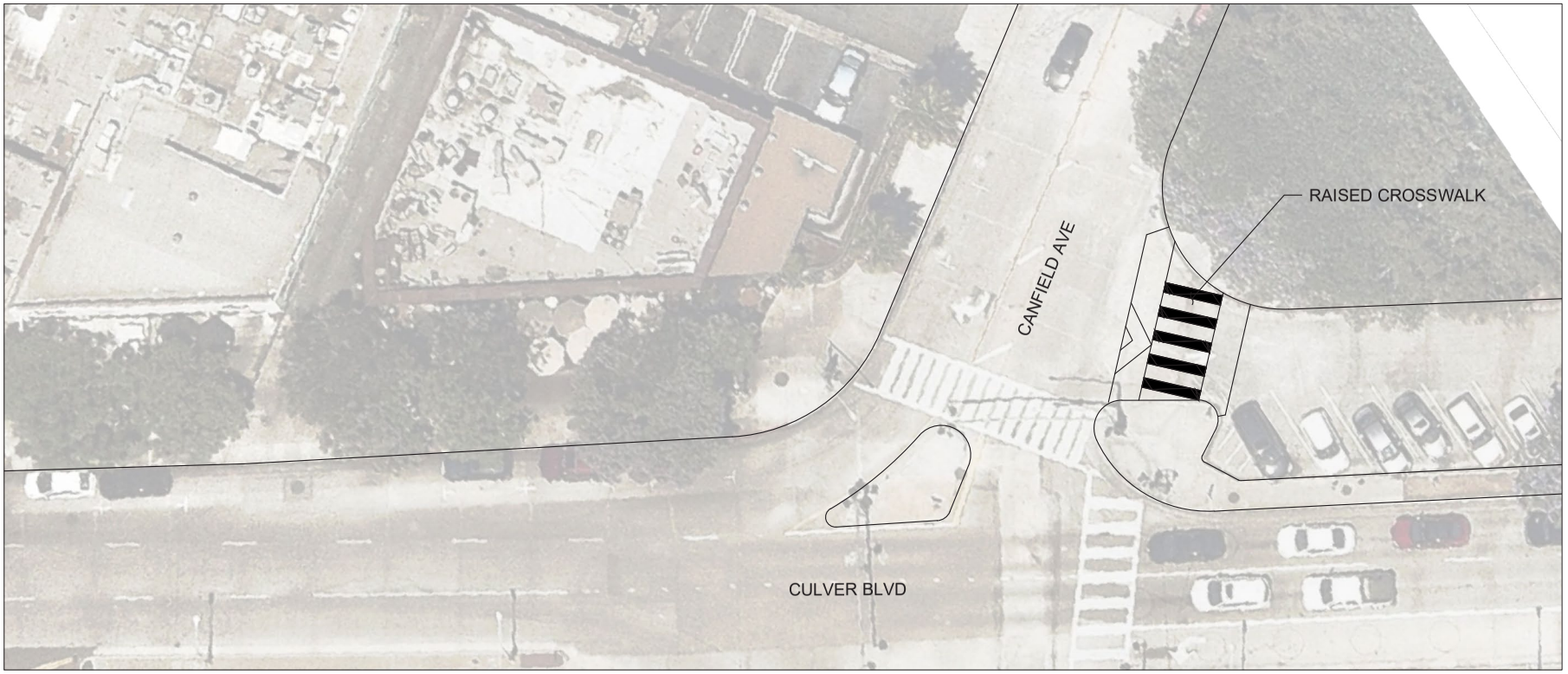

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Culver City Opportunity Corridors

Culver City, CA

SHEET 7 OF 25

Scale: 1" = 20'
0 10 20

October, 2018

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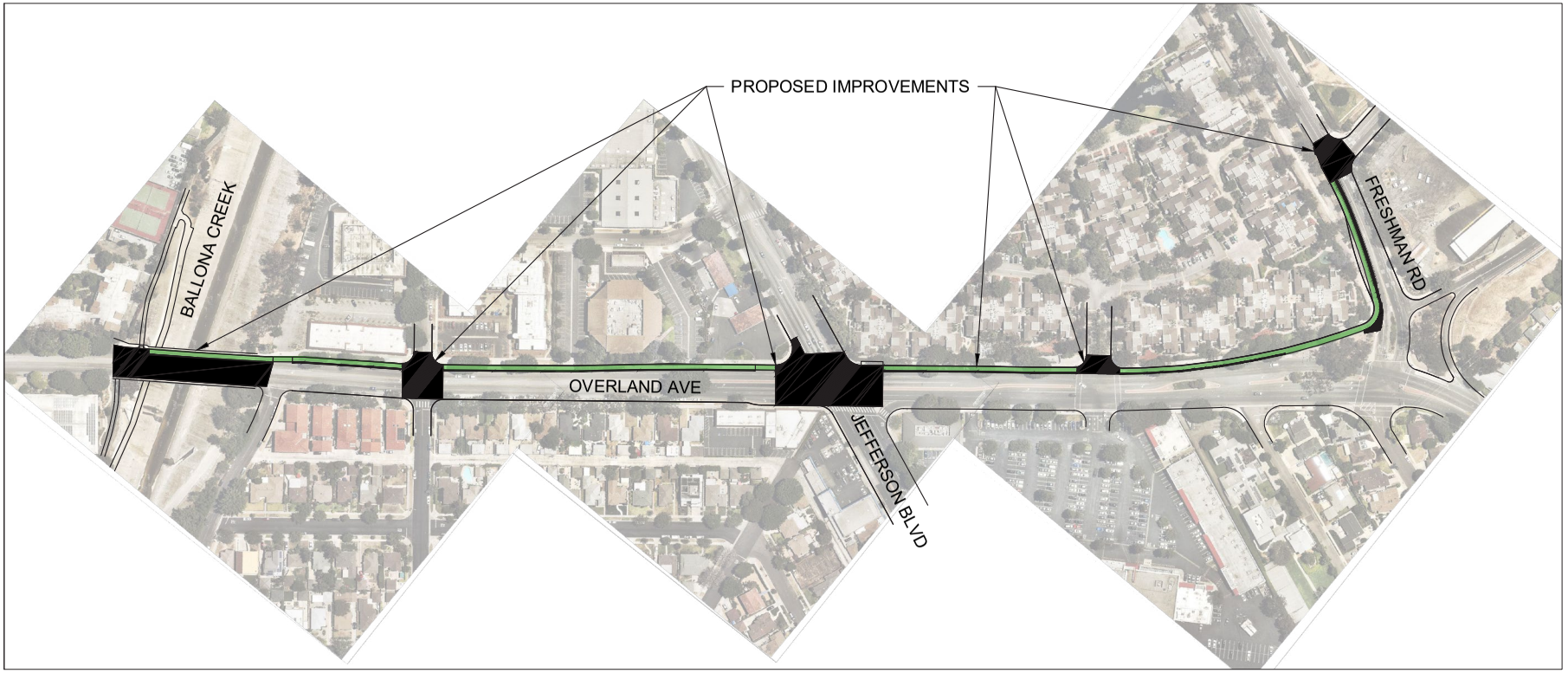

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Culver City Opportunity Corridors

Culver City, CA

SHEET 8 OF 25

Scale: 1" = 200'
0 100 200

October, 2018

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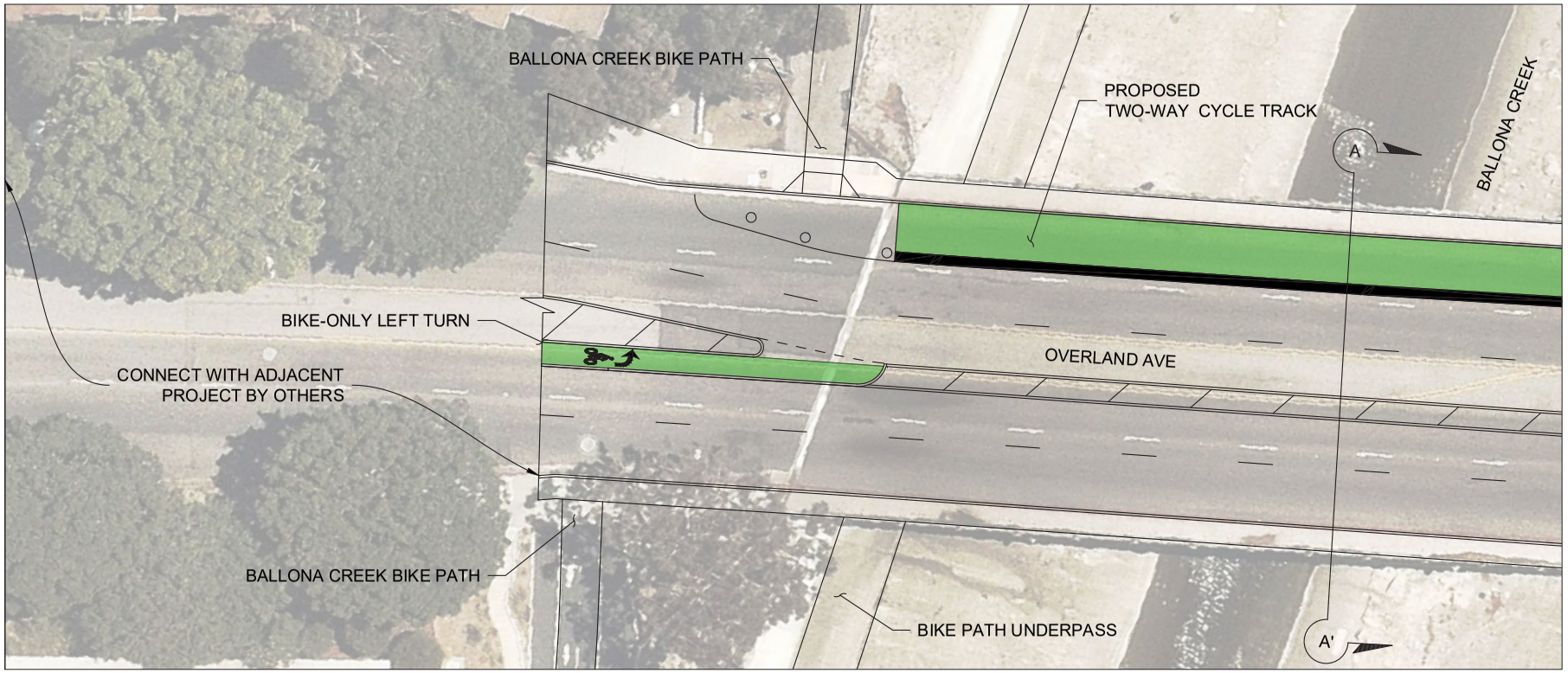

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Culver City Opportunity Corridors

Culver City, CA

SHEET 9 OF 25

Scale: 1" = 20'
0 10 20

October, 2018

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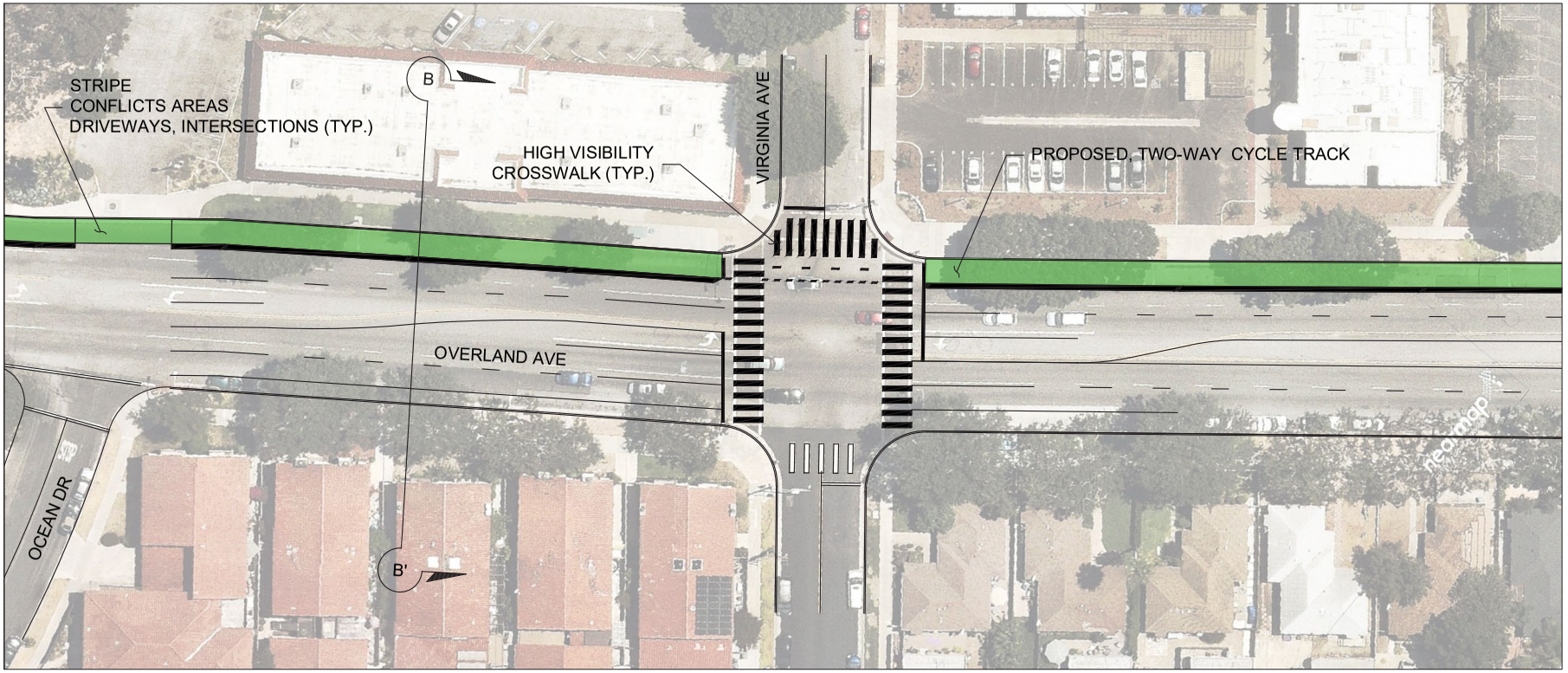

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Culver City Opportunity Corridors

Culver City, CA

SHEET 10 OF 25

Scale: 1" = 40'
0 20 40

October, 2018

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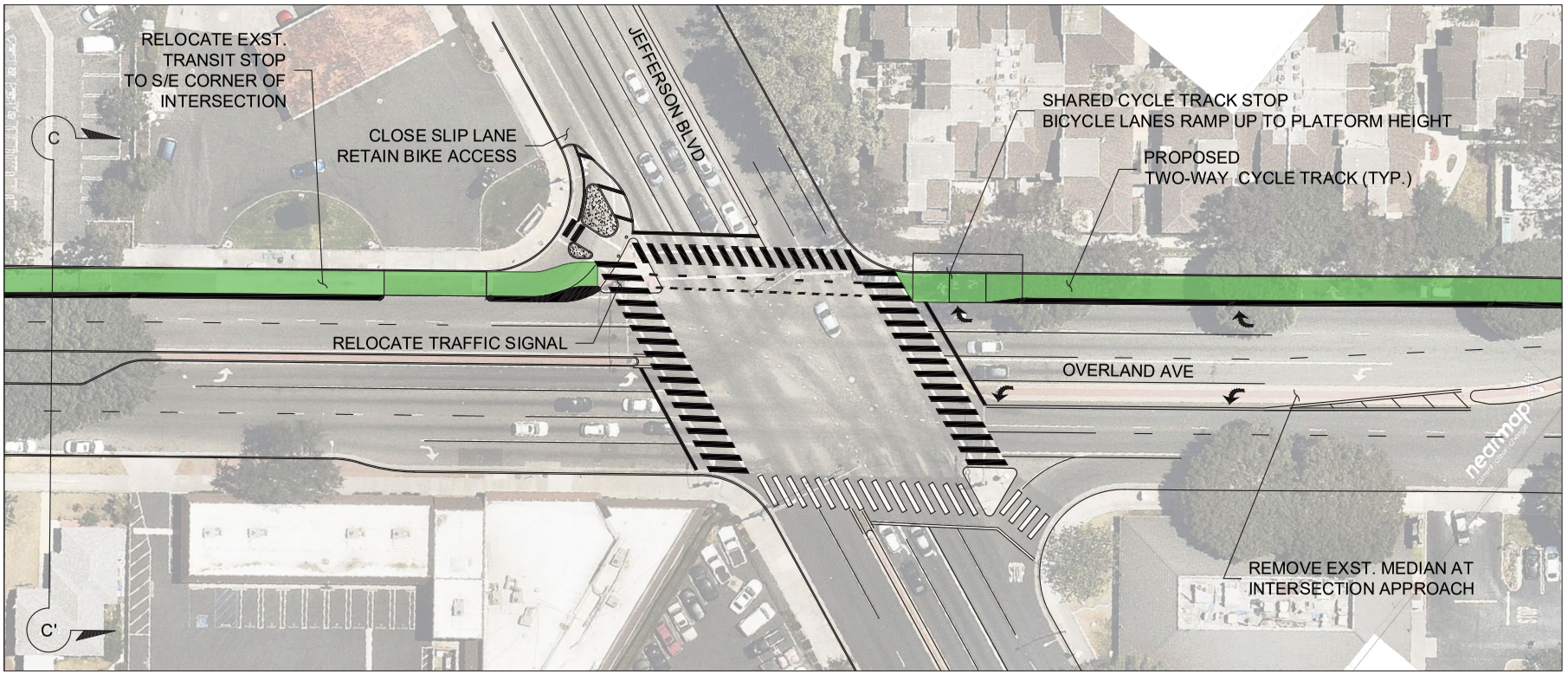

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NOT FOR CONSTRUCTION

Culver City Opportunity Corridors

Culver City, CA

SHEET 11 OF 25

Scale: 1" = 40'
0 20 40

October, 2018

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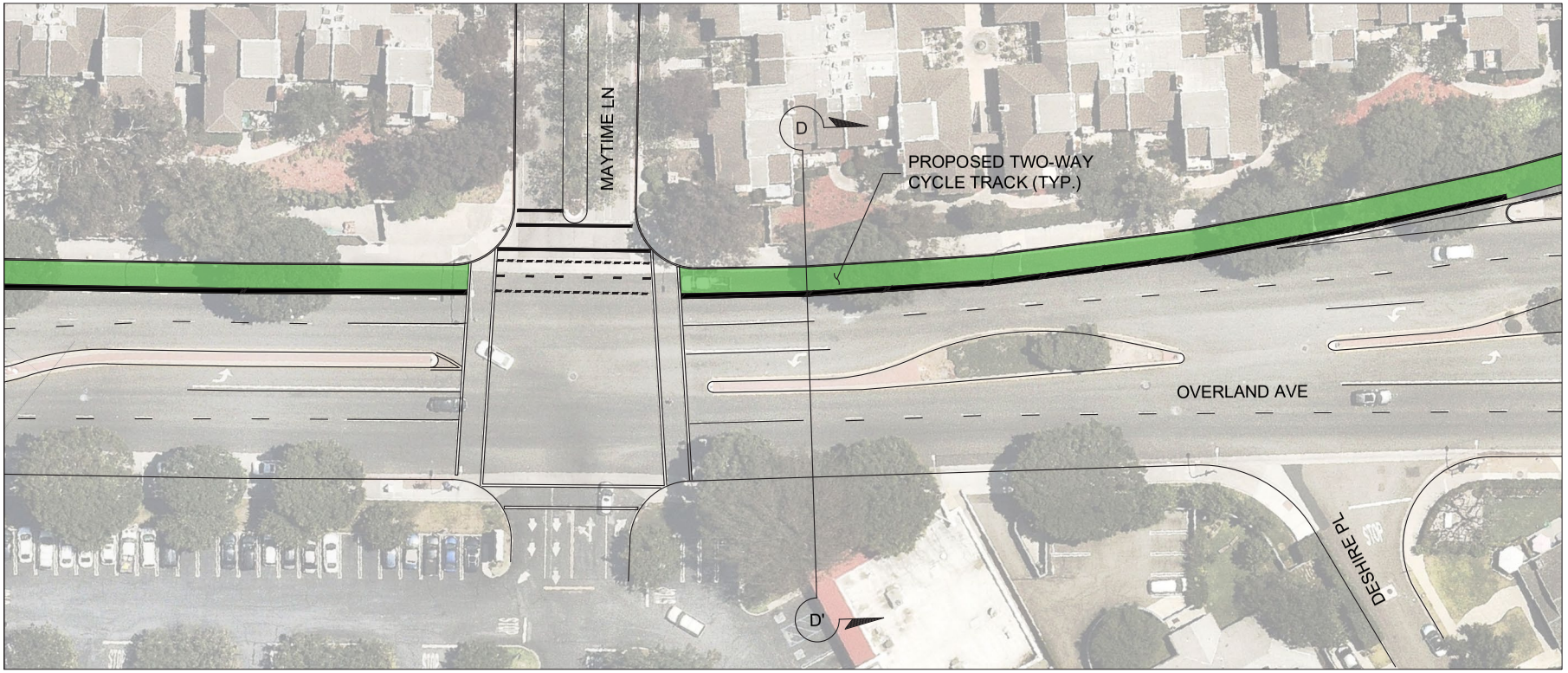

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Culver City Opportunity Corridors

Culver City, CA

SHEET 12 OF 25

Scale: 1" = 40'
0 20 40

October, 2018

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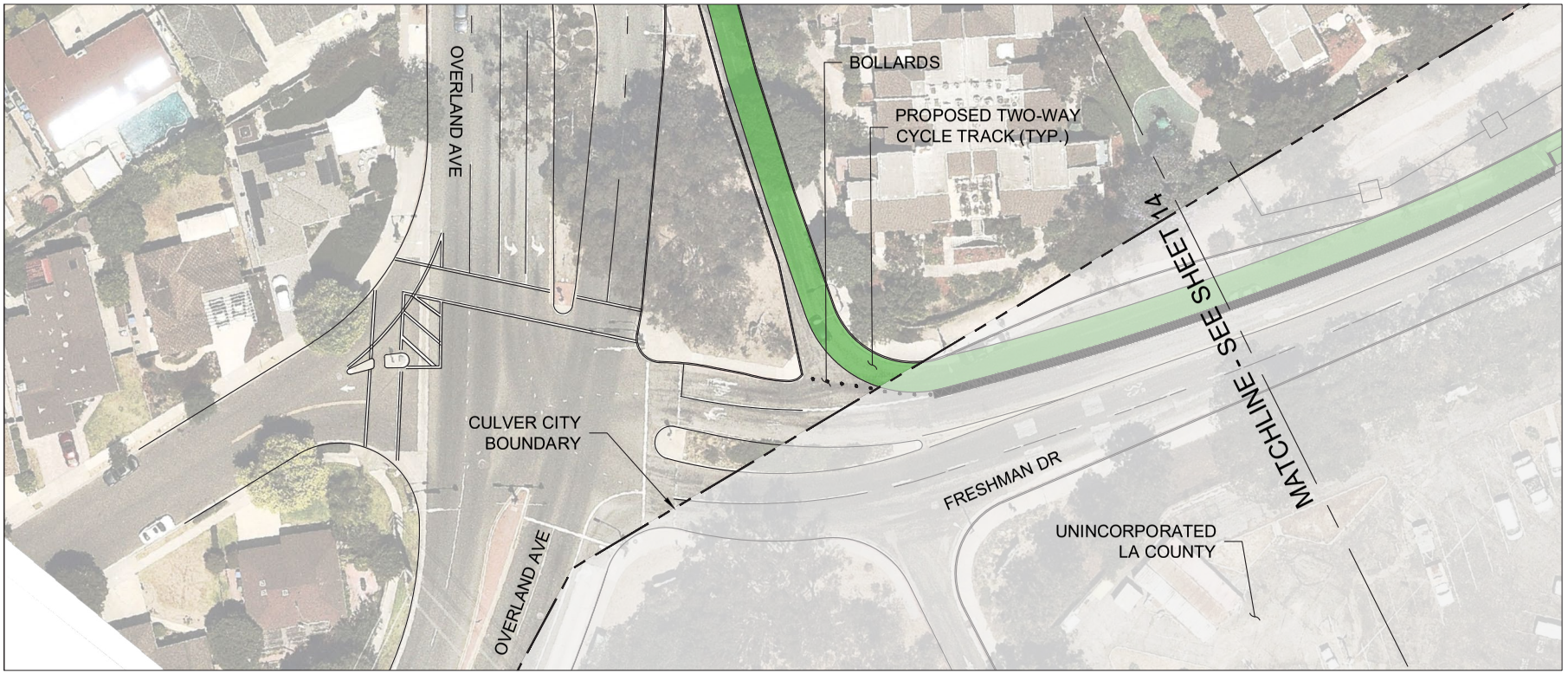

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Culver City Opportunity Corridors

Culver City, CA

SHEET 13 OF 25

Scale: 1" = 40'
0 20 40

October, 2018

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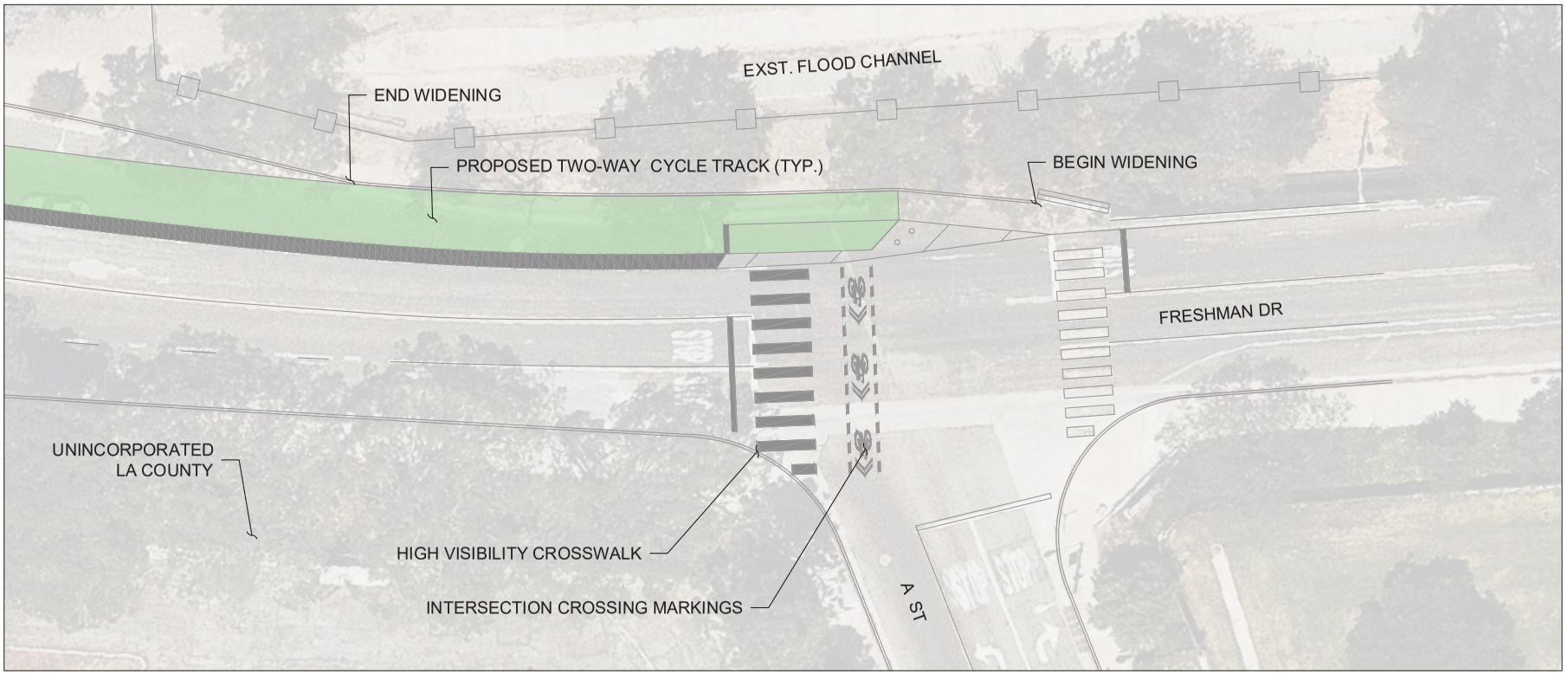

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Culver City Opportunity Corridors

Culver City, CA

SHEET 14 OF 25

Scale: 1" = 20'
0 10 20

October, 2018

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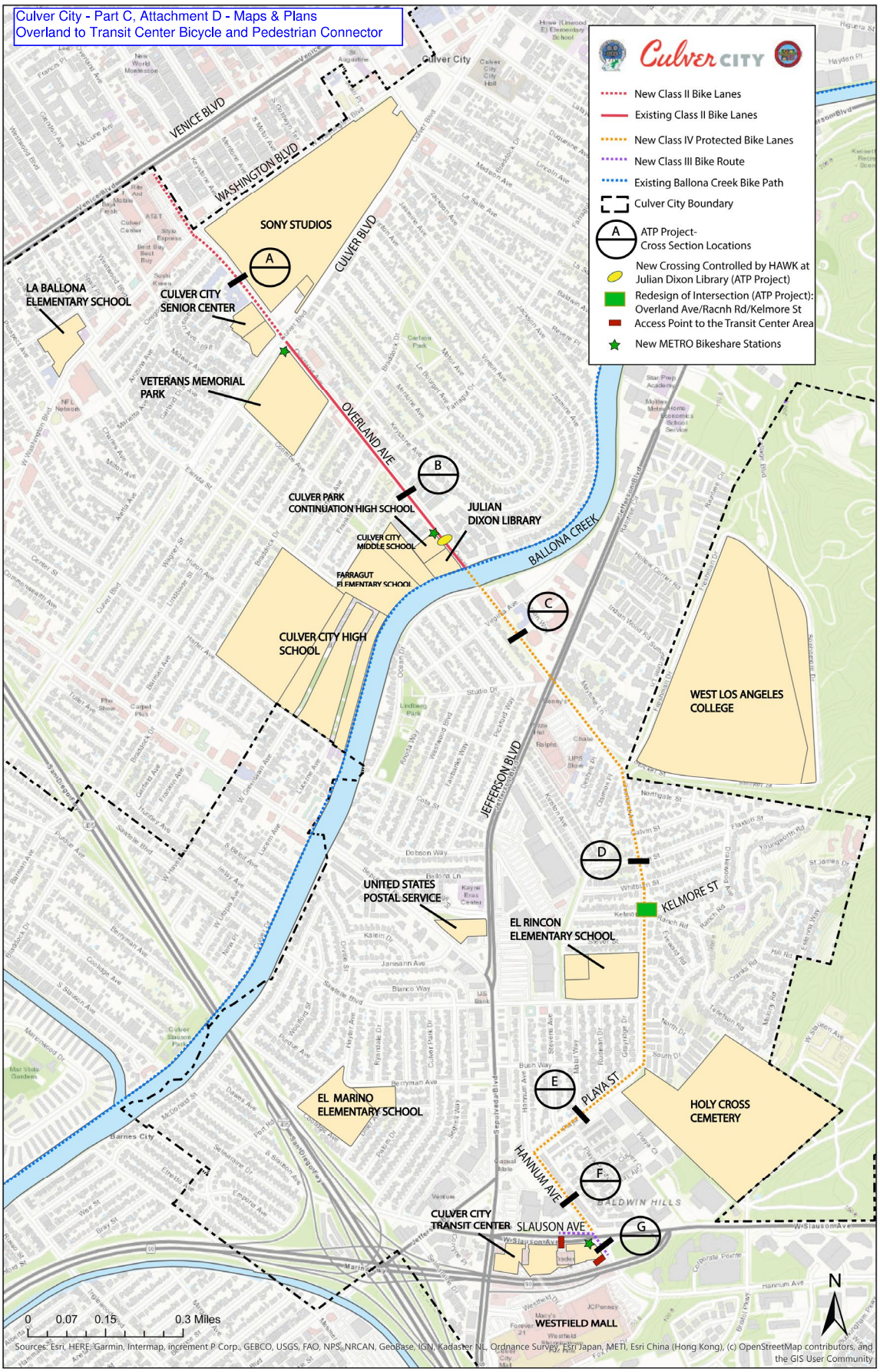
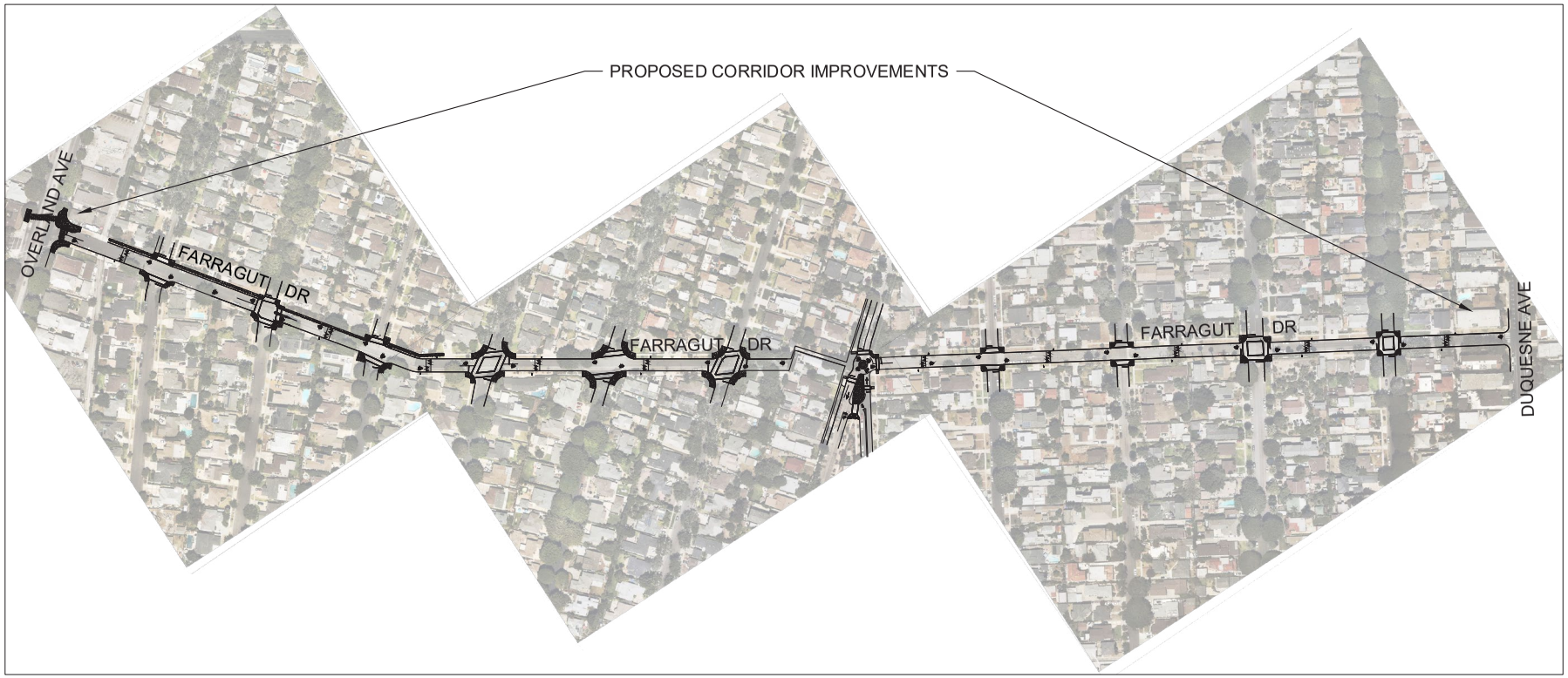

Culver City - Part C, Attachment D - Maps & Plans
Overland to Transit Center Bicycle and Pedestrian Connector
Culver CITY
New Class II Bike Lanes
Existing Class II Bike Lanes
New Class IV Protected Bike Lanes
New Class III Bike Route
Existing Ballona Creek Bike Path
Culver City Boundary
ATP Project- Cross Section Locations
New Crossing Controlled by HAWK at Julian Dixon Library (ATP Project)
Redesign of Intersection (ATP Project): Overland Ave/Racnh Rd/Kelmore St
Access Point to the Transit Center Area
New METRO Bikeshare Stations
VENICE BLVD
WASHINGTON BLVD
CULVER BLVD
OVERLAND AVE
JEFFERSON BLVD
PLAYA ST
HANNUM AVE
SLAUSON AVE
KELMORE ST
BALLONA CREEK
SONY STUDIOS
LA BALLONA ELEMENTARY SCHOOL
CULVER CITY SENIOR CENTER
VETERANS MEMORIAL PARK
CULVER PARK CONTINUATION HIGH SCHOOL
CULVER CITY MIDDLE SCHOOL
FARRAGUT ELEMENTARY SCHOOL
JULIAN DIXON LIBRARY
CULVER CITY HIGH SCHOOL
WEST LOS ANGELES COLLEGE
UNITED STATES POSTAL SERVICE
EL RINCON ELEMENTARY SCHOOL
EL MARINO ELEMENTARY SCHOOL
HOLY CROSS CEMETERY
CULVER CITY TRANSIT CENTER
WESTFIELD MALL
A
B
C
D
E
F
G
0 0.07 0.15 0.3 Miles
N
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



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2. CONFLICTING STRIPING TO BE REMOVED, NON-CONFLICTING STRIPING TO BE REFRESHED.

CONCEPTUAL NOT FOR CONSTRUCTION

Culver City Opportunity Corridors

Culver City, CA

SHEET 15 OF 25

Scale: 1" = 250
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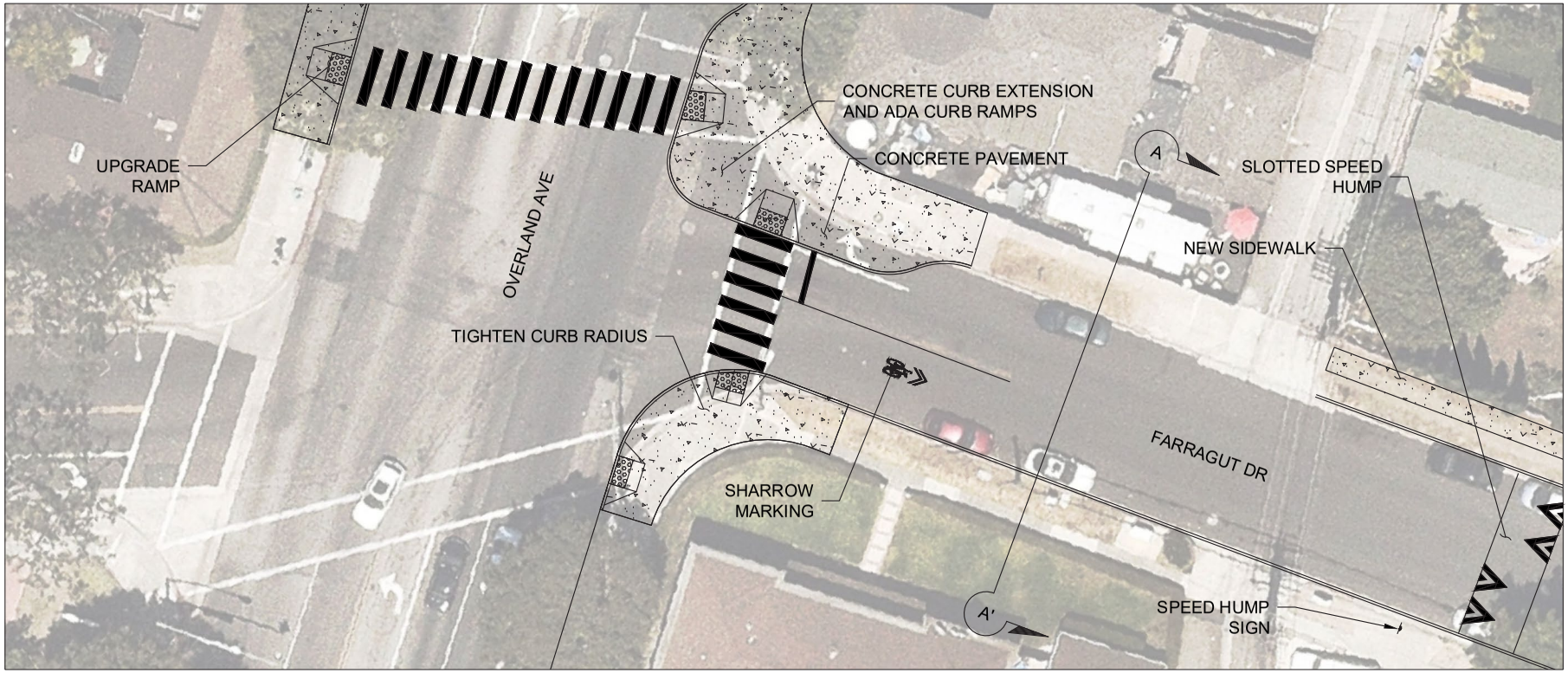

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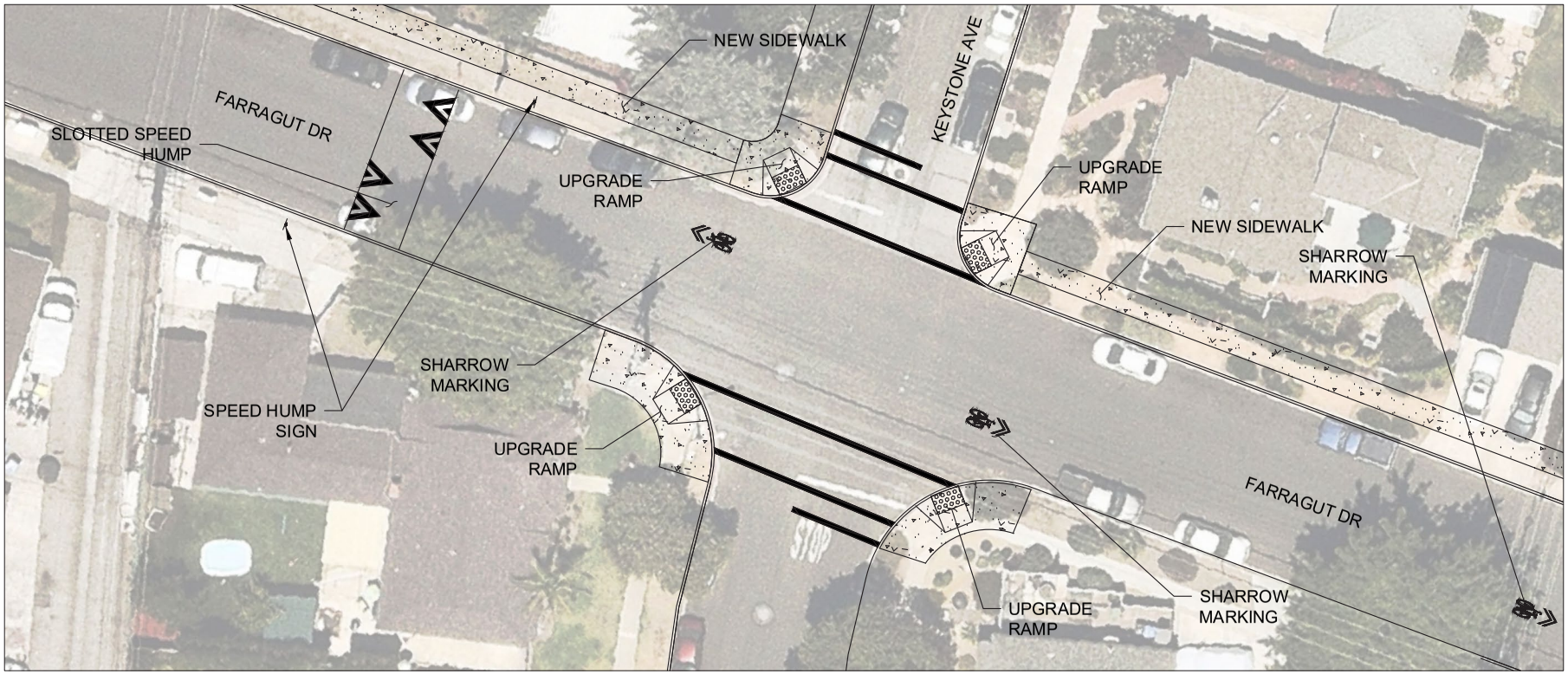

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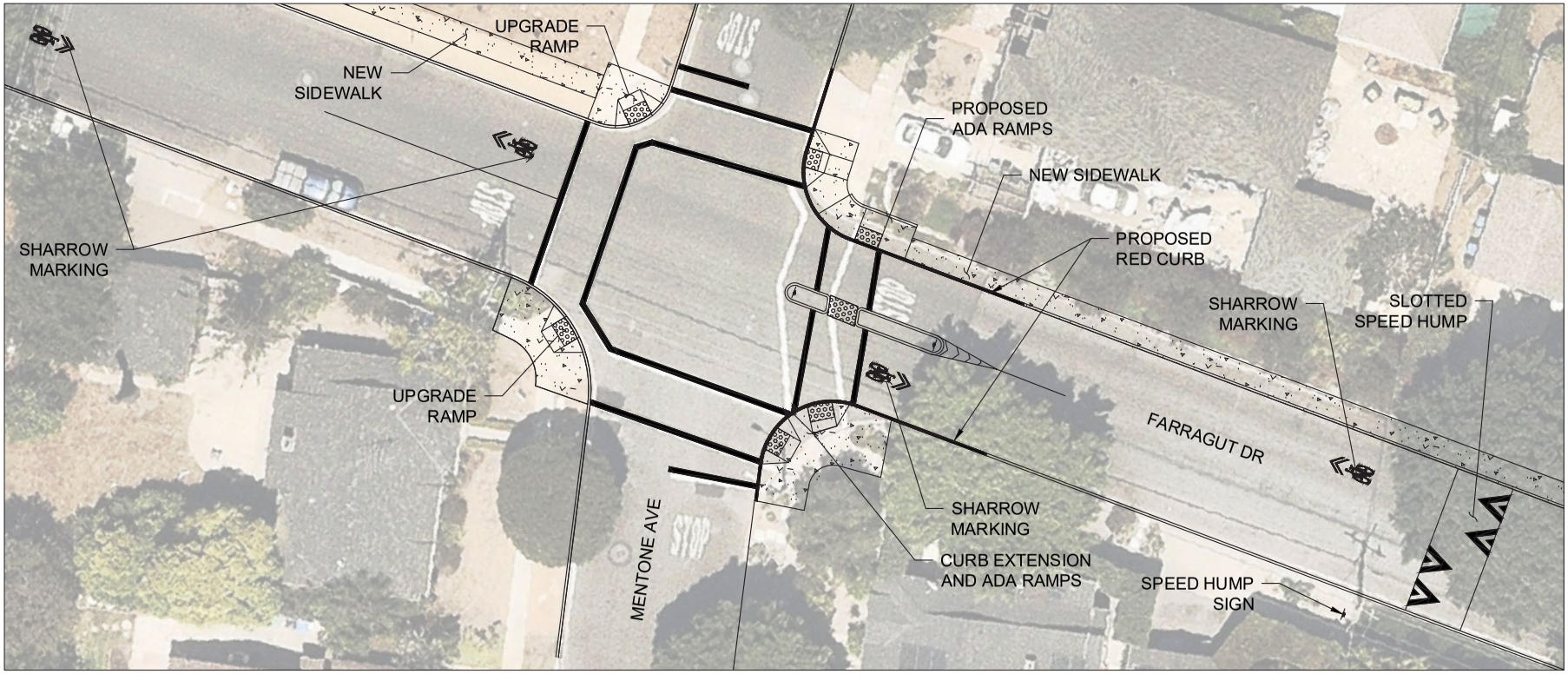

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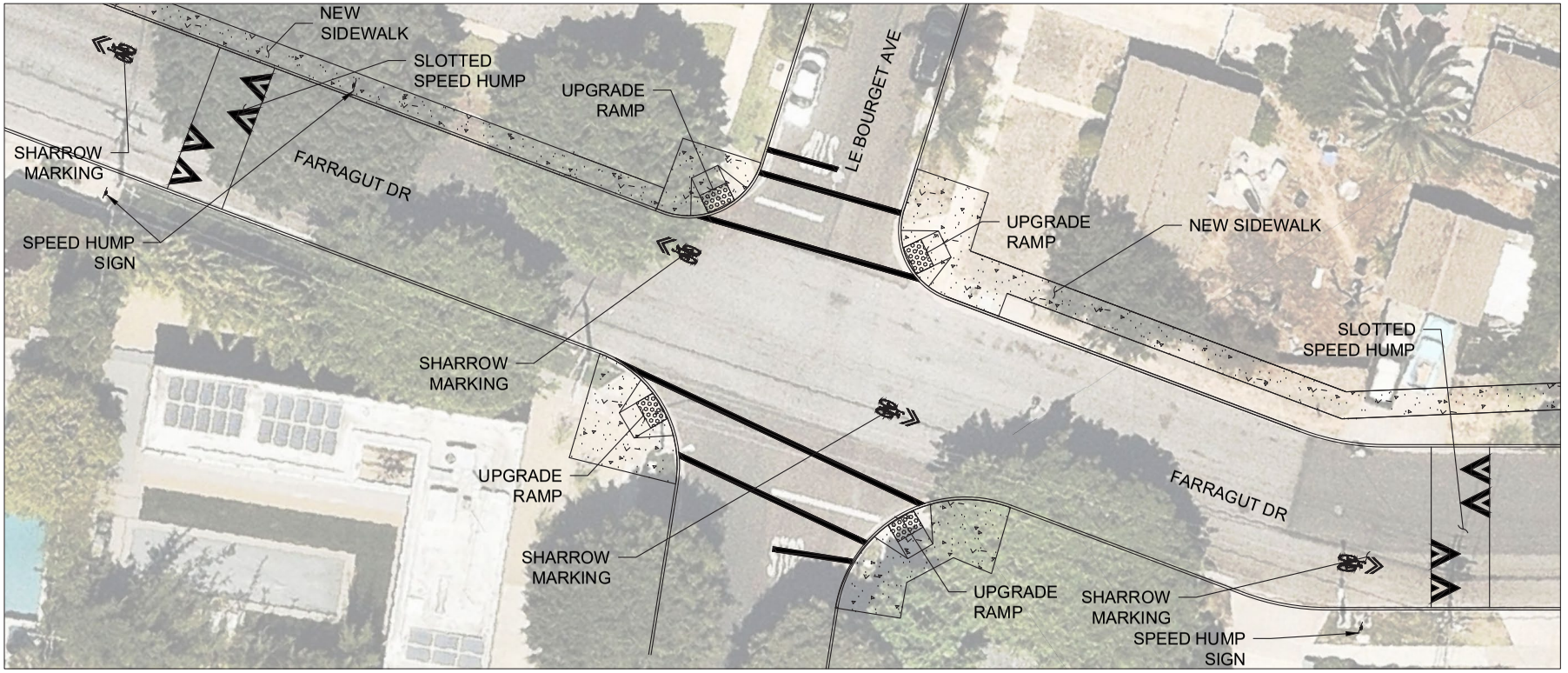

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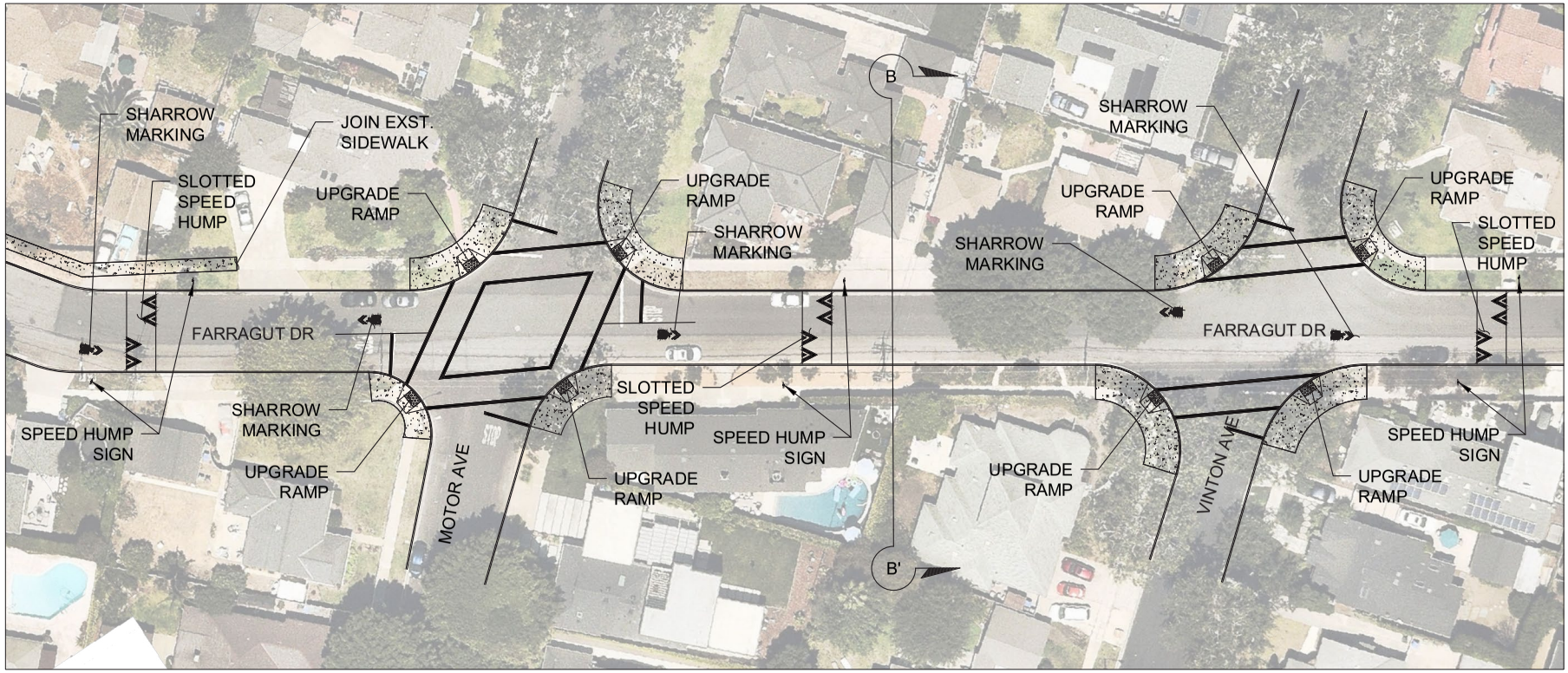

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SHEET 20 OF 25

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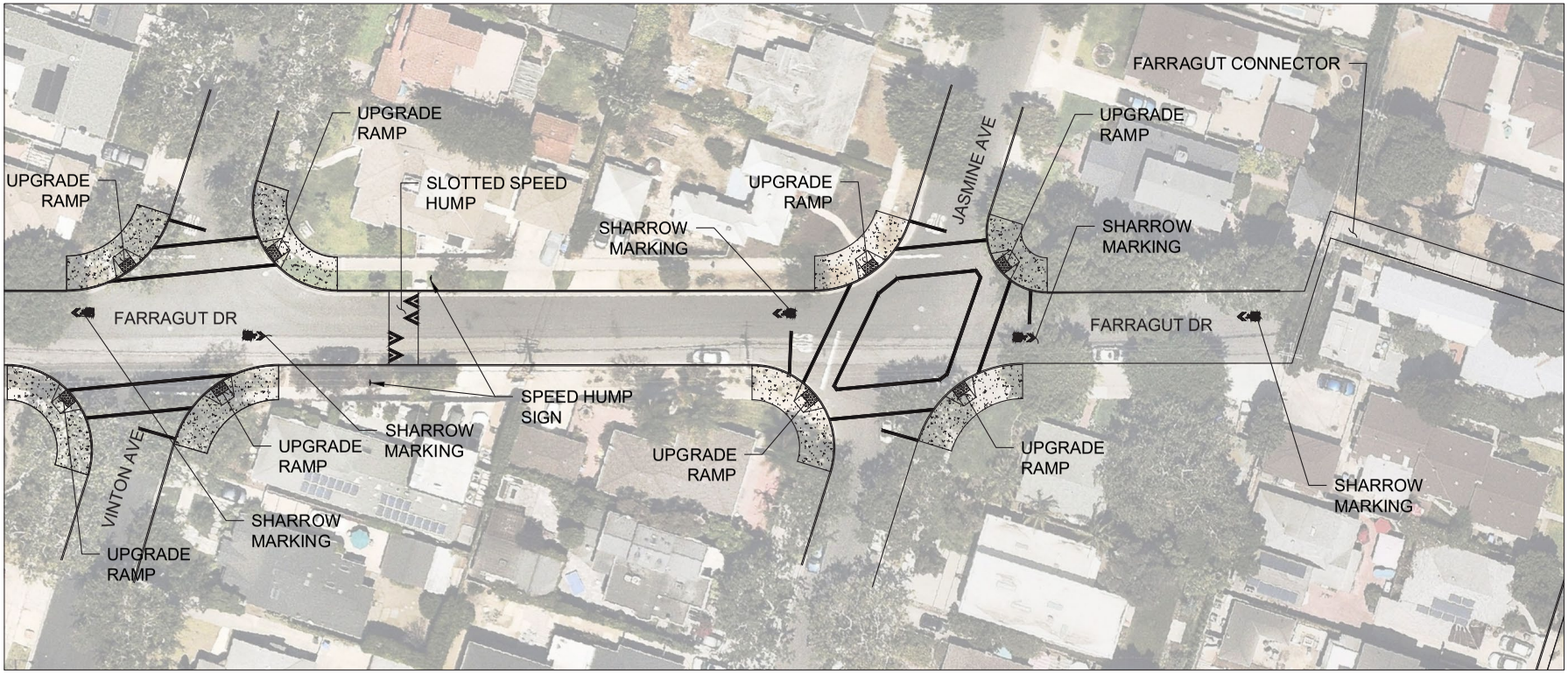

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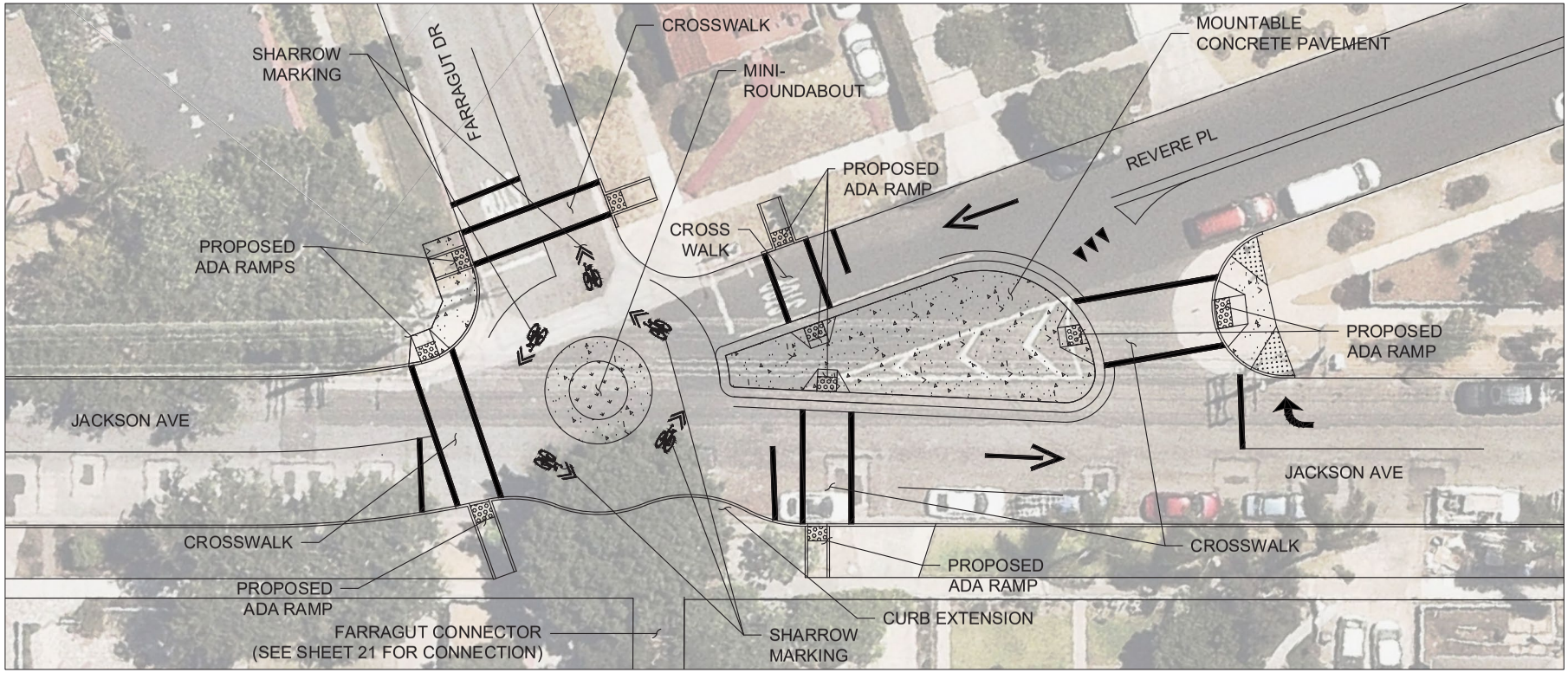

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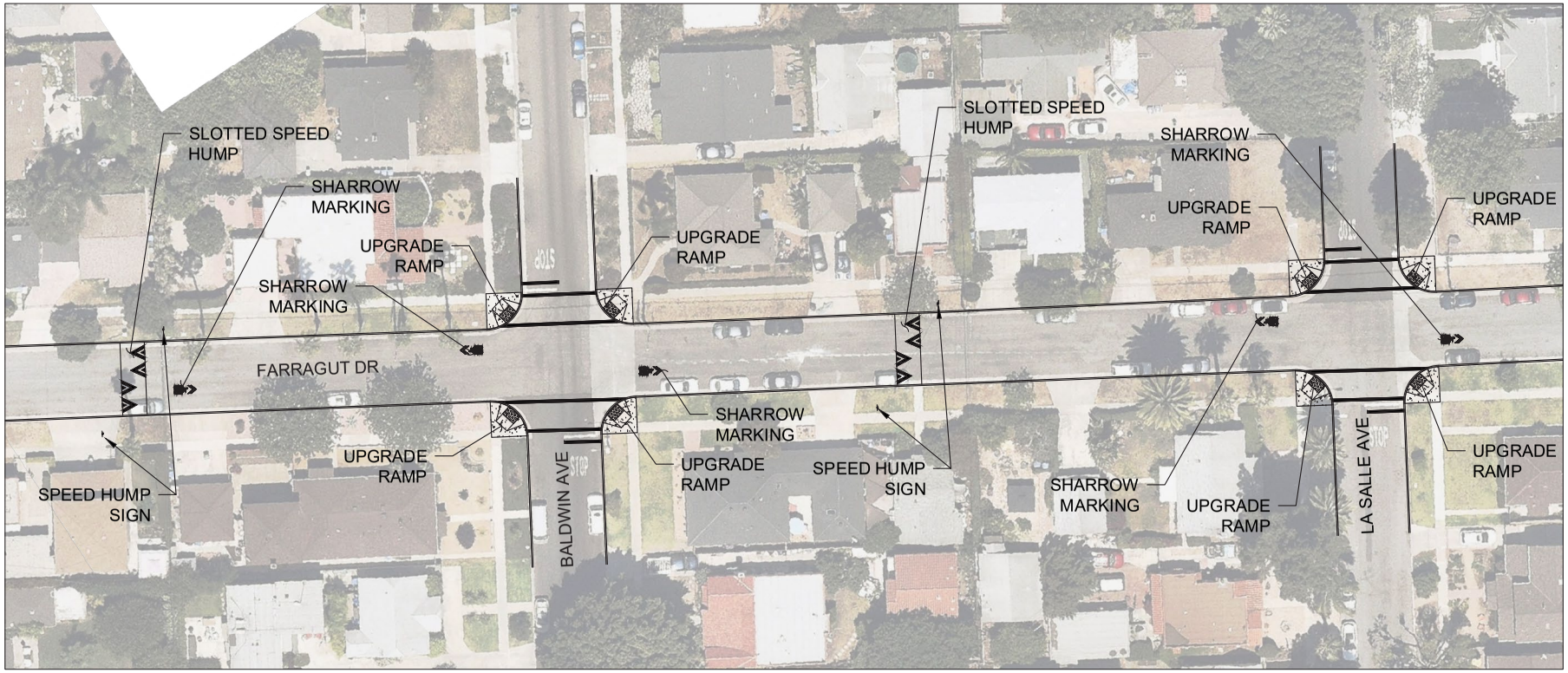

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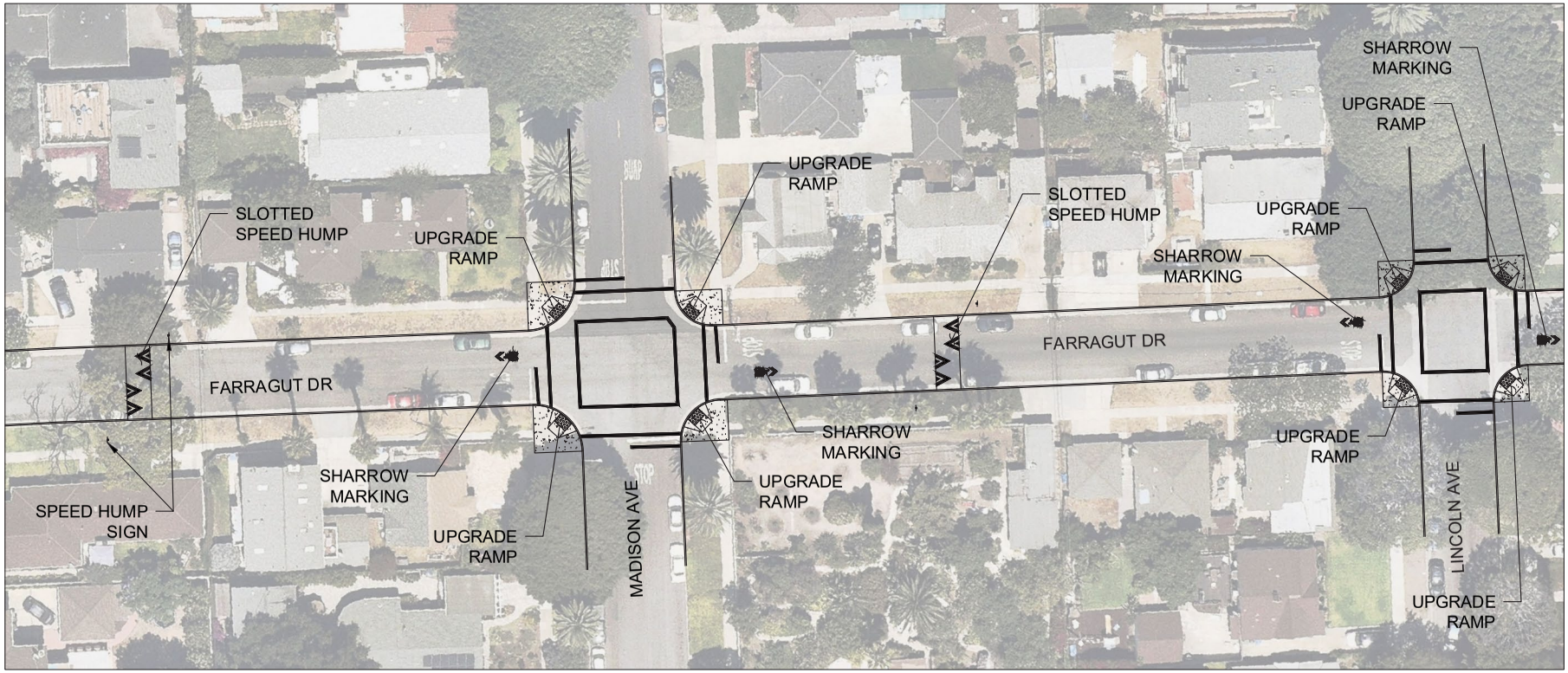

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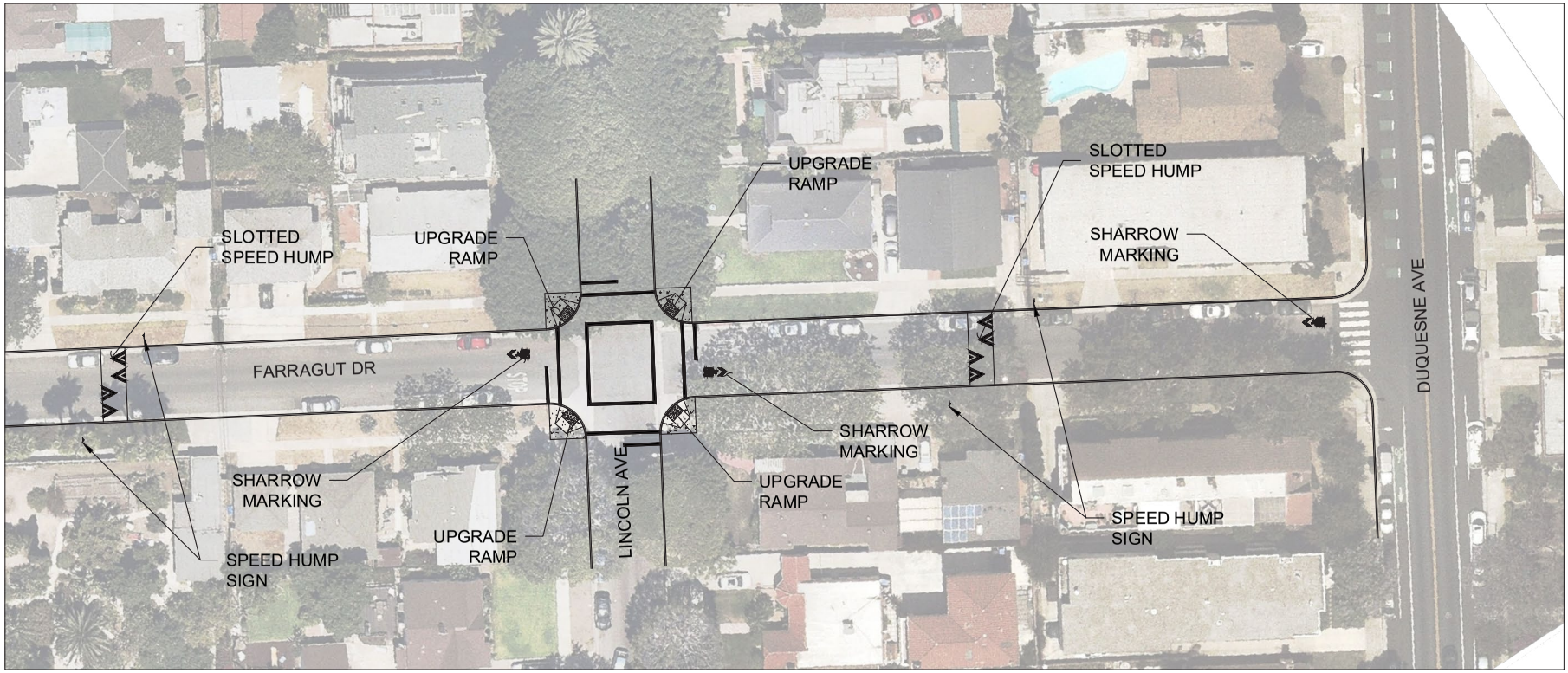

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Appendix F

Maintenance & Operations

RECOMMENDED MAINTENANCE PROCEDURES

Sweeping

- Establish a seasonal sweeping schedule that prioritizes roadways with Long-Term Tier 1 projects. Sweep bikeways whenever there is an accumulation of debris.
- In sections with curbs, sweepers should pick up debris; on open shoulders, debris can be swept onto gravel shoulders.

Signage

- Check regulatory and wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear on an ongoing basis.
- Replace signage along the bikeway network as-needed.
- Perform a regularly-scheduled check on the status of signage with follow-up as necessary.
- Create a Maintenance Management Plan.

Roadway Surface

- Maintain a smooth pothole-free surface.
- Ensure that on new roadway construction, the finished surface on bikeways does not vary more than 1/4-inch.
- Maintain pavement so that ridge buildup does not occur at the gutter-to-pavement transition, at bus stops, or adjacent to railway crossings.
- Inspect the pavement two to four months after trenching construction activities are completed to ensure that excessive settlement has not occurred.

Pavement Overlays

- If the shoulder or bike lane pavement is of good quality, it may be appropriate to end the overlay at the shoulder or bike lane stripe or over the entire roadway so that the work does not result in the creation of abrupt ridges.
- Ensure that inlet grates, manhole and valve covers are within 1/4-inch of the finished pavement surface and are made or treated with slip resistant materials.

Drainage Grates

- Require all new drainage grates to be bicycle-friendly, including grates that have horizontal slats (perpendicular to the direction of traffic) so that bicycle tires and assistive devices do not fall through the gaps.
- Create a program to inventory all existing drainage grates, and replace hazardous grates as necessary – temporary modifications such as installing rebar horizontally across the grate should not be an acceptable alternative to replacement.

Gutter to Pavement Transition

- Ensure that gutter-to-pavement transitions have no more than a 1/4" vertical transition.
- Examine pavement transitions during every roadway project for new construction, maintenance activities, and construction project activities that occur in streets.

Landscaping

- Ensure that shoulder plants do not hang into or impede passage along bikeways.
- After major damage incidents, remove fallen trees or other debris from bikeways as quickly as possible.
- Work with the City's forestry division to maintain a healthy street tree canopy while reducing potential for roots to damage to sidewalks.

Maintenance Management Plan

- Provide Fire and Police departments with a map of the system, along with access points to gates/bollards in areas limiting vehicular access, such as Class I bike paths.
- Enforce all trespassing laws for people attempting to enter adjacent private properties.
- Ensure online reports of hazards, potholes, and other pedestrian and bicycle-related requests are reviewed and addressed in a timely manner.
- Provide bicycle detour routes and signs during roadway construction.

OPERATIONS

Enforcement

- Enforce speed limits and other rules of the road.
- Work with the Police Department, California Highway Patrol, and nearby local police departments to ensure officers are trained on safe bicycling practices and are up-to-date on bicycle-related laws.
- Work with the Police Department and nearby local police departments to track the reporting and analysis of bicyclist-involved collisions and bicycle theft.

Implementation and Design

- Implement on-street bicycle and pedestrian facilities proposed in this Plan when completing road rehabilitation and reconstruction projects.
- Design all streets so that they incorporate Complete Streets standards.
- Adopt a pavement maintenance schedule for all designated existing and planned bikeways.
- Apply pavement stenciling to indicate loop detectors at all traffic signals.
- Identify opportunities to remove travel lanes from roads where there is excess capacity in order to provide new or improved bicycle facilities.
- Install context-sensitive bikeways that consider both volume and speed and complement surrounding land uses.

Evaluation

- Estimate air quality and reductions in greenhouse gas emissions that may result from a decrease in vehicular use as bicycle use increases.
- Create an annual bicycle and pedestrian count program to monitor and evaluate changes in mode at the citywide and project level.
- Regularly monitor implementation of the Active Transportation Plan, and review and update the recommended bicycle and pedestrian facilities every five years.

Appendix G

General Cost Estimates of Construction

General Cost Estimates of Bikeways Construction - Culver City April 2020

Table 15 - Class III Bicycle Boulevard

Description	Quantity	Unit	Unit Cost	Cost	Notes
Level 1: Signage and Markings					
Signage	18	EA	$375	$7,000	Every 600' each direction
Pavement Marking	54	EA	$250	$13,500	Every 200' each direction
Wayfinding Signs	8	EA	$3,000	$24,000	
Level 2: Traffic Calming and Intersection Improvements					
Traffic circle	1	EA	$150,000		cost per location/ intersection
Speed Hump	1	EA	$7,500		cost per location/ intersection
Median Refuge Islands (2)	1	LS	$50,000		cost per location/ intersection
Diverter	1	EA	$25,000		cost per location/ intersection
Curb Extensions (4)	1	LS	$175,000		cost per location/ intersection
Raised Crosswalk	1	EA	$15,000		cost per location/ intersection
Bounding Line	21,120	LF	$2	$42,200	1 lane line in each direction
Range of Construction Cost per Mile:				**$310,000**	**Level 1 and Limited Level 2 improvements***
				$640,500	**Level 1 and Medium Level 2 improvements****
				$1,025,500	**Level 1 and Medium Level 2 improvements****

Assumptions for Level 2 Improvements:
** 1 traffic circle, 4 speed humps, 1 median, 1 diverter, 1 raised crosswalk*
*** 2 traffic circles, 4 speed humps, 2 medians, 1 curb extension, 1 raised crosswalk, bounding line*
**** 3 traffic circles, 3 curb extensions, 2 raised crosswalks, bounding line*

Table 16 - Class II Bicycle Lanes (with and without buffer)

Description	Quantity	Unit	Unit Cost	Cost	Notes
Striping Removal	10,560	LF	$5	$48,000	Assumes 2 lanes
Striping	21,120	LF	$4	$84,500	2 lanes w/ bike lane in each direction
Pavement Markings	54	EA	$250	$13,500	Every 200' each direction
Signage	18	EA	$375	$6,800	Every 600' each direction
Construction Cost per Mile (Low)				**$153,000**	
Wayfinding Signs & Kiosk	10	EA	$3,000	$30,000	
Bike Loop Detectors & Signal Work	20	EA	$24,000	$480,000	Assumes 10 signalized intersections

Description	Quantity	Unit	Unit Cost	Cost	Notes
Traffic Signal Box & Other Upgrade	1	EA	$350,000	$350,000	
Buffered Bike Lane Markings	21,120	LF	$4	$84,500	
Bike Green Striping & Conflict Striping	15,000	SF	$10	$150,000	
Construction Cost per Mile (High)				**$1,248,000**	

Table 17 - Class IV Separated/Protected Bike Lanes

Description	Quantity	Unit	Unit Cost	Cost	Notes
Striping Removal	10,560	LF	$5	$48,000	Assumes 2 lanes
Signage	18	EA	$375	$6,800	Every 600' each direction
Pavement Markings	54	EA	$250	$13,500	Every 200' each direction
Painted Buffer with Flexible Delineators	10,560	LF	$30	$316,800	
Construction Cost per Mile (Low)				**$385,000**	
Painted Buffer with Armadillo Barriers & Delineators	10,560	LF	$50	$528,000	Add $15 to Painted Buffer with flexible delineators cost
Bike Green Striping & Conflict Striping	15,000	SF	$10	$150,000	
Traffic Signal Modification incl. Bike Signal Heads	1	LS`	$350,000	$350,000	Assumes 4 bike signals per intersection
Construction Cost per Mile (Medium)				**$1,413,000**	
Raised concrete buffer with landscape/ hardscape	10,560	LF	$135	$1,425,600	Add $135 to Painted Buffer with flexible delineators cost
Construction Cost per Mile (High)				**$2,839,000**	

Table 18 - Other Miscellaneous Improvements

Description	Unit	Cost Assumption (Low)	Cost Assumption (High)	Notes
Class I Shared-Use Path	MI	$750,000	$1,500,000	
Sidewalk	SF	$10	$25	
Concrete Curb and Gutter	LF	$45	$60	
ADA Curb Ramps	EA	$5,000	$8,000	
Pavement Repair	Ton	$250	$400	
Slurry Seal (lane reduction grinding areas)	SY	$3	$4	

General Cost Estimates of Construction

Description	Unit	Cost Assumption (Low)	Cost Assumption (High)	Notes
Driveway Modification	EA	$5,000	$20,000	If impacting provision of a curb-side bike lane
High Visibility Crosswalk	EA	$2,500	$5,000	One leg, cost varies by length and color of crosswalk
Transverse Crosswalk with Advance Stop Bar	EA	$1,500	$3,000	One leg, cost varies by length of crosswalk
Intersection Striping Treatment (turn marking)	EA	$3,000	$5,000	
Pedestrian Refuge Island	EA	$10,000	$50,000	Depends on length and width of island
Traffic Signal System - HAWK	EA	$200,000	$400,000	
Traffic Signal System - RRFB	EA	$30,000	$60,000	
Bicycle Loop Detection	EA	$1,500	$3,000	
Street Light	EA	$8,000	$15,000	
Conduit and Wiring	LF	$65	$80	
Sign and Post	EA	$375	$500	
Tightening turning radii	EA	$15,000	$125,000	
Parking Restrictions	LF	$30	$60	Assumes painted curb and signs
Bike Racks	EA	$800	$1,000	
Bike Lockers	EA	$2,000	$2,500	
Street Trees	EA	$650	$1,250	
Advanced Yield/ Stop Lines	EA	$500	$2,000	
Pedestrian Crosswalk Motion Sensor	EA	$10,000	$20,000	Per leg of crosswalk
Protect/Relocate a Fire Hydrant	EA	$3,500	$7,000	
Transit Waiting Area Improvements/ Bus Shelters	EA	$50,000	$200,000	Varies by type of improvement
Traffic and Pedestrian Signal (leading Ped Intervals)	LS	$5,000	$500,000	Per intersection. Cost varies by type of change and equipment required

Notes:
Not included in the cost estimates: 10% Contingency, 5% Mobilization and 5% Traffic Control.
Not included in the cost estimates: Design, Environmental review, and Construction Management. Additionally, storm drain and utility protection/relocations are not included.
LS: Lump Sum LF: Linear Feet SF: Square Feet SY: Square Yard EA: Each

Appendix H

Funding Sources

FEDERAL SOURCES

Fixing America's Surface Transportation Act (FAST Act)

The FAST Act, which replaced Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2015, provides long-term funding certainty for surface transportation projects. This means states and local governments can move forward with critical transportation projects with the confidence that they will have a Federal partner over the long term (i.e. for at least five years).

The law makes changes and reforms to many Federal transportation programs. For example, it allows local entities that are direct recipients of Federal dollars to use a design publication that is different than one used by their State DOT, such as the Urban Bikeway Design Guide by the National Association of City Transportation Officials.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

CMAQ provides funding to state and local agencies for transportation projects that help meet Clean Air Act objectives. Funded projects must work to reduce congestion and improve area quality in nonattainment or maintenance zones for ozone, carbon monoxide or particulate matter. CMAQ funds can be used for bicycle and pedestrian projects that are included in the metropolitan planning organization (MPO) current transportation plan and transportation improvement program (TIP). Projects can include bicycle and pedestrian facilities that are not exclusively recreational and for outreach related to safe bicycle use. Studies that are part of the project development pipeline (e.g., preliminary engineering) are also eligible for funding.

CMAQ funding is administered at the local level through the Southern California Association of Governments (SCAG). These funds are eligible for transportation projects that contribute to the attainment or maintenance of National Ambient Air Quality Standards in non-attainment or air quality maintenance areas. Examples of eligible projects include enhancements to existing transit services, rideshare and vanpool programs, projects that encourage bicycle transportation options, traffic light synchronization projects that improve air quality, grade separation projects, and construction of high-occupancy vehicle (HOV) lanes. Projects that are proven to reduce direct PM2.5 emissions are to be given priority

Bus and Bus Facilities Grants Program

The Federal Transit Administration (FTA) offers formula allocations and grants to a variety of organizations, including local governments, to pay for buses and related facilities. Agencies can use these funds to pay for bicycle routes to transit, bike racks, bike shelters, and bicycle equipment for public transportation vehicles.

Highway Safety Improvement Program (HSIP)

This federal program provides funding to states for projects that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. Eligible projects include pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments in school zones. Non-infrastructure projects are not eligible. All HSIP projects must be consistent with the state's Strategic Highway Safety Plan. Funding is available up to $10 million and requires a 10% match.

Rivers, Trails, and Conservation Assistance Program

The Rivers, Trails, and Conservation Assistance Program (RTCA) is the community assistance arm of the National Park Service (NPS). RTCA provides technical assistance to a variety of agencies and organizations in order to preserve open space and develop trails. RCTA's funds can be used for developing plans, engaging the public and identifying other sources of funding for conservation and outdoor recreation projects.

Community Development Block Grant Program

This program funds local development activities, such as affordable housing and anti-poverty programs, in low-to-moderate-income communities, as well as supporting infrastructure. Funds can be used to acquire property and build public facilities such as streets, sidewalks, and recreational facilities. This federal program is administered by the State which makes funds available to eligible agencies (cities and counties).

National Priority Safety Program

This program encourages States to address national priorities for reducing highway deaths and injuries through a variety of programs including non-motorized safety. Grants are awarded to State Highway Safety agencies for implementation or disbursement.

Our Town

The Our Town grant program supports creative placemaking projects that help to transform communities into lively, beautiful, and resilient places – achieving these community goals through strategies that incorporate arts, culture, and/or design. Creative placemaking is when art is deliberately integrated into community revitalization work - placing arts at the table with land-use, transportation, economic development, education, housing, infrastructure, and public safety strategies.

Grant applicants require partnerships between arts organizations and government, other nonprofit organizations, and private entities. Funding ranges between $25,000-$200,000 per project.

Federal Transit Administration Urbanized Area Formula Program

This program makes federal resources available to urbanized areas for transit capital and transit-related planning. An urbanized area is an incorporated area with a population of 50,000 or more. A 20% match is required; however, bicycle facilities, including routes to transit, bike racks, shelters and equipment can receive a 95% federal share for the first 1% of program funds.

Pilot Program for Transit-Oriented Development Planning

This program supports public transportation by providing funding to local communities to integrate land use and transit connections. Projects must improve economic development and ridership, foster multimodal connectivity and accessibility, improve transit access for pedestrian and bicycle traffic, engage the private sector, identify infrastructure needs, and enable mixed-use development near transit stations.

The Better Utilization Investments to Leverage Development Discretionary Grant (BUILD)

The BUILD (formerly TIGER) reimbursement grant, available through the U.S. Department of Transportation, allows sponsors at the State and local levels to obtain funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional funding initiatives. Eligible projects include: recreational trails, separated bike lanes, shared-use paths, sidewalks, signal improvements, signed pedestrian or bicycle routes, traffic calming, trailside and trailhead facilities, bicycle parking, racks, repair stations, storage, bike share programs, and enhanced multi-modal roadway user bandwidth increase. A program of projects can be assembled and should demonstrate significant regional impacts and be construction-ready. The minimum grant request in rural areas is $1 million and in urban areas it is $5 million.

STATE SOURCES

Active Transportation Program (ATP)

The California State Legislature has consolidated a number of state-funded programs centered on active transportation into a single program after the consolidation of federal funding sources in MAP-21 and again under the FAST Act. The resulting, Active Transportation Program (ATP) consolidated the federal programs, the Safe Routes to Schools Program, and the Recreational Trails Program. ATP's authorizing legislation (signed into law in 2013) includes placeholder language to allow ATP to receive funding from the newly established Cap-and-Trade Programs in the future.

The Statewide Competitive ATP had $240 million available through the 2020/2021 fiscal cycles. California Transportation Commission scripts guidelines and allocates funds for the ATP, and Caltrans Division of Local Assistance administers the program.

Goals of the ATP are currently defined as the following:

- Increasing the proportion of trips accomplished by walking;
- Increasing safety and mobility for active transportation users;
- Advancing active transportation efforts of regional agencies to achieve the greenhouse gas reduction goals;
- Enhancing public health;
- Ensuring that disadvantaged communities fully share in the benefit of the program; and,
- Providing a broad spectrum of projects to benefit many types of active transportation users.

Recreational Trails Program

This program provides funding to develop and maintain recreational trails and facilities. Funding can be used for: maintenance and restoration of existing trails; purchase and lease of trail construction and maintenance equipment; construction of new trails, including unpaved trails; acquisition of easements or property; or operation of educational programs to promote safety and environmental protection. The State Department of Parks and Recreation administers the funds and requires a 12% local match.

State Transportation Improvement Program

STIP funds are available for new construction projects that add capacity to the transportation network. Funding is a mix of state, federal, and local taxes and fees and consists of two components: Caltrans' Interregional Transportation Improvement Program (ITIP) and regional transportation planning agencies' Regional Transportation Improvement Program (RTIP). Pedestrian and bicycle projects may be programmed under ITIP and RTIP.

Caltrans Sustainable Transportation Planning Grant Program

The Sustainable Transportation Planning Grant Program supports transportation planning processes which address local and regional transportation needs and issues. The program offers two types of grants: Strategic Partnerships and Sustainable Communities, to all levels of government. The Strategic Partnership Grants fund regional agencies to address state highway system deficiencies, strengthen government relationships, and result in programmed system improvements. The Sustainable Communities Grants fund a variety of projects at all levels of government. Projects are expected to "identify and address mobility deficiencies in the multimodal transportation system, encourage stakeholder collaboration, involve active public engagement, integrate Smart Mobility 2010 concepts, and ultimately result in programmed system improvements."

Office of Traffic Safety Grants

These grants can be used to fund existing or new traffic safety programs. Proposals should include the seriousness of the problem, crash statistics, and potential traffic safety impacts. Grants for bicycle and pedestrian safety programs have included bicycle rodeos education programs in schools, free helmets, senior education, and Vision Zero outreach, among others.

Environmental Enhancement and Mitigation Funds

The California Natural Resources Agency provides grants to projects that indirectly mitigate the environmental impacts of new transportation facilities. Funds are available for land acquisition and construction and should fall into one of the following three categories: urban forestry projects, resource lands projects, or mitigation projects beyond the scope of the lead agency. The local Caltrans district must support the project. The average award amount is $250,000.

Land and Water Conservation Fund

The Land and Water Conservation Fund is a federal program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. In California, the fund is administered by the California State Parks Department. Cities, counties, and districts authorized to acquire and develop park and recreation space are eligible for grant funding. While nonprofits are ineligible, they are allowed to apply in partnerships with eligible agencies. Applicants must fund the project entirely and will be reimbursed for half of the cost.

Adaptation Planning Grants

This grant supports local and regional climate change adaptation efforts related to transportation systems. Eligible projects include transportation infrastructure adaptation plans, natural and green infrastructure planning, or integration of transportation adaptation planning into existing plans. Funding ranges from $100,000-$1,000,000 and requires an 11.47% local match.

Habitat Conservation Fund

This fund allocates approximately $2 million each year to cities, counties, and districts for nature interpretation programs to bring urban residents into park and wildlife areas, protection of various plant and animal species, and the acquisition and development of wildlife corridors and trails. Funds are available for trail maintenance, interpretive signage, lighting and waysides. The program requires a 50% match.

Coastal Conservancy Proposition 1 Grants

These grants fund ecosystem and watershed protection and restoration projects focused on water sustainability, wetland restoration and urban greening. These grants can be used for the urban greening or water sustainability elements incorporated in bikeway, walkway and trail projects and funding can be used for planning, land acquisition, and construction though there is a focus on supporting projects that will be quickly built.

Affordable Housing and Sustainable Communities Program

This program provides grants and affordable housing loans for transit-oriented development and related infrastructure and programs that reduce greenhouse gas emissions. Bikeway, walkway and trail projects are key elements of successful affordable housing grant applications and must connect the housing site to transit or other key destinations (school, health care, etc.) and be constructible within a 4-year period.

California Public Access Program

This grant funds projects focused on creating opportunities for wildlife-oriented recreation. Projects can include building trails, bicycle parking, trail waysides, and interpretive facilities. Funding is available to agencies and non-profit organizations for local assistance and minor capital construction and rehabilitation projects.

Local Partnership Program

This program provides local and regional transportation agencies that have passed sales tax measures, developer fees, or other imposed transportation fees with a continuous appropriation of $200 million annually to fund transportation improvement projects including biking, walking, safety and health-related projects.

Solutions for Congested Corridors Program

The program provides funding to achieve a balanced set of transportation, environmental, and community access improvements to reduce congestion throughout the state. This statewide, competitive program makes $250 million available annually for projects that implement specific transportation performance improvements and are part of a comprehensive corridor plan by providing more transportation choices while preserving the character of local communities and creating opportunities for neighborhood enhancement. All projects nominated must be identified in a currently adopted regional transportation plan and an existing comprehensive corridor plan.

Environmental Enhancement and Mitigation Program

This grant funds projects that reduce pollution or the consumption of natural resources and energy. Projects should fall into one of the following categories: urban forestry, resource lands, or mitigation projects. Trails can be funded as they mitigate air pollution. Funds are available for land acquisition and construction. The local Caltrans District must support the project. Generally, up to $1 million is available for acquisition and $500,000 for project development.

Urban Green Infrastructure Program

This new grant program (under Proposition 68) will fund green infrastructure projects focused on disadvantaged communities. Statewide $18 million has been allocated. Final program guidelines are being developed.

Sustainable Communities Program

The program provides technical assistance and a variety of grants to SCAG member jurisdictions. Grants are available in 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); and Green Region (Natural Resource Plans, Climate Action Plans (CAPs) and Greenhouse Gas (GHG) Reduction programs).

Benefit Assessment Districts

Benefit Assessment Districts are used by local governments in California to pay for the cost of providing services to a community. Charges to the community are based on the concept of assessing only those properties that directly benefit from the service. Bikeways, walkways, trails and related facilities can be funded; however, care must be taken when defining the community boundary as active transportation projects have regional benefits.

REGIONAL & LOCAL SOURCES

Community Facilities Districts or Mello-Roos

The designation of Community Facilities Districts (CFDs), also known as Mello-Roos, allows any county, city, special district, or school district to obtain additional public funding to pay for public works projects within the district. Funding can be used for programs, projects and amenities related to walking, bicycling and trails.

Transportation Development Act (TDA) / Article III (SB 821)

The Transportation Development Act (TDA) Article III (SB 821) uses monies collected from the state gasoline tax to provide grants through Regional Transportation Planning agencies to fund transportation improvements. The Los Angeles County Metropolitan Transportation Authority (Metro) is responsible for allocating this money on a per capita basis to cities within Los Angeles County with a focus on active transportation and public transit development. These cities have the option to either draw down the funds or to place them on reserve.

Metro Local Return Programs

Proposition A, Proposition C, Measure R, and Measure M Local Return programs are each one-half cent sales taxes that finance countywide transit development. Metro is responsible for distributing a certain proportion of the tax revenues to cities and counties to develop and improve public transit, paratransit, and related transportation infrastructure. Funds from Propositions C, R, and M can be used for bicycle-related uses such as infrastructure, signage, bicycle sharing, and education efforts. These Local Return Funds are distributed monthly to jurisdictions on a per capita basis.

Metro Call for Projects

Metro periodically accepts Call-for-Projects applications in eight modal categories to promote pedestrian projects that promote walking as a viable form of transportation. Eligible projects may include: sidewalk construction, extensions and widening; curb ramps (as part of sidewalk reconstruction); enhanced pedestrian crossing features; landscaping; signage; lighting; and street furniture. Improvements must be for the use of the general public, located within a public right-of-way in a public easement, or some other guarantee of public use. Design and right-of-way acquisition are eligible expenses as long as they are directly related to and part of the project's construction.

Metro Open Streets Program

Metro will allocate up to $2 million annually, through a competitive application process, to fund local Open Streets events in Los Angeles County cities. The first cycle announced in 2014 funded 12 open streets events which occurred in 2015 and 2016.

Metro Transit Oriented Development (TOD) Planning Grant Program

This is up to a $5 million fund to spur the adoption of transit-supportive land use and other regulatory plans around station areas in order to increase access to and utilization of public transit. Eligibility is for Los Angeles County jurisdictions with land use authority within one-half mile of existing, planned, or proposed transit stations.

Metro ExpressLanes Net Toll Revenue Reinvestment Grant Program

State law requires the net toll revenues generated from the Metro ExpressLanes be reinvested in the corridor from which they were derived, pursuant to an approved expenditure plan. Gross toll revenues from the ExpressLanes program are first used to cover the direct expenses related to the maintenance, administration and operation, including marketing, toll collection, and enforcement activities related to the ExpressLanes. Any remaining revenue produced is used in the corridor for which it was generated through the Net Toll Revenue Reinvestment Grant Program.

PRIVATE SOURCES

PeopleForBikes Community Grant Program

This grant program is funded by members of the bicycle industry who want to make it easier and safer for people of all ages and abilities to ride. This program supports bicycle infrastructure projects including bike paths, lanes, trails, and bridges, as well as bike parks and pump tracks. Also included are end-of-trip facilities such as bike racks, bike parking, bike repair stations and bike storage. Funding can be used for engineering and design work, construction costs including materials, labor, and equipment rental, and reasonable volunteer support costs. The grant provides up to $10,000, and while it does not require a match, the grant should be no more than 50% of the projects overall budget.

Doppelt Family Trail Development Fund

This fund, overseen by the Rails-to-Trails Conservancy, offers two types of grants. The first, Community Support Grants, help nonprofit organizations or "Friends of the Trail" groups that need funding to get trail development or trail improvement efforts off the ground. Awards range from $5,000 - $10,000. The second, Project Transformation Grants, enables organizations to complete a significant trail development or improvement project. Projects on rail-trails and rails-with-trails are given preference, but not required. Awards range from $15,000 - $50,000.

Plan4Health Coalitions

The American Planning Association (APA) and the American Public Health Association (APHA) work to build local capacity in addressing population health goals and promoting the inclusion of health in non-traditional sectors such as transportation. Each proposal must address inactivity, unhealthy diets and/or health equity. Awards average $150,000, and no more than two awards will be granted in a single state.

National Fish and Wildlife Foundation

The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants, and habitats. The Foundation provides grants for bicycle and pedestrian projects through a program called Acres for America. Government agencies and nonprofits organizations may apply.

10-Minute Walk Campaign

The 10-Minute Walk Campaign is focused on increasing access to high-quality parks. First round applicants will receive planning technical assistance while second round applicants will receive $40,000. Applicants must be local government agencies or non-profits that manage parks.

American Greenways Eastman Kodak Awards

This national program provides small grants ($500-$2,500) to local, regional, or statewide non-profit organizations to support the planning and design of greenways. Funds may be used for the planning and design of pathways. Grants are awarded based on the importance of the project to local greenway development efforts, demonstrated community support, extent to which the grant will result in matching funds, likelihood of tangible results, and the capacity of the organization to complete the project.

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PUBLIC WORKS DEPARTMENT