



City of Hawaiian Gardens Bicycle Master Plan

2025 FINAL PLAN





CONTENTS

Executive Summary	IV
1 Introduction	01
2 From Vision to Plan: The BMP Process	04
3 Community Voices	07
4 Bicycling in Hawaiian Gardens Today	16
5 Hawaiian Gardens' Next Bicycle Network	29
6 Action Plan	47
Appendices	65

Acknowledgments

Community Advisory Committee

Dandy De Paula, Mayor

Victor Farfan, Councilmember

Kevin Nguyen, Associate Planner II

Joe Jimenez, Director of Recreation and
Community Services

Elise McCaleb, Director of Community Development

Steve Gomez, Public Safety Director

Albert Perez, Public Works Supervisor

Mayra A. Lozano, Director of School Services

Denise Macias, Principal Fedde Academy

Alejandro Gutierrez, Principal Furgeson Elementary School

Maria Perez-Brena, Principal Hawaiian Elementary School

Cynthia Santos, Principal Melbourne Elementary School

Majalia Gonzalez, City of Hawaiian Gardens Liaison

Luis Gonzalez, Planning Commissioner

Alexandra Grissell, Resident

Adrian Gonzalez, Resident

City of Hawaiian Gardens

Neema Ghanbari, P.E., Public
Works/Engineering Manager

Chris Kelley, P.E., QSD, City
Engineer (Willdan Engineering)

Jeffrey Lau, City Traffic Engineer,
P.E., T.E., (Willdan Engineering)

Prepared by:

TOOLE
DESIGN



Photograph Disclaimer

Photographs included in this plan were taken at public events or in public spaces. Individuals were asked for verbal consent prior to being photographed. Additionally, visible notices were posted at events informing participants that photography was taking place for documentation and outreach purposes.



EXECUTIVE SUMMARY

Hawaiian Gardens' first citywide Bicycle Master Plan outlines a clear roadmap for developing a safe, connected, and comprehensive bicycle network across the city.

Residents of Hawaiian Gardens have expressed a clear and growing interest in bicycling—both within the city and to neighboring communities. In response, the City committed to improving safety and expanding access through developing a thoughtfully designed bicycle network that is safe, comfortable, and accessible for all. The Bicycle Master Plan enhances connectivity to key destinations such as trails, parks, schools, and commercial areas. By doing so, it supports public health, strengthens the local economy by increasing access to local businesses, offers affordable transportation, and improves safety for all roadway users.

Bicycle Master Plan Goals



Safety.

Improve safety and comfort for current and future bicycle riders of all ages, abilities, and identities.



Connectivity.

Enhance connections to local and regional destinations, as well as the regional transportation network.



Equity.

Provide affordable transportation options that improve health and reduce car dependency.

From the outset, the City's intent was to develop a plan that authentically reflects the needs and aspirations of the community. To achieve this, the project team implemented a robust public engagement process, gathering input through multiple channels to understand residents' and businesses' priorities. These insights were then combined with data-driven analysis of existing conditions to inform the Plan's recommendations. Together, public input and technical analyses have shaped a comprehensive, connected bicycle network that will serve the people of Hawaiian Gardens today and into the future.

Outreach Highlights

3,500+

people reached

500+

survey responses

7

local meetings and events

20+

social media posts

280+

local businesses
contacted

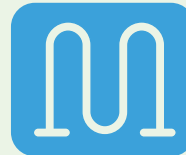
72%

of people said they
want improved safety
for bicyclists

Biking in Hawaiian Gardens Today



Nearly 1 mile of bike
lanes (along Civic Center
Dr & Norwalk Blvd)



21 existing bike racks
across fourteen
different locations



41 bicycle crashes
(including 6 fatal and
severe injury crashes)
between 2013-2022



72% of people said
they want improved
safety for bicyclists



270/366 survey
respondents ride a bike

Planned Bicycle Network

The planned bicycle network expands facilities in Hawaiian Gardens from 1 mile of bike lanes today to an impressive 10+ miles, significantly improving critical connections throughout the city. The network includes a variety of bicycle facility types, including Class I bike paths/trails, Class II bicycle lanes, Class III bicycle boulevards, and Class IV separated bike lanes. A few key segments have not yet been assigned a specific facility type; these corridors are labeled "Further Study Needed," indicating that additional analysis will be required before a final determination is made.

The network is estimated to take 5-10+ years to construct and will include:

2.8 miles
of bike lanes



6.1 miles
of bicycle boulevards



1.4 miles
of trails

1 Introduction



Until now, the City of Hawaiian Gardens has never had a roadmap to plan and develop bicycle connections within the City. That changed in 2024 when the City was awarded a Caltrans Active Transportation Program grant to develop its first comprehensive citywide Bicycle Master Plan (BMP) to promote bicycling among city residents and with neighboring cities. Now complete, the Plan will serve as a roadmap to improve bicycle safety and infrastructure in the city for the next 10 years.

What is a Bicycle Master Plan?

A bicycle master plan is a blueprint to guide the development and implementation of safe and adequate bicycling infrastructure and programs. The plan outlines existing conditions, goals, objectives, and strategies aimed at promoting cycling as a safe, healthy, convenient, and accessible alternative mode of transportation.

Why is Hawaiian Gardens developing a Bicycle Master Plan?

- 1. Prerogative to fundamentally upgrade the bike network in Hawaiian Gardens.** Today's bicycling and safety infrastructure in the city is limited and not updated to be in line with the latest federal and national best practices. The city has an opportunity to make upgrades that meet the highest level of safety and comfort for bicyclists and drivers.
- 2. Leverage funding opportunities from the region, state, and federal levels.** Having a plan makes it easier for Hawaiian Gardens to secure funding for street projects and programs.
- 3. Advantageous location connecting trails, parks and schools.** Hawaiian Gardens is situated next to Coyote Creek and has flood channel control connections that could become high-quality regional facilities and connections.
- 4. Opportunity to promote equity and improve the health of the community.** Hawaiian Gardens is developing this plan to identify existing issues and effectively address them.



CREATING SAFE AND COMFORTABLE PLACES FOR PEOPLE TO BIKE COMES WITH MANY BENEFITS:

IMPROVED HEALTH (both mental and physical) including lower rates of obesity, high blood pressure, and insulin levels

ENVIRONMENTAL ADVANTAGES made possible through new and expanded bicycling facilities reduce emissions and improve air quality.

SAFETY FOR ALL USERS since bicycle facilities have been found to lead to up to 65% reduction in crash frequencies possibly owing to traffic calming effects and reduced speeds.*



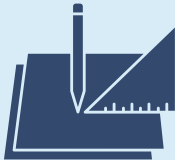

ECONOMIC BENEFITS through increases in local retail sales, bicycle repair services, and hospitality services associated with tourism.

(2022, July). Addressing Bicyclist Safety Through the Development of Crash Modification Factors for Bikeways. Texas A&M Transportation Institute.



Components of the BMP

The Plan includes specific recommendations for infrastructure such as bicycle lanes and parking, as well as policies and programs like bike education. To get to these recommendations, the project team evaluated streets and paths to document today's conditions and identified design elements that can be implemented to help improve safety and mobility needs related to its residents' bicycling. At every stage of the project the community and stakeholders were consulted and engaged to guide BMP activities and priorities. Ultimately, the plan is wrapped up into a few key tools to implement bicycle facilities and programming into the future:

COMPONENT	WHAT IS IT?
<p>BICYCLE NETWORK</p> 	<p>The bicycle network is a map that identifies which streets are selected for future bicycle improvements and which types of improvements are recommended.</p>
<p>IMPLEMENTATION PLAN</p> 	<p>The implementation plan is a step-by-step breakdown of activities to help Hawaiian Gardens achieve their vision for bicycling. The plan has recommended activities for each of the next ten years.</p>
<p>DESIGN STANDARDS</p> 	<p>Design standards show standards widths, design best practices, links to resources, and visualizations to assist City staff and partners to design appropriate facilities according to recommended best practices.</p>
<p>STAKEHOLDER DATABASE</p> 	<p>This plan process engaged hundreds of residents, businesses, partners and others who care about the future of Hawaiian Gardens. The team has developed a list of interested stakeholders to engage as the plan is implemented.</p>

2 From Vision to Plan: The BMP Process



PLAN
DE BICICLETA

¿
cicleta?

¿
bicycle



¿
Important?

bicycle travel today and propose
comfortable place to ride a bike. It will
bring for these improvements.

¿
Maestro de

¿
desafíos que hay hoy en día con los
Gardens más seguro y un lugar más
de la Ciudad de obtener fondos

Winter 2024
Invierno 2024

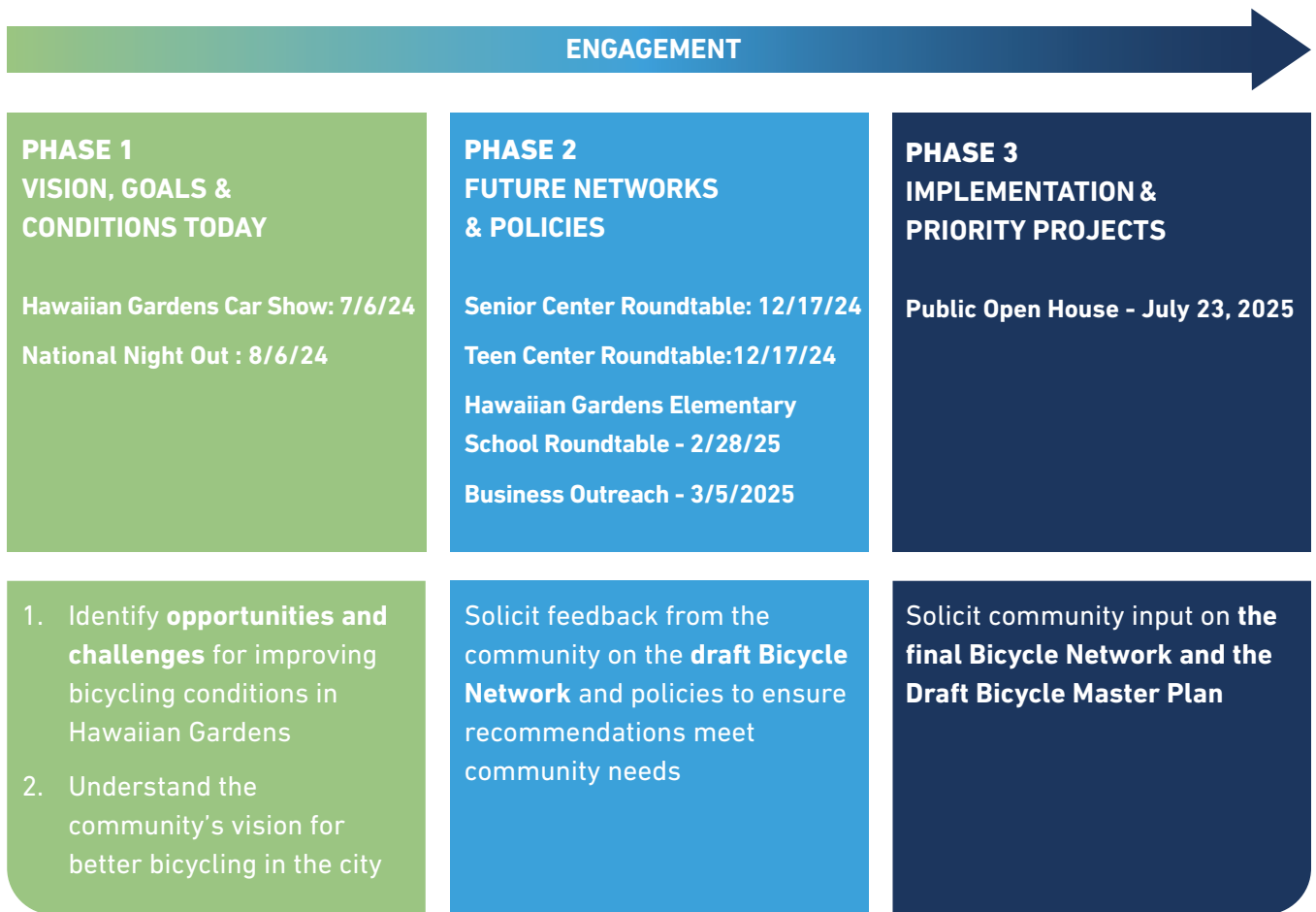
Implementation & Priority
Projects
Implementación y proyectos
prioritarios





The Hawaiian Gardens BMP kicked off a one-year long planning process in Spring 2024. The process involved three distinct phases designed to move from visioning to actionable recommendations.

As the city previously did not have a bicycle plan, the first phase was designed to define the goals for bicycling in Hawaiian Gardens, such as the goal to make regional connections by connecting to neighboring cities bicycle facilities. The second phase drafted recommendations based on those goals and the community needs documented in the first phase. The third phase prioritized those recommendations with key action items to move the plan forward and phase recommendations across the 10-year implementation timeline.





What will the BMP achieve?

Any bicycle plan needs a goal post to guide priorities and investments, helping the city make decisions about how to redesign streets and make improvements into the future. Goals for the BMP were defined in the first stage of outreach through community events, the Community Advisory Committee and a survey that asked residents about their needs. We heard frequently about improving safety and providing connections to destinations such as existing bike routes and parks (**Figure 1**). These goals align with state and regional priorities, meaning that the recommended projects from the Plan will have a higher likelihood of receiving funding.

The goals of the Hawaiian Gardens Bicycle Master Plan are:



Safety.

Improve safety and comfort for current and future bicycle riders of all ages, abilities, and identities.



Connectivity.

Enhance connections to local and regional destinations, as well as the regional transportation network.



Equity.

Provide affordable transportation options that improve health and reduce car dependency.



STATE AND REGIONAL TRANSPORTATION GOALS:

- [LA Metro Active Transportation Strategic Plan goals](#): equity, safety and comfort, accessibility, connectivity, sustainability
- [SCAG Mobility Technical report mobility goal](#): Build and maintain an integrated multimodal transportation network.
- [Caltrans Towards an Active California goals](#): safety, mobility, preservation, equity

What do you see as the most important priorities for a Hawaiian Gardens Bike Master Plan?

Improving safety for people who bike

Making connections to places I would like to bike

Making connections to existing bike routes

Creating connections to parks and recreation areas

Encouraging more people to travel by bike

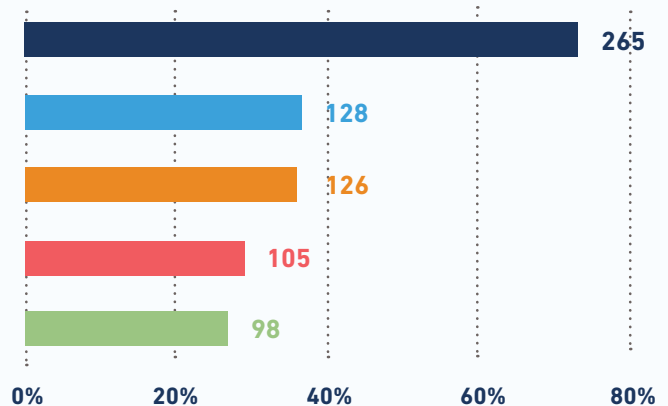


Figure 1: Community Priorities from the Summer 2024 Survey Results

3 Community Voices





The City of Hawaiian Gardens sought community feedback throughout the plan process to develop an implementable Bicycle Master Plan that centers community needs. The engagement prioritized reaching residents and employers in Hawaiian Gardens while still engaging with residents in neighboring cities who may bike to city businesses or pass through the city to connect to regional destinations. By incorporating diverse perspectives, including families, students, and seniors, the engagement established a collective vision for a safe and connected Hawaiian Gardens.

Outreach was divided into three phases designed to gather feedback and share project updates at key moments in the project timeline. The input from **Phase 1** in Spring 2024 provided valuable insights into current bicycling conditions, challenges, and opportunities within the community. **Phase 2** focused on engaging community members and stakeholders to ensure that the planned network and bike parking recommendations align with the community's needs, visions, and constraints. **Phase 3** celebrated the release of the draft plan with the public and provided a final opportunity for comments.

PHASE 1: SPRING 2024

VISIONS & CURRENT CONDITIONS

Learn about the project, share your biking experience, and establish project goals



PHASE 2: FALL/WINTER 2024

FUTURE NETWORK AND POLICIES

Provide feedback on the planned network and identify key projects and programs



PHASE 3: SPRING/SUMMER 2025

IMPLEMENTATION & PRIORITY PROJECTS

Tell us which type of improvements are most important to you

Figure 2: Engagement Phases



Outreach Highlights



Facilitated engagement at **2 citywide events, 3 roundtable meetings and 1 public workshop**



Reached **3,500+** community members and gathered input from **130+** people



Contacted **280+** local businesses



Placed **6 lawn signs** at locations with high visibility to the public



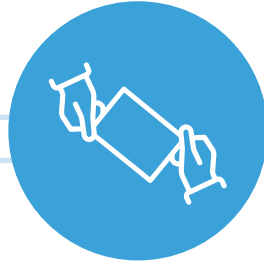
Received **500+** surveys



Distributed **20+** social media messages via City of Hawaiian Gardens accounts



Developed and distributed flyers to post at City Hall and the Hawaiian Gardens Library



Featured outreach activities and **BMP** awareness on the project **website** in **English and Spanish**



Distributed **4 gift card giveaways** to encourage participation

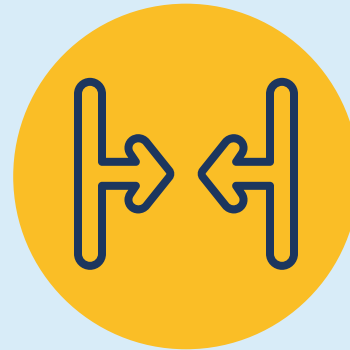


WHAT WE HEARD



THEME: 1 **DESIRE FOR SAFE AND COMFORTABLE INFRASTRUCTURE**

- Lack of infrastructure, speeding, and a general feeling of being unsafe are the top deterrents to biking.
- Desire for wider and protected bike lanes to enhance safety. Suggestions for concrete barriers to separate bike lanes from traffic.
 - Observations that bicyclists frequently ride on sidewalks, highlighting the need for dedicated infrastructure.
- Concerns with lack of enforcement of bike lanes and speeding resulting in bicyclists feeling unsafe. Interest in speed enforcement.
- Calls for safer bridges, particularly at Coyote Creek.
- Concern about cars often not yielding to bicyclists, especially at intersections.
- Suggestions included wider sidewalks, traffic-calming measures like speed bumps, wayfinding signage to help with navigation and better separation between bike lanes and vehicle traffic.
 - Mixed opinions on roundabouts, with some viewing them as dangerous due to fast-moving cars.



THEME: 2 **INTEREST IN BETTER CONNECTIONS AND GAP CLOSURES**

- Strong interest in connections to schools, parks, shopping, existing bikeways, and transit.
- People most often bike to parks, friends' and family's homes, and shopping areas. However, with an improved network, they would like to bike more frequently to neighboring cities.
- Flood control channels are opportunities to close key gaps.
- Interest in creating a direct connection between 223rd Street and Carson Boulevard.

**72% of people
said they want
improved safety
for bicyclists**



WHAT WE HEARD



THEME: 3 DESIRE FOR FAST IMPLEMENTATION WITH MINIMAL PARKING LOSS

- Concerns from those who do not bike about infrastructure changes.
- Emphases on connectivity and coordination with other cities to increase effectiveness.
- Strong opposition to the removal of parking spaces, highlighting ongoing parking challenges.
- Both understanding and frustration that implementation is slow leading to a desire for feasible projects to happen quickly.
- Interest in understanding how implementation and funding works.



THEME: 4 EMPHASIS ON SECURITY

- Increased need for better lighting and visibility on trails.
- Concerns about gang activity in certain areas, affecting bike trail safety.
- Reports of crashes and avoidance of certain trails due to the presence of homeless individuals.

OUTREACH ACTIVITIES

Events

The outreach team actively engaged with community members at in-person events and roundtable meetings. For the events, we strategically placed booths in high-traffic areas to ensure maximum visibility and interaction. The roundtables included large-scale maps printed for hands-on interaction. Attendees provided valuable feedback on biking infrastructure and raised several concerns regarding safety, accessibility, and overall biking conditions.

TABLE 1: EVENT LIST AND METRICS

EVENT NAME	IMPRESSIONS	CONVERSATIONS
City of Hawaiian Gardens 20th Annual Car Show 7-6-24	1,500	50
City of Hawaiian Gardens National Night Out 8-6-24	80	80
Senior Center Roundtable 12-17-24	45	23
Teen Center Roundtable 12-17-24	10	10
Parent Meeting at HG Elementary School 2-28-25	12	10
Business Outreach (March - July 2025)	307	304
Draft Plan Release Public Meeting 7-23-25	10	10
TOTAL	1,964	487

**Impressions refer to the estimated number of people who listened or walked by without fully engaging. Participants are those who actively engaged and provided feedback*





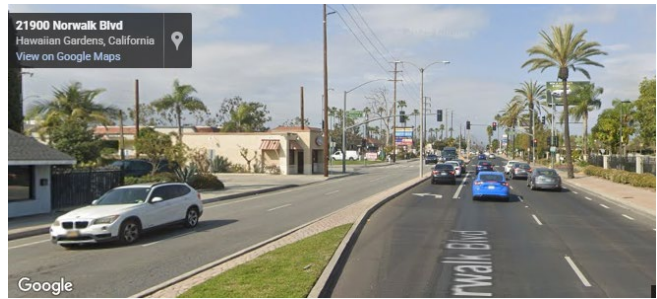
Business Door Knocking & Mailers

On March 5, 2025, the outreach team conducted business canvassing along Norwalk Bl and Carson St to gather feedback from the local business community. The team visited **19 businesses**, engaging **16 individuals**, including business owners, employees, and managers. A total of **83 flyers** were distributed to raise awareness about the project and encourage continued engagement. In July 2025 the outreach team sent a letter to **288 businesses** to invite them to the July 23rd, 2025 Public Meeting and share more about the Bicycle Master Plan.

Community Surveys

The Project Team developed two community surveys in collaboration with City staff to ask about biking conditions and opportunities. The surveys had over **500 responses** across the two surveys. Participants were asked to provide feedback on:

- Ranking or proposing goals for the Plan that align with community needs
- Sharing current bicycling experiences including frequency of use, preferred routes, and purposes for biking (recreational, commuting, etc.)
- Identifying concerns such as problematic intersections, lack of bike lanes, or areas where connectivity between routes could be improved
- Comment on whether they agree or disagree with proposed bike lanes and bicycle parking locations



Commenter Name

Do you agree or disagree with this proposed improvement?
 Agree
 Disagree

If you disagree, select the reason and give us further detail in the text box below.
 Change Bikeway Type
 Remove
 Alternative Route
 Other Reason

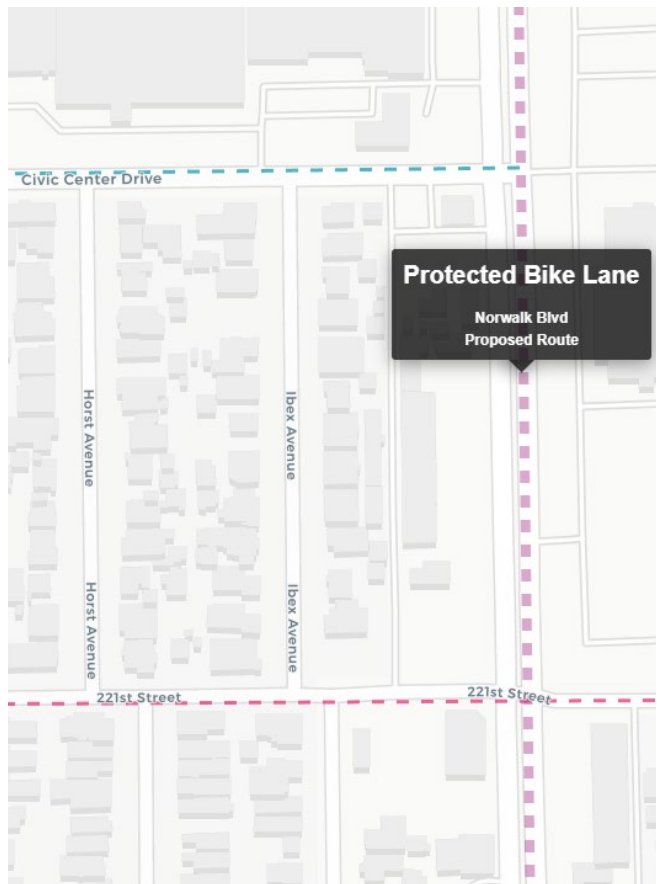






Figure 3: Screenshot of the Survey Asking for Feedback on Proposed Bicycle Facilities



A bikeway is a designated route or path that accommodates bicycles, providing a safe and accessible means of travel for bicyclists. Each type serves distinct purposes and offers varying degrees of safety and accessibility. In California, bikeway classifications are categorized as Class I, II, III, or IV, each designed to suit different street types and community needs. The definitions of each class are as follows:

TABLE 2: BIKEWAY TYPES

TYPE	IMAGE	DESCRIPTION
<p>BIKE PATH (Class 1)</p>		<p>A bike path is much like the bike path along Coyote Creek. Unlike bike lanes, which are typically part of roadways, bike paths are completely separate from motor vehicle traffic. They can vary in size and construction, ranging from paved pathways through urban areas or parks to unpaved trails in natural settings.</p> <p>0.45 miles in Hawaiian Gardens</p>
<p>BIKE LANE (Class 2)</p>		<p>Bike lanes are situated within the roadway, sharing space with motor vehicles. They are distinguished by a painted line and pavement symbols. You can find one on Norwalk Boulevard and Civic Center Drive.</p> <p>0.95 miles in Hawaiian Gardens (Civic Center Dr and Norwalk Bl)</p>
<p>BICYCLE BOULEVARD (Class 3)</p>		<p>Bicycle boulevards are usually located on local or more neighborhood streets. While they do not have dedicated lanes for cyclists, they incorporate extensive traffic calming measures, such as stop signs, to create a comfortable environment for biking. The design of Pioneer Boulevard is similar to a bicycle boulevard because it has speed humps and stop signs.</p> <p>0.91 miles in Hawaiian Gardens (226th St and portions of Pioneer Bl and Centralia St along the City border)</p>
<p>SEPARATED BIKE LANE (Class 4)</p>		<p>Separated bike lanes are situated on the roadway but feature physical protection between motor vehicles and bicyclists. The level and type of protection can vary, but the picture to the left shows both bollards/delineators and concrete barriers.</p> <p>0 miles in Hawaiian Gardens</p>

Digital Outreach

Information was posted on a [project website](https://hgcity.org/our-city/bicycle-master-plan) (hgcity.org/our-city/bicycle-master-plan) and shared digitally via email, social media (Facebook, Instagram, and X/Twitter) and to parent listservs through the Community Advisory Committee members. An ad campaign also successfully engaged the community through digital display ads, encouraging participation in the survey. Social media and digital content directed community members to the community surveys when they were live and provided information such as the [project fact sheet](#) and [frequently asked questions](#).

Community Advisory Committee

The Community Advisory Committee (CAC) met three times during the project to consult a diverse group of stakeholders and serve as a guide for the development of safe and accessible bikeways and paths in Hawaiian Gardens. Stakeholders included members of the city council, staff from Public Safety, Community Development, Public Works, and the fire department, as well as school staff and a local resident/community representative.

- **Meeting 1 (June 2024):** Existing conditions, understanding bicyclist needs, and relevant local and regional projects
- **Meeting 2 (October 2024):** Phase 1 engagement update, bikeway types, and draft bicycle network
- **Meeting 3 (May 2025):** Phase 2 engagement update, priority projects, programs and policies, draft plan

Members of the CAC were invited to comment on engagement strategies and share meeting and workshop opportunities with the public. The CAC also provided direct comments on the proposed bicycle network, priority projects and their vision for bicycling in Hawaiian Gardens.



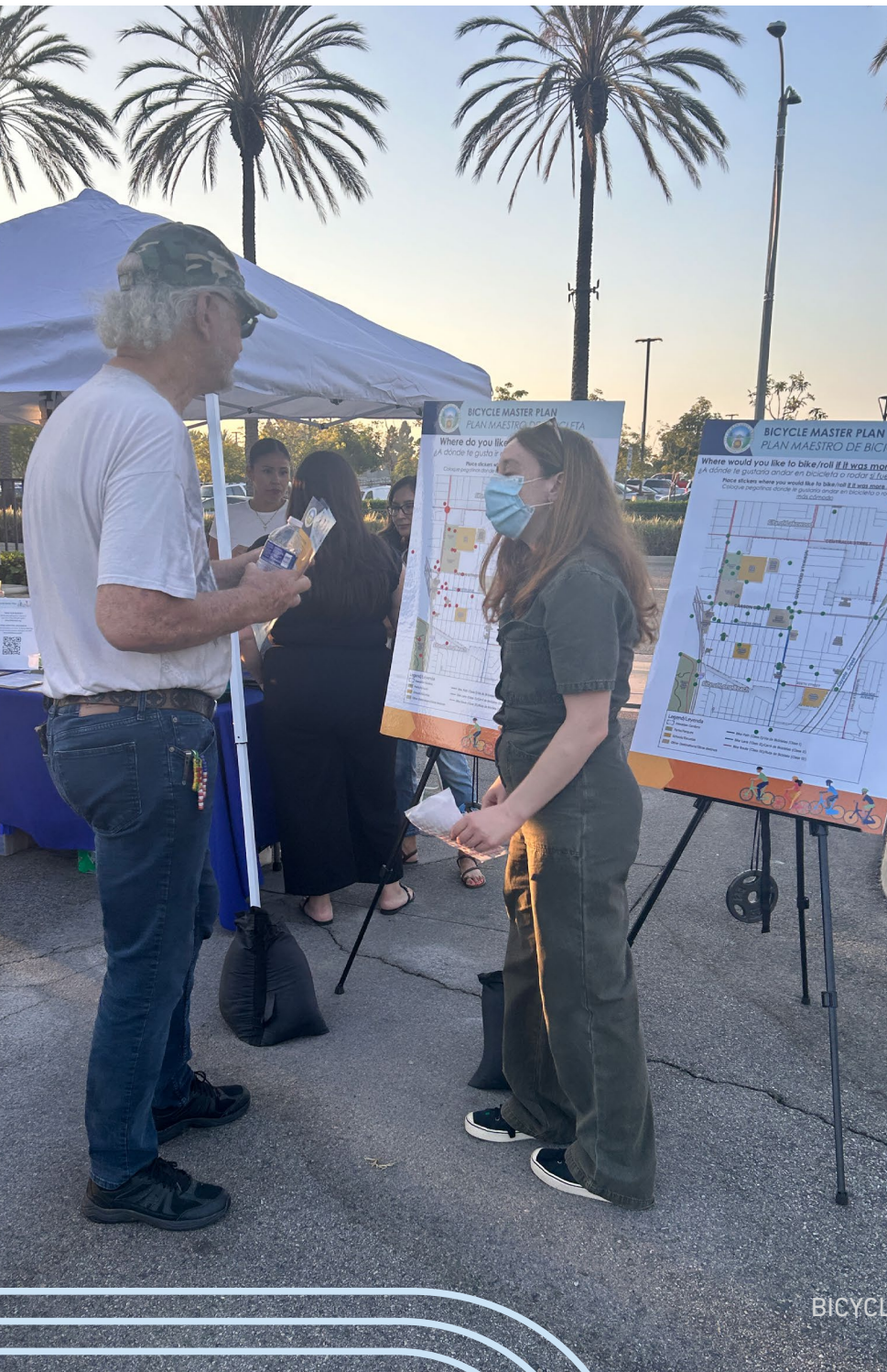
Figure 4: Example Social Media Post Promoting the First Community Survey

4 Bicycling in Hawaiian Gardens Today





In the context of enhancing sustainable transportation options, understanding the current state of bicycle facilities is crucial. This chapter provides an overview of existing bicycle infrastructure, amenities, and accessibility within Hawaiian Gardens, aiming to assess current conditions and identify opportunities for improvement. By evaluating the effectiveness and inclusivity of current bicycle facilities, this analysis lays the foundation for developing strategies that promote a safe, accessible, and interconnected bicycling network.



Accompanying existing conditions analyses are shown in Appendix C.

Existing Facilities in Hawaiian Gardens

A **bike path** is situated along a recreational area such as along the banks of Coyote Creek, though the Coyote Creek Bike Trail is maintained by LA County.



Figure 5: The Coyote Creek Bike Trail - an Existing Bike Path in Hawaiian Gardens

Bike lanes are designated along segments of Norwalk Boulevard and Civic Center Drive in Hawaiian Gardens. These facilities primarily connect civic, social, and religious institutions.



Figure 6: Existing Bike Lanes in Hawaiian Gardens on Civic Center Drive

The predominant bikeways in Hawaiian Gardens are **signed bike routes**, which are located along segments of Pioneer Boulevard, Centralia Street, Norwalk Boulevard, Bloomfield Street, and 226th Street.



Figure 7: An Existing Signed Bike Route Along Pioneer Boulevard in Hawaiian Gardens

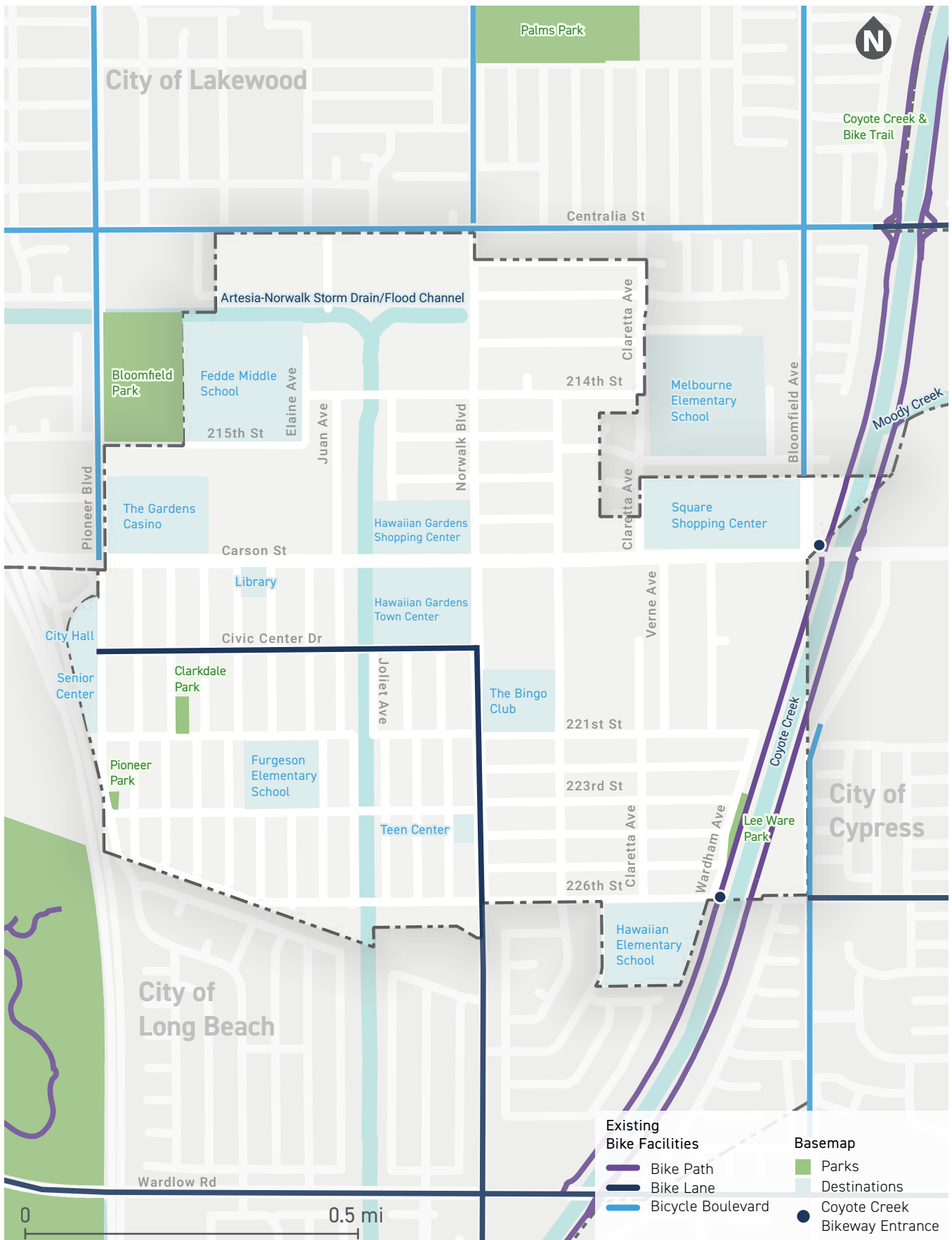


Figure 8: Existing Bicycle Facilities in the City of Hawaiian Gardens



Bicycle Parking

A high-level analysis identified 21 bike racks across 14 locations in Hawaiian Gardens, located near key destinations such as schools, churches, parks, shopping centers, Bingo Club, and City Hall. Hawaiian Gardens features a variety of bike rack types include wave, wheel well, coat hanger, inverted u, loop, and schoolyard racks.

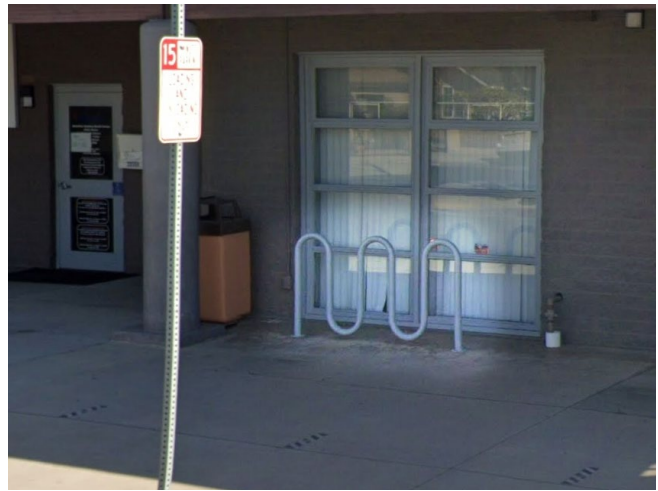


Figure 9: Existing Bicycle Parking in Hawaiian Gardens near Lee Ware Pool

TABLE 3: EXISTING BICYCLE RACKS

NAME	ADDRESS	TYPE	QUANTITY*	CAPACITY*
FEDDE MIDDLE SCHOOL	21409 ELAINE AVE	Wave	3	33
ST. PETER CHANEL CATHOLIC CHURCH	12001 214TH ST	Wave	1	7
HAWAIIAN GARDENS' CITY HALL	21815 PIONEER BL	Wheelwell	1	8
PANG PANG KARAOKE (near this location)	12571 E CARSON ST	Coathanger	1	6
EoS FITNESS (near this location)	12120 E CARSON ST	Inverted U	4	8
		Wave	1	7
THE BINGO CLUB	21900 NORWALK BL	Wave	1	5
HAWAIIAN GARDENS HEAD START	22150 WARDHAM AVE	Wave	1	7
LEE WARE POOL	22300 WARDHAM AVE	Wave	1	7
THE WAY OUT MINISTRIES	22427 NORWALK BL	Schoolyard	1	7
PLANET FITNESS	21101 NORWALK BL	Wave	1	7
HOLIDAY INN EXPRESS & SUITES HAWAIIAN GARDENS	22434 NORWALK AVE	Schoolyard	1	6
STARBUCKS	12161 E CARSON ST	Wave	1	4
LUCKY COIN LAUNDRY	12321 E CARSON ST	Wheelwell	1	4
PIONEER PARK	22222 PIONEER BL	Loop	2	4

*Numbers based on desktop review

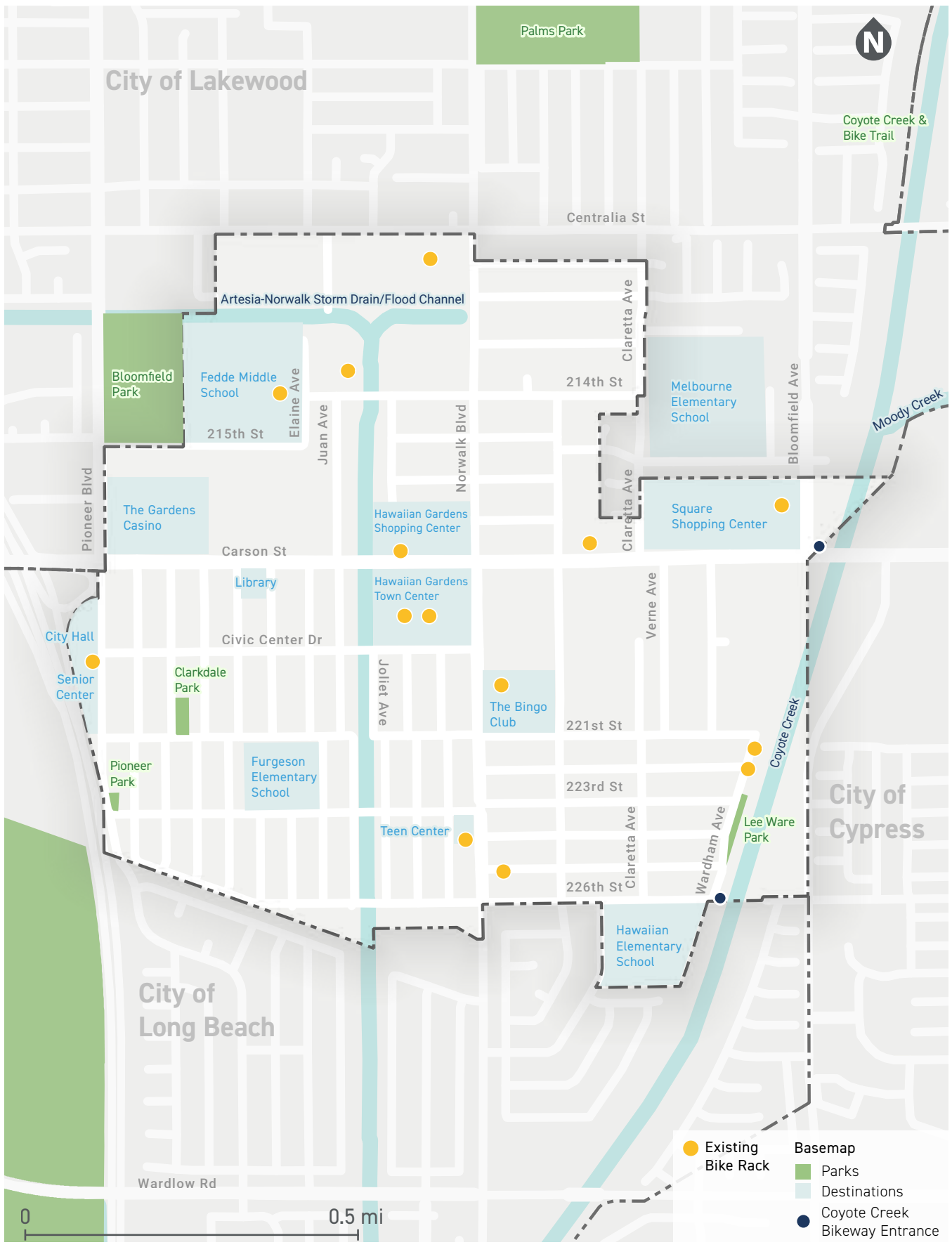


Figure 10: Existing Bicycle Rack Locations



Crash Analysis

An analysis of bicycle-involved crashes in Hawaiian Gardens identified city-specific trends and factors contributing to these incidents, providing a foundation of how bicycle safety improvements might effectively address and mitigate such crashes. The crash data was obtained from the Transportation Injury Mapping System (TIMS) database.

The crashes encompass incidents involving both bicycles and motor vehicles over the past decade, from 2013 to 2022. Out of a total of 41 crashes during this period, 1 was fatal, 5 led to serious injuries, and 35 resulted in minor or no injuries.

The average number of bicycle crashes per year in Hawaiian Gardens is approximately four. The highest total of bicycle crashes within the period from 2013 to 2022 occurred in 2014, with a total of nine crashes.

Notably, Carson Street and Norwalk Boulevard are identified as high-crash corridors, with the most severe collisions occurring on Norwalk Boulevard. In Hawaiian Gardens, over one-fourth of the crashes were determined to be the fault of the vehicle driver. Over half of these crashes were caused by drivers not yielding to the right of way, followed by drivers ignoring traffic signals and signs. Over half of the bicycle crashes were determined to be the fault of the bicyclist. Of these crashes, about half were due to the bicyclist riding on the wrong side of the road, followed by the bicyclist not following traffic signals and stop signs.

TABLE 4: BICYCLE CRASHES BY SEVERITY, 2013-2022

CRASH TYPE	NUMBER OF CRASHES	PERCENT OF TOTAL CRASHES
FATAL	1	2.4%
SEVERE	5	12.2%
OTHER VISIBLE INJURY	14	34.1%
COMPLAINT OF PAIN	21	51.2%
ALL BICYCLE CRASHES	41	100%



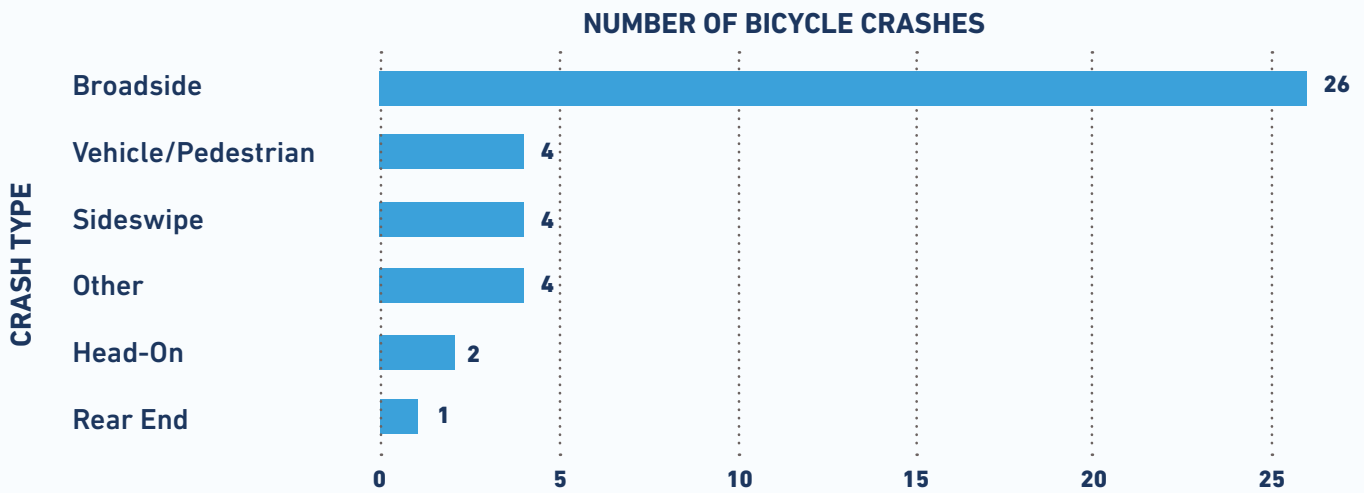


Figure 11: Bicycle Crashes by Type, 2013-2022

Bicycle crashes mostly occurred after 12 PM, with 66% happening during daylight hours and 95% occurring in clear weather conditions. As the analysis was not normalized by exposure, these results are generally reflective of bicyclists traveling more frequently during daylight hours.

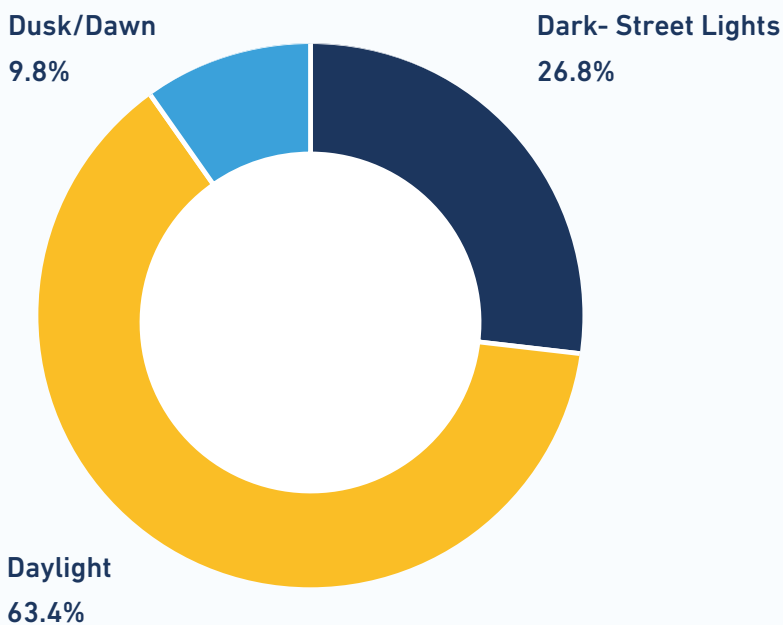


Figure 12: Bicycle Crashes by Lighting Conditions and Mode, 2013-2022

Understanding crash data is crucial for assessing the current conditions for bicyclists in Hawaiian Gardens. This data informed the development of the proposed bicycle network and shaped policy and program recommendations in the Bicycle Master Plan.

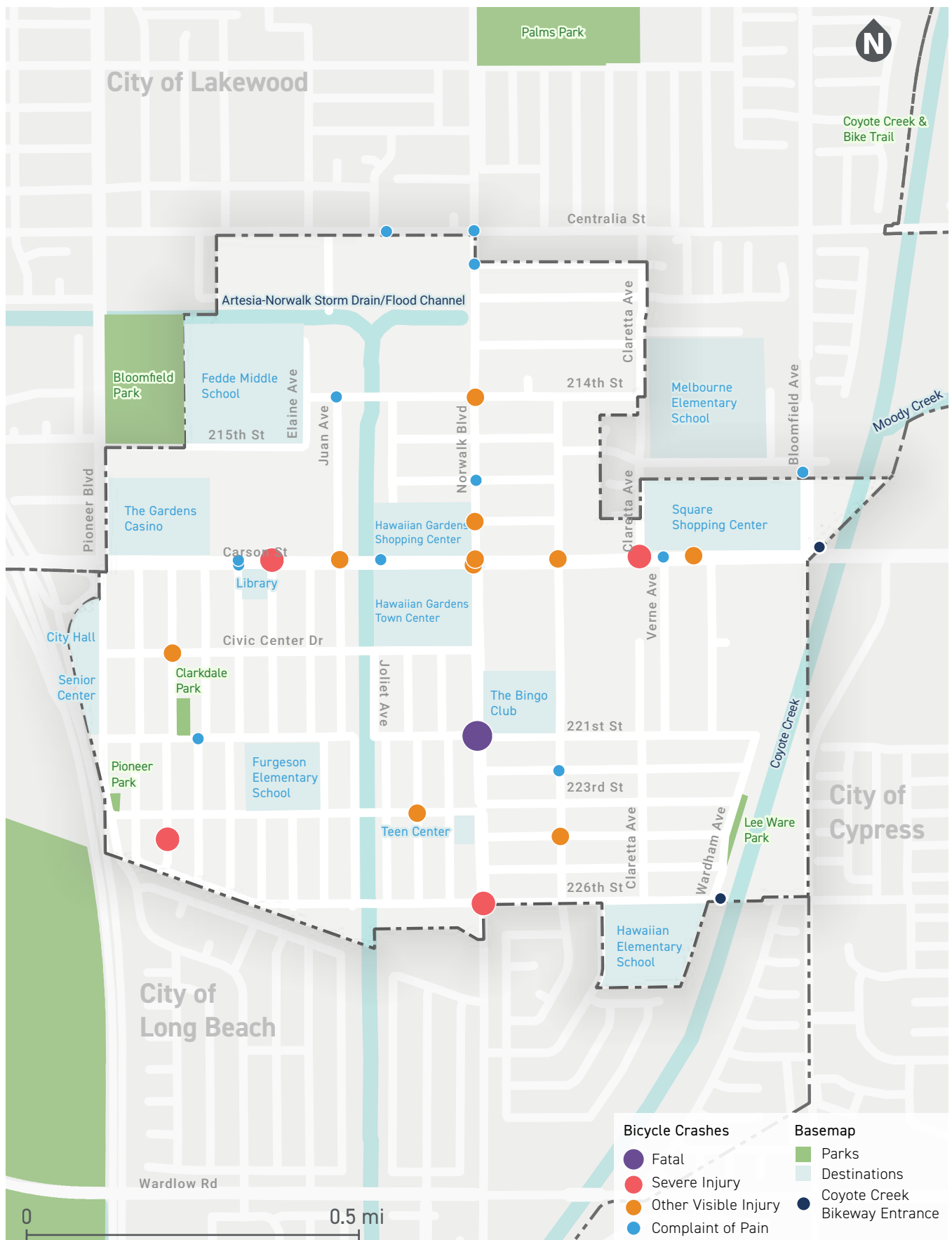


Figure 13: Bicycle Crashes (2013-2022)

How Comfortable is Biking in Hawaiian Gardens?

Reducing stress levels for bicyclists encourages more people to bike regularly, promoting healthier lifestyles and reducing traffic congestion. A “low-stress bikeway” or “low-stress” bike network features facilities that feel safe and comfortable for a diverse range of bicyclists, especially those who prefer not to share the road with cars. These bikeways are accessible to riders of all ages and abilities, often known as “8-to-80” bikeways because they cater to everyone from children to seniors.

Figure 14 provides an illustration of bicycling comfort levels in Hawaiian Gardens. The Level of Traffic Stress (LTS) analysis assesses how challenging or uncomfortable streets are for bicyclists of all ages and abilities. This metric evaluates the comfort and navigability of streets from a bicyclist’s perspective, scoring streets from 1 (low stress, high comfort) to 4 (high stress, low comfort). LTS scores consider factors such as the presence of bike lanes, speed limits, traffic volumes, number and width of lanes, and the presence of medians or centerlines.

Carson Street and Norwalk Boulevard in Hawaiian Gardens have high LTS scores due to their faster traffic speeds, heavy vehicle volumes, and multiple lanes. Moreover, a significant majority of bicycle crashes occur on streets with higher LTS scores. This highlights the critical role of LTS in Bicycle Master Plans, guiding where improvements are most urgently needed to enhance safety and comfort for bicyclists. Addressing these factors can lower stress levels for bicyclists and reduce the risk of crashes, ultimately contributing to safer road environments for all road users.



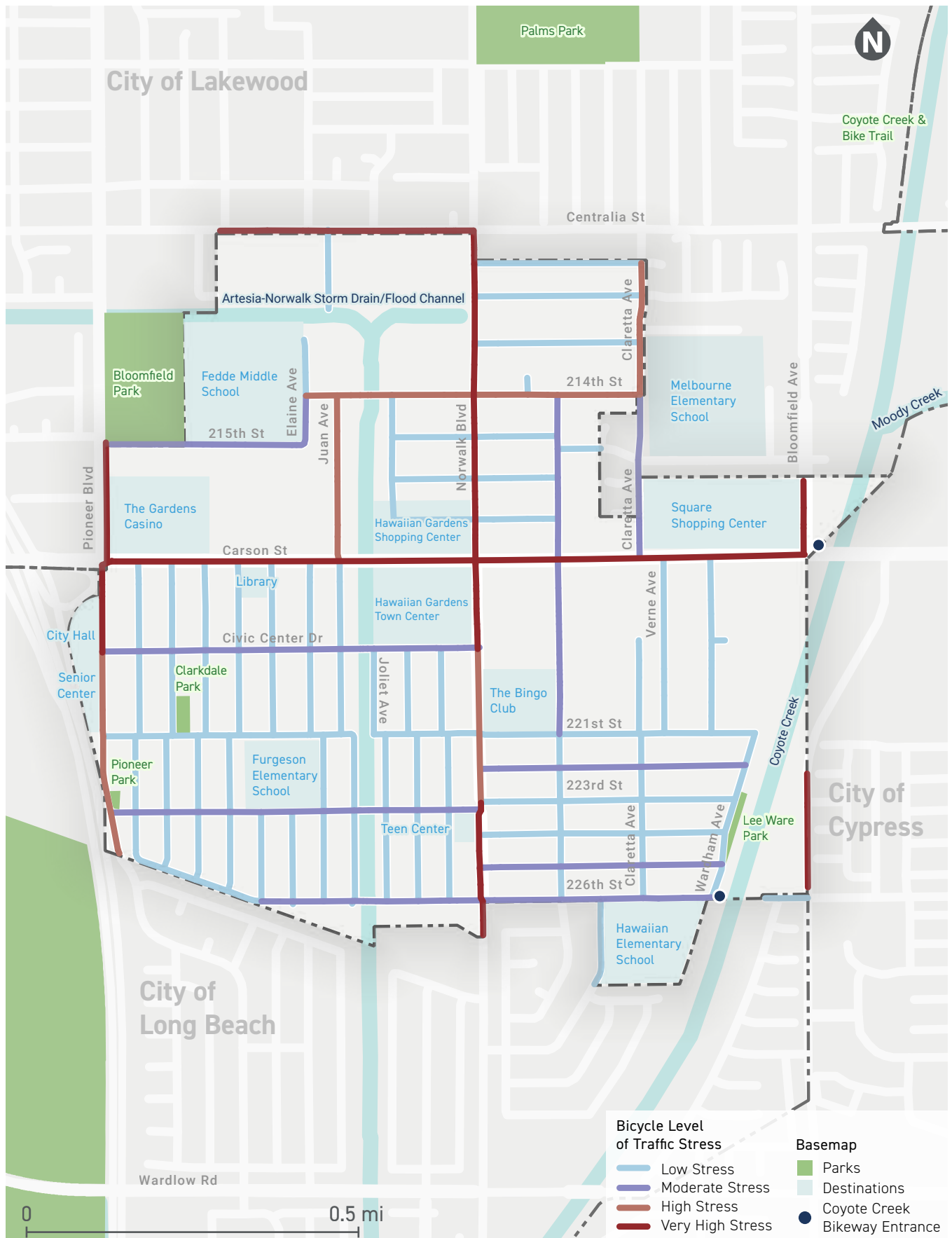


Figure 14: Bicycle Level of Traffic Stress and Bicycle-Involved Crashes

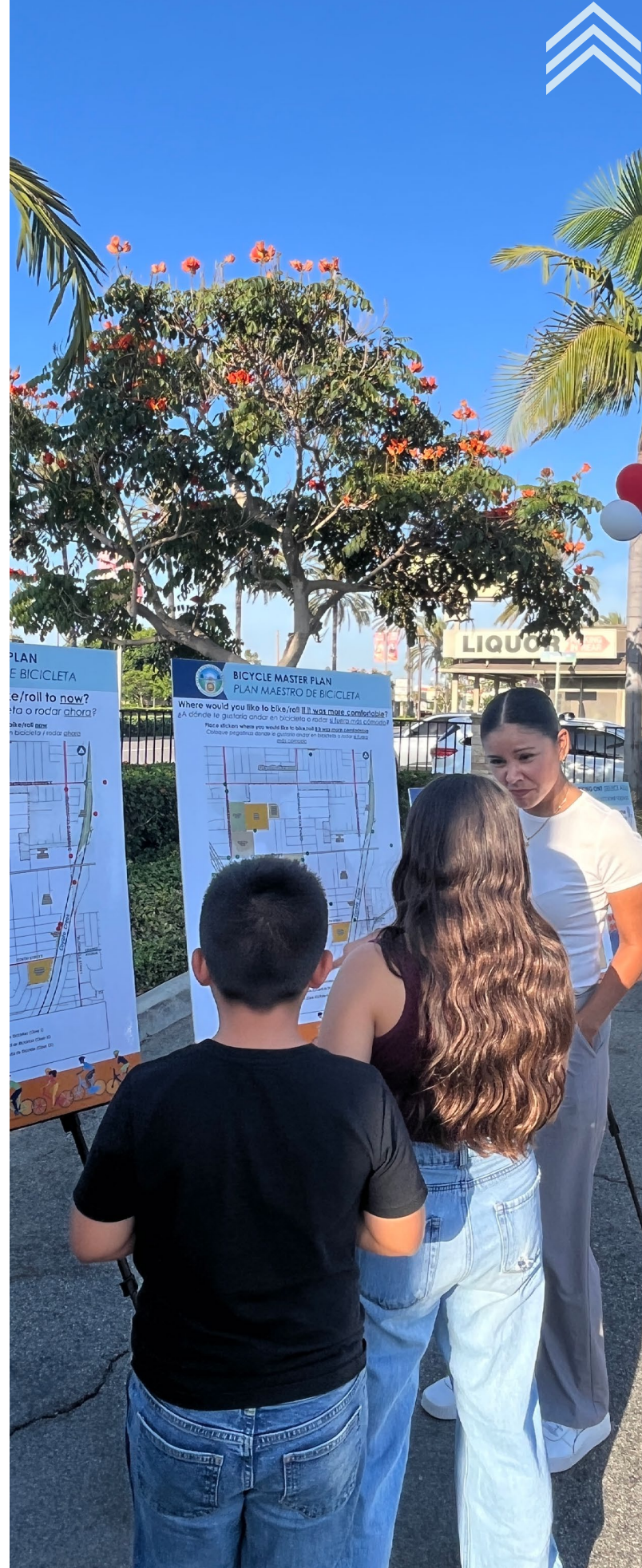
Equity Analysis

Equity is a fundamental goal of the Bicycle Master Plan, alongside safety and connectivity. It is essential that the experiences of residents with the greatest transportation needs shape the outcomes of the Plan and guide future project decisions. To understand equity in Hawaiian Gardens, the project team used the Equity Focused Communities (EFC) designation and index. These communities, designated by LA Metro, are identified based on factors such as high concentrations of residential and household demographics associated with mobility challenges (low-income households, people of color, and households without a motor vehicle).

Figure 15 shows the Metro Equity Focused communities and bicycle crashes within Hawaiian Gardens.

The majority of Hawaiian Gardens falls within two census tracts designated as EFCs, primarily situated on the western side of the City. Within Metro's Equity Need Index, these tracts areas are designated as high-need areas, the second-highest designation within the county.

Given that most crashes (over 80%) overlap within tracts designated as EFCs, recommendations within the Hawaiian Gardens Bicycle Master Plan will prioritize both equity and safety improvements in these areas of the City. To effectively meet transportation needs and address inequities, equity will be integral to the prioritization process. This ensures that priority projects are directed towards areas with the greatest need.



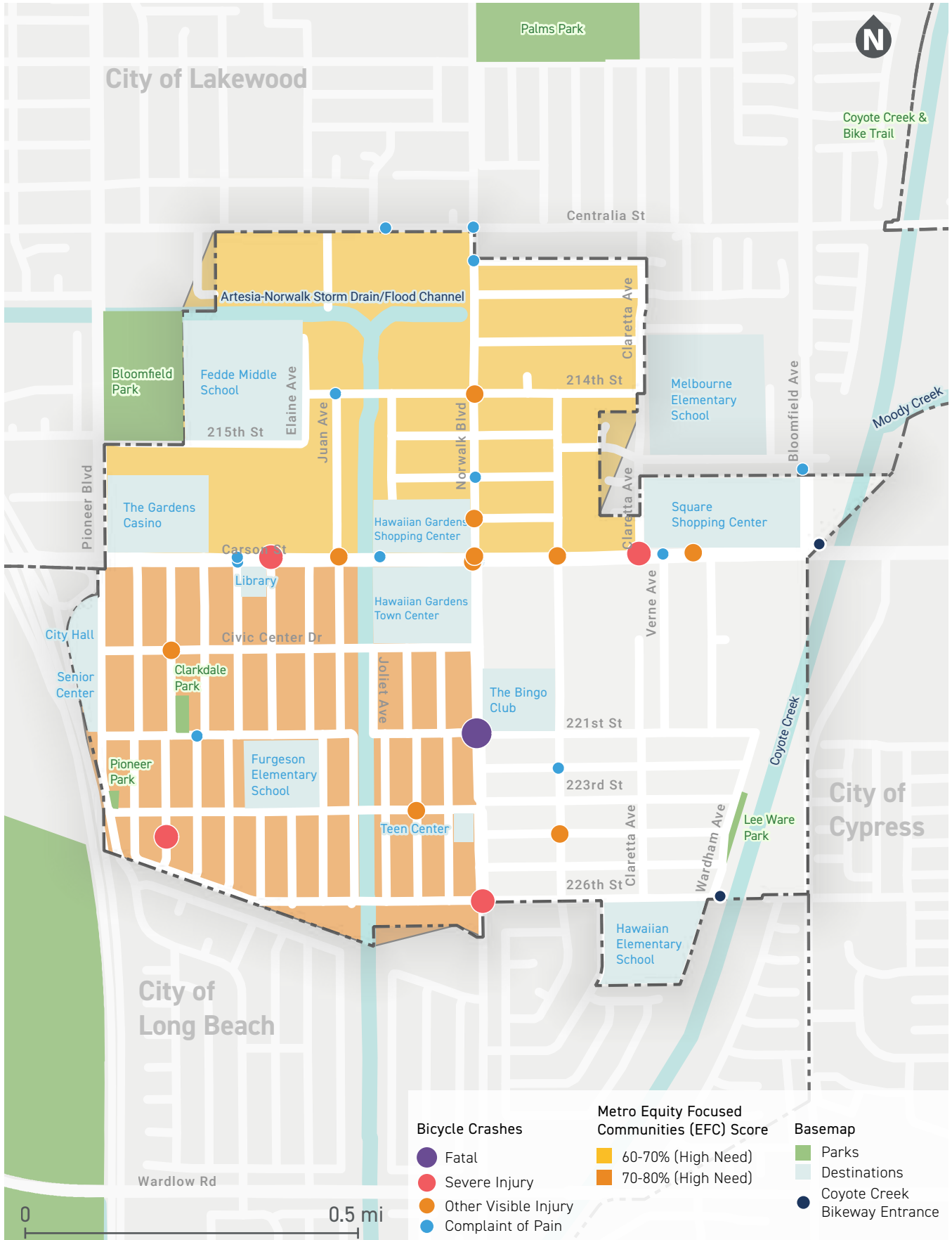


Figure 15: Equity Focused Communities and Bicycle-Involved Crashes

5 Hawaiian Gardens' Next Bicycle Network





In the context of enhancing sustainable transportation options, understanding the current state of bicycle facilities is crucial. This chapter provides an overview of existing bicycle infrastructure, amenities, and accessibility within Hawaiian Gardens, aiming to assess current conditions and identify opportunities for improvement. By evaluating the effectiveness and inclusivity of current bicycle facilities, this analysis lays the foundation for developing strategies that promote safe, accessible, and interconnected bicycling networks.

Guiding Principles

The Planned Bicycle Network aims to increase the safety of bicyclists in Hawaiian Gardens, connect to destinations both within Hawaiian Gardens as well as regional destinations, and provide an affordable transportation option for all residents. The Planned Bicycle Network was developed and informed by community desires and by the project goals below. The network planning also considered parking tradeoffs from a parking inventory that was conducted to evaluate of where further study is needed.

SAFETY – IMPROVE SAFETY AND COMFORT FOR FUTURE BICYCLE RIDERS OF ALL AGES, ABILITIES, AND IDENTITIES:

- Prioritize routes on lower volume, lower speed streets
- Provide physical separation on higher volume, higher speed streets
- Follow FHWA Bikeway Selection guidance and Hawaiian Gardens Design Guide standards
- Redesign intersections and crossings on higher volume, higher speed streets

CONNECTIVITY – ENHANCE CONNECTIONS TO LOCAL AND REGIONAL DESTINATIONS, AS WELL AS THE REGIONAL TRANSPORTATION NETWORK:

- Focus on creating connections to key destinations such as schools, parks, places of worship, and other activity centers.
- Identify connections to neighboring jurisdictions and provide consistent and continuous facility types across jurisdictional boundaries.
- Utilize input from the Community Advisory Committee and community engagement activities to identify key connections and destinations.

*Advancing equity, the third project goal, was considered later in the planning process when prioritizing the bicycle facilities for implementation.





Design Needs of Bicyclists

The needs of bicyclists also informed the design and development of the Planned Bicycle Network. Based on the existing roadway type and available space, the Planned Bicycle Network identifies a bikeway class for each corridor. These bikeway classes include:

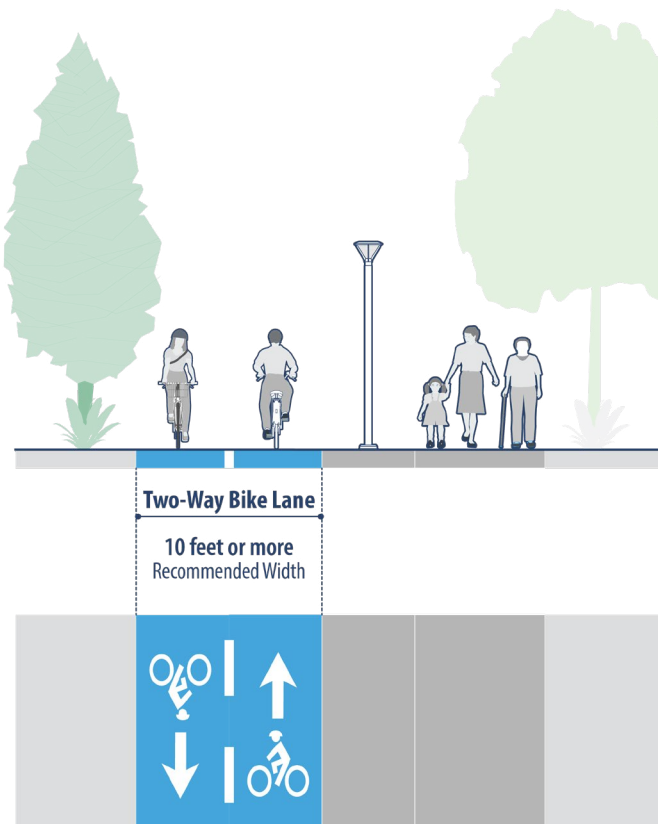
BIKE PATHS (CLASS I) are completely separated from vehicle traffic, similar to the Coyote Creek Bike Path

Width

- Practical minimum: 8 feet, Preferred: 10-12 feet

Best practices

- Shared-use paths should be designed for two-way travel. One-way paths may be used in rare situations where there is a need for only one-direction of travel.
- When shared use paths intersect roadways, the crossing design should minimize path users' exposure to traffic. Sufficient sight distances for path users and roadway users should be provided to decrease any potential conflicts.





BIKE LANES (CLASS II) are situated on the roadway, sharing space with motor vehicles. They have painted lines and symbols on the pavement. There are currently Class II bike lanes along Norwalk Boulevard and Civic Center Drive:

Width

- Practical minimum: 4 feet, Preferred: 6-8 feet

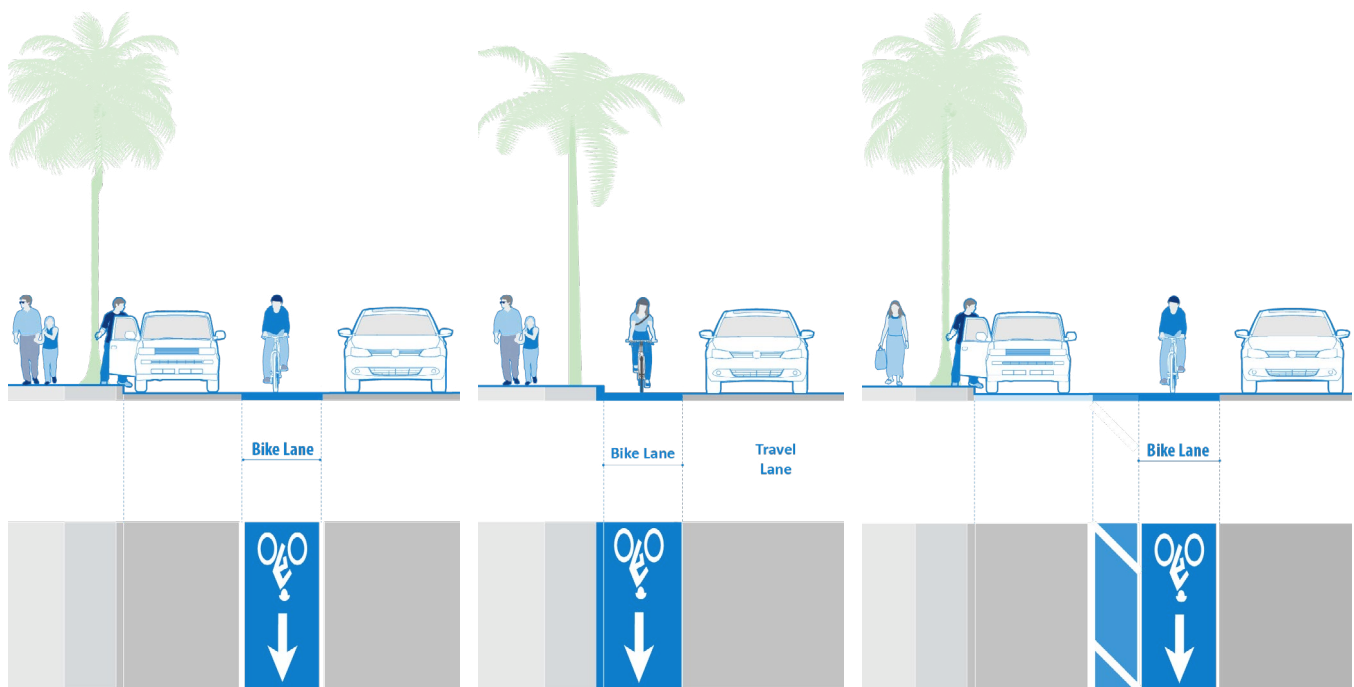
Best practices

- Class II bike lanes can be subject to motorist encroachment, buffers should be considered where possible.
- To enhance visibility of bicyclists at intersections, consider bike lane extensions, green-colored pavements and regulatory signs.

BIKE LANE ADJACENT TO PARKING

BIKE LANE ADJACENT TO A CURB

BIKE LANE WITH DOOR ZONE MARKING

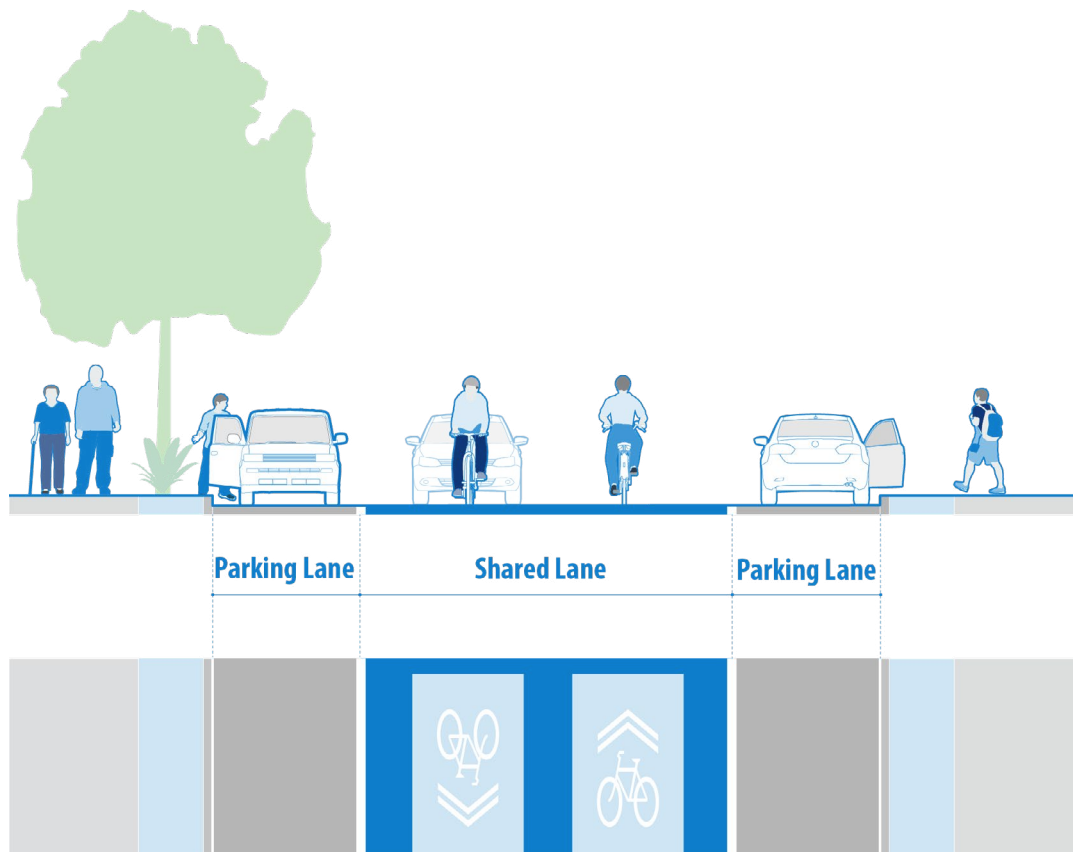




BICYCLE BOULEVARDS (CLASS III) are typically located on residential streets and incorporate traffic calming elements, such as neighborhood traffic circles, curb bulb-outs, and wayfinding signs:

Best practices

- Shared lane markings should be placed immediately after intersections and at an interval of 50-100 feet for busy streets and up to 250 feet for lower traffic routes
- Signs such as 'Bike Route' and 'Bicycles May Use Full Lane' should be used to support lane markings
- Bicycle boulevard treatments such as curb bulb-outs, neighborhood traffic circles, and wayfinding signs can be used where appropriate to calm traffic





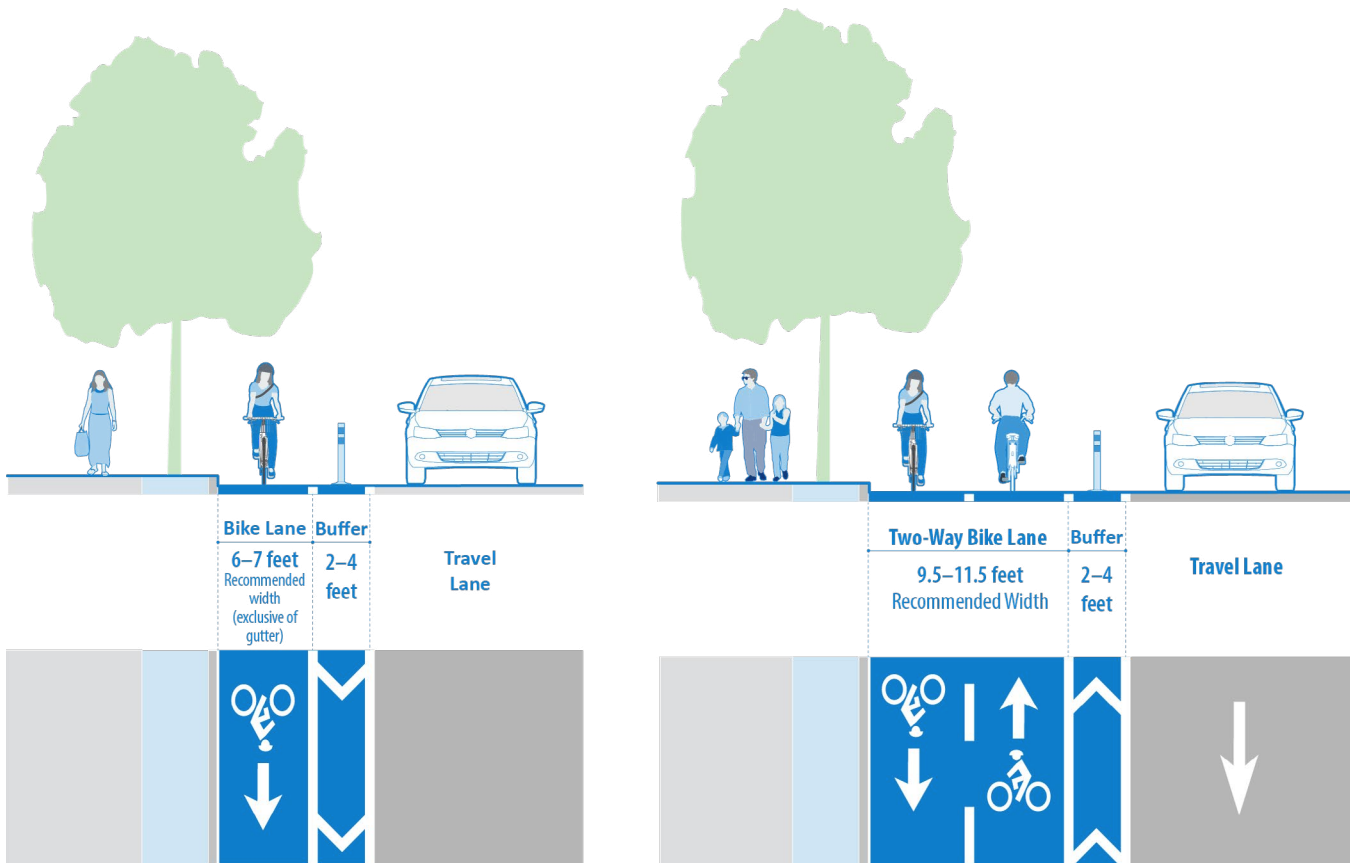
SEPARATED BIKE LANES (CLASS IV) are situated on the roadway but provide physical protection (such as bollards) between vehicles and bicyclists:

Width

- One-way separated bike lane – practical minimum: 4 ft, preferred: 6-8 ft
- Two-way separated bike lane – practical minimum: 7.5 ft, preferred: 10-12 ft

Best practices

- Provide robust physical protection for bicyclists such as bollards, planters, or concrete curbs, but do not impede sidewalk access for pedestrians
- A design speed of 15 mph is appropriate for Class IV bikeways
- Consider impacts to street sweeping in the design of Class IV bikeways





Planned Bicycle Network

The Planned Bicycle Network, including planned bicycle facilities and potential intersection treatment locations, is shown in **Figure 16 and Table 5**. The Planned Bicycle Network has several corridors designated as Further Study Needed. Implementing bicycle facilities on these corridors may have impacts to parking, lane widths, and other infrastructure that require further study to identify the appropriate bicycle facility.

See the [online map](#) to explore the planned bicycle network.



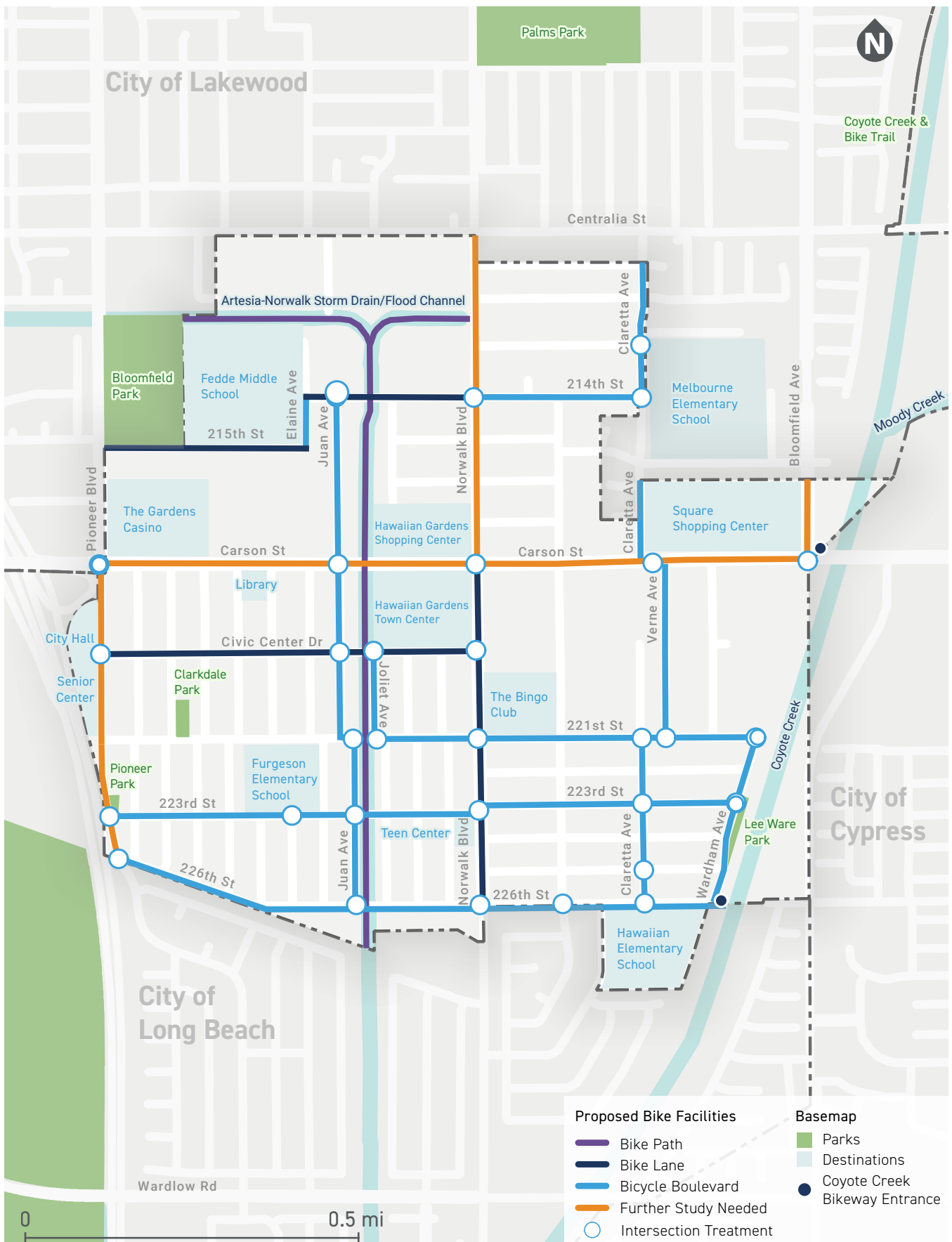


Figure 16: Planned Bicycle Network

**TABLE 5: PLANNED BICYCLE NETWORK CORRIDORS**

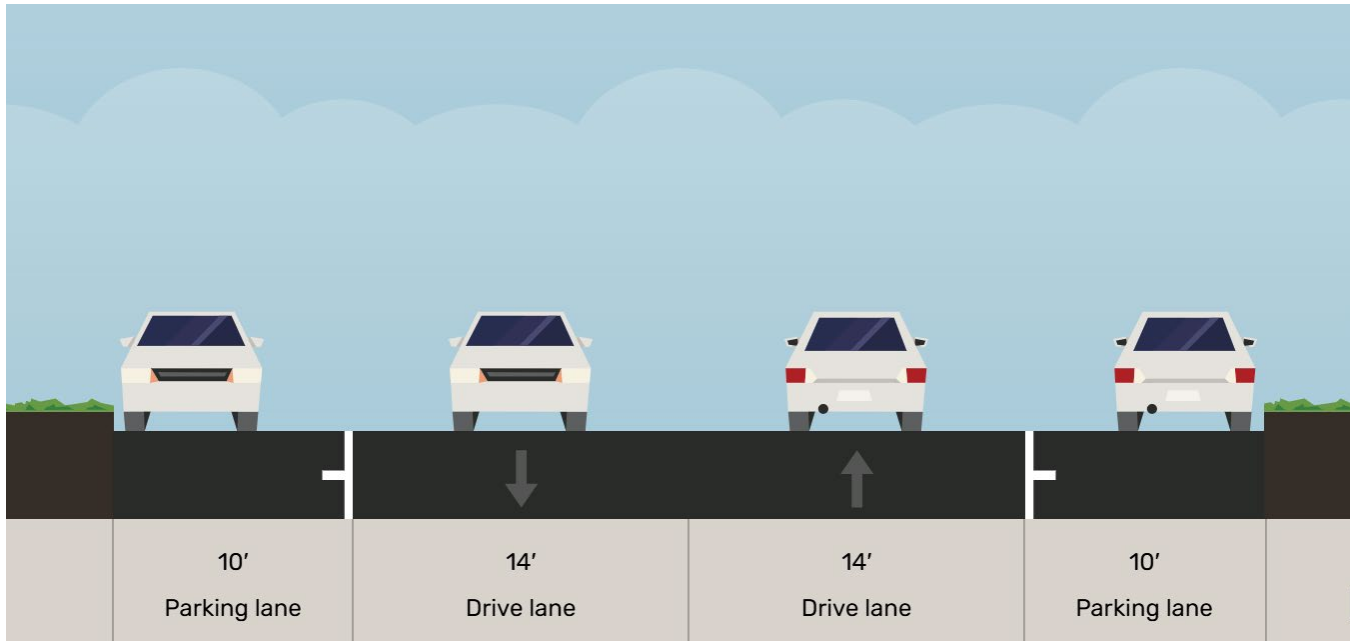
CORRIDOR NAME	CORRIDOR EXTENTS	FACILITY TYPE	LENGTH (MI)
CARSON ST	PIONEER BL TO NORWALK BL	FURTHER STUDY NEEDED	0.5
CARSON ST	NORWALK BL TO BLOOMFIELD AVE	FURTHER STUDY NEEDED	0.6
215TH ST	PIONEER BL TO ELAINE AVE	CLASS II	0.3
ELAINE AVE	215TH ST TO 214TH ST	CLASS III	0.1
214TH ST	ELAINE AVE TO NORWALK BL	CLASS II	0.3
CIVIC CENTER DR	PIONEER BL TO NORWALK BL	CLASS II (buffered)	0.6
214TH ST	NORWALK BL TO CLARETTA AVE	CLASS III	0.3
CLARETTA AVE	214TH ST TO 211TH ST	CLASS III	0.2
JOLIET AVE	CIVIC CENTER DR TO 221ST ST	CLASS III	0.1
221ST ST	JOLIET AVE TO WARDHAM AVE	CLASS III	0.6
226TH ST	PIONEER BL TO WARDHAM AVE	CLASS III	0.9
JUAN AVE	214TH ST TO 226TH ST	CLASS III	0.3
CLARETTA AVE	221ST ST TO 226TH ST	CLASS III	0.5
VERNE AVE	CARSON ST TO 221ST ST	CLASS III	0.3
WARDHAM AVE	221ST ST TO 226TH ST	CLASS III	0.3
CLARETTA AVE	CARSON ST TO 215TH ST	CLASS III	0.3
223RD ST	PIONEER BL TO WARDHAM AVE	CLASS III	1.0
NORWALK BL	CARSON ST TO 226TH ST	CLASS II (BUFFERED)	0.6
PIONEER BL	221ST ST TO 226TH ST	FURTHER STUDY NEEDED	0.2
PIONEER BL	CARSON ST TO 221ST ST	FURTHER STUDY NEEDED	0.3
NORWALK BL	CENTRALIA ST TO CARSON ST	FURTHER STUDY NEEDED	0.5
BLOOMFIELD AVE	CARSON ST TO CITY LIMITS	FURTHER STUDY NEEDED	0.1
ARTESIA-NORWALK FLOOD CONTROL CHANNEL	ENTIRE LENGTH WITHIN CITY LIMITS	FURTHER STUDY NEEDED	1.4



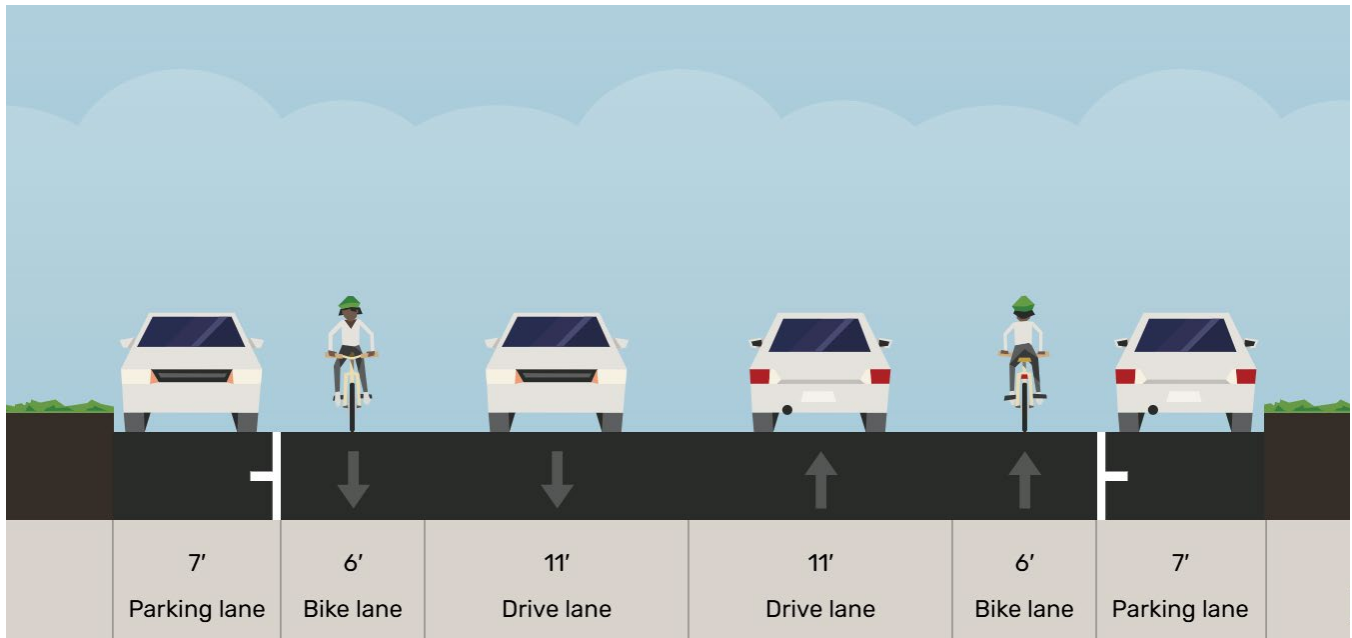
Network Cross-Sections

Most streets in the Planned Bicycle Network will not require any changes to the number or width of lanes or removal of street parking. However, four corridors on the Planned Bicycle Network will require these changes. The existing and planned cross-sections for these corridors are shown below.

1. 215th St – Pioneer Blvd to Elaine Ave

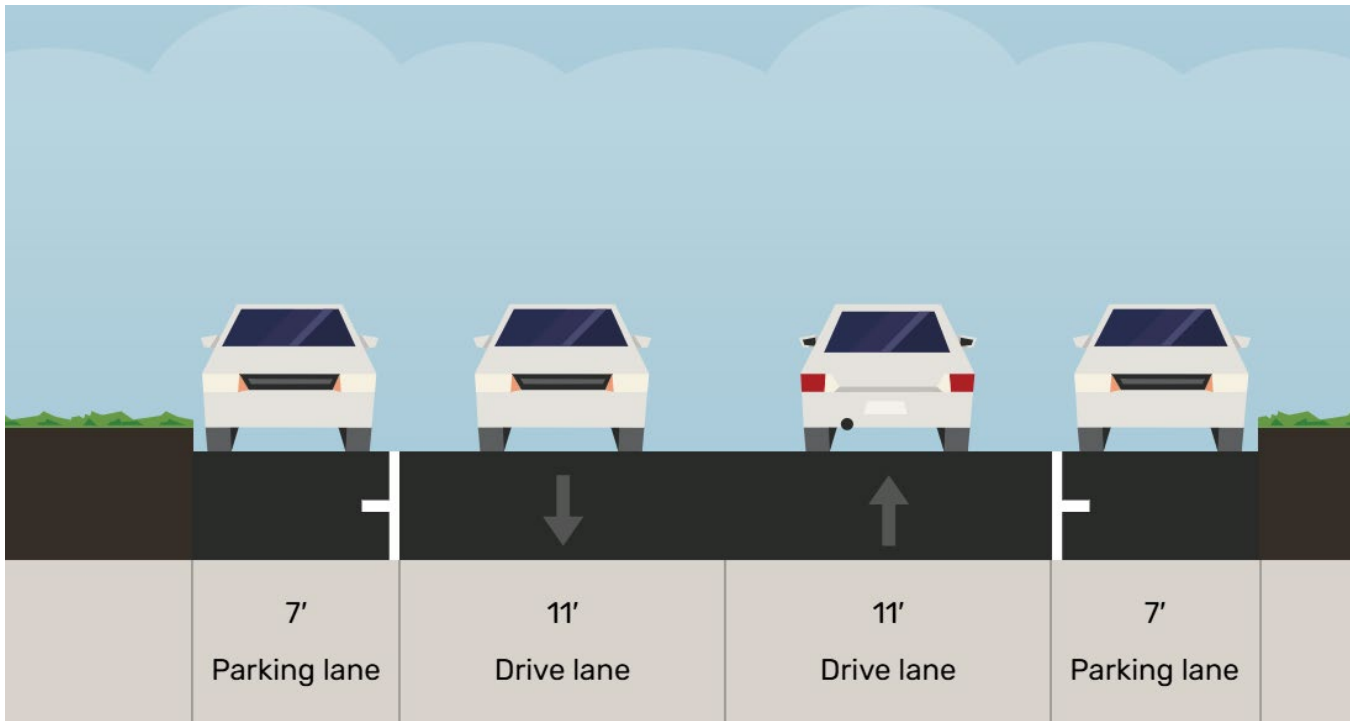


Existing

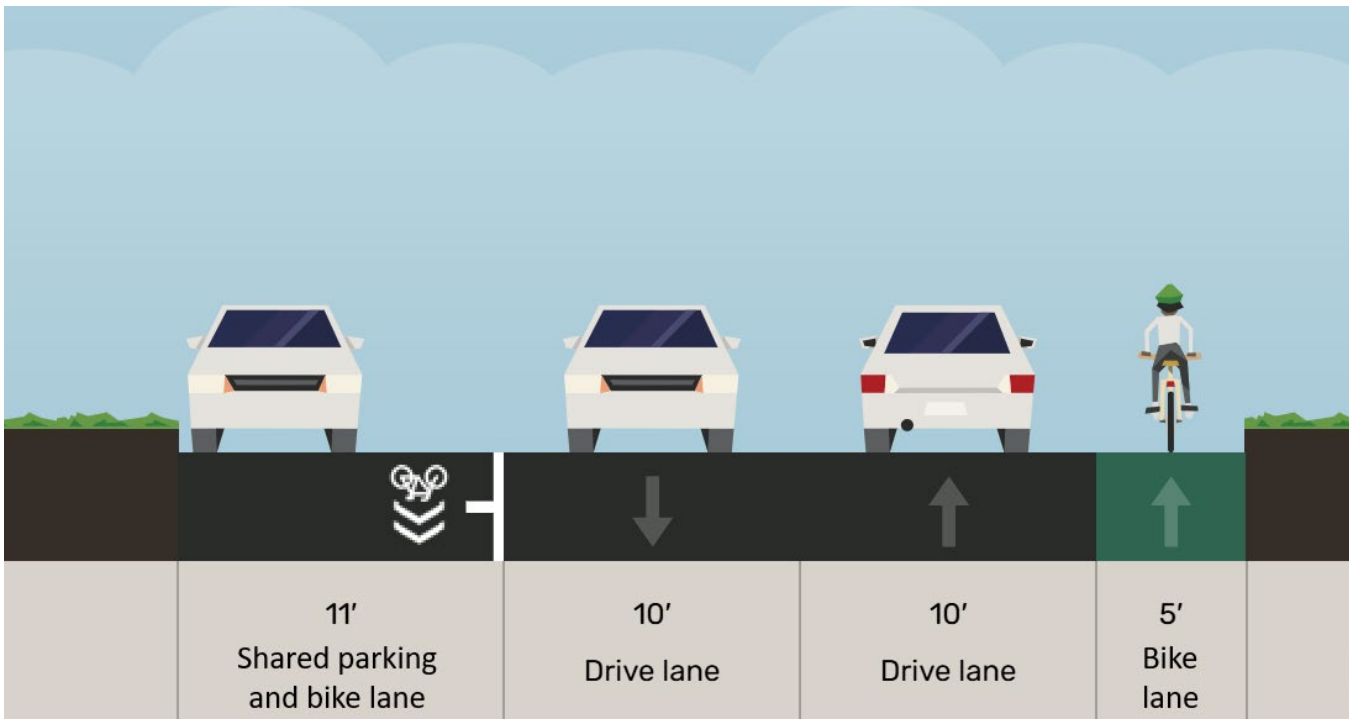


Planned Class II

2. 214th St – Elaine Ave to Norwalk Blvd

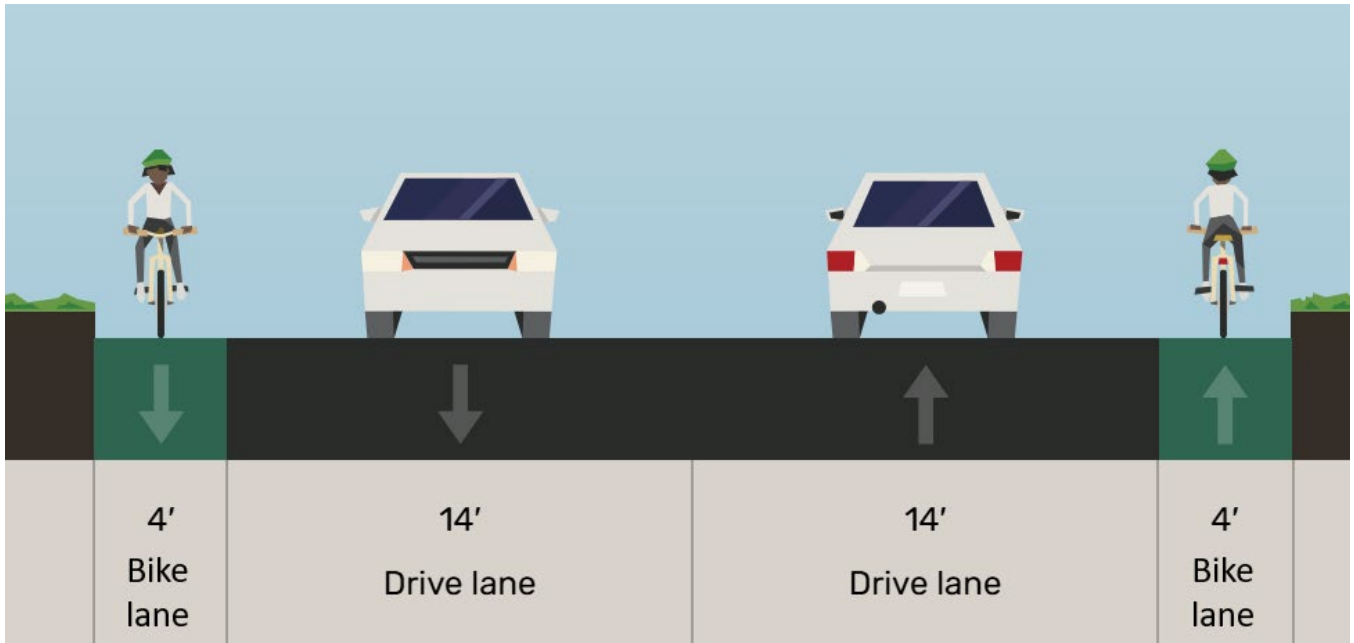


Existing

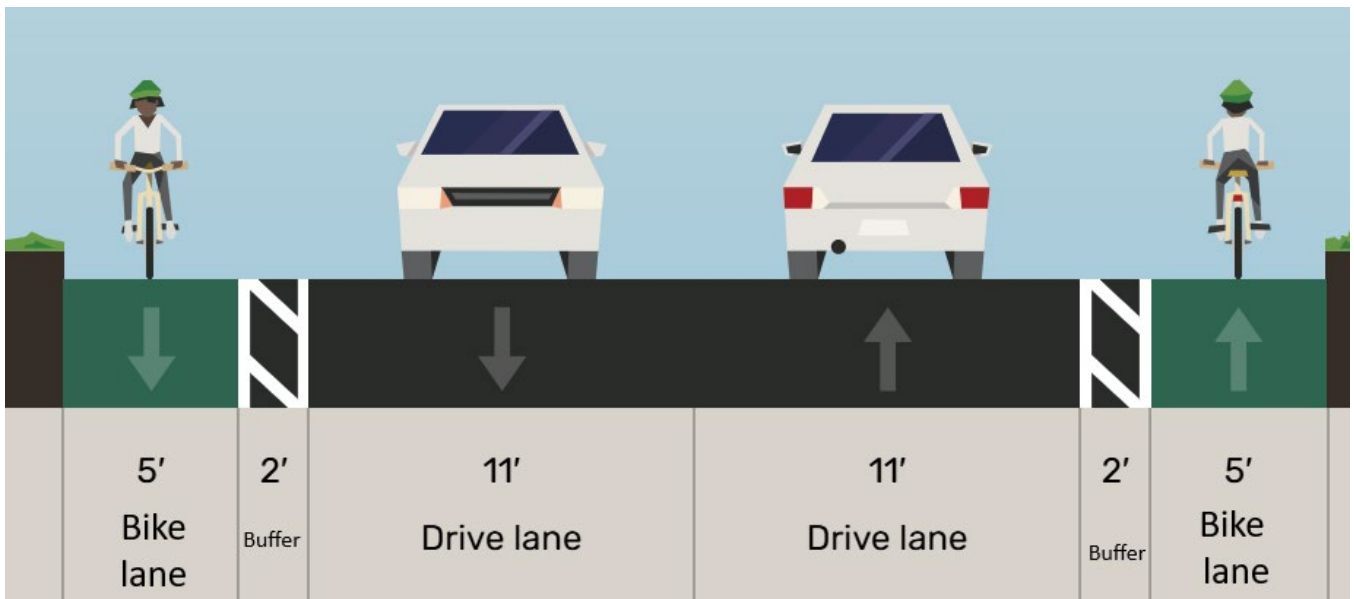


Planned Class II

3. Civic Center Dr – Pioneer Blvd to Norwalk Blvd

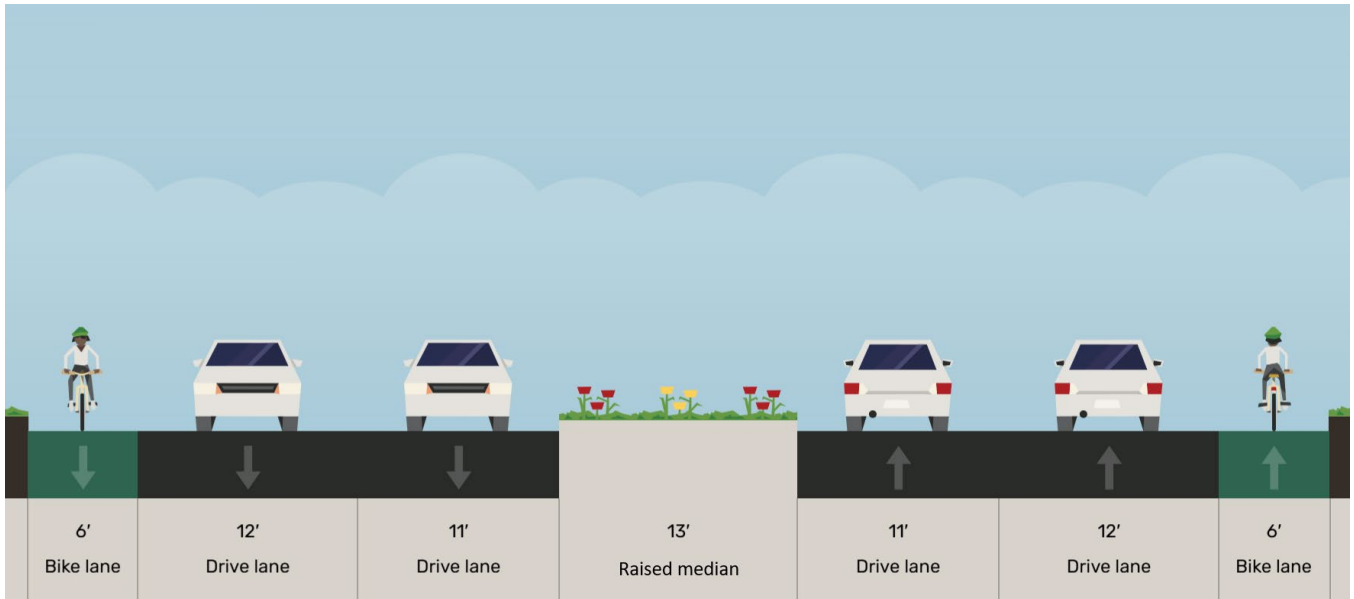


Existing

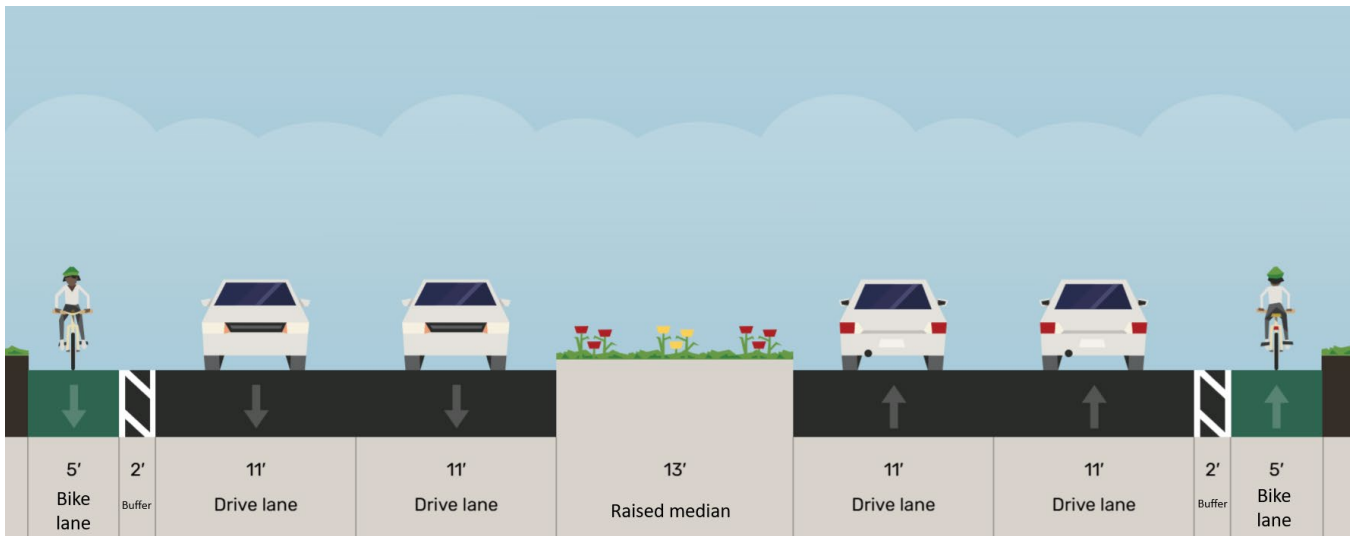


Planned Class II with Buffer

4. Norwalk Blvd – Carson St to 226th St



Existing



Planned Class II with Buffer



Intersection Improvements

The Planned Bicycle Network also includes **Intersection Treatments** to improve safety for bicyclists at intersections. These treatments are summarized in **Table 6** below and in more detail in the **Design Guidelines** in **Appendix E**. Implementing these intersection treatments is vital to creating a cohesive and safe bicycle network in Hawaiian Gardens. The intersection recommendations intend to improve safety and comfort for bicyclists at intersections where the greatest potential for conflicts with vehicles occurs.

TABLE 6: PROPOSED INTERSECTION TREATMENTS

INTERSECTION NAME	INTERSECTION TYPE	POTENTIAL TREATMENTS
CARSON ST / PIONEER BL	SIGNALIZED	Bike boxes and bike detectors
CARSON ST / JUAN AVE	SIGNALIZED	Bike boxes and bike detectors, gateway treatments, wayfinding
CARSON ST / NORWALK BL	SIGNALIZED	Bike boxes and bike detectors
CARSON ST / VERNE AVE/ CLARETTA AVE	SIGNALIZED	Bike boxes and bike detectors, time intersection to allow for bikes to cross offset intersection
CARSON ST / BLOOMFIELD AVE	SIGNALIZED	Bike boxes and bike detectors, install crosswalk on east side of intersection, signage to connect to Coyote Creek
NORWALK BL / 214TH ST	SIGNALIZED	Bike boxes and bike detectors, curb extensions on east side of 214th St, wayfinding signage
NORWALK BL / CIVIC CENTER DR	SIGNALIZED	Bike boxes and bike detectors, wayfinding signage, high visibility crosswalk
NORWALK BL / 221ST ST	SIGNALIZED	Bike boxes and bike detectors, curb extensions on 221st St, wayfinding signage, crosswalk on north side of intersection
NORWALK BL / 223RD ST	SIGNALIZED	Bike boxes and bike detectors, time intersection to allow for bike to cross offset intersection, wayfinding signage
NORWALK BL / 226TH ST	SIGNALIZED	Bike boxes and bike detectors, curb extensions on 226th St, wayfinding signage
214TH ST / JUAN AVE	STOP- CONTROLLED	Curb extensions on Juan Ave
214TH ST / CLARETTA AVE	STOP- CONTROLLED	Curb extensions
CLARETTA AVE / 213TH ST	STOP- CONTROLLED	Curb extensions
CIVIC CENTER DR / JUAN AVE	STOP- CONTROLLED	Curb extensions on Juan Ave, wayfinding signage
CIVIC CENTER DR / JOLIET AVE	STOP- CONTROLLED	Curb extensions on Joliet Ave, wayfinding signage
221ST ST / JUAN AVE	STOP- CONTROLLED	Wayfinding signage, pinch point (median, chicane) to slow drivers approaching blind turn
221ST ST / CLARETTA AVE	STOP- CONTROLLED	Wayfinding signage, curb extensions



INTERSECTION NAME	INTERSECTION TYPE	POTENTIAL TREATMENTS
221ST ST / VERNE AVE	STOP- CONTROLLED	Wayfinding signage, curb extensions
221ST / WARDHAM AVE	UNCONTROLLED	Wayfinding signage
PIONEER BL / CIVIC CENTER DR	STOP- CONTROLLED	Install high-visibility crosswalk on legs, wayfinding signage
PIONEER BL / 223RD ST	STOP- CONTROLLED	Wayfinding signage, high visibility crosswalks, curb extensions on 223rd St
PIONEER BL / 226TH ST	STOP- CONTROLLED	Wayfinding signage
223RD ST / FUNSTON AVE	STOP- CONTROLLED	Curb extensions on Funston Ave, yield markings for crosswalks
223RD ST / JUAN AVE	STOP- CONTROLLED	Install wayfinding signage for bike boulevards
223RD ST / CLARETTA AVE	STOP- CONTROLLED	Install wayfinding signage for bike boulevards
223RD ST / WARDHAM AVE	STOP- CONTROLLED	Curb extensions, wayfinding signage
226TH ST / CLARETTA AVE	STOP- CONTROLLED	Curb extensions on Claretta Ave, wayfinding signage
226TH ST / JUAN AVE	STOP- CONTROLLED	Curb extensions on Juan Ave, wayfinding signage





Proposed Bicycle Parking Locations

The Planned Bicycle Network includes installing additional bicycle parking at key destinations throughout Hawaiian Gardens. These recommendations stem from a review of existing bicycle parking, key destinations, and community input. These locations are in high-traffic areas, along the Planned Bicycle Network, and at frequent destinations for bicyclists. The proposed bicycle parking locations are shown in **Table 7** and **Figure 17**.

TABLE 7: PROPOSED BICYCLE PARKING LOCATIONS

LOCATION	ADDRESS
MELBOURNE ELEMENTARY SCHOOL	21314 CLARETTA AVE
BLOOMFIELD PARK	21420 PIONEER BLVD
76 GAS STATION	11807 E CARSON ST
WINGSTOP	12019 E CARSON ST
MAY FAMILY MEDICAL CLINIC	12131 E CARSON ST
FOOD4LESS	12222 E CARSON ST
COYOTE CREEK ACCESS POINT AT BLOOMFIELD AVE AND CARSON ST	BLOOMFIELD AVE & CARSON ST
CLARKDALE PARK	22008 CLARKDALE AVE
PIONEER PARK	22222 PIONEER BLVD
FURGESON ELEMENTARY SCHOOL	22215 ELAINE AVE
HAWAIIAN ELEMENTARY SCHOOL	12350 226TH ST
COYOTE CREEK ACCESS POINT AT WARDHAM AVE AND 226TH ST	WARDHAM AVE & 226TH ST
THE GARDENS CASINO	11871 E CARSON ST

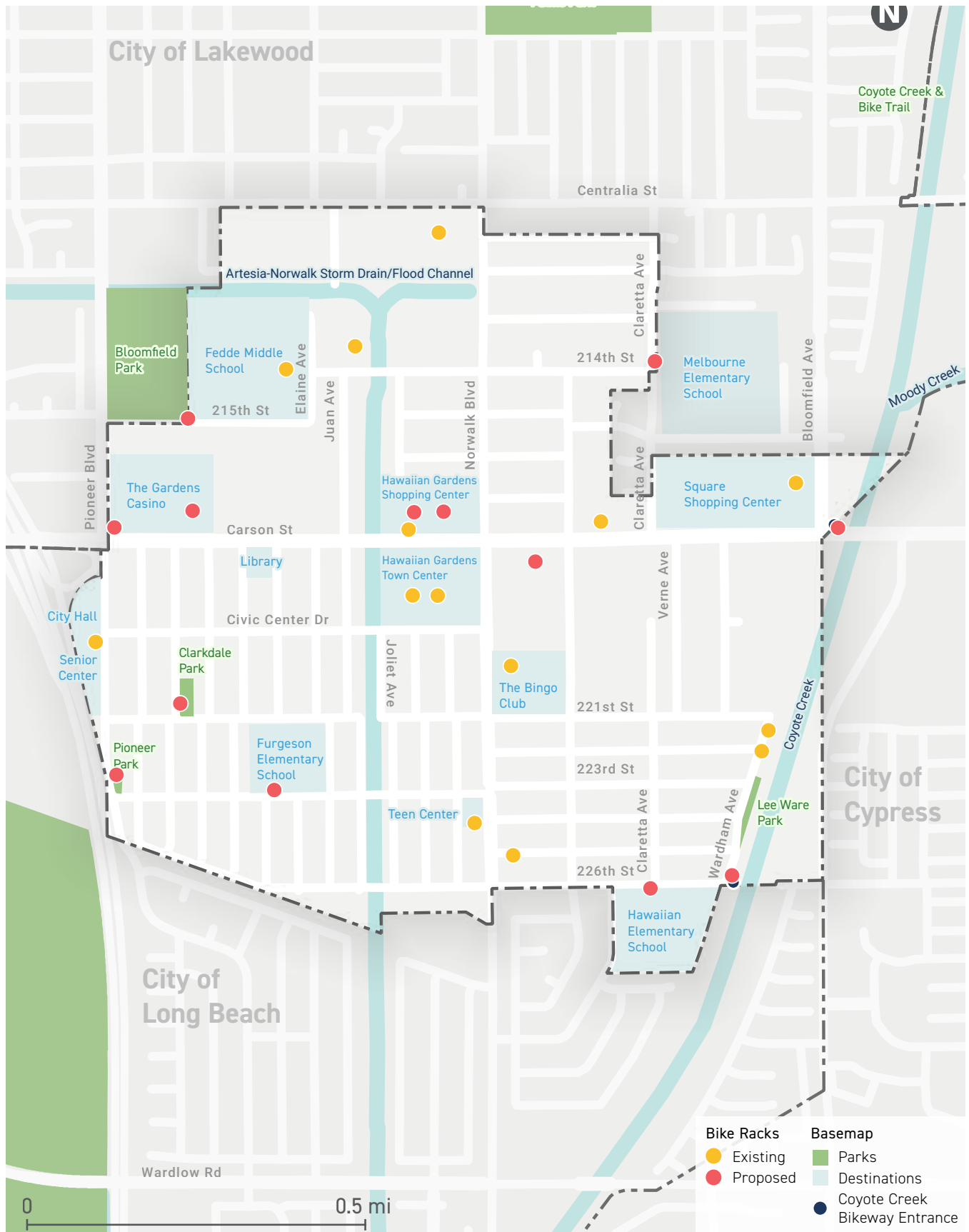
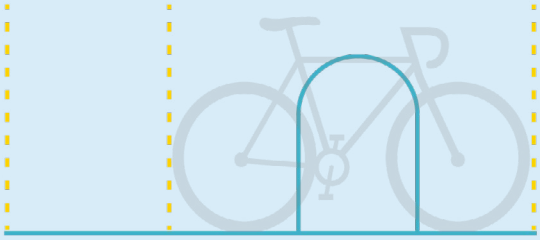
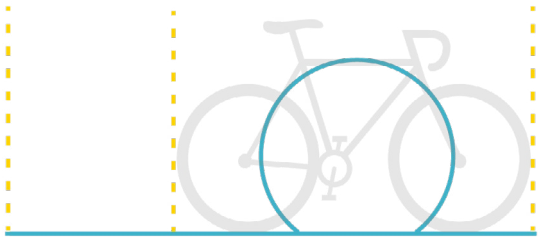
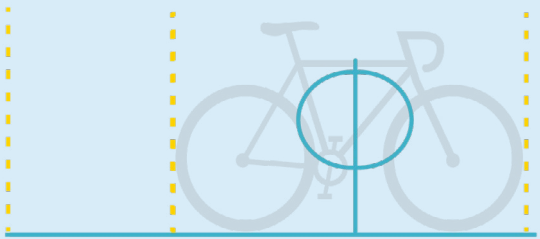


Figure 17: Proposed Bicycle Parking Locations



TABLE 8: RECOMMENDED BICYCLE PARKING TYPES

BICYCLE RACK TYPE	IMAGE	RELATIVE PURCHASE COST	DESCRIPTION
U- RACKS		MEDIUM (~\$130-\$300)	Common style appropriate for many uses; two points of ground contact.
LOOP		MEDIUM TO HIGH (~\$200-\$500)	Can be installed in series on rails to create a free-standing parking area in variable quantities. Available in many variations.
POST AND RING RACK		MEDIUM (~\$200-\$300)	Common style appropriate for many uses; one point of ground contact. Compared to inverted-U racks, these are less prone to unintended perpendicular parking.

6 Action Plan





How Does Hawaiian Gardens Achieve This Network?

The Planned Bicycle Network presents a bold yet practical vision for the City of Hawaiian Gardens. Given constraints such as limited funding, staffing capacity, and the varying complexity of improvements across corridors, it is important to prioritize projects based on feasibility. As a result, the network has been divided into short-term improvements that can be implemented in the near future and long-term enhancements that will require more time and resources to realize.

To prioritize the improvements, the following process was followed:

1. Score each corridor against the Project Goals (Safety, Connectivity, and Equity)
2. Review community input and priorities
3. Align project timelines and levels of effort with City roadway paving schedule
4. Review recommendations to implement gap closures to existing bikeways and priority destinations

This network review resulted in the **Implementation Network**. The proposed projects are split into three phases: **Phase I (0-5 years)**, **Phase II (5-10 years)**, and **Phase III (10+ years)**. The Implementation Network is shown in **Table 9** and in **Figure 18**.

CRITERIA FOR SCORING CORRIDORS AGAINST THE PROJECT GOALS

GOAL 1: SAFETY



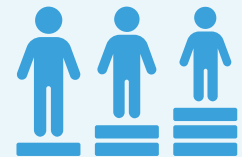
Potential **reduction of crashes**

Reduction or greatest change in **Level of Bicycle Traffic Stress**

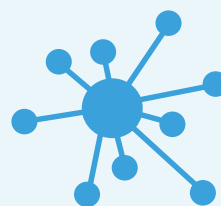
Along one of the SCAG Regional **High Injury Network (HIN) Corridors**

GOAL 2 : EQUITY

LA Metro **Equity Focused Communities**
SB 535 **Disadvantaged Communities**



GOAL 3 : CONNECTIVITY



Within 1/8 mile of a **destination** (schools, parks, community centers, libraries, shopping, healthcare)

Connecting to existing or planning neighboring facilities

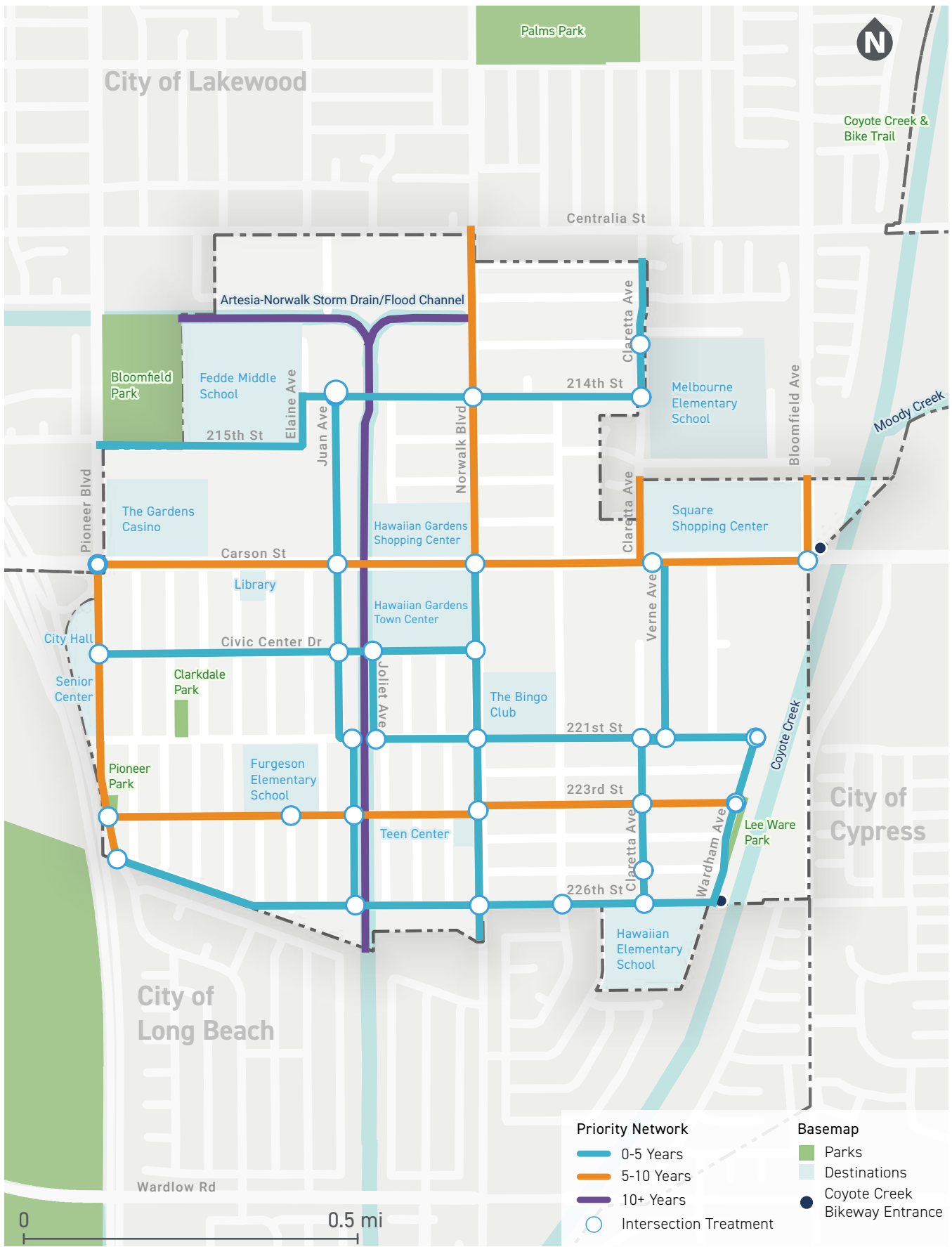


Figure 18: Implementation Network



TABLE 9: IMPLEMENTATION NETWORK

PHASE 1	CORRIDOR	CORRIDOR EXTENTS	FACILITY TYPE	SAFETY SCORE	EQUITY SCORE	CONNECTIVITY SCORE
PHASE 1: 0-5 YEARS	CIVIC CENTER DR	PIONEER BL TO NORWALK BL	CLASS II (buffered)	MEDIUM	MEDIUM	HIGH
	ELAINE AVE	214TH ST AND 215TH ST	CLASS III	MEDIUM	HIGH	HIGH
	NORWALK BL	CARSON ST TO 226TH ST	CLASS II (buffered)	HIGH	HIGH	HIGH
	215TH ST	PIONEER BL TO ELAINE AVE	CLASS II	MEDIUM	HIGH	HIGH
	214TH ST	ELAINE ST TO NORWALK BL	CLASS II	MEDIUM	HIGH	HIGH
	214TH ST	NORWALK BL TO CLARETTA AVE	CLASS III	MEDIUM	HIGH	MEDIUM
	CLARETTA AVE	211TH ST TO 214TH ST	CLASS III	MEDIUM	HIGH	MEDIUM
	JOLIET AVE	CIVIC CENTER DR TO 221ST ST	CLASS III	MEDIUM	MEDIUM	HIGH
	221ST ST	PIONEER BL TO WARDHAM AVE	CLASS III	LOW	HIGH	HIGH
	226TH ST	PIONEER BL TO WARDHAM AVE	CLASS III	LOW	HIGH	HIGH
	JUAN AVE	214TH ST TO 226TH ST	CLASS III	LOW	MEDIUM	HIGH
	CLARETTA AVE	221ST ST TO 226TH ST	CLASS III	LOW	MEDIUM	MEDIUM
	VERNE AVE	CARSON ST TO 221ST ST	CLASS III	LOW	MEDIUM	MEDIUM
	WARDHAM AVE	221ST ST TO 226TH ST	CLASS III	LOW	MEDIUM	MEDIUM
	PHASE 2: 5-10 YEARS	PIONEER BL	221ST ST TO 226TH ST	FURTHER STUDY NEEDED	MEDIUM	HIGH
PIONEER BL		CARSON ST TO 221ST ST	FURTHER STUDY NEEDED	HIGH	HIGH	HIGH
CLARETTA AVE		CARSON ST TO 215TH ST	CLASS III	MEDIUM	LOW	MEDIUM
NORWALK BL		CENTRALIA ST TO CARSON ST	FURTHER STUDY NEEDED	HIGH	HIGH	HIGH
CARSON ST		NORWALK BL TO BLOOMFIELD AVE	FURTHER STUDY NEEDED	HIGH	HIGH	HIGH
BLOOMFIELD AVE		CARSON ST TO CITY LIMITS	FURTHER STUDY NEEDED	LOW	LOW	HIGH
223RD ST		PIONEER BL TO WARDHAM AVE	CLASS III	LOW	LOW	MEDIUM
PHASE 3: 10+ YEARS	ARTESIA - NORWALK FLOOD CONTROL CHANNEL *	ENTIRE LENGTH WITHIN CITY LIMITS	CLASS I	HIGH	HIGH	HIGH

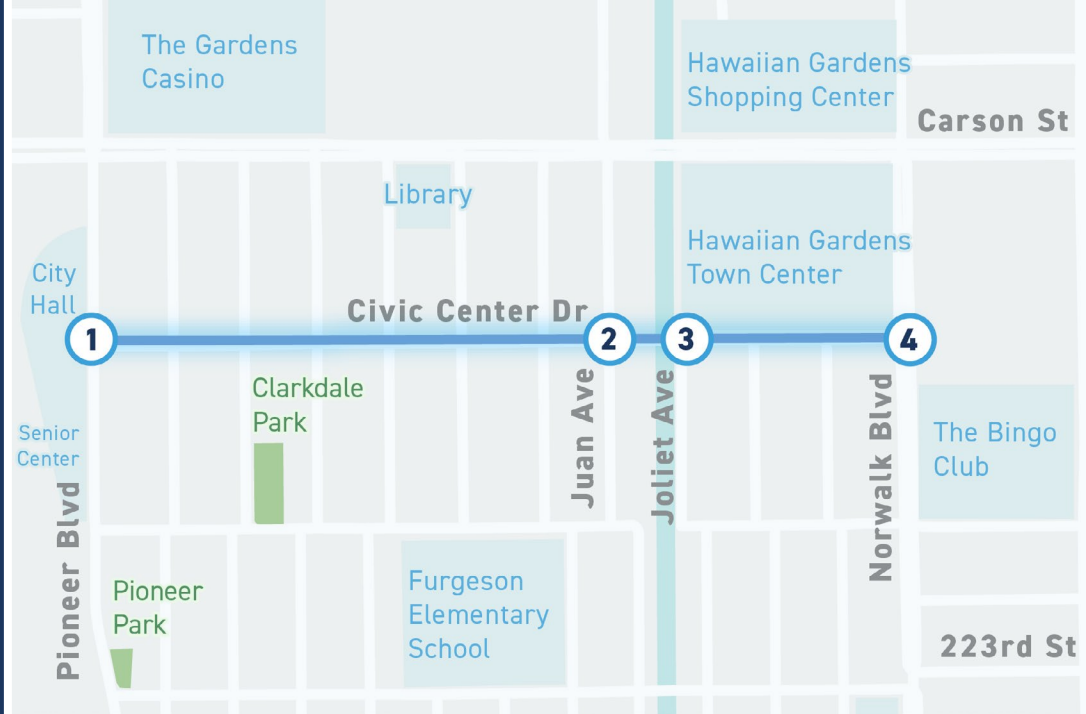


Phase I (0-5 Years) Action Plan

For Phase I projects (0–5 years), detailed Corridor Profiles were developed for each of the selected corridors. These profiles include corridor maps, planned improvements, and key considerations related to safety, equity, and connectivity. They also address design elements, potential impacts to parking, and provide estimates of cost and implementation effort. The following section presents the Corridor Profiles for all Phase I corridors.



CIVIC CENTER DR: PIONEER BLVD TO NORWALK BLVD



RECOMMENDED BIKE FACILITY

- Buffered Bike Lane (Class II)



RECOMMENDED INTERSECTION IMPROVEMENTS

1. Civic Center Dr / Pioneer Blvd
2. Civic Center Dr / Juan Ave
3. Civic Center Dr / Joliet Ave
4. Civic Center Dr / Norwalk Blvd



SAFETY & EQUITY

- 2 bike/ped crashes from 2018-2022
- Anticipated Reduction in Stress from LTS 2 (medium) to LTS 1 (low)
- In LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Hawaiian Gardens City Hall
- C. Robert Lee Activity Center
- Mary Rodriguez Senior Citizen's Center
- Hawaiian Gardens Town Center



IMPLEMENTATION TIMELINE

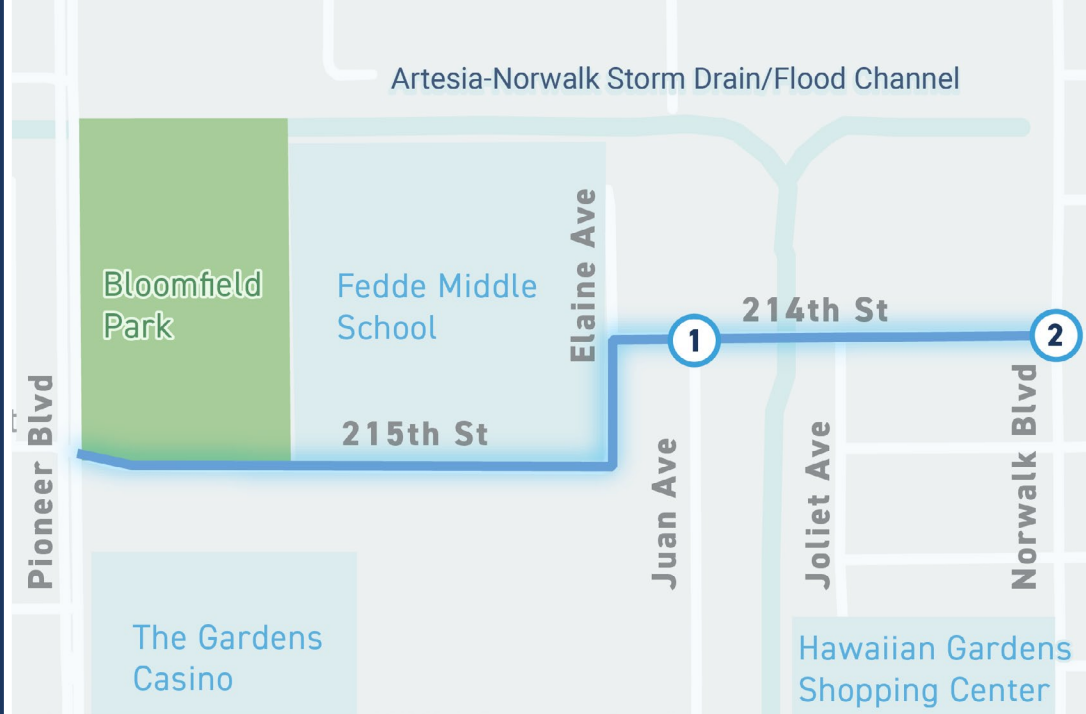
- 0-5 years



IMPACTS TO PARKING

- This bikeway will not impact parking along Civic Center Dr

214TH ST/ ELAINE AVE/ 215TH ST: PIONEER BL TO NORWALK BL



RECOMMENDED BIKE FACILITY

- Bike Lane (Class II) on 214th St and 215th St
- Bicycle Boulevard (Class III) on Elaine Ave



RECOMMENDED INTERSECTION IMPROVEMENTS

1. 214th St / Juan Ave
2. 214th St / Norwalk Bl



SAFETY & EQUITY

- 1 bike/ped crashes from 2018-2022
- Anticipated Level of Traffic Stress: 1 (low)
- In LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Bloomfield Park
- Fedde Middle School
- The Gardens Casino
- Melbourne Elementary School
- St. Peter Catholic Church



IMPLEMENTATION TIMELINE

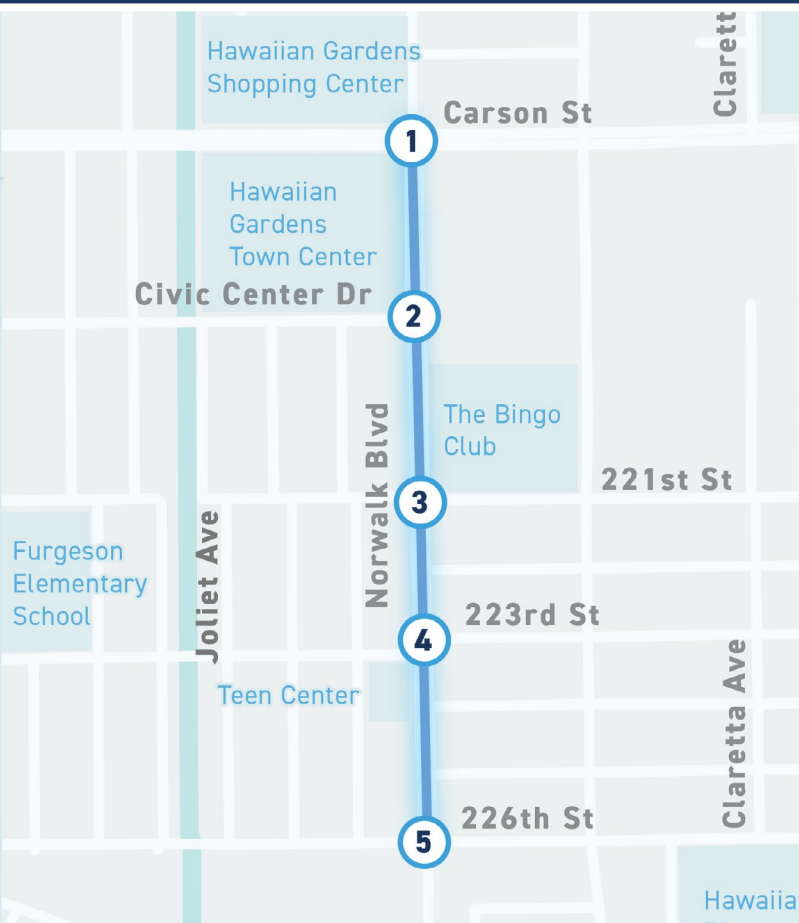
- 0-5 years



IMPACTS TO PARKING

- This bikeway will remove street parking on the north side of 214th Street.

NORWALK BLVD: CARSON ST TO 226TH ST



RECOMMENDED BIKE FACILITY

- Buffered Bike Lane (Class II)



RECOMMENDED INTERSECTION IMPROVEMENTS

1. Norwalk Blvd / Carson St
2. Norwalk Blvd / Civic Center Dr
3. Norwalk Blvd / 221st St
4. Norwalk Blvd / 223rd St
5. Norwalk Blvd / 226th St



SAFETY & EQUITY

- 2 bike/pedestrian crashes from 2018-2022
- Anticipated Reduction in Stress from LTS 2 (medium) to LTS 1 (low)
- LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Hawaiian Gardens Town Center
- The Bingo Club
- Hawaiian Gardens Teen Center



IMPLEMENTATION TIMELINE

- 0-5 years



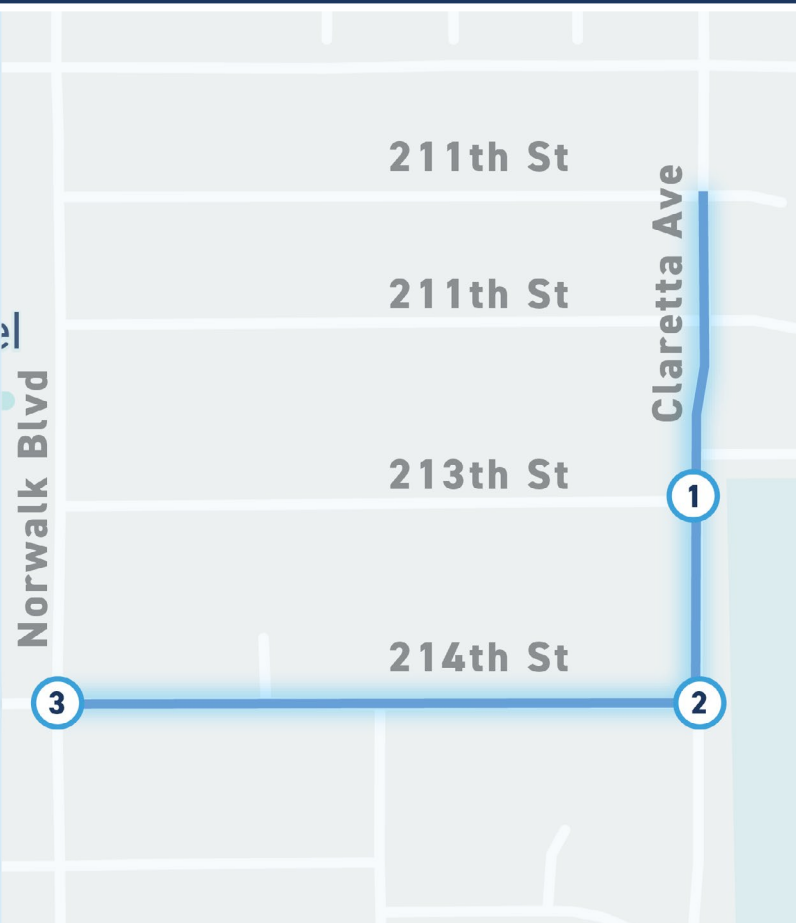
IMPACTS TO PARKING

- This bikeway will not impact parking along Norwalk Boulevard



214TH ST: NORWALK BL TO CLARETTA AVE

CLARETTA AVE: 211TH ST TO 214TH ST



RECOMMENDED BIKE FACILITY

- Class III Bicycle Boulevard



RECOMMENDED INTERSECTION IMPROVEMENTS

1. 214th St / Claretta Ave
2. 213th St / Claretta Ave
3. 214th St / Norwalk Blvd



SAFETY & EQUITY

- 2 bike/ped crashes from 2018-2022
- Anticipated Reduction in Stress from LTS 3 (moderate) to LTS 2 (low)
- In SB 535 Disadvantaged Communities



CONNECTIONS

- Melbourne Elementary School
- Faith Christian Fellowship Church



IMPLEMENTATION TIMELINE

- 0-5 years



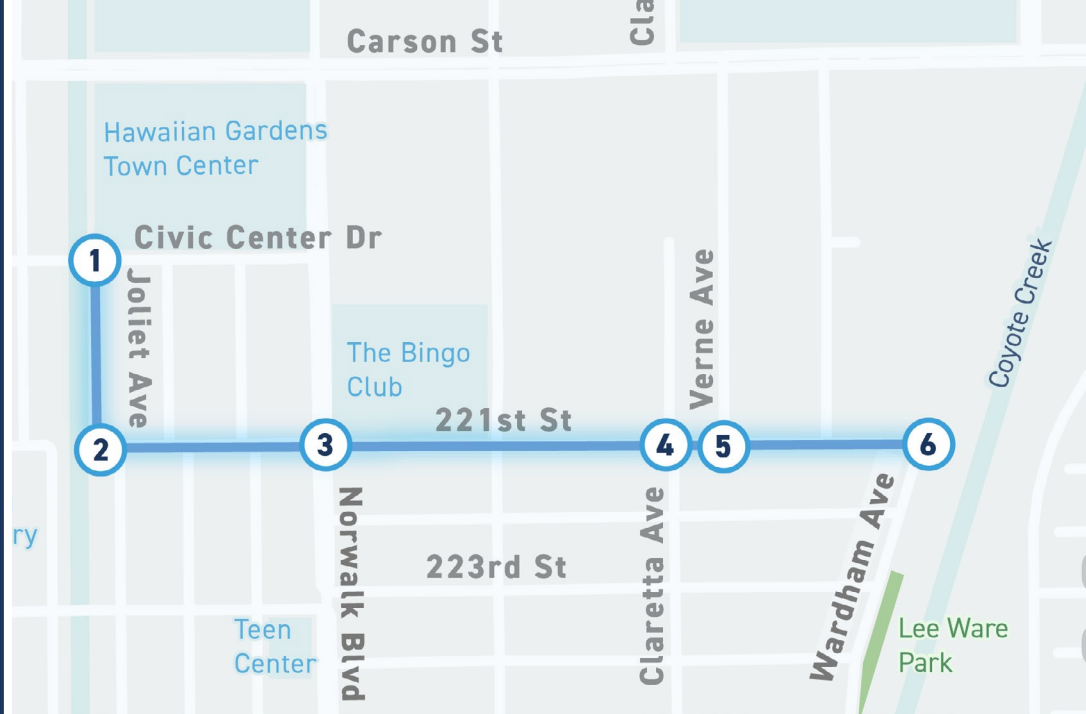
IMPACTS TO PARKING

- This bikeway will not impact parking along 214th St / Claretta Ave.



JOLIET AVE: CIVIC CENTER DR TO 221ST ST

221ST ST: JOLIET AVE TO WARDHAM AVE



RECOMMENDED BIKE FACILITY

- Bicycle Boulevard (Class III)



RECOMMENDED INTERSECTION IMPROVEMENTS

1. Civic Center Dr / Joliet Ave
2. Joliet Ave / 221st St
3. 221st St / Norwalk Blvd
4. 221st St / Claretta Ave
5. 221st St / Verne Ave
6. 221st St / Wardham Ave



SAFETY & EQUITY

- 2 bike/ped crashes from 2018-2022
- Anticipated Reduction in Stress from LTS 2 (medium) to LTS 1 (low)
- In LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Hawaiian Gardens Town Center
- The Bingo Club
- Lee Ware Park



IMPLEMENTATION TIMELINE

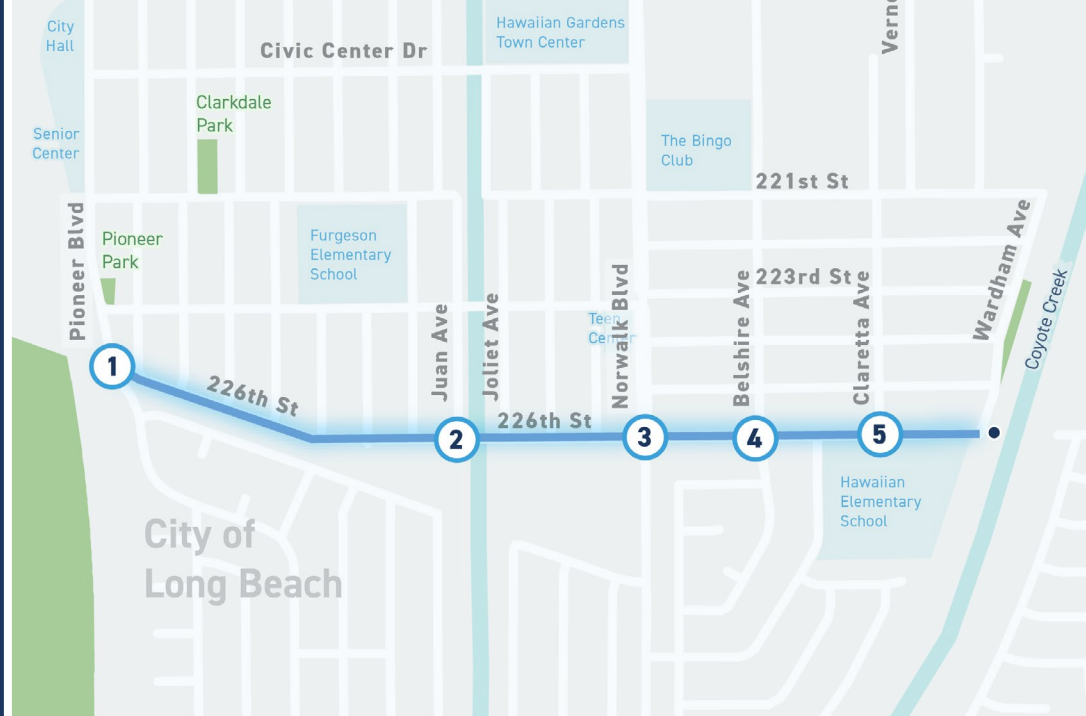
- 0-5 years



IMPACTS TO PARKING

- This bikeway will not impact parking along Joliet Ave or 221st St.

226TH ST: PIONEER BLVD TO WARDHAM AVE



RECOMMENDED BIKE FACILITY

- Bicycle Boulevard (Class III)



RECOMMENDED INTERSECTION IMPROVEMENTS

1. 226th St / Pioneer Bl
2. 226th St / Juan Ave
3. 226th St / Norwalk Bl
4. 226th St / Belshire Ave
5. 226th St / Claretta Ave



SAFETY & EQUITY

- 0 bike/ped crashes from 2018-2022
- Anticipated Reduction in Stress from LTS 2 (medium) to LTS 1 (low)
- In LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Pioneer Park
- Hawaiian Gardens Teen Center
- Hawaiian Elementary School
- Coyote Creek Bikeway



IMPLEMENTATION TIMELINE

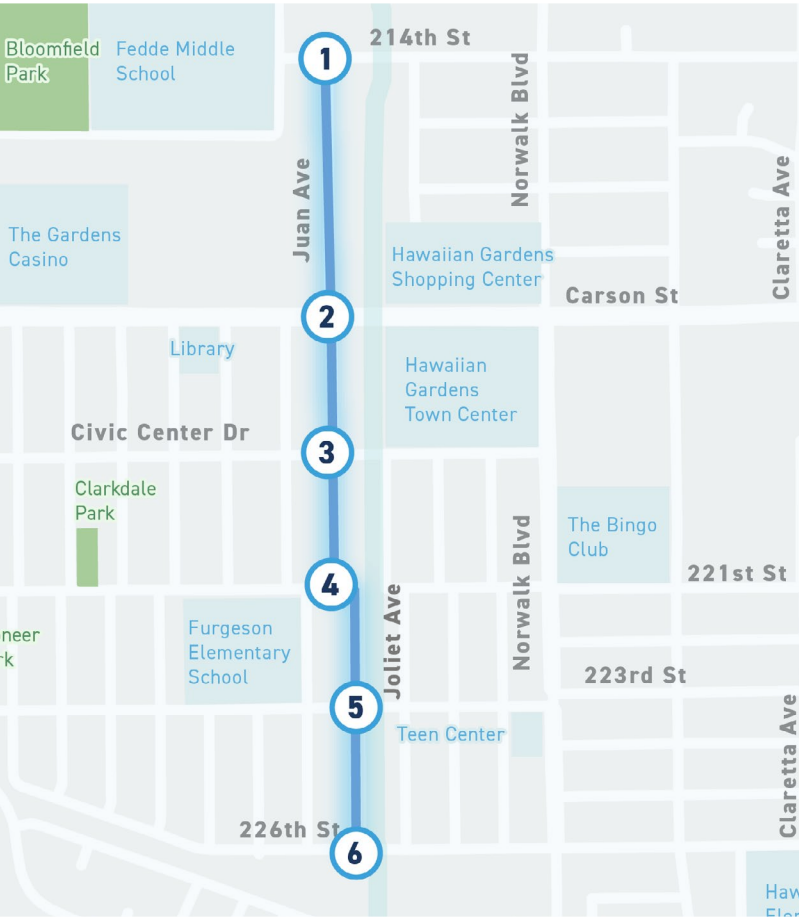
- 0-5 years



IMPACTS TO PARKING

- This bikeway will not impact parking along 226th St.

JUAN AVE: 214TH ST TO 226TH ST



RECOMMENDED BIKE FACILITY

- Class III Bicycle Boulevard



RECOMMENDED INTERSECTION IMPROVEMENTS

- | | |
|-------------------------------|------------------------|
| 1. Juan Ave / 214th St | 4. Juan Ave / 221st St |
| 2. Juan Ave / Carson St | 5. Juan Ave / 223rd St |
| 3. Juan Ave / Civic Center Dr | 6. Juan Ave / 226th St |



SAFETY & EQUITY

- 1 bike/ped crashes from 2018-2022
- Anticipated Level of Traffic Stress: 1 (low)
- In LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Fedde Middle School
- Hawaiian Gardens Town Center
- Furgeson Elementary School



IMPLEMENTATION TIMELINE

- 0-5 years

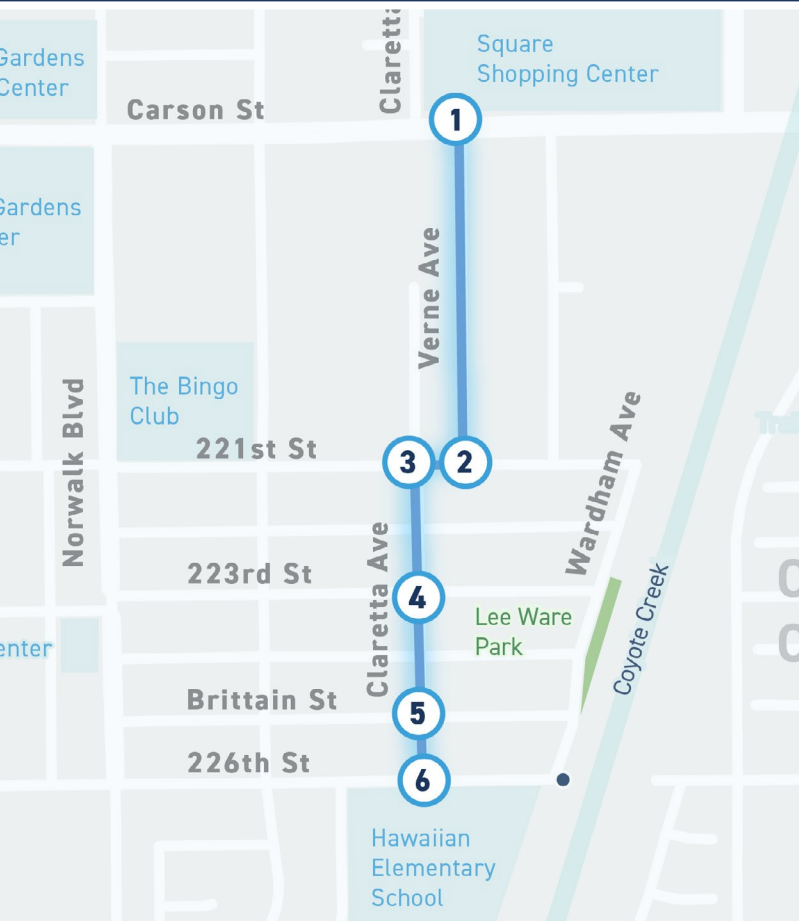


IMPACTS TO PARKING

- This bikeway will not impact parking along Juan Ave.



VERNE AVE: CARSON ST TO 221ST ST CLARETTA AVE: 221ST ST TO 226TH ST



RECOMMENDED BIKE FACILITY

- Class III Bicycle Boulevard



RECOMMENDED INTERSECTION IMPROVEMENTS

- | | |
|---|-------------------------------|
| 1. Verne Ave / Claretta Ave / Carson St | 4. Claretta Ave / 223rd St |
| 2. Verne Ave / 221st St | 5. Claretta Ave / Brittain St |
| 3. Claretta Ave / 221st St | 6. Claretta Ave / 226th St |



SAFETY & EQUITY

- 1 bike/ped crash from 2018-2022
- Anticipated Level of Traffic Stress: 1 (low)
- In LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Hawaiian Elementary School
- Coyote Creek Bike Path
- Square Shopping Center



IMPLEMENTATION TIMELINE

- 0-5 years

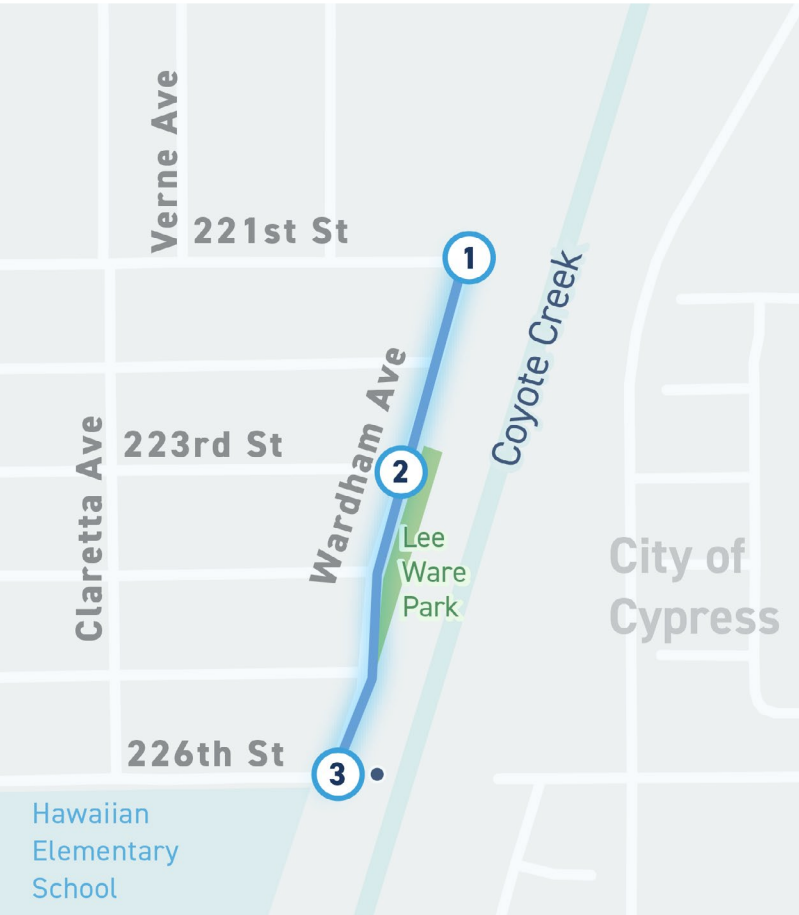


IMPACTS TO PARKING

- This bikeway will not impact parking along Claretta Ave / Verne Ave.



WARDHAM AVE: 221ST ST TO 226TH ST



RECOMMENDED BIKE FACILITY

- Class III Bicycle Boulevard



RECOMMENDED INTERSECTION IMPROVEMENTS

1. Wardham Ave / 221st St
2. Wardham Ave / 223rd St
3. Wardham Ave / 226th St



SAFETY & EQUITY

- 0 bike/ped crashes from 2018-2022
- Anticipated Level of Traffic Stress: 1 (low)
- In LA Metro and SB 535 Disadvantaged Communities



CONNECTIONS

- Hawaiian Elementary School
- Lee Ware Park
- Coyote Creek Bike Path



IMPLEMENTATION TIMELINE

- 0-5 years



IMPACTS TO PARKING

- This bikeway will not impact parking along Wardham Ave.





Programs and Policies

In addition to building out the Planned Bicycle Network, the City of Hawaiian Gardens is committed to advancing supportive programs and policies that promote biking throughout the community. The City has identified **seven proposed programs and three supporting policies** that align with the goals of the Bicycle Master Plan—**safety, connectivity, and equity**—and reflect input from the public, community stakeholders, and City leadership.

For this Plan, programs are defined as coordinated initiatives that include a range of activities and resources, such as community outreach efforts, bicycle safety education, and maintenance support. In contrast, policies refer to municipal and departmental rules or guidelines that provide a framework for successfully implementing and maintaining bicycle infrastructure, as well as ensuring the presence of amenities that make biking a convenient and attractive option. Together, these programs and policies are designed to complement the Bicycle Master Plan and foster a strong, lasting culture of bicycling in Hawaiian Gardens.

The recommended programs and policies to support bicycling in Hawaiian Gardens are listed in **Table 10**. Priority programs and policies for the City include Open Streets events, bike safety education events, and community bike rides.

The priority programs best align with City goals to promote bicycling and increasing their safety. A complete list of these programs and policies with goals, potential partners, resources and funding considerations can be found in **Appendix D**.

Stakeholders on the Community Advisory Committee (CAC) have emphasized the goal of using the BMP to bring people together which can be achieved through programs such as Open Streets, Community Bike Rides, and Walk & Roll to School Day.



TABLE 10: RECOMMENDED PROGRAMS AND POLICIES

RECOMMENDATION	SAFETY	EQUITY	CONNEC-TIVITY	DESCRIPTION
WALK & ROLL TO SCHOOL DAY	✓	✓		<p>A designated event, either held in concert with the national day or independently, to encourage students to walk, bike, or roll to school. The event offers students an opportunity to become familiar with the City’s bike facilities, while also promoting biking in a safe and encouraging environment. These events often attract large numbers of participants and provide a fun, engaging, and memorable way to motivate students to bike.</p> <p>Additionally, incorporating bike safety rodeos into the event could enhance its educational value by providing practical bike safety and handling skills.</p>
OPEN STREETS (RECURRING STREET CLOSURES)*	✓			<p>An open streets program focused on closing a recreational route to cars on a regular basis. This could be a road along a park, school, or a popular destination. In contrast to something like Ciclavia, programming would be optional. An Open Streets Program would be most successful if led by City Council with support from Public Works.</p>
BIKE SAFETY EDUCATION*	✓			<p>A bike safety education program could include classes and events, signage, and public communication. This program is intended to educate students on safe biking tips, but it could also offer courses customized to adults who may be unfamiliar with safe biking practices.</p>
BIKE COUNT DATA PROGRAM*			✓	<p>A strategy for utilizing bike counters, TIAs or other traffic studies to track ridership and usage of facilities. Program could include both permanent counters used to track overall trends and analyze the BMP network as it is implemented, as well as portable counters used to collect data before and after specific projects are implemented. This would be most effective if done in partnership with existing program, such as SCAG’s Active Transportation Database.</p>
WAYFINDING/ BICYCLE BOULEVARD PROGRAM*			✓	<p>A program that ensures consistency and effective wayfinding along existing and future bike facilities. Establishing a city-wide guide and standards on signed bicycle routes and their design, funding, and implementation will improve these facilities for long-time riders and new visitors alike.</p>
COMMUNITY BIKE RIDES		✓	✓	<p>A coordinated group ride that would bring bicyclists in Hawaiian Gardens and neighboring communities together to learn how to navigate their community, build friendships, and gain insights into infrastructure advocacy. Rides would be designed to help all participants build confidence while exploring their surroundings and experiencing the health benefits of cycling.</p>
REGULAR BICYCLE COMMUNITY ADVISORY COMMITTEE MEETINGS		✓		<p>A committee composed of community representatives that meets quarterly and advises the city on issues and community concerns related to biking. A regular Bicycle CAC would require intentional goal setting regarding the goals and decision-making power of the group.</p>

*Priority programs and policies are shown in blue



Funding Sources

By developing and adopting the Bicycle Master Plan, the City of Hawaiian Gardens will be more competitive when applying for grant funding for bicycle projects. Key grant funding sources include LA Metro, Caltrans, and others. A priority list of grant funding sources and key considerations is shown in **Table 11**. Additional funding sources are listed in **Appendix D**.

TABLE 11: FUNDING SOURCES

NAME OF FUNDING SOURCE	TYPE OF PROJECTS ELIGIBLE	MATCHING FUND REQUIREMENTS
LA METRO OPEN STREETS PROGRAM	Primarily Funds Open Streets Events For Pedestrian And Bicycle Use; Also Covers “Slow Streets” Traffic Calming Programs	MINIMUM 20%
SCAG SUSTAINABLE COMMUNITIES PROGRAM	Funds Quick-Build Projects With Minor Construction Activity, Such As Protected Bike Lanes, Traffic Calming, And Traffic Circles	NONE REQUIRED, BUT ENCOURAGED
MEASURE M MULTI-YEAR SUBREGIONAL PROGRAM (GATEWAY CITIES)	The Gateway Cities Region Is Allotted Subregional Funds For Active Transportation Projects, Such As Bikeways, Bike Parking, Wayfinding, And Corridor Enhancements	NONE REQUIRED
METRO TRANSIT ORIENTED COMMUNITIES TECHNICAL ASSISTANCE PROGRAM	First/Last Mile Planning Assessment Or Design Refinement Toward Implementation	NONE REQUIRED
CALTRANS ACTIVE TRANSPORTATION PROGRAM	Funds Active Transportation Infrastructure And Planning Projects, As Well As Safe Routes To School; Highly Competitive But Prioritizes Disadvantaged Communities Such As Hawaiian Gardens	NONE REQUIRED
CALIFORNIA OFFICE OF TRAFFIC SAFETY GRANT PROGRAM	Funds For High Visibility Enforcement And Education Programs, As Well As Public Awareness Campaigns	NONE REQUIRED
CALIFORNIA LOCAL HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)	Prioritizes Projects That Are Safety-Focused And Can Be Implemented Quickly; Bicycle And Pedestrian Projects Are Encouraged	20%

Tracking Success and Next Steps

The Hawaiian Gardens Bicycle Master Plan outlines an ambitious vision for the next five to ten years. As a living document, the Plan is intended to evolve over time, with the City regularly measuring progress, evaluating outcomes, and refining strategies to ensure continued alignment with community needs and goals.

To track progress and success in implementing the Bicycle Master Plan, the City can use the following metrics that align with the Bicycle Master Plan Goals:

SAFETY: Improve safety and comfort for current and future bicycle riders of all ages, abilities, and identities.

- Miles of new bike boulevards (Class III)
- Miles of bike lanes upgraded with separation (Class II (buffered)/Class IV)
- Miles of new bicycle paths (Class I)
- Number of intersections with bicycle treatments implemented
- Change in number and rate of bicycle crashes

EQUITY: Provide affordable transportation options that improve health and reduce car dependency.

- Miles of bikeways implemented in Equity Focus Communities in Hawaiian Gardens
- Percentage of students who bike (as data is available)

CONNECTIVITY: Enhance connections to local and regional destinations, as well as the regional transportation network.

- Number of bicycle-supportive programs and policies implemented
- Number of new or improved connections to the Coyote Creek bike path
- Number of new bike racks or corrals



Appendices

- A. Community Advisory Committee Members
- B. Community Engagement Surveys
- C. Existing Conditions Data Methodology and Notes
- D. Programs & Policies Recommendations Memo
- E. Design Guidelines



APPENDIX A – COMMUNITY ADVISORY COMMITTEE MEMBERS

ORGANIZATION	DEPARTMENT	FIRST NAME	LAST NAME	TITLE/ROLE
CITY OF HAWAIIAN GARDENS	CITY COUNCIL	DANDY	DE PAULA	MAYOR
	PLANNING COMMISSIONER	LUIS	GONZALEZ	PLANNING COMMISSIONER
	CITY COUNCIL	VICTOR	FARFAN	COUNCILMEMBER
	CITY MANAGER	ERNESTO	MARQUEZ	CITY MANAGER
	PUBLIC SAFETY	STEVE	GOMEZ	PUBLIC SAFETY DIRECTOR
	COMMUNITY DEVELOPMENT	KEVIN	NGUYEN	ASSOCIATE PLANNER II
	RECREATION & COMMUNITY SERVICES	JOE	JIMENEZ	DIRECTOR OF RECREATION AND COMMUNITY SERVICES
	COMMUNITY DEVELOPMENT	ELISE	MCCALED	DIRECTOR OF COMMUNITY DEVELOPMENT
	PUBLIC WORKS	ALBERT	PEREZ	PUBLIC WORKS SUPERVISOR
	PUBLIC WORKS	NEEMA	GHANBARI	PUBLIC WORKS MANAGER
	PUBLIC WORKS	CHRIS	KELLEY	CITY ENGINEER
	PUBLIC WORKS	JEFFREY	LAU	CITY TRAFFIC ENGINEER
ABC UNIFIED SCHOOL DISTRICT	ABC UNIFIED SCHOOL SERVICES	MARYA A	LOZANO	DIRECTOR- SCHOOL SERVICES
	ABC UNIFIED SCHOOL SERVICES	CHERYL	CORREIA	ASSISTANT TO MAYRA LOZANO
	FEDDE ACADEMY	DENISE	MACIAS	PRINCIPAL
	FURGESON ELEMENTARY SCHOOL	ALEJANDRO	GUTIERREZ	PRINCIPAL
	HAWAIIAN ELEMENTARY SCHOOL	MARIA	PEREZ-BRENA	PRINCIPAL
MELBOURNE ELEMENTARY SCHOOL	CYNTHIA	SANTOS	PRINCIPAL	
LOS ANGELES COUNTY SHERIFF'S DEPARTMENT (LASD)	PUBLIC SAFETY	MAJALIA	GONZALEZ	LA COUNTY SHERIFF'S LIASION
ADVOCATE	CITY RESIDENT	ADRIAN	GONZALEZ	RESIDENT

APPENDIX B – COMMUNITY ENGAGEMENT SURVEYS

Phase One Survey Questions

A. Introductory Question

a. What's your relationship to Hawaiian Gardens? (select all that apply)

- I live here
- I work here
- I visit here
- I go to school here
- Other (please specify)

B. Travel Behavior

a. Besides driving, how else do you get around Hawaiian Gardens? (select all that apply)

- Walk/roll
- Bike
- Scooter
- Transit
- Other (please specify)

b. Do you ride a bike?

- Yes
- No
- If yes, why do you ride a bike? (select all that apply)
- Exercise and recreation
- For errands and visiting friends
- To get to work or school
- To reach transit
- Other

c. How often do you ride a bike in or around Hawaiian Gardens?

- Daily/almost every day
- Several times a week
- Several times a month
- A few times a year
- I don't bike in Hawaiian Gardens

d. What factors discourage you from riding? (select all that apply)

- Feel unsafe
- Speeding
- Lack of bike infrastructure, such as bike lanes
- Lack of bike parking
- Don't know how to ride a bicycle
- Don't own a bike
- Other (please specify)

e. Which of these routes do you currently ride on? (select all that apply)

- Norwalk Ave
- Carson St
- Pioneer Boulevard
- 221st Street
- Civic Center Dr
- 223rd Street
- Coyote Creek Bike Path
- Other (please specify)

f. Which destinations do you reach by bike?

- School
- Work
- Park
- Shopping
- House of friend/family
- Neighboring City (Lakewood, Cypress, Long Beach, Los Alamitos)
- Other (please specify)

C. Bike Improvements

a. What do you see as the most important priorities for a Hawaiian Gardens Bike Master Plan? (note: setting goals) (select two)

- Improving safety for people who bike
- Making connections to places I would like to bike
- Making connections to existing bike routes
- Encouraging more people to travel by bike
- Creating connections to parks and recreation areas

- b. To where would you like to bike more if it felt comfortable?
- School
 - Park
 - Work
 - Shopping
 - House of friend/family
 - Neighboring City (Lakewood, Cypress, Long Beach, Los Alamitos)
 - Other (please specify)

- c. Which of these corridors would like to bike on more?
- Norwalk Ave
 - Carson St
 - Pioneer Boulevard
 - 221st Street
 - Civic Center Dr
 - 223rd Street
 - Coyote Creek Bike Path
 - Other (please specify)

D. Demographic questions (optional)

These demographic questions are optional. Your answers will help us ensure that we are reaching all people and communities. To protect your privacy, your answers will not be tied to survey responses. You may skip any question you do not wish to answer before submitting the survey at the bottom of the page.

- a. What is your age?
- 17 and under
 - 18 to 20
 - 21-30
 - 31-40
 - 41-50
 - 51-60
 - 60 or older
 - Prefer not to say
- b. How do you identify your race and ethnicity?
- African American or Black
 - Asian or Pacific Islander
 - Latino/a or Hispanic

- Native American or Alaska Native
 - White or Caucasian
 - Multiracial
 - Other: _____
 - Prefer not to say
- c. What is your gender?
- Woman
 - Man
 - Nonbinary
 - Prefer not to say
 - Other: _____
- d. What is your annual household income level?
- Less than \$20,000
 - \$20,000 - \$34,999
 - \$35,000 - \$49,000
 - \$50,000 - \$74,999
 - \$75,000 - \$99,999
 - \$100,000 - \$149,999
 - \$150,000 - \$249,999
 - \$250,000 or higher
 - Prefer not to say
- e. Enter your email and/or mobile phone number below to receive project updates and to be entered into an opportunity drawing for a chance to receive one of two \$50 prize cards. NO PURCHASE OR PAYMENT NECESSARY TO WIN.
- f. Enter your email
- g. Enter your phone number

PHASE ONE SURVEY RESULTS

Community Survey

The Project Team developed a community survey in collaboration with City staff to identify local bicycling barriers and opportunities. The primary goal was to gather input on residents' biking experience within the City which will guide the development of a more effective and community-driven Bicycle Master Plan.

Participants were asked to provide feedback on:

- Ranking or proposing goals for the Plan that aligns with community needs
- Sharing current bicycling experiences including frequency of use, preferred routes, and purposes for biking (recreational, commuting, etc.)
- Identifying concerns such as problematic intersections, lack of bike lanes, or areas where connectivity between routes could be improved

The survey was made available in both English and Spanish, digitally and by print, from July 1st to August 31st, 2024. The survey was promoted at city events, social media posts, flyers, the City's website, and lawn signs. Over 366 surveys were captured through this survey effort.

What We Heard

Common Themes

- Throughout the in-person events and the community survey, we heard the following common themes:
- Preference for more protected bike lanes
- Strong interest in connections to schools, parks, shopping, existing bikeways, and transit.
 - o Currently, people most often bike to parks, friends' and family's homes, and shopping areas. However, with an improved network, they would like to bike more frequently to neighboring cities.
- Flood control segments are opportunities to close key gaps
 - o Wayfinding signage is important for trail access
- Interest in understanding how implementation and funding works
 - o Both understanding and frustration that implementation is slow leading to a desire for feasible projects to happen quickly
- The top routes that people currently bike on and want to bike on in the future are Norwalk Blvd, Carson St, Pioneer Blvd, Civic Center Drive, 223rd St, and the Coyote Creek Bike Path.
- The highest priority for survey participants is improving safety for bicyclist. The second priority was creating better connections to popular biking destinations.
 - o Concerns with lack of enforcement of bike lanes resulting in cyclists feeling unsafe using them

- The top factors that discourage people from biking are a lack of infrastructure, speeding, and a general feeling of unsafety.
- Concerns from those who do not bike that they may not be receptive to infrastructure changes
- Strong interest in bike boulevards and the long-term vision
- Emphases on connectivity and coordination with other cities and projects to increase effectiveness

Community Survey Results

- The community survey resulted in responses from 366 participants (340 English and 26 Spanish). The survey collected responses from a wide variety of backgrounds from primarily folks who live **or**
- Work in Hawaiian Gardens on biking in and around Hawaiian Gardens today as well as challenges and opportunities to improve bicycling in the future. We identified the following key results:

TRAVEL PATTERNS TODAY

- Seventy nine percent of participants ride a bike, meaning we heard from a relatively large constituency who do not bike even though we were asking about biking.
- Nearly two-thirds or respondents who do bike, bike several times a month or more (Figure 1).
- More than half of respondents ride for 'Exercise & Recreation.' Several respondents (more than 20%) also ride for errands/ visiting friends.
- Today people ride most frequently on Norwalk Blvd, Carson St, Pioneer Blvd, and Civic Center Drive.

Figure 19. Frequency of Bicycle Travel

*218 of 366 participants responded to this question

BIKING IN THE FUTURE

- Top reasons people are discouraged from bicycling: Lack of infrastructure (49%), Speeding (36%), Feels Unsafe (36%), Lack of bike parking (29%).
- Improving safety for people who bike is a priority for most respondents.
- Parks are the top destination chosen for where people would bike more often if bicycling felt safe and comfortable.
- More than half or participants say they would like to bike on Norwalk Blvd and Carson St more often.
- Only 48% of survey respondents are familiar with the term 'bike lane.'

Figure 20. Factors That Discourage Bicycling Today

*290 of 366 participants responded to this question

PHASE TWO SURVEY QUESTIONS

Please start by telling us about yourself [select all that apply]:

- I live in Hawaiian Gardens
- I work in Hawaiian Gardens
- I visit Hawaiian Gardens
- I participate in the Community Advisory Committee (CAC) for the Bicycle Master Plan

DEMOGRAPHICS:

1. What race/ethnicity best describes you?

(Select all that apply)

- African American or Black
- Asian or Pacific Islander
- Latino/a or Hispanic
- Native American or Alaska Native
- White or Caucasian
- Multiracial
- Other [text box]
- Prefer not to say

2. What is your age?

- 17 and under
- 18 to 20
- 21-30
- 31-40
- 41-50
- 51-60
- 61 or older
- Prefer not to say

3. What is your gender?

- Female
- Male
- Transgender
- Non-binary
- Self-identify as
- Prefer not to say

4. What is your zip code?
5. What is your annual household income level?
 - Less than \$20,000
 - \$20,000 - \$34,999
 - \$35,000 - \$49,000
 - \$50,000 - \$74,999
 - \$75,000 - \$99,999
 - \$100,000 - \$149,999
 - \$150,000 - \$249,999
 - \$250,000 or higher
 - Prefer not to say

DRAFT NETWORK

Please select as many segments as you want and click to confirm whether you agree or disagree with the bicycling route assigned to that location. Click on a line in the map to learn more about the benefits and trade-offs of each route in the draft bicycle network.

Do you agree or disagree with this proposed improvement?

- Agree
- Disagree

If you disagree, please select the reason and give us further detail in the text box below.

- Change bikeway type
- Remove
- Alternative route
- Other (Please describe below.)

If you would like to see a different facility here, what is it? Please give us any additional detail that could be helpful.

- Shared Use Path (Bike Path)
- Unbuffered or Buffered Bike Lane
- Bicycle Boulevard
- Protected Bike Lane (Separated Bike Lane)

BICYCLE PARKING

Please add as many points as you want to recommend bicycling parking locations. Click 'Add a point' above to add alternative point in the map to learn more about the benefits and trade-offs of each route in the draft bicycle network.

Do you agree or disagree with this proposed improvement?

- Agree
- Disagree

If you disagree, please select the reason and give us further detail in the text box below.

- Change bikeway type
- Remove
- Alternative route
- Other (Please describe below.)

If you would like to see a different facility here, what is it? Please give us any additional detail that could be helpful.

- Shared Use Path (Bike Path)
- Unbuffered or Buffered Bike Lane
- Bicycle Boulevard
- Protected Bike Lane (Separated Bike Lane)

APPENDIX C - EXISTING CONDITIONS DATA METHODOLOGY AND NOTES

CRASH ANALYSIS

The descriptive crash analysis methodology consisted of data collection, consolidation, and analysis based on records available in UC Berkley’s Transportation Injury Mapping System (TIMS) crash database for the most recent 10-year period (2013-2022). A series of high-level descriptive summary tables and charts were developed to capture relationships between crash data factors and attributes. These statistics look at broader crash trends and patterns, providing insights to inform which variables deserve further examination. They will also help identify the proposed bicycle network and the policy and program recommendations to be developed for the Bicycle Master Plan. This analysis provides planners, engineers, and decision makers with high-level data to help respond to historical crash patterns and determine which crash factors have the strongest influence on bicycle crash patterns across Hawaiian Gardens.

LEVEL OF STRESS

Bicycle Level of Traffic Stress (LTS) is the stress on a bicyclist due to roadway and traffic conditions. LTS values can range from 1 to 4, with LTS 1 being the lowest stress and LTS 4 being the highest.

The Hawaiian Gardens LTS analysis utilized the following data inputs:

- Number of vehicle lanes
- Speed limits (collected from the 2024 Hawaiian Gardens Engineering & Traffic Survey)
- Average Daily Traffic (ADT) (collect from the 2024 Hawaiian Gardens Engineering & Traffic Survey)
- Presence of bicycle infrastructure (lanes, sharrows, etc.)
- Presence of parking
- Presence of centerline and medians

LTS is calculated differently for streets with and without bike lanes. For streets with bike lanes, the calculation of traffic stress depends on the width of the lane, presence and width of a parking lane, and prevailing speed, without considering vehicle volumes. For example, major streets with a bike lane but no separation from vehicle traffic are usually considered high stress whereas lower-traffic, lower-speed streets can be low-stress with regular bike lanes. In Figure 10, “low-stress” pockets are disconnected from the larger network by the requirement to either traverse or cross ‘high-stress’ streets. These streets often have bike lanes present, but painted bike lanes do not present enough separation for most riders.

The LTS analysis utilized the following tables, created by Toole Design, to apply the LTS scores:

Mixed traffic criteria		Prevailing Speed						
Number of lanes	Effective ADT*	< 20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50+mph
Unlaned 2-way street (no centerline)	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3
	751-1500	LTS 1	LTS 1	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
	1501-3000	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	3000+	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
1 thru lane per direction (1-way, 1-lane street or 2-way street with centerline)	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3
	751-1500	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4
	1501-3000	LTS 2	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4
	3001-6000	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
	6001-10000	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
10001+	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	
2 thru lanes per direction	0-6000	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	6001-12000	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
	12001+	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
3+ thru lanes per direction	any ADT	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4

* Effective ADT = ADT for two-way roads; Effective ADT = 1.67*ADT for one-way roads

Bike lanes and shoulders not adjacent to a parking lane

Number of lanes	Bike lane width	Prevailing Speed					
		≤ 25 mph	30 mph	35 mph	40 mph	45 mph	50+ mph
1 thru lane per direction, or unlaned	6+ ft	LTS 1	LTS 1	LTS 2	LTS 3	LTS 3	LTS 4
	4 or 5 ft	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4
2 thru lanes per direction	6+ ft	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4	LTS 4
	4 or 5 ft	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4	LTS 4
3+ lanes per direction	anywidth	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4

- Notes
1. If bike lane / shoulder is frequently blocked, use mixed traffic criteria.
 2. Qualifying bike lane / shoulder should extend at least 4 ft from a curb and at least 3.5 ft from a pavement edge or discontinuous gutter pan seam
 3. Bike lane width includes any marked buffer next to the bike lane.

Bike lanes alongside a parking lane

Number of lanes	Bike lane reach = Bike + Pkg lane width	Prevailing Speed				
		< 20 mph	25 mph	30 mph	35 mph	40+ mph
1 lane per direction	15+ ft	LTS 1	LTS 1	LTS 2	LTS 2/3*	LTS 4
	14 ft	LTS 2	LTS 2	LTS 2/3*	LTS 3	LTS 4
	12-13 ft	LTS 2	LTS 2/3*	LTS 2/3*	LTS 3	LTS 4
2 lanes per direction (2-way) 2-3 lanes per direction (1-way)	15+ ft	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
	14 ft	LTS 2/3*	LTS 2/3*	LTS 3	LTS 4	LTS 4
	12-13 ft	LTS 2/3*	LTS 2/3*	LTS 3	LTS 4	LTS 4
other multilane		LTS 3	LTS 3	LTS 3	LTS 4	LTS 4

- Notes
1. If bike lane is frequently blocked, use mixed traffic criteria.
 2. Qualifying bike lane must have reach (bike lane width + parking lane width) ≥ 12 ft
 3. Bike lane width includes any marked buffer next to the bike lane.
- * Rating depends on parking turnover. Low turnover (i.e. residential) = LTS 2, high turnover (i.e. commercial or mixed use) = LTS 3



BICYCLE MASTER PLAN

APPENDIX D - PROGRAMS & POLICIES RECOMMENDATIONS MEMO

Introduction

The Hawaiian Gardens Bicycle Master Plan (BMP) will serve as a comprehensive roadmap to enhance bicycle safety and infrastructure throughout the city over the next 10 years. To ensure the plan's success, this memo recommends a menu of programs and policies that will support its long-term implementation. These efforts will support the development of a connected bicycle network and guide the plan's ongoing integration into the fabric of the community as the BMP is implemented.

For the purposes of this memo, programs are organized initiatives that encompass a variety of activities and resources, such as community outreach, safety education campaigns, and maintenance activities. Policies cover municipal and departmental rules and guidelines that establish a framework for executing bicycle-related projects, ensuring effective bicycle network implementation and maintenance, and providing the necessary amenities to support and encourage community use. The combination of these programs and policies intend to help the City complement the BMP to foster a culture of bicycling within the city.

Recommended Programs and Policies

A total of seven programs and three policies are proposed for inclusion in the BMP. All proposed programs and policies relate to the goals of the project (safety, connectivity, and equity) and the direction that we have received from the City as well as feedback from community stakeholders. Stakeholders including the Community Advisory Committee (CAC) have emphasized the goal of using the BMP to bring people together. This specific goal is achieved through recommended programs such as Open Streets, Community Bike Rides, and Walk & Roll to School Day.

Programs and policies that are City priorities are underlined in Table 1 and include:

- **PR.2) Open Streets (Recurring Street Closures)**. An open streets program focused on closing a recreational route to cars on a regular basis. This could be a road along a park, school, or a popular destination. In contrast to something like Ciclavia, programming would be optional.



BICYCLE MASTER PLAN

- **PR.3) Bike Safety Education.** This program is intended to educate students on safe biking tips through classes and public education. It could also offer courses customized to adults who may be unfamiliar with safe biking practices.
- **PR.6) Community Bike Rides.** A coordinated group ride that would bring bicyclists in Hawaiian Gardens and neighboring communities together to learn how to navigate their community, build friendships, and gain insights into infrastructure advocacy. Rides would be designed to help all participants build confidence while exploring their surroundings and experiencing the health benefits of cycling.
- **PO.1) Bikeway Maintenance Funding Strategy.** A strategy that identifies needs and opportunities for bikeway maintenance. There may be opportunities to partner with other neighboring jurisdictions to “rent” or share the cost of bikeway maintenance equipment such as sweepers. The City may desire to consider cooperative agreements with jurisdictions that own equipment or are also interested in purchasing it.
- **PO.2) Developer In Lieu Fee.** A policy for developers to contribute funds supporting nearby bike projects.

Reading the Programs and Policies Table

The City has many options when it comes to program and policies that support the BMP. Therefore, all programs and policies are presented along with several key factors to aid in implementation decisions. These include potential partners, resource needs, funding opportunities, cost range, and effort levels, which are defined further below.

- **Potential Partners** - Organizations or entities that could contribute to the success of the program or policy, whether through expertise, resources, or collaboration.
- **Resource Needs** - Specific items, tools, or support required to ensure the program or policy operates effectively.
- **Funding Opportunities** - Available funding sources that can help finance the program or policy. The cost range is categorized using a three-level scale from one dollar sign indicating a low cost to three dollar signs denoting a high cost. These estimates are based on research and comparisons of similar efforts in other cities and programs.
- **Level of Effort Required** - a “1” indicates low effort, “2” reflects moderate effort, and “3” signifies high effort. This scale evaluates the amount of staff time, coordination, overall timeline, and resources needed for successful implementation.

References and Further Information

“Bicycle Education in West Hollywood.” *Los Angeles County Sherriff’s Department*, shq.lasdnews.net/pages/pagedetail.aspx?id=295. Accessed 15 Nov. 2024.

“Go Human.” *Southern California Association of Governments*, 8 Nov. 2020, scag.ca.gov/go-human.

“Metro Open Streets Grant Program.” *LA Metro*, www.metro.net/about/metro-open-streets-grant-program/. Accessed 16 Nov. 2024.

“Sustainable Communities Program.” *Southern California Association of Governments*, scag.ca.gov/sustainable-communities-program. Accessed 15 Nov. 2024.

“Traffic Safety Grants.” *California Office of Traffic Safety*, www.ots.ca.gov/grants/. Accessed 15 Nov. 2024.

Table 1. Recommended Programs and Policies

*Priority programs and policies are underlined.

Recommendation	Goal	Description	Justification	Potential Partners	Resources Needed	Funding Opportunities	Cost (\$-\$\$\$)	Effort (1-3)
<i>Programs</i>								
<u>PR.1) Walk & Roll to School Day</u>	Safety, Equity	A designated event, either held in concert with the national day or independently, to encourage students to walk, bike, or roll to school. The event offers students an opportunity to become familiar with the City’s bike facilities, while also promoting biking in a safe and encouraging environment. These events often attract large numbers of participants and provide a fun, engaging, and memorable way to motivate students to bike. Additionally, incorporating bike safety rodeos into the event could enhance its educational value by providing practical bike safety and handling skills.	<ul style="list-style-type: none"> • Targets children/younger audiences in Hawaiian Gardens • Increases exposure to and knowledge of the bicycle network • Educates residents on bicycle safety 	ABC School District, school parents/PTAs, school principals	Staff time, volunteers, outreach and educational materials.	California Office of Traffic Safety Grant Program, SCAG Go Human Grant Program (for CBO partner)	\$\$	2
<u>PR.2) Open Streets (Recurring Street Closures)</u>	Safety	An open streets program focused on closing a recreational route to cars on a regular basis. This could be a road along a park, school, or a popular destination. In contrast to something like Ciclavia, programming would be optional. An Open Streets Program would be most successful if led by City Council with support from Public Works.	<ul style="list-style-type: none"> • Reflects community preference for bicycling spaces separated from vehicle traffic • Builds trust and community connection 	Parks Department, City Council, CBOs	Staff time, Town Council partner/champion, temporary closure materials	Metro Open Streets Grant Program	\$\$	3
<u>PR.3) Bike Safety Education</u>	Safety	A bike safety education program could include classes and events, signage, and public communication. This program is intended to educate students on safe biking tips, but it could also offer courses customized to adults who may be unfamiliar with safe biking practices.	<ul style="list-style-type: none"> • School-targeted bicycle education would support safe bicycling routes to school efforts • Reflects community feedback prioritizing bicycling safety 	Local CBOs, ABC School District	Staff or consultant time	California Office of Traffic Safety Grant Program, SCAG Go Human Grant Program (for CBO partner)	\$\$	2

Recommendation	Goal	Description	Justification	Potential Partners	Resources Needed	Funding Opportunities	Cost (\$-\$\$\$)	Effort (1-3)
PR.4) Bike Count Data Program	Connectivity	A strategy for utilizing bike counters, TIAs or other traffic studies to track ridership and usage of facilities. Program could include both permanent counters used to track overall trends and analyze the BMP network as it is implemented, as well as portable counters used to collect data before and after specific projects are implemented. This would be most effective if done in partnership with existing program, such as SCAG's Active Transportation Database.	<ul style="list-style-type: none"> Improves project evaluation with data to compare volumes before and after implementation Enables tracking of progress towards plan goals 	SCAG, Metro	Staff time, funding for materials/activities/services	LACPH's Place program has automated counters that could support implementation. Funding can be built into grant applications such as the state Active Transportation Program.	\$	1
PR.5) Wayfinding/ Bicycle Boulevard Program	Connectivity	A program that ensures consistency and effective wayfinding along existing and future bike facilities. Establishing a city-wide guide and standards on signed bicycle routes and their design, funding, and implementation will improve these facilities for long-time riders and new visitors alike.	<ul style="list-style-type: none"> Reflects community feedback about enhanced wayfinding and desire for better connections to destinations Improves community familiarity with bicycling routes and destinations 	Public Works staff, contractor	Staff/ consultant time, infrastructure, signage	SCAG Sustainable Communities Grant Program	\$\$\$	3
PR.6) <u>Community Bike Rides</u>	Equity, Connectivity	A coordinated group ride that would bring bicyclists in Hawaiian Gardens and neighboring communities together to learn how to navigate their community, build friendships, and gain insights into infrastructure advocacy. Rides would be designed to help all participants build confidence while exploring their surroundings and experiencing the health benefits of cycling.	<ul style="list-style-type: none"> Encourages social interaction among residents and strengthens connections between Hawaiian Gardens and surrounding areas Promotes physical fitness and mental well-being through regular cycling, benefiting overall community health Reflects CAC desire to bring people together through bicycling 	BikeLA and other local CBOs, HG Teen Center	Staff/volunteer time, promotional materials	California Office of Traffic Safety Grant Program, Go Human Grant Program (for CBO partner)	\$	1
PR.7) Regular Bicycle Community Advisory Committee Meetings	Equity	A committee composed of community representatives that meets quarterly and advises the city on issues and community concerns related to biking. A regular Bicycle CAC would require intentional goal setting regarding the goals and decision-making power of the group.	<ul style="list-style-type: none"> Addresses equity and accountability by involving community voices consistently across bicycle project and program implementation Builds capacity by involving community members, who may then act as project ambassadors 	Planning staff, local advocates	Staff time, volunteer time	NA	\$	1

Recommendation	Goal	Description	Justification	Potential Partners	Resources Needed	Funding Opportunities	Cost (\$-\$\$\$)	Effort (1-3)
Policies								
<u>PO.1) Bikeway Maintenance Funding Strategy</u>	Connectivity, Safety	A strategy that identifies needs and opportunities for bikeway maintenance. There may be opportunities to partner with other neighboring jurisdictions to "rent" or share the cost of bikeway maintenance equipment such as sweepers. The City may desire to consider cooperative agreements with jurisdictions that own equipment or are also interested in purchasing it.	<ul style="list-style-type: none"> Ensures that long term maintenance of bikeways is supported Removes barriers associated with implementing Class IV bikeways and other infrastructure that requires specialized equipment 	Maintenance Division, Local Jurisdictions	Funding for materials/activities/services, Staff time	NA	\$\$	2
<u>PO.2) Developer In Lieu Fee</u>	Connectivity, Equity	A policy for developers to contribute funds supporting nearby bike projects.	<ul style="list-style-type: none"> Helps ensure continuity of bike network by implementing larger sections of bikeways at once Develops additional funding streams for bikeways projects 	Planning Division/Community Development, Planning Commission	Policy development and approval, staff time	NA	\$	2
<u>PO.3) Bike Parking Strategy or Ordinance</u>	Connectivity	A strategy to improve bike parking at public sites and private sites to ensure that city policies and development requirements require appropriate short- and long-term bike parking.	<ul style="list-style-type: none"> Opportunity to standardize and expand bicycle parking across the city Provide amenities for new bicycle network, improving the overall bicycle trip experience 	Planning Division, Recreation and Community Services, ABC School District	Policy change, staff time	NA	\$	2



BICYCLE MASTER PLAN

APPENDIX E

Hawaiian Gardens Bicycle Master Plan Design Guidelines

January 2025





BICYCLE MASTER PLAN

Table of Contents

Hawaiian Gardens Bicycle Master Plan Design Guidelines	1
Table of Contents	2
INTRODUCTION AND PURPOSE	3
Relation to Other Documents	3
ROADWAY TREATMENTS.....	4
Class I Bikeway: Shared Use Paths.....	4
Class II Bikeways: Conventional Bike Lanes.....	7
Class II Bikeways: Buffered Bike Lanes.....	9
Class III Bikeway: Signed Bike Route	12
Class III Bikeway: Bicycle Boulevard.....	14
Class IV Bikeway: Separated Bike Lane	19
Class IV Bikeway: Grade-Separated Bike Lanes.....	26
Lane Reconfigurations	30
Signs and Markings	33
INTERSECTION TREATMENTS.....	35
Bicycle Signals	35
Bicycle Boxes	37
Bike Detection.....	39
Protected Intersections.....	41
Intersection Crossing Markings.....	44
Two-Stage Turn Queue Boxes	45
Short-Term Bike Parking	46





BICYCLE MASTER PLAN

INTRODUCTION AND PURPOSE

The Hawaiian Gardens Bicycle Master Plan Design Guidelines provides an overview of the types of bicycle facilities and elements recommended in this Bicycle Master Plan (BMP).

The Design Standards are divided into two parts: [Roadway Treatments](#) and [Intersection Treatments](#).

The Design Guidelines provide best practices for bicycle facility design as described in the following design documents:

- [Federal Highway Administration Bikeway Selection Guide, 2019.](#)
- [American Association of State Highway and Transportation Officials \(AASHTO\) Guide for the Development of Bicycle Facilities, Fourth Edition, 2012.](#)
- [National Association of Cities and Transportation Officials \(NACTO\) Urban Bikeway Design Guide, Second Edition, 2014.](#)
- [NACTO Don't Give Up at the Intersection Guide, 2019.](#)
- [California Manual on Uniform Traffic Control Devices \(MUTCD\), Revision 8, 2014.](#)
- [California Highway Design Manual \(HDM\), 2023.](#)
- [California Department of Transportation \(Caltrans\) Traffic Calming Guide, 2023.](#)
- [Caltrans Design Information Bulletin 89-02, 2022.](#)
- [Caltrans Design Information Bulletin 94, 2024.](#)
- [Hawaiian Gardens General Plan, Circulation Element, 2010.](#)

Relation to Other Documents

This document was prepared for the development of safe and accessible bikeways and pathways in the City of Hawaiian Gardens (City) and builds upon the City's Circulation Element. The Circulation Element presents an evaluation of the existing and future planned circulation system in the City of Hawaiian Gardens. It addresses existing traffic conditions, the impacts of future traffic growth, planned physical improvements, and additional improvements to accommodate growth. The Circulation Element also addresses issues related to mobility and transportation in the City of Hawaiian Gardens and presents goals and policies to address those issues and guide circulation planning.





BICYCLE MASTER PLAN

ROADWAY TREATMENTS

Class I Bikeway: Shared Use Paths

Definition

Class I Shared Use Paths are facilities with exclusive right-of-way for bicyclists and pedestrians along a roadway or along a separate alignment from the road, and with minimized crossings by vehicle traffic. These facilities support both recreational and commuting trips, especially along rivers, creeks, and channels.



Illustration



Figure 1. Class I Bikeway: Shared Use Path





BICYCLE MASTER PLAN

Typical Application

Class I Shared Use Paths are considered in the following circumstances:

- Roadways with above 6,000 motor vehicles/day
- Motor vehicle speeds exceed 30 mph
- To serve corridors not served by streets and highways
- Where wide right-of-way exists along streets
- For recreational opportunities along rivers, creeks, and channels
- To close gaps in bicycle networks caused by the construction of freeways or the existence of natural barriers such as bodies of water and mountains

Guidance

	Width	Notes
Practical Minimum	8 feet	Only in constrained areas, for short distances
Preferred	10 – 12 feet	<p>To comfortable allow passing</p> <p>Recommended if:</p> <ul style="list-style-type: none"> • The path has or is expected to have more than 200 users in peak hours • On steep grades to provide additional passing area and shy distances for faster downhill bicyclists. • The path is a regionally significant bicycle travel corridor

- For shared use paths with upwards of 300 users during peak hour, it may be appropriate to separate pedestrians from bicyclists. The following separation strategies should be considered: the use of pavement markings, the use of traversable surface delineation, or the use of physical barriers such as raised curb or landscaped medians.





BICYCLE MASTER PLAN

Shared Use Path Intersections

- When shared use paths intersect roadways, the crossing design should minimize path users' exposure to traffic. Sufficient sight distances for path users and roadway users should be provided to decrease any potential conflicts.
- Typical treatments at shared use path intersections with roadways include using advanced warning pavement markings and signs, crosswalk markings, and providing curb ramps and bike ramps. Crossings may be stop-controlled, yield-controlled, or signalized with a Pedestrian Hybrid Beacon depending on the location. See Section 6.7 of the AASHTO Guide for the Development of Bicycle Facilities, 5th Edition, for more information.

Considerations

- Shared use paths differ from other bikeways because they also serve as pedestrian facilities; as such, all shared use paths must meet pedestrian accessibility requirements.
- Shared use paths should be designed for two-way travel. One-way paths may be used in rare situations where there is a need for only one-direction of travel.
- Where the shared use path may intersect with high volumes of motor vehicle traffic, intersection conflicts can be eliminated by using grade separation (e.g., bridge, tunnel).

References

- *AASHTO Guide for the Development of Bicycle Facilities*
- *FHWA Bikeway Selection Guide*
- *California Highway Design Manual*





BICYCLE MASTER PLAN

Class II Bikeways: Conventional Bike Lanes

Definition

Class II conventional bike lanes are areas distinguished from motorist travel lanes by pavement markings and signing denoting the preferential or exclusive use of bicycles.



Illustration

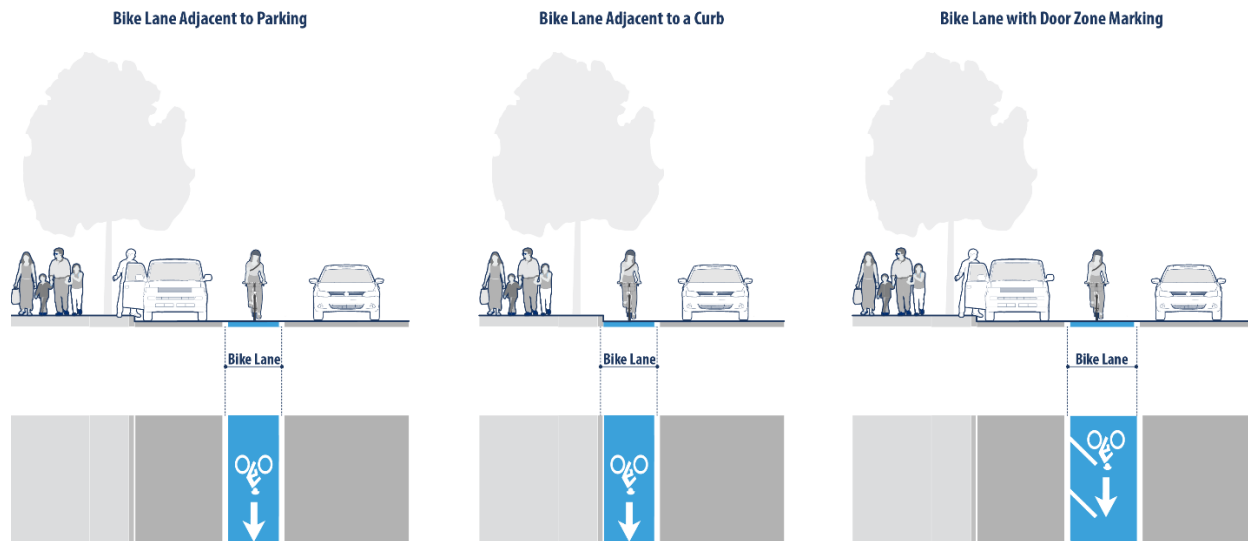


Figure 2. Class II Bikeway Types

Typical Application

Class II conventional bike lanes are recommended on any roadway with one or more of the following characteristics:

- Between 3,000 and 6,000 motor vehicles/day
- Motor vehicle speeds exceed 25 mph but less than 35 mph





BICYCLE MASTER PLAN

Conventional bike lanes may be considered on streets that exceed the above noted vehicle volumes or speeds, but these designs may not accommodate the safety and comfort of Interested but Concerned Bicyclists.

Guidance

Table 1. One-Way Conventional Bicycle Lane Widths

Context	Practical Minimum (ft)	Recommended Lower Limit (ft)	Recommended Upper Limit (ft)	Practical Maximum (ft)
Adjacent to edge of pavement	4	5	7	8
Adjacent to curb (exclusive of gutter)	5	6	7	8
Between through lanes and turn lanes	5	6	7	8

- Buffers are desirable where bicycle lanes are located between through and turn lanes, especially as motorist speeds exceed 30 mph.

Refer to the California MUTCD, AASHTO, and NACTO guidance for more information on bike lane widths.

Considerations

- Conventional bike lanes can be subject to frequent motorist encroachment to stop, load, or park, rendering them ineffective unless the curbside is managed to promote parking turnover and to accommodate loading.
- To enhance visibility of bicyclists at intersection approaches, bike lane extensions, green-colored pavement, and regulatory signs can be used.
- Green-colored pavement is optional and may be used according to CA MUTCD Section 9C.02.





BICYCLE MASTER PLAN

References

- *AASHTO Guide for the Development of Bicycle Facilities*
- *California MUTCD, Part 9*
- *FHWA Bikeway Selection Guide*
- *NACTO Urban Bikeway Design Guide*

Class II Bikeways: Buffered Bike Lanes

Definition

Buffered bike lanes are conventional bike lanes with an additional striped buffer separating the bike lane from the adjacent motor vehicle travel lane and/or parking lane.

Illustration

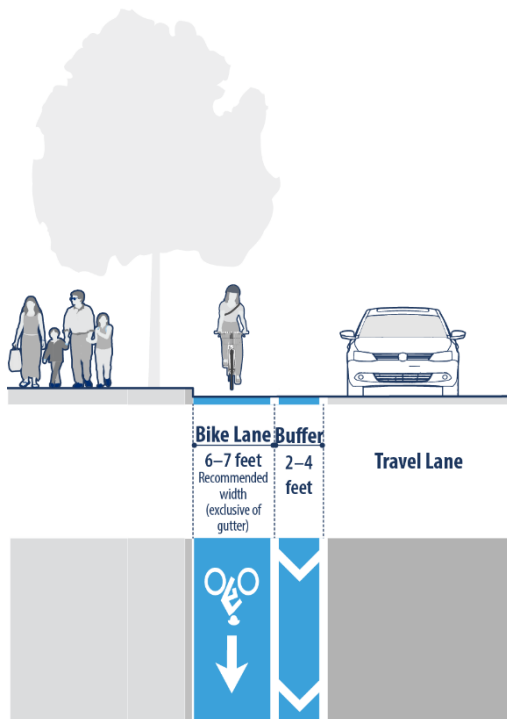


Figure 3. Class II Bikeway: Buffered Bike Lane, Curb-Adjacent





BICYCLE MASTER PLAN

Typical Application

Buffered bike lanes are considered on any roadway with one or both of the following characteristics:

- Between 3,000 and 6,000 motor vehicles/day
- Motor vehicle speeds exceed 25 mph but less than 35 mph.

Buffered bike lanes may be considered on streets that exceed the above noted vehicle volumes or speeds, but these designs may not accommodate the safety and comfort of Interested but Concerned Bicyclists.

Guidance

- The recommended width of a one-way bike lane between two painted buffers is 6 to 7 feet, a practical minimum is 4 feet.

Table 2. Buffered Bicycle Lane Widths

Practical Minimum (ft)	Recommended Lower Limit (ft)	Recommended Upper Limit (ft)	Practical Maximum (ft)
5	6	7	8*

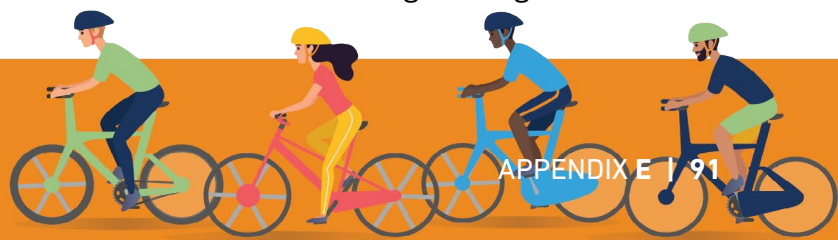
*Additional buffer space should be considered in lieu of wider bicycle lanes to avoid confusion with a parking or travel lane

Buffer widths

Table 3. Buffer Widths and Striping

Buffer Type	Buffer Width	Striping Options
Standard	≥ 2 feet	-Normal width solid white line (4 inches) -Wide width (6 inches) solid white line
Narrow	< 2 ft	-Normal width solid white line -Solid double white lane line (e.g. two 4- or 6-inch solid white lines) -Single wide white lane line (12 to 24 inches)

- Diagonal or chevron cross hatch markings are optional but are recommended for buffers that are 4 feet or greater in width. Cross hatching is typically spaced at 20 feet, though spacing may be reduced to as low as 5 feet when engineering





BICYCLE MASTER PLAN

judgement determines a more frequent spacing is desirable. Maximum spacing should not exceed the equivalent of the posted speed limit. For example, maximum spacing on a 35 mph road would be 35 feet.

Considerations

- Consideration should be given to the visual impact resulting from markings of extensive lengths of buffered bike lanes where the buffers are relatively wide.
- The additional pavement markings of wide buffers will also increase maintenance costs.
- Where space allows the provision of buffers totaling 6 feet or more in width, separated bike lanes should be considered with vertical elements.

References

- *AASHTO Guide for the Development of Bicycle Facilities*
- *California MUTCD, Part 9*
- *FHWA Bikeway Selection Guide*
- *NACTO Urban Bikeway Design Guide*





BICYCLE MASTER PLAN

Class III Bikeway: Signed Bike Route

Definition

A signed bike route is a street, road, or bikeway designated by the jurisdiction having authority with appropriate directional and informational route signs, with or without specific bicycle route numbers. Signed bike routes use shared lane markings, also known as sharrows, and signs to designate a shared travel lane.

Illustration

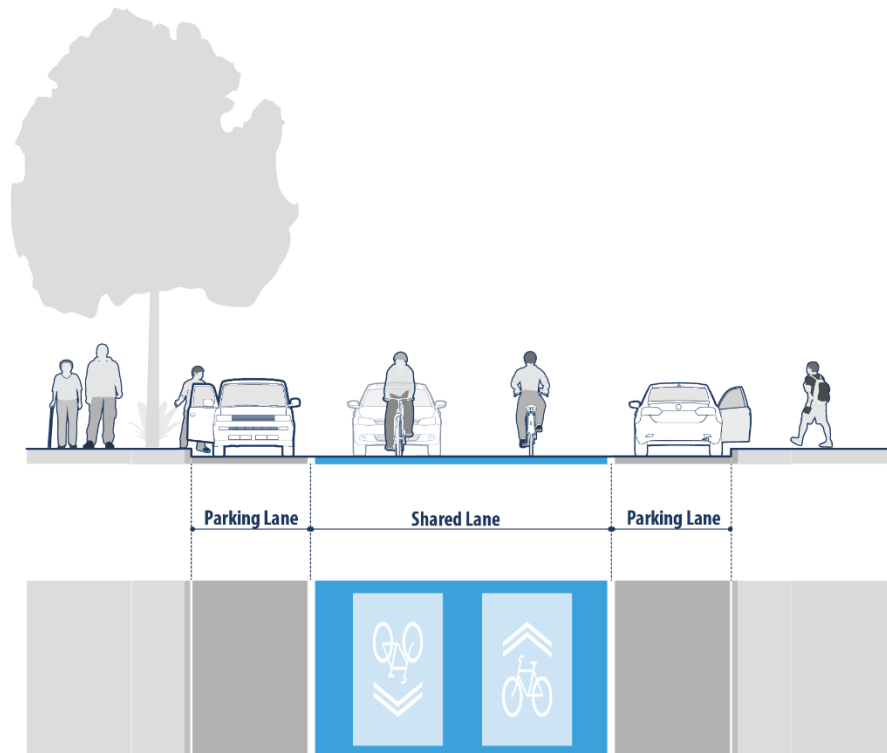


Figure 4. Class III Bikeway: Signed Bike Route

Typical Application

Signed bike routes works best on streets where:

- Existing volumes and speeds are low (less than 3,000 motor vehicles/day and speeds of 25 mph or less).
- Traffic signals are timed for a bicycling travel speed of 12 to 15 mph.





BICYCLE MASTER PLAN

Guidance

- Shared lane markings should be placed immediately after an intersection and at intervals of every 50 to 100 feet on busier streets and up to 250 feet on low traffic bicycle routes.
- Signs should be used to support the marked shared roadway facility. Appropriate signs include Bike Route (CAMUTCD D11-1) or Bicycles May Use Full Lane (CAMUTCD R4-11), shown below.
- All signs should be applied at intervals frequent enough to keep bicyclists informed of changes in route direction and to remind motorists of the presence of bicyclists.



Figure 5: CAMUTCD R4-11



Figure 6: CAMUTCD D11-1

Considerations

- Markings should be placed in the center of the travel lane to reduce marking wear and encourage cyclists to occupy the lane outside of the door zone of parked cars.

References

- *FHWA Bikeway Selection Guide, Figure 9*
- *NACTO Urban Bikeway Design Guide*
- *California MUTCD, Part 9*





BICYCLE MASTER PLAN

Class III Bikeway: Bicycle Boulevard

Definition

Bicycle boulevards are local roads or residential streets that have been enhanced with signage, traffic calming, and other treatments to prioritize bike travel.

Illustration

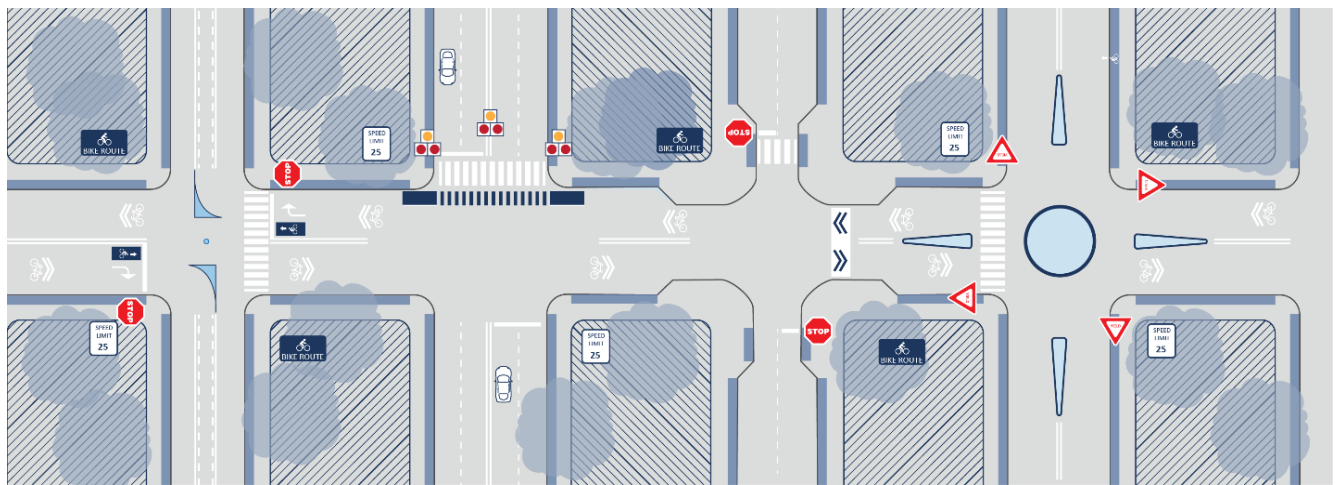


Figure 5. Class III Bicycle Boulevard Treatments

Typical Application

Bicycle boulevards may be considered on any roadway with both of the following characteristics:

- Less than 3,000 motor vehicles/day
- Motor vehicle speeds of 25 mph or less

Guidance

- There are no bicycle-specific design or dimensional requirements for bicycle boulevards, but various design features can make these shared lanes more compatible with bicycling: good pavement quality, adequate sight distances, and roadway designs that encourage lower motor vehicle operating speeds and lower traffic volumes.





BICYCLE MASTER PLAN

- At signalized intersections, the provision of appropriate signal timing and detector systems that respond to bicycles operating in the travel lane are important for bicycle safety. At uncontrolled crossings, it is important to provide treatments that ensure bicyclists have opportunities to safely cross the street, road, or highway.
- At minor street crossings (typically the intersection of two residential or local streets with low motor vehicle volumes and speeds), the following treatments are often applied: raised crossings, neighborhood traffic circles, and daylighting.

Considerations

- Implementing speed management and traffic calming measures are critical in creating a comfortable and effective bicycle boulevard. Bringing motor vehicle speeds closer to bicyclist speeds improves the bicycling environment by reducing overtaking events, enhancing drivers' ability to see and react, and diminishing the severity of crashes if they occur.
- Motor vehicle volumes significantly impact bicyclist comfort on bicycle boulevards. Volume management measures such as traffic diversions reduce or discourage through traffic by physically or operationally reconfiguring select corridors and intersections along the route.
- Treatments such as shared lane markings, wayfinding signs, and traffic calming features are implemented to prioritize bicycle travel.
- At approaches to higher speed and volume streets, bicycle boulevards may transition to bike lanes, separated bike lanes, or shared use paths.
- Additional guidance on speed and volume management can be found in the Speed and Volume Management Toolbox.

References

- *FHWA Bikeway Selection Guide*
- *California Highway Design Manual*
- *California Streets and Highways Code, Section 890.4*
- *NACTO Urban Bikeway Design Guide*





BICYCLE MASTER PLAN

Speed and Volume Management Toolbox

The elements described below should be used to improve the safety and comfort of bicyclists on bike boulevards. For additional guidance on these elements see the NACTO Urban Bikeway Design Guide, CA MUTCD, and Caltrans Traffic Calming Guide.

Speed Cushions

Definition

Speed cushions are speed humps or speed tables that include wheel cutouts, allowing larger vehicles (e.g., fire trucks and emergency vehicles) to pass while slowing passenger car speeds. Speed cushions can also be more accommodating for people biking when compared to speed humps due to the gaps provided.



Guidance

It is recommended that speed cushions be designed to the following:

- Slopes should not exceed 1:10 or be less steep than 1:25.
- Side slopes on tapers should be no greater than 1:6.
- The vertical lip should be no more than a quarter-inch high.
- Speed Cushions should be accompanied by SPEED HUMP Sign (W17-1)

Considerations

- Seeking approval from emergency response officials or departments for treatments on emergency response routes can help ensure emergency response times and services are not severely impacted.





BICYCLE MASTER PLAN

Traffic Circles

Definition

Traffic circles are a type of horizontal speed management measure that can be used at minor street intersections. Traffic circles reduce conflict potential and crash severity while slowing vehicle speeds on the corridor. Slowing vehicle speeds down to bicyclist speeds improves the bicycling environment.

Guidance

- Traffic circles may be installed with simple pavement markings or raised islands.
- Crosswalks should be clearly marked to show where pedestrians should cross.
- There should be at least 15 feet clearance from the traffic circle to the intersection corners.



Considerations

- Traffic circles must be designed to deflect vehicular traffic without forcing the bicycle path of travel to be directed into a merging motorist.
- Neighborhood traffic circles should be considered at local street intersections to prioritize the through movement of bicyclists (by removing stop control or converting to yield control) without increasing motorist speeds.
- Traffic circles should be considered in conjunction with additional signage and marking.
- Planting and beautification of the traffic circle can have a further traffic calming effect.





BICYCLE MASTER PLAN

Traffic Diverter

Definition

A traffic diverter is a raised median that prohibits specific vehicular movements while allowing pedestrians and bicyclists through.



Guidance

- Diversion treatments should be designed to provide a minimum clear width of 6 feet for a bicyclist to pass through.
- Some treatments may require a separate pedestrian accommodation.

Considerations

- Diversion is most applicable in areas with a grid street system to disperse traffic.
- Diversion shifts trips from neighborhoods onto adjacent streets. This change in traffic volume on other local streets must be identified and addressed during the planning, design, and evaluation process.
- Consultation with emergency services will be necessary to understand their routing needs.



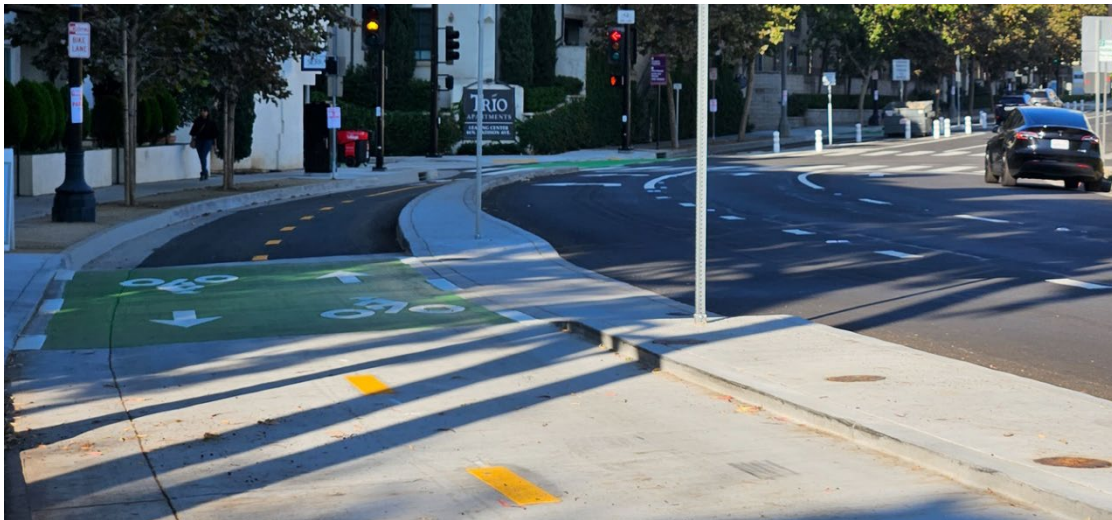


BICYCLE MASTER PLAN

Class IV Bikeway: Separated Bike Lane

Definition

Class IV Separated Bike Lanes are physically separated from motor vehicle traffic with the use of vertical and horizontal features. These features may include flexible posts, bollards, planters, parked vehicles, and concrete curbs. Separate bikeways may be designed to allow one-way or two-way bicycle travel.





BICYCLE MASTER PLAN

Illustration

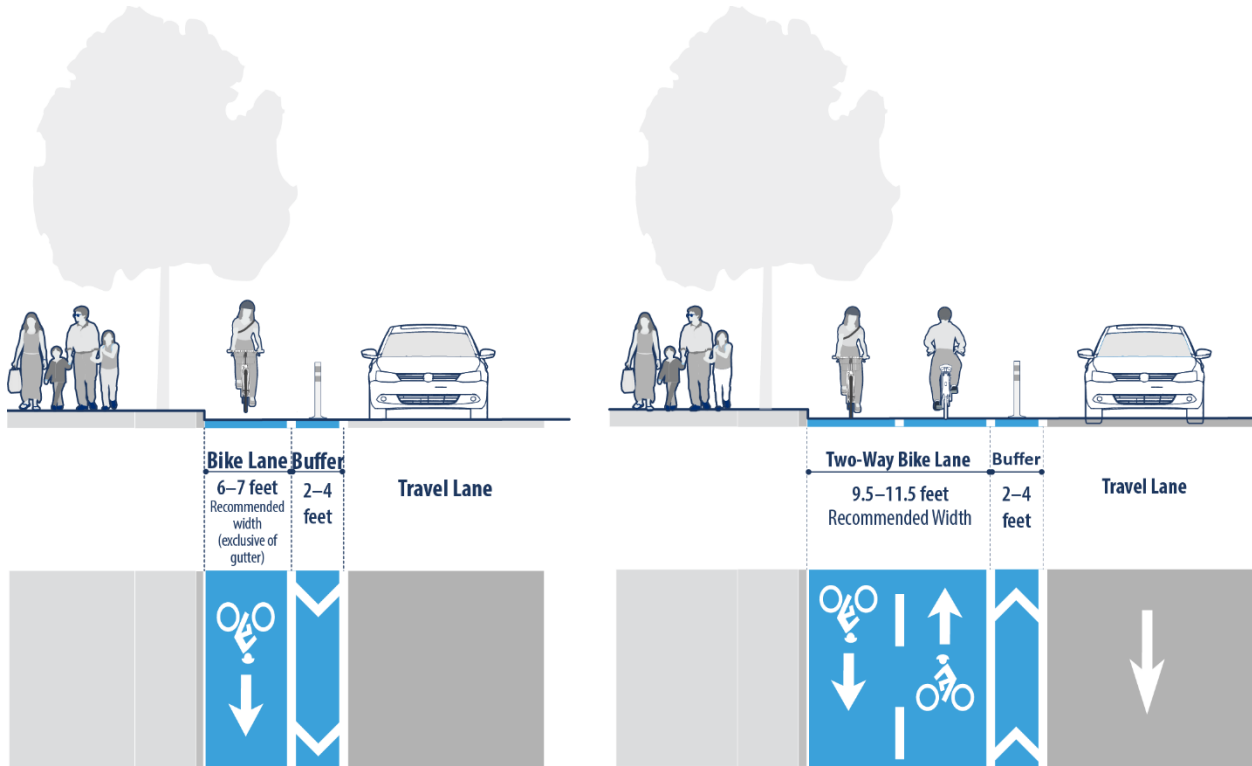


Figure 6. Class IV Separated Bike Lane (left) and Two-Way Separated Bike Lane (right)

Typical Application

Separated bike lanes are considered on any roadways with one or more of the following characteristics:

- Above 6,000 motor vehicles/day
- Motor vehicles exceed 30 mph.
- High percentage of heavy vehicle traffic

Guidance

- Typically, one-way separated bike lanes on each side of the street are preferred over a two-way separated bike lane on one side of the street. One-way separated bike lanes in the direction of vehicle travel are typically the easiest option to introduce into the existing operation of a roadway and provide the greatest safety benefit.





BICYCLE MASTER PLAN

- A design speed of 15 mph is generally appropriate for Class IV bikeways. Speeds higher than 15 mph may lead to unsafe roadway interactions between bicyclists, pedestrians, and motorists.

Table 4. Separated Bike Lane Widths**

		Between Vertical Curbs without Gutter ¹	Adjacent to One Vertical Curb ¹	Between Sloped Curb, at Sidewalk Level, or Adjacent to Curb with Gutter
One-way Separated Bike Lane Width (ft)*	Recommended Widths	6.5-8.5	6-8	5.5-7.5
	Practical Minimum	4.5	4	4
Two-Way Separated Bike Lane Width (ft)*	Recommended Widths	10-12	9.5-11.5	9-11
	Practical Minimum	8.5	8	7.5

*Assuming a bicyclist volume of less than 150 during peak hour

** The width of a separated bike lane should be measured from the face curb, edge of gutter (if present), or striped line at the edge of a buffer.

¹ City of Los Angeles Supplemental Street Design Guide, Table 4-1

Considerations

- Vertical elements like bollards and planters should be placed so as not to impeded sidewalk access by pedestrians. More information on vertical elements can be found in the Additional Design Elements section below.
- Street sweeping may be required more frequently to remove leaves and other debris.
- Separated bike lanes should not have a gutter located within the bike lane unless the gutter is extended to incorporate the full width of the bike lane.

References

- FHWA Bikeway Selection Guide, Figure 9
- FHWA Separated Bike Lane Planning and Design Guide
- California Highway Design Manual
- NACTO Urban Bikeway Design Guide





BICYCLE MASTER PLAN

- Caltrans DIB-89

Additional Design Elements

The added separation provided by separated bikeways creates additional considerations at conflict points when compared to conventional bicycle lanes. For additional guidance on these elements see the NACTO Don't Give Up at the Intersection Guide, NACTO Urban Bikeway Design Guide, and CA MUTCD.



Continuous vertical elements (concrete curb) along a separated bike lane

Vertical Elements

Definition

Vertical elements in the buffer area are used to separate Class IV bike lanes from motor vehicle travel lanes and increase perceived safety and comfort for bicyclists. The selection of vertical element types should be based on the presence of on-street parking, overall street and buffer width, cost, durability, aesthetics, traffic speeds, emergency vehicle and service access, and maintenance.





BICYCLE MASTER PLAN

Guidance

- When determining where to place vertical elements relative to the bike lane, the leading factor is shy distance which varies depending on the type of element used:

Table 5. Bicyclist Lateral Shy Distance to Physical Elements

Physical Element	Shy Distance (inch)	
	Practical Minimum	Recommended Range
Intermittent Elements (tree, flex post, pole, bollards, etc.)	0	24 – 36
Continuous Elements (fence, railing, planter, etc.)	12	24 – 36

Considerations

- Whether the vertical element allows drainage to reach existing facilities or requires new drainage infrastructure should be considered.
- Delineation of vertical elements with retroreflective material and the presence of vertical elements signals to people driving that slower, more cautious operation of their vehicle is appropriate.
- Curbside uses must be considered including loading/unloading, on-street parking, mail delivery, access to fire hydrants, collection of trash and recycling, etc.





BICYCLE MASTER PLAN



Intermittent vertical elements (flex posts and curb stops) along a separated bike lane

Minor Street Crossings, Raised Crossings, Driveway Crossings, and Access Management

Definition

Driveways or minor street crossings may require additional treatments to increase visibility, reduce turning speed, and minimize conflict points for improved safety and experience of people biking.

Guidance

- Remove parking to allow for the appropriate clear sight distance before driveways to improve visibility. The desirable no-parking area is at least 30 feet from each side of the crossing.
- Use green colored pavement markings and/or shared line markings through conflict areas at intersections.
- Motor vehicle traffic crossing the bike lane should be constrained or channelized to make turns at sharp angles to reduce travel speed prior to the crossing.
- Raised crossings reduce vehicle speed and improve bicyclists' visibility by raising the crossing up to the sidewalk level. The raised crossing conveys that people biking and walking have the right of way.





BICYCLE MASTER PLAN

Considerations

- Strategies that should be considered to improve overall traffic flow and safety within a corridor and minimize motorist conflicts with bicyclists at driveways include:
 - Consolidate driveways to reduce potential frequency of conflicts.
 - Restrict left turns and/or through crossings from minor streets and driveways.
 - Restrict turn-on-red to maintain integrity of crossings and bicycle queuing areas (for locations where the driveway or minor street is signalized).
 - Relocate driveways to side streets.

Bus Bulbs

Definition

Floating transit stops or floating bus bulbs are installed to minimize conflicts between buses and people biking by providing a separated bike lane at the bus stop.

Guidance

- Bus bulbs can be placed at mid-block, near-side, and far-side locations.
- A full width bus boarding and alighting area must be a minimum of 8 feet in width.
- This design requires at least 12 to 16 feet of available space to accommodate the bike lane and bus bulb.
- Clearly marked crossing locations to guide passengers across the bike lane are required.
- Signage and pavement markings should provide clear direction to bicyclists to yield to pedestrians crossing the bike lane.
- Provide clear sight lines between pedestrians and bicyclists at each crossing location.





BICYCLE MASTER PLAN

Considerations

- The decisions for where to place the transit stop should be coordinated with the transit agency and the City.
- Where practical, integrating pedestrian crossings to access the floating bus bulb at a signalized intersection is preferable for pedestrians with vision disabilities.
- Where a floating transit stop is not possible, either:
 - Terminate the vertical separation between the motorist travel lane and the bike lane and provide conflict markings to allow the transit vehicle to pull to the curb for passenger boarding and alighting, or
 - Provide a raised bike lane with a narrow boarding and alighting area that requires the raised bike lane to serve as a portion of the boarding and alighting area.

Class IV Bikeway: Grade-Separated Bike Lanes

Definition

Grade-separated bike lanes (or raised bike lanes) are Separated Bike Lanes that are physically separated from motor vehicle traffic by elevating the bike lane to the adjacent sidewalk or to an intermediate level between the roadway and sidewalk to also separate the bicycle lane from the pedestrian walkway.





BICYCLE MASTER PLAN

Illustration

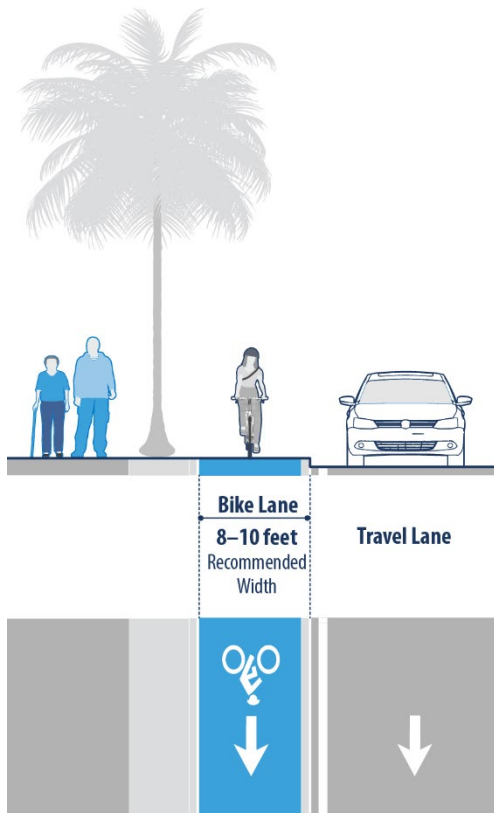


Figure 9. Class IV Bike Lane: Sidewalk-Level Raised Bike Lane

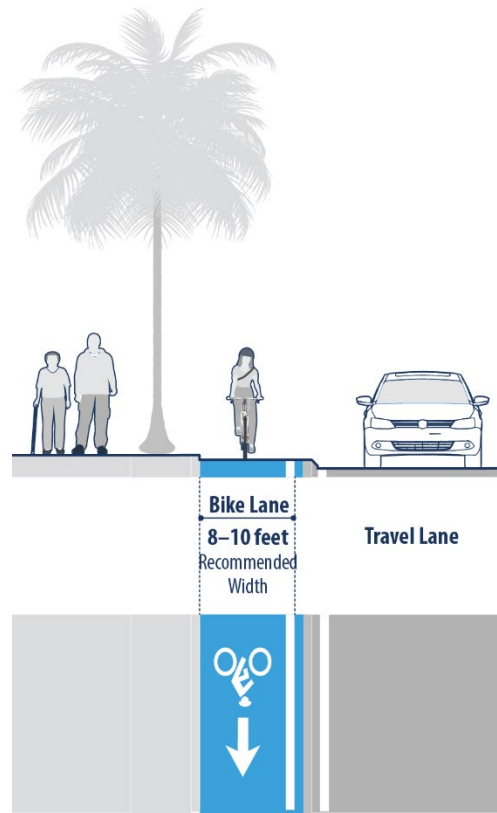


Figure 10. Class IV Bike Lane: Intermediate-Level Raised Bike Lane





BICYCLE MASTER PLAN

Typical Application

Grade-separated bike lanes are considered on roadways where reconstruction of the curbline is part of a project and one or more of the following characteristics exist:

- Above 6,000 motor vehicles/day
- Motor vehicle speeds exceed 30 mph.
- High percentage of heavy vehicle traffic

Guidance

- The recommended width of a raised bike lane is 6.5 to 8 feet, a practical minimum is 5 feet.
- In commercial areas where loading activities may occur frequently, it is preferable to create a loading zone and transition the raised bike lane to a separated bike lane.
- For raised bike lanes adjacent to a sidewalk, it is preferable to locate the raised bike lane at an intermediate-level or to provide landscaping elements between the raised bike lane and sidewalk. If the raised bike lane is located at sidewalk-level and immediately adjacent to a sidewalk, a reliable detectable edge must be provided along the sidewalk.
- Frequent changes in the bike lane elevation should be avoided to maintain the safety and comfort of bicyclists using the facility.
- At intersections, a grade-separated bike lane typically transitions to street level and operates as a separated bicycle lane. It is preferable to bend the bike lane away from the travel lane and transition the bike lane to a protected intersection (see Intersection Treatments).

Considerations

- Bicycle and pedestrian interactions should be managed at transit stops to ensure safety for all users. (See Bicycle Lane Treatments at Bus Stops in the Class IV Separated Bike Lane Section)
- Where accessible parking spaces are to be provided adjacent to the raised bike lane, a widened buffer may be provided to prevent a side mounted ramp from protruding into the bike lane.





BICYCLE MASTER PLAN

References

- *FHWA Bikeway Selection Guide*
- *FHWA Separated Bike Lane Planning and Design Guide*
- *NACTO Urban Bikeway Design Guide*
- *Caltrans DIB-89*





BICYCLE MASTER PLAN

Lane Reconfigurations

Definition

Lane reconfiguration or “road diets” are the reduction of the number of travel lanes on a roadway. Road diets on wider streets may provide additional width for on-street parking, wider street buffers, wider sidewalks, and/or buffered or separated bike lanes.





BICYCLE MASTER PLAN

Illustration

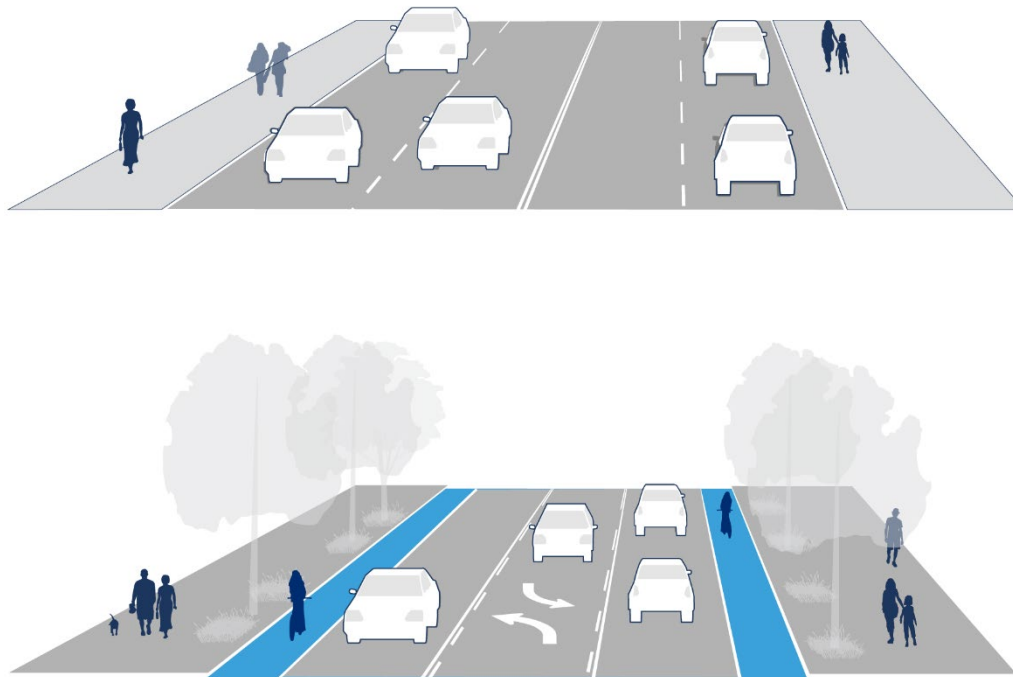


Figure 7. Lane Reconfiguration from Four-Lane to Three-Lane with Class II Bike Lanes

Typical Application

- Roadways with an ADT of 20,000 vehicles/day or less are good candidates for a four-to three-lane road diet. While congestion can be considered, it should not be the sole consideration in determining if a road diet should be implemented. Successful road diets have been implemented on streets with ADTs as high as 25,000 vehicles/day.
- Road diets may improve operational benefits on streets with high volumes of left-turning vehicles.
- Road diets may offer the opportunity to install bike lanes, separated bike lanes, or side paths.





BICYCLE MASTER PLAN

Guidance

- Lane reconfigurations are dependent on the existing road conditions, such as the current roadway width, lane widths, vehicle speeds, and traffic volumes.
- The most common road diet configuration involves converting a four-lane road into three lanes, with one travel lane in each direction and a two-way left-turn lane, which provides space to include curbside one-way bike lanes in each direction of travel.
- Road diets on wider streets may provide additional width for on-street parking, wider street buffers, wider sidewalks, and/or buffered or separated bike lanes.

Considerations

- Road diets may require traffic signal changes to match the new configuration of the lanes at each approach and to accommodate traffic flow.

References

- *FHWA Road Diet Information Guide*
- *NCHRP Guidance to Improve Pedestrian and Bicyclist Safety at Intersections*
- *FHWA Separated Bike Lane Planning and Design Guide*
- *FHWA Proven Safety Countermeasures*





BICYCLE MASTER PLAN

Signs and Markings

Signs

Image



Source: TheCityProject/Flickr, Creative Commons

Typical Application

Signs can enhance a bicycle network by helping communicate the use and right-of-way to drivers and bicyclists, and to help bicyclists find bike routes and navigate through them safely and comfortably. Guide signs are useful for navigation of the bike network; however, they should be used in conjunction with other roadway improvements to address the safety of bicyclists.

Design Guidance

Wayfinding, regulatory, and warning signs may be customized to give a unique sense of identity to the jurisdictions within which the bicycle facilities operate. The California MUTCD, Part 9, provides guidance for the design and installation of signs for bike facilities.





BICYCLE MASTER PLAN

Markings

Image



Typical Application

Traffic control pavement markings such as stop lines, yield lines, edge lines, and bike symbols can improve the safety and operation of bicyclists when installed in bicycle facilities.

For bicycle facilities, bike lane symbols are used to inform bicyclists, motorists, and pedestrians of the area of the roadway designated for bicyclists' use. Bike lane symbols or word markings are required on Class II, Class III, and Class IV bikeways and are optional on Class I bikeways. They may also be used to communicate the direction of bicycle travel or the separation of bicyclists from other shared use path users. See MUTCD Part 9 for additional traffic control for bicycle facilities.

Design Guidance

Per the California MUTCD, all markings used on bicycle facilities shall be retroreflective except for green-colored pavement. All California agencies should refer to the California MUTCD for guidance for the installation of pavement markings.





BICYCLE MASTER PLAN

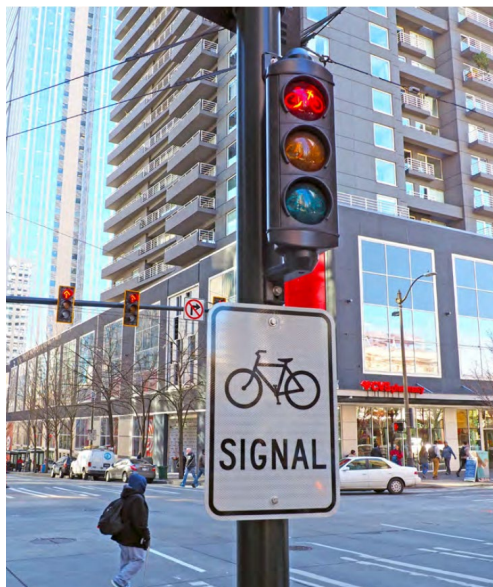
INTERSECTION TREATMENTS

Bicycle Signals

Definition

A bicycle signal is a traffic signal with green, yellow, and red bicycle signal faces intended to direct bicycle movements. Initial studies of bicycle signals indicate that their presence may increase signal compliance and improve safety.

Image



Typical Application

- The use of bicycle signal faces (where the signal displays a bicycle symbol shape) can only be used at signalized intersections per CA MUTCD Section 4D.104(CA). Bicycles must move on a green or yellow bicycle indication and no conflict with any simultaneous motor vehicle movements at the signalized location.
- Bicycle signals are necessary to indicate a leading or protected phase for bicycle movements, for instance, when a through separated bikeway may be positioned to the right of a right-turn only lane or to the left of a left-turn only lane. This may sometimes require an additional phase to be added to the traffic signal cycle.





BICYCLE MASTER PLAN

- Bicycle signals should be installed at two-way separated bikeways where contraflow bicycle movement or increased conflict points warrant protected operation.
- A bicycle signal should be considered for use only when the volume/collision or volume/geometric warrants have been met.

Guidance

- It is preferable for bicycle signals to be activated passively with loops or video detection. Active detection requires bicyclists to use a pushbutton that is accessible from the bicycle facility, which is common on shared use paths.
- An additional “Bicycle Signal” sign should be installed below the bicycle signal head.
- Bicyclists moving on a green or yellow signal indication in a bicycle signal shall not 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.

Considerations

- 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 (See CA MUTCD Table 4D-109).

References

- *California MUTCD*
- *FHWA Separated Bike Lane Planning and Design Guide*
- *NACTO Urban Bikeway Design Guide*
- *FHWA Interim Approval IA-16*





BICYCLE MASTER PLAN

Bicycle Boxes

Definition

A bicycle box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase.



Illustration

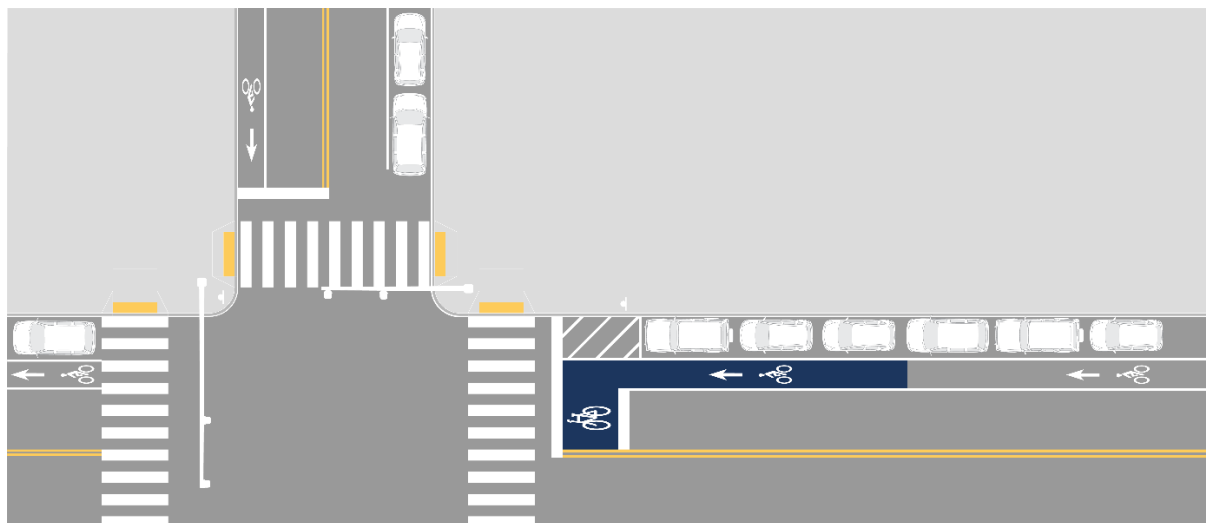


Figure 8. Bicycle Box





BICYCLE MASTER PLAN

Typical Application

Bicycle boxes may be considered in any of the following situations:

- At signalized intersections with high volumes of bicycles and/or motor vehicles, especially those with frequent bicyclist left-turns and/or motorist right-turns.
- Where there may be conflicting turning movements between people cycling and driving
- Where a bicycle lane does not continue across an intersection

Guidance

- There should be a 10-foot minimum between travel lane stop bar and bike stop bar.
- Green-colored pavement is optional but can deter motor vehicles from encroaching.
- Requires the use of “No Turn on Red” signs for motorists.
- A bicycle box should only extend across one travel lane. Bike boxes should not be used to facilitate bicycle left turns. A two-stage turn queue box is the preferred method of accommodating left turns.

Considerations

- At locations where there are high volumes of turning traffic or frequent conflicts between turning motorists and bicyclists during stale green portions of the signal phase, it may be viable to consider a right turn lane or separate phasing to mitigate conflicts in lieu of or in addition to a bicycle box.
- People driving should be discouraged from merging into the bicycle lane with a solid bicycle lane line to ensure bicyclists can enter the bicycle box.

References

- *NACTO Urban Bikeway Design Guide*
- *FHWA Interim Approval for the Optional Use of Bicycle Boxes, IA-18.20*
- *California MUTCD*





BICYCLE MASTER PLAN

Bike Detection

Definition

Bike detection is used to detect bicyclists and drive the signal phasing at an intersection depending on demand. There are a few types of bike detection, including: loops, video, and push button. In-pavement loop detectors are most common.

Typical Application

Bike detection may be considered in any of the following situations:

- At signalized intersections if the signals are actuated (not pre-timed) with high volumes of bicycles and/or motor vehicles, especially those with frequent bicyclist left-turns and/or motorist right-turns.
- Where there may be conflicting turning movements between people cycling and driving.



A bike detection loop and marking to indicate where a bicyclist should wait.

Guidance

- Loop detectors should be designed to detect all types of bicycle materials and weights. Sensitivity needs to be monitored and adjusted periodically.
- Bicycle loop detectors should be visible to bicyclists through signs or pavement markings and be clear on where bicycles should be positioned to activate the signal.
- If push-button activation is used, the push button should be located so that bicyclists do not have to dismount to activate the signal.





BICYCLE MASTER PLAN



A bicycle push-button (left), and placement at the intersection (right)

Considerations

- In retrofit situations, it may be possible to use existing loop detection for bicyclists. Typically, at intersection approaches with more than one loop, it is possible to adjust the sensitivity of one loop for bicyclists' use.
- In some cases, push buttons for people on bikes may be preferable to loop detection. Push buttons avoid any impacts to the existing surface and may be easy to install with adjacent curb ramp and sidewalk construction.

References

- *NACTO Urban Bikeway Design Guide*
- *California MUTCD*





BICYCLE MASTER PLAN

Protected Intersections

Definition

Protected intersections keep bicyclists physically separate from motor vehicles up to the intersection, providing a high degree of comfort and safety for people of all ages and abilities. Protected intersections can include features such as corner refuge islands, pedestrian crossing island, high visibility crosswalks, and separated bike lanes with raised buffers.





BICYCLE MASTER PLAN

Illustration

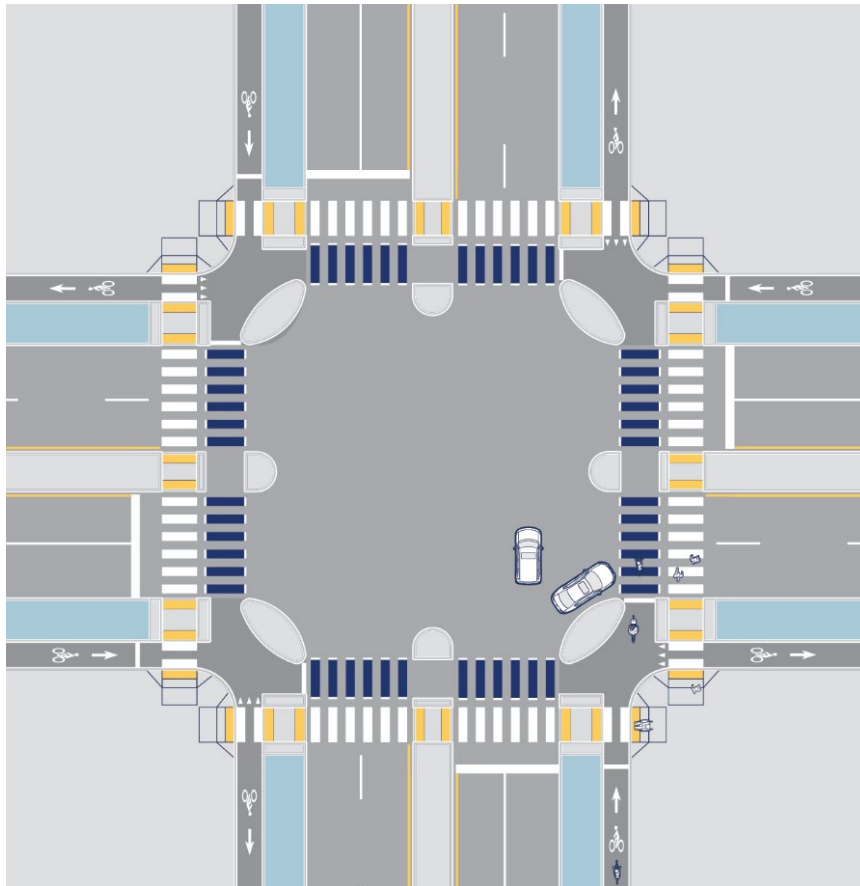


Figure 9. Protected Intersection, at Two One-Way Separated Bike Lanes

Typical Application

Protected intersections are usually found at separated bike lane intersections.

Guidance

- Corner refuge island size may vary. The curb radius along the path of motor vehicle travel should minimize turning motorist speeds to 15 mph or less.
- The forward bicycle queuing area should allow at least one bicyclist to wait without obstructing crossing bicyclists or pedestrians.
- The motorist yield zone should be 6 feet in length minimum, up to a typical car length, to create space for a turning motorist to yield to a through moving bicyclist.





BICYCLE MASTER PLAN

- A pedestrian crossing island should be a minimum of 6 feet in width to minimize pedestrian crossing distances of the street.
- Marked pedestrian crosswalks should be provided across all bike lane crossings.
- Bicycle crossings should be separate from pedestrian crossings. They can be supplemented with green pavement to improve contrast.

Considerations

- To convey which user has the right of way, intersections with separated bike lanes should be designed to minimize bicyclist exposure to motorized traffic and should minimize the speed differential at conflict points.

References

- *NACTO Don't Give Up at the Intersection*
- *NACTO Urban Bikeway Design Guide*
- *FHWA Separated Bike Lane Planning and Design Guide*





BICYCLE MASTER PLAN

Intersection Crossing Markings

Definition

Intersection crossing markings delineate a path for people bicycling through the intersection, improving the legibility of the bike lane, and encouraging motorists to yield in locations where merges or turns cross the path of a bicyclist.

Illustration

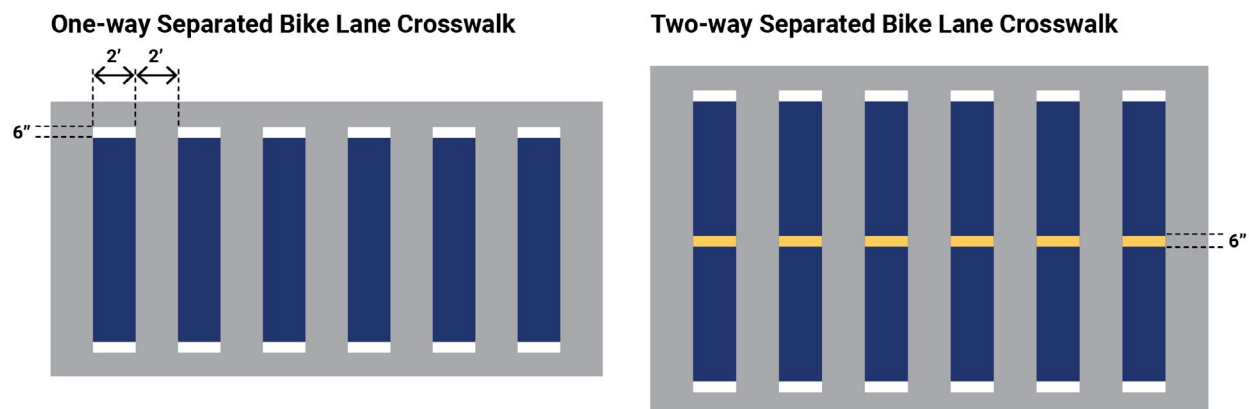


Figure 10. Intersection Crossing Markings

Typical Application

Intersection crossing markings are typically applied at intersection crossings where there are separated bike lanes.

Guidance

- Crossing markings should match the bike lane width of the facility.
- Dotted lines shall be used to delineate the intersection crossing.

Considerations

The bicycle crossing may be supplemented with a green-colored surface to improve contrast with the surrounding roadway and adjacent pedestrian crossing, if present. Green surfacing may be desirable at crossings where concurrent vehicle turning movements are allowed.





BICYCLE MASTER PLAN

References

- CA MUTCD, Part 9
- *NACTO Urban Bikeway Design Guide*
- *FHWA Separated Bike Lane Planning and Design Guide*

Two-Stage Turn Queue Boxes

Definition

Two-stage turn queue boxes designate an area for bicyclists to make left-hand turns at signalized intersections.



Illustration

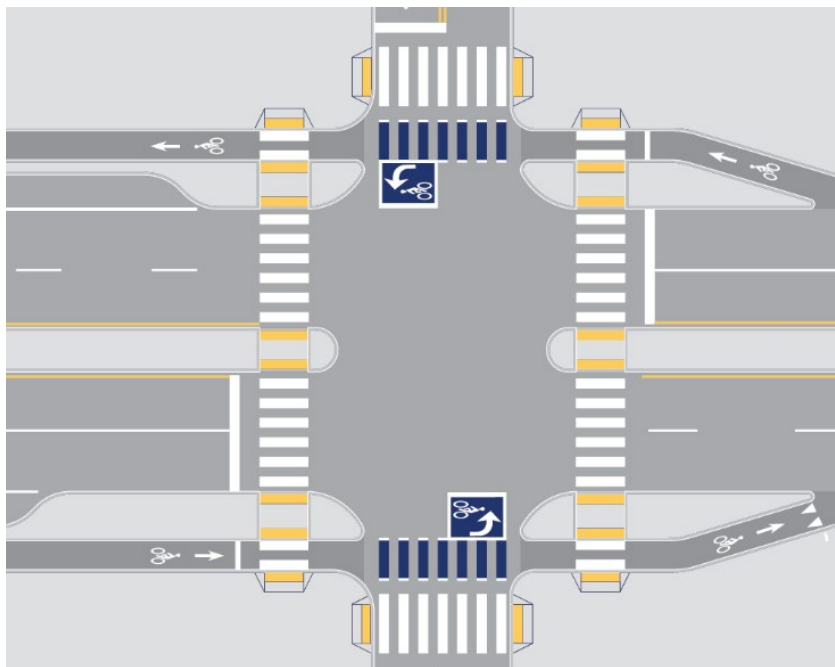


Figure 13. Two-Stage Turn Queue Boxes





BICYCLE MASTER PLAN

Typical Application

Two-stage turn queue boxes can be applied at separated bike lane or standard class II bike lane locations that require a transition to a cross street conventional bike lane or shared lane.

Guidance

- Two-stage turn queue boxes should be placed at the head of an approach, where bicyclists making the left turn would be placed in front of the vehicles traveling in the same direction.
- Requires the use of “No Turn on Red” signs for motorists.
- Two-stage turn queue boxes should avoid conflicts with sidewalks.
- Appropriate signage and markings per the CA MUTCD Section 9C.02.12 should be utilized.

Considerations

- Green-colored pavement may be used to enhance visibility of two-stage turn queue boxes to vehicles per CA MUTCD Section 9C.02.

References

- *FHWA Interim Approval for the Optional Use of Two-Stage Bicycle Turn Boxes, IA-20*
- *NACTO Urban Bikeway Design Guide*

Short-Term Bike Parking

Definition

Short-term bike parking allows people biking a designated area to safely leave their bike for two hours or less.



An on-street bike rack corral with multiple racks





BICYCLE MASTER PLAN

Illustration

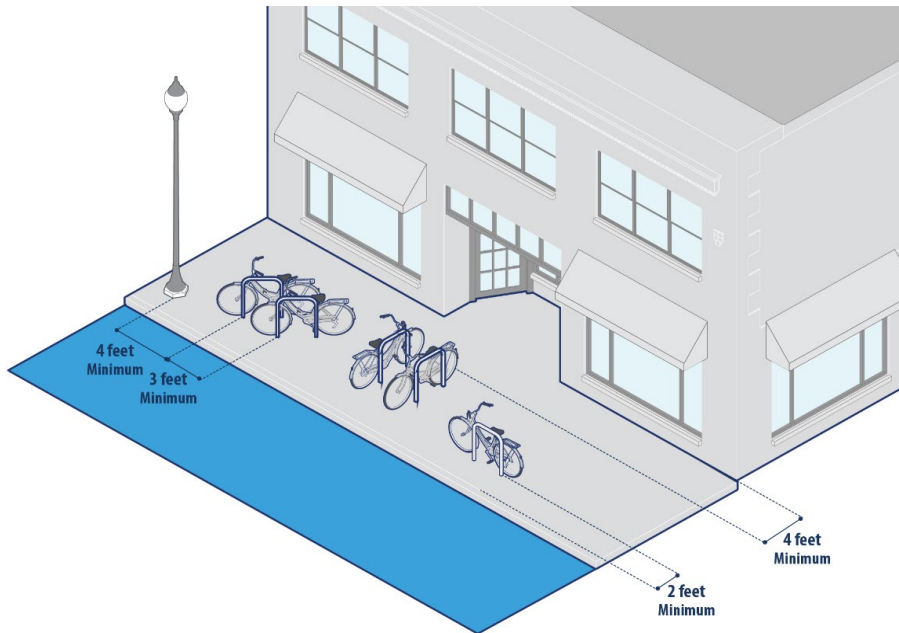


Figure 14. Short-Term Bike Parking Rack Locations

Typical Application

Short-term bike parking is usually located in areas with high pedestrian and bicyclist activity. Common locations include parks, retail, or institutional buildings.

Guidance

- Bike parking should be visible from and close to the entrance it serves, usually within 50 feet.
- Location, lighting, and visibility of bicycle parking should provide safety to bicyclists.
- Bike parking should deter theft of parked bicycles.

Considerations

- Short-term bike parking may often be used by infrequent visitors, so the installation needs to be readily visible and self-explanatory.





BICYCLE MASTER PLAN

References

- *Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking*



