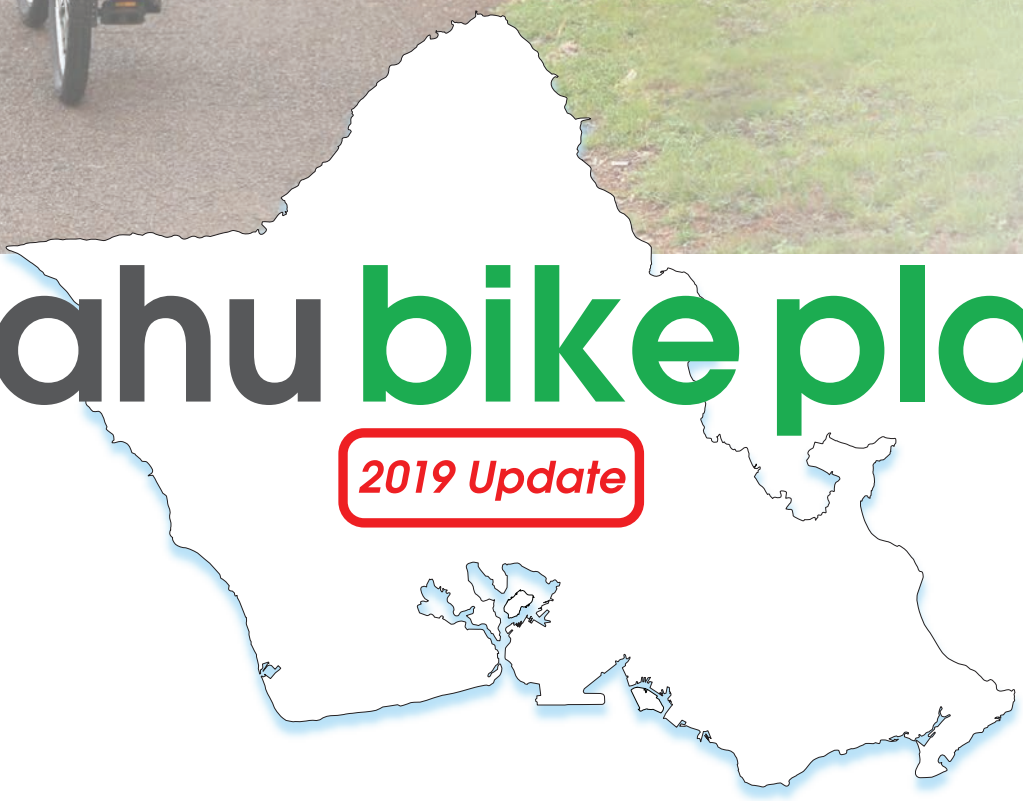
o'ahu bike plan

2019 Update



Department of Transportation Services
City and County of Honolulu

Honolulu COMPLETESTREETS

December 2019

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Prepared by City and County of Honolulu, Department of Transportation Services in cooperation with the O'ahu Metropolitan Planning Organization and the United States Department of Transportation.

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The Authors would like to acknowledge the leadership and contributions provided by the City's Bicycle Coordinator and the Technical Advisory Committee.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Vision Statement:
O'ahu is a bicycle-friendly community where bicycling is a safe, viable, and popular travel choice for residents and visitors of all ages *and abilities*.

GOALS	
1	To encourage and promote bicycling as a safe, convenient, and pleasurable means of travel
2	To enhance cooperation between roadway users
3	To increase the mode share of bicycle trips
4	To be recognized by the League of American Bicyclists as a ***gold level*** Bicycle-Friendly Community

O'ahu is home to a vibrant and growing bicycling community with riders from a wide range of ages, backgrounds, skill levels, and abilities. With a growing network of bicycle facilities, one of the country's most popular bikeshare systems, year-round temperate climate, and a strong community of bicycling supporters, O'ahu is poised to dramatically increase bicycle ridership. This 2019 O'ahu Bike Plan Update will guide the continued growth of bicycling as a safe, convenient, affordable, healthy, and fun transportation option.

Planning Process

The 2019 O'ahu Bike Plan Update builds off the foundation provided in the 2012 Plan. The vision and goals of the 2012 Plan have been updated slightly (see text in italics at left), but they continue to provide the structure for the Bike Plan's proposed recommendations. The focus of this 2019 O'ahu Bike Plan Update is to identify specific projects, policies, and programs that will expand bicycle ridership and provide a network of safe, comfortable bikeways attractive to users of all ages and abilities.

The City and County of Honolulu's Complete Streets Ordinance outlines the City's commitment to making O'ahu's roadways safe and accessible for all users of all ages and abilities. This O'ahu Bike Plan is a significant part of those efforts, and it is critical that this update accommodates potential bicyclists of all skill levels, ages, and abilities. The public has informed the update process through a variety of engagement efforts, and the result is a plan with a specific focus on improving safety and providing a network of low-stress bicycle facilities.

Key Recommendations

Programs and policies that support bicycling are critical to increasing bicycle ridership and building a culture of bicycling. This update supplements the 2012 Plan with six key recommendations to focus the City's efforts to support bicycling:

Commit to Vision Zero

Develop seamless connections between bikes and transit

Expand encouragement and education efforts

Establish a comprehensive bikeway maintenance program

Implement a consistent signage and wayfinding program

Evaluate bicycle facilities and programs

Proposed Bikeway Network

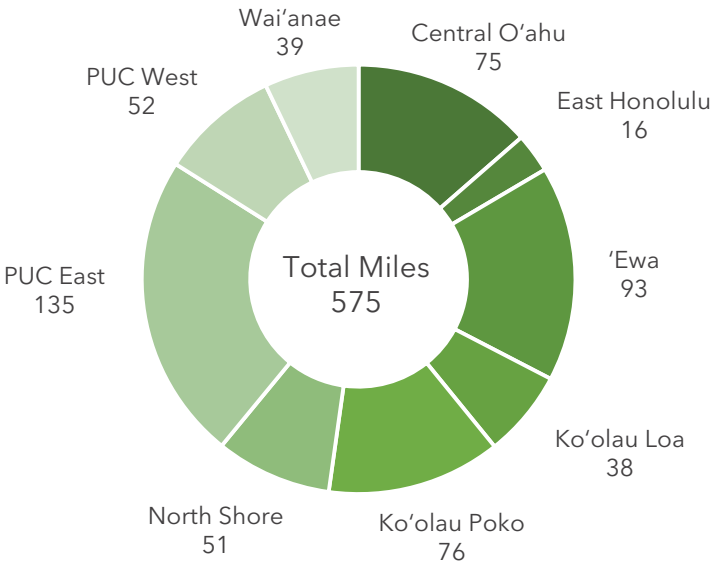
Since the completion of the 2012 O'ahu Bike Plan, a number of new, low-stress bicycle facility types have become increasingly common in cities across the United States, including Honolulu. A critical part of this Bike Plan Update is to incorporate these lower-stress designs into O'ahu's proposed bikeway network. O'ahu currently has 211 miles of on- and off-road bikeway facilities and this update calls for an additional 575 miles[1] of bicycle facilities (including 325 miles of City facilities budgeted at about $147 million). These proposed bikeways were then prioritized based on public input and their potential to enhance bicyclist safety, increase ridership, improve connectivity, and advance transportation equity.

Implementation

The recommendations and projects described in this plan will support O'ahu's vision of becoming a truly bicycle friendly city, where bicycling is a safe, viable, and enjoyable transportation option for riders of all ages and abilities. While policies at both the City and State make it clear that bicycling and multi-modal transportation are well-supported community priorities, implementation of these recommendations will take time and require adequate funding and commitment. As such, the final chapter serves as a guide for the phasing, funding, and implementation strategies that will be necessary to implement the plan.

O'ahu Bikeway Network	
Existing bikeways	211 miles
Proposed City bikeways	325 miles
Estimated City Cost	$147 million
Proposed State Bikeways	242 miles
Estimated State Costs	$168 million

Proposed Bikeway Network Mileage by DP/SCP Area



[1] *Includes City (324 miles), State (242), Federal (2 miles) and Private (6 miles) bikeways.*

ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
APBP	Association of Pedestrian and Bicycle Professionals
BBL	Buffered Bike Lane
BL	Bike Lane
CIP	Capital Improvement Program
CL	Climbing Lane
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CO	Central O'ahu
DDC	City Department of Design and Construction
DFM	City Department of Facility Maintenance
DPP	City Department of Planning and Permitting
DP/SCP	Development Plan/Sustainable Community Plan
DTS	City Department of Transportation Services
EH	East Honolulu
FTA	Federal Transit Administration
FHWA	Federal Highways Administration
HART	Honolulu Authority for Rapid Transit
HBL	Hawai'i Bicycling League
HDOH	State of Hawai'i Department of Health
HDOT	State of Hawai'i Department of Transportation
HPD	Honolulu Police Department
KL	Ko'olau Loa
KP	Ko'olau Poko
KVIBE	Kalihi Valley Instructional Bike Exchange
LTS	Level of Traffic Stress
MUTCD	Manual on Uniform Traffic Control Devices
NS	North Shore
O'ahuMPO	O'ahu Metropolitan Planning Organization
PBL	Protected Bike Lane
PUC	Primary Urban Center
ROW	Right-of-way
SB	Shoulder Bikeway
SR	Shared Roadway
SRTS	Safe Routes to School
STP	Surface Transportation Program
SUP	Shared Use Path
TAC	Technical Advisory Committee
TAP	Transportation Alternatives Program
TOD	Transit oriented development
VMT	Vehicle miles traveled
WAI	Wai'anae

The Ke Ala Pupukea Path is a great example of a low-stress bicycling facility.

1

INTRODUCTION

O'ahu is home to a vibrant and growing bicycling community with riders from a wide range of backgrounds and skill levels. Honolulu currently ranks 12th among the country's largest cities for bicycle commuting,[1] but getting to work is only one of many reasons people ride bikes on O'ahu. Every day, residents and visitors hop on their bikes to get to school, go to the beach, run errands, meet up with friends, or simply to enjoy our island's wonderful climate and natural beauty. With a growing network of bicycle facilities, one of the country's most popular bikeshare systems, and a strong community of bicycling supporters, O'ahu is poised to dramatically increase the number of trips that are made by bicycle. This 2019 O'ahu Bike Plan Update will guide the continued growth of bicycling as a safe, convenient, accessible, affordable, healthy, and fun transportation option.

[1] *Where We Ride: Analysis of Bicycle Commuting in American Cities, League of American Bicyclists. 2014.*

Vision Statement:
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GOALS	
1	To encourage and promote bicycling as a safe, convenient, and pleasurable means of travel
2	To enhance cooperation between roadway users
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1.1
Planning and policy context

Formal bicycle planning in Hawai'i has been underway for over four decades, and has guided the development of the existing bicycle infrastructure, policies, and programs that support bicycling today. In 1977, the Hawai'i State Department of Transportation (HDOT) prepared Bike Plan Hawai'i for the State's roadway system. Bike Plan Hawai'i was most recently updated in 2003, but proposed bicycle facilities for State roadways on O'ahu have been subsequently updated in both the 2012 O'ahu Bike Plan and this current update.

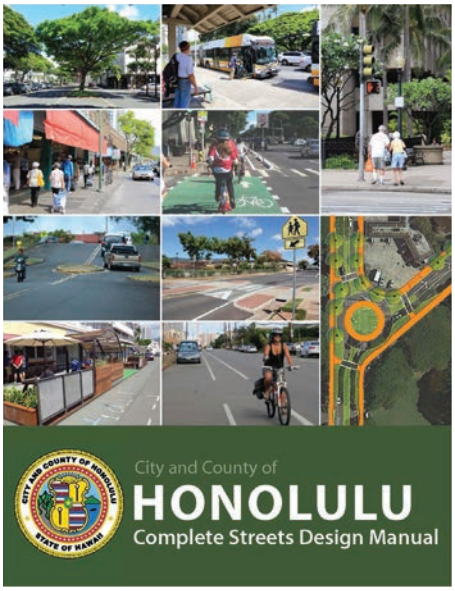
In 1994, the Honolulu City Council and Mayor adopted Ordinance 94-39 (Revised Ordinances of Honolulu Section 2-12.1), which directed that a bikeway system master plan for urban Honolulu be prepared and updated every five years. The City Department of Transportation Services (DTS) prepared the initial Honolulu Bicycle Master Plan, and it was adopted by City Council in September 1999. In 2012, the O'ahu Bike Plan broadened the scope of bicycle planning to include the entire island and addressed integration with the future rail system.

The 2019 O'ahu Bike Plan Update builds off the foundation provided in the 2012 Plan. The vision and goals of the 2012 Plan have been updated slightly (see text in italics at left), but they continue to provide the structure for the Bike Plan's proposed recommendations. The focus of this 2019 O'ahu Bike Plan Update is to identify specific projects, policies, and programs that will expand bicycle ridership and provide a network of safe, comfortable bikeways attractive to users of all ages and abilities.

This update to the O'ahu Bike Plan is supported by a wide range of existing plans and policies. All of the City and County's regional plans (Development Plans and Sustainable Community Plans), as well as the O'ahu General Plan, support the planning and implementation of a multi-modal transportation system that is safe, comfortable, and convenient for roadway users of all ages and abilities.

In addition to these long-range planning documents, both the City and County of Honolulu and the State of Hawai'i have passed legislation formalizing their commitment to Complete Streets. In 2009, State Act 54 (Session Laws of Hawai'i 2009) was passed requiring HDOT and the county transportation departments to adopt a Complete Streets policy that reasonably accommodates convenient access and mobility for all users of the public highways.

In 2012, the City and County of Honolulu passed a Complete Streets policy (Ordinance 12-15), which established the City's commitment to the development of transportation facilities that are planned, designed, operated, and maintained to provide safe mobility for all users. The Complete Streets Design Manual was first published in 2016. It sets forth standards specific to Honolulu that are provided to all planners, designers, developers, and City employees to guide the design of roads with Complete Street principles. It supplements the current Traffic Standards Manual, which was last updated in 1976, by implementing modern best practices in roadway design.



The Honolulu Complete Streets Design Manual was finalized in 2016 and provides design guidance for the implementation of complete streets improvements.

2003
Bike Plan Hawai'i Update

2009
State Complete Streets Policy

2012
O'ahu Bike Plan &
City Complete Streets Ordinance

2016
Complete Streets Design Manual

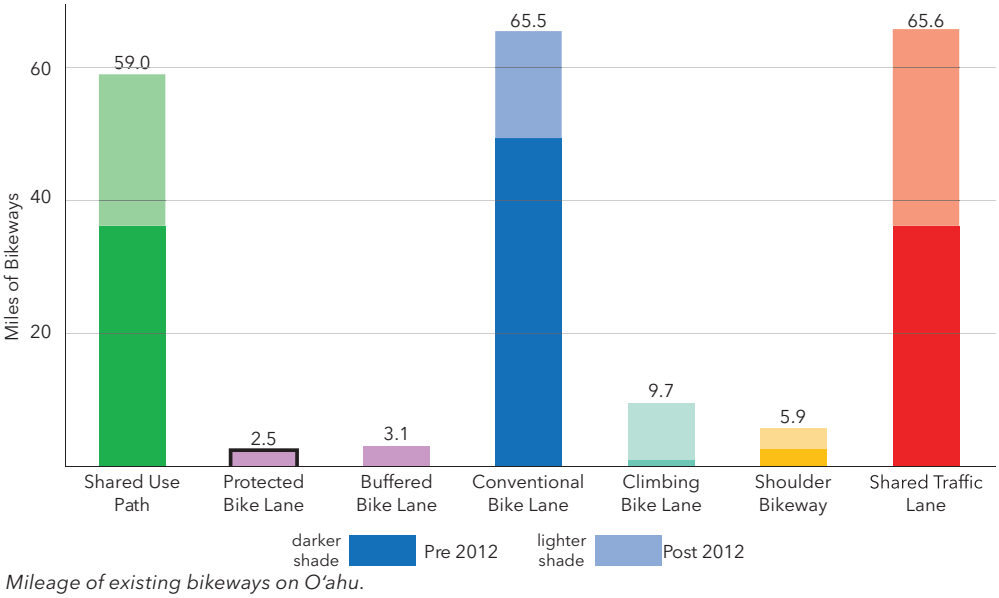
2019
O'ahu Bike Plan Update

1.2
Existing bicycling conditions

In 2014 and again in 2018, Honolulu has been recognized by the League of American Bicyclists as a bronze-level Bicycle-Friendly Community. According to the 2017 American Community Survey, approximately 1.2% of O'ahu commuters get to work by bicycle. However, many areas in urban and rural town centers see much higher rates of bike commuting with rates approaching 10% in some census tracts in Lā'ie and urban Honolulu. Recently completed protected bike lane projects on South King and South Streets have seen ridership along those corridors increase by 94% and 502%, respectively.[2] Additionally, Honolulu's bikeshare system, Biki, has experienced sustained ridership growth through its first year and a half of operation. It is now averaging 3,500 rides per day which places Biki among the most popular bikeshare systems in the nation.[3] All of this points to an expanding bicycling community on O'ahu with a growing demand for safe and convenient bicycle facilities.

O'ahu currently has 211 miles of bikeways. The existing bicycle network is primarily comprised of three types of bicycle facilities: shared use paths, conventional bike lanes, and shared roadways. In the past five years, the City has begun installing buffered and protected bike lanes to provide lower-stress bikeways that meet the needs of a wider range of potential bicyclists.

Following the project priorities provided in the 2012 Plan, and taking advantage of opportunities provided by its street repaving schedule, the City has installed over 67 miles of new bikeways since 2012. This represents a 47% increase in the island's bikeway network. The graphic below provides a mileage break down of the existing bikeways by facility type. A description of each facility type is provided in Chapter 4.2.



Mileage of existing bikeways on O'ahu.

[2] *DTS surveyed bicycle ridership pre and post-construction.*

[3] *National Association of City Transportation Officials. Bike Share in the US: 2017.*

In addition to the expanding bikeway network, there have been a number of key policy and programmatic accomplishments achieved since the 2012 Plan.

Biki

In summer 2017, Honolulu's bikeshare system, Biki, was launched with 100 stations and 1000 bikes. The system was expanded by 30 stations and 300 bikes in December 2018 to incorporate the University of Hawai'i at Mānoa, Kapi'olani Community College, Makiki, and Iwilei. Biki ridership has been consistently growing, and in 2018 there were over a million rides.

Bike Parking Ordinance

City Ordinance 17-55 established bicycle parking requirements in the Land Use Ordinance. The ordinance mandates that both short and long-term bike parking must be provided whenever new floor area, a new dwelling unit, or a new parking structure is proposed.

Safe Passing Law

In 2018, the State of Hawai'i passed the Safe Passing Law. The law requires that motorists provide a minimum of three feet of separation when passing a bicyclist.

Bike Month

In partnering with the Hawai'i Bicycling League (HBL), Bike Month has been expanded in recent years to include daily energizer stations during Bike to Work Week, and a variety of fun and family-friendly bike events throughout the month.

Adult BikeEd

With support from the City, HBL offers a variety of free adult bicycle education workshops including bicycling basics, senior cycling, road cycling, and bike maintenance. HBL has even partnered with Biki to offer a course introducing resident's to Honolulu's bikeshare system. Over 3,000 residents participated in Adult BikeEd in 2018.

Full bike racks at Bike to the Zoo Day, an annual event held during bike month in May

BikeEd

BikeEd is a City-funded bicycle education program administered by the HBL that teaches fourth graders around O'ahu how to ride a bicycle, basic cycling safely, and laws of the road. The program reached 94 schools and over 8,000 students in 2018.

Safe Routes to School (SRTS)

SRTS encourages children in kindergarten through eighth grade to walk and bicycle to and from school by creating a safer, more convenient, and fun experience. The program takes a holistic approach and encourages school stakeholders such as parents, school staff, DTS staff, police, and community partners to come together and develop an SRTS Plan. Recent SRTS efforts include pedestrian and bicycle safety education, construction of a walkway along Kamehameha IV Road leading to Fern Elementary School, and conducting surveys to uncover mode share and parent perceptions.

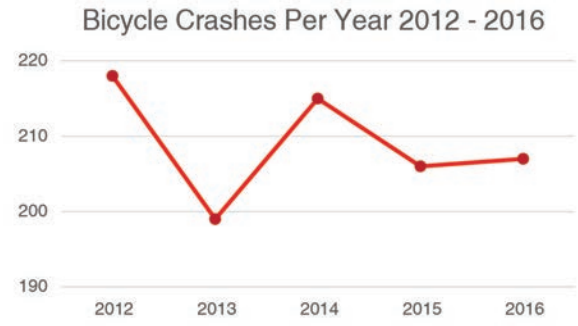
1.3
Why should we invest in bicycling?

the Law of the Splintered Paddle, or Ke Kānāwai Māmalahoe. "The right of all people to be safe on Hawai'i's roadways"

Despite the above planning and policy directives supporting our investment in multimodal transportation, there are still likely to be significant challenges associated with the implementation of this plan. Space within the public right of way is limited, as are the public funds required to carry out the projects and programs outlined in this plan. Difficult decisions will need to be made to implement these improvements, and it is critical that the general public and decision makers are well aware of how much there is to gain from investing in bicycling. Fortunately, the benefits of bicycling are wide ranging, and they address some of the most pressing issues facing our communities.

Safety

The right of all people to be safe on Hawai'i's roadways is deeply engrained in our State's laws and culture. Originally decreed by Kamehameha I, the Law of the Splintered Paddle, or Ke Kānāwai Māmalahoe, is paraphrased in the Hawai'i State Constitution as: "Let every elderly person, woman and child lie by the roadside in safety" (Hawai'i Constitution Article 9, Section 10).



Bicycle crashes per year on O'ahu. Source: State of Hawai'i, Department of Health, EMS-attended Motor Vehicle Crashes on O'ahu.

The importance of safety for all road users is indisputable, and simple physics explains how bicyclists and pedestrians are at a much greater risk of being seriously injured or killed in a crash compared to drivers. Safe streets for walking and biking have a significant impact on the everyday quality of life and livability of our island communities. Additionally, research has shown that planning for the safety of bicyclists on the roadway benefits all users, including pedestrians, drivers and transit riders.[4] [5]

Affordability and Mobility

O'ahu's cost of living is among the highest in the nation, and transportation costs represent a significant portion of household spending. However, bicycling offers one of the most affordable means of transportation available. Nationally, the average annual operating cost of a bicycle is $308, compared to $8,220 for the average car.[6] Therefore, by investing in bicycling infrastructure and encouragement, we can help residents switch to bicycling and immediately take advantage of financial benefits. This is particularly important for those with limited mobility options or disposable income, such as youth, low-income populations, and households that do not have

[4] *Marshall, Wesley E. and Garrick, Norman W. Evidence on Why Bicycle-Friendly Cities are Safer for All Road Users. Environmental Practice, 2011*

[5] *Wesley E. Marshall, Nicholas N. Ferenchak. Why cities with high bicycling rates are safer for all road users. Journal of Transport & Health, 2019*

[6] *Bureau of Transportation Statistics. Pocket Guide to Transportation, 2009.*

access to an automobile. Improving residents' ability to make lower-cost transportation choices can significantly improve transportation equity.

Health and wellness

Public health is one of the most common reasons to invest in bicycling. Obesity, among many other health problems that are associated with a sedentary lifestyle, can be directly impacted by increased bicycle ridership. Investments in safe bicycle infrastructure and programs can encourage people to ride a bike and increase their physical activity on a daily or weekly basis. Considering that nearly one in four adults in Hawai'i is considered obese,[7] it is especially important for residents to have more opportunities to be physically active.

Economic Development

Investing in bicycling is good for the local economy. Communities that invest in bicycling and are able to increase bicycle ridership see economic benefits from bicycling-related businesses, jobs, and tourism. A study from Portland, Oregon found that people who arrive at retail stores by bicycle spend more money and visit the business more often over the course of a month, compared to those who drive.[8] A national study of the economic impact of bicycling found that bicycling makes up $133 billion of the US economy, funding 1.1 million jobs, and bicycle-related trips generate $47 billion nationally in tourism activity.[9] O'ahu already has a successful tourism industry, however increased investments in bicycle infrastructure would allow the community to increase its attractiveness as a destination for bicycle tourism. Increasing bicycle mode share among visitors may also decrease congestion and the negative impressions that engenders for visitors.

Environment

Perhaps some of the most obvious reasons to invest in bicycling are the environmental benefits. Increasing a community's bicycle mode share reduces combustion engine vehicle miles traveled (VMT), which reduces greenhouse gas emissions that contribute to climate change. Reducing VMT also reduces local air and water pollution, particularly in urban and suburban environments. These local environmental impacts are especially important in places like O'ahu that rely on the health and beauty of the natural environment for recreation and tourism. In 2017, Honolulu Mayor Kirk Caldwell, along with the mayors of Kaua'i, Maui, and Hawai'i Counties, committed to a goal of 100% renewable ground transportation by 2045. Improving bicycling conditions and connections to transit can play a key role in meeting this goal.

[7] *Trust for America's Health and the Robert Wood Johnson Foundation. The State of Obesity: 2017.*

[8] *Clifton, Kelly J. et al. Consumer Behavior and Travel Mode Choices. Oregon Transportation Research and Education Consortium, 2012.*

[9] *Flusche, Darren. The Economic Benefits of Bicycle Infrastructure Investments. 2009.*

1.4 Plan organization

Chapter 2 describes how this update fits within the broader context of the City's Complete Streets efforts, and the public process that was taken to update the Plan.

Key policy and programmatic recommendations are presented in Chapter 3. These recommendations supplement the 2012 list of programs and policies with five specific focus areas aimed to meet the needs of less confident bicyclists and increase bicycle ridership.

The proposed bicycle network is discussed and illustrated in Chapter 4, including descriptions of the level of traffic stress (LTS) analysis, the new array of bicycle facility types, and the project prioritization process. Maps of the proposed bikeway network are provided for each region of O'ahu.

Chapter 5 presents the estimated costs to implement the proposed bikeways, and identifies potential funding and implementation strategies.

Keiki bicyclists learning to ride safely with Bike Ed. Photo: HBL

Public input from the Leeward Community Workshop on January 27, 2018.

2

PLANNING PROCESS

With adoption of the 2012 Complete Streets Policy, the City has committed to making O'ahu's roadways safe and accessible for users of all ages and abilities. This 2019 O'ahu Bike Plan Update is a significant part of those efforts, and it is critical that this update accommodates potential bicyclists of all skill levels.

The public has informed the update process through a variety of engagement efforts, and the result is a plan with a specific focus on improving safety and providing a network of low-stress bicycle facilities that will meet the needs of less confident riders.

The Honolulu Complete Streets program requires close collaboration between a number of City departments on a wide range of projects and programs.

City and County of Honolulu, Complete Streets Ordinance 12-15: Under this policy, the City hereby expresses its commitment to encourage the development of transportation facilities and projects that are planned, designed, operated, and maintained to provide safe mobility for all users.

2.1 Honolulu Complete Streets

The City's implementation of Complete Streets policies and principles requires a multi-faceted approach with close collaboration between a number of City departments, including the Department of Facility Maintenance (DFM), Planning and Permitting (DPP), Transportation Services (DTS), and Design and Construction (DDC). At the same time, the City must consider the needs of all transportation modes (pedestrians, bicyclists, transit, vehicles, etc.) when designing and implementing improvements. These different modes often compete for space within limited rights-of-way, so it is critical to identify modal priorities that fit within the context of a given street while also contributing to connected modal networks.

This 2019 O'ahu Bike Plan Update represents bicycle priorities for O'ahu's street network. Similarly, the City is currently completing its first O'ahu Pedestrian Plan and planning for the integration of bus and rail transit service. These planning efforts will establish the network priorities for each transportation mode, and together they will guide the comprehensive implementation of complete streets improvements across the island.

2.2
A focus on the "interested but concerned" riders

As part of the City's Complete Streets commitment to meet the needs of all transportation users, this Bike Plan Update has taken a specific focus on programs and infrastructure that target "interested but concerned" riders. These are people who may not currently ride a bike or may only ride occasionally, but would be much more likely to ride a bike if they felt more safe and comfortable. Focusing on these less confident riders will ensure that this Bike Plan Update achieves a couple simple objectives:

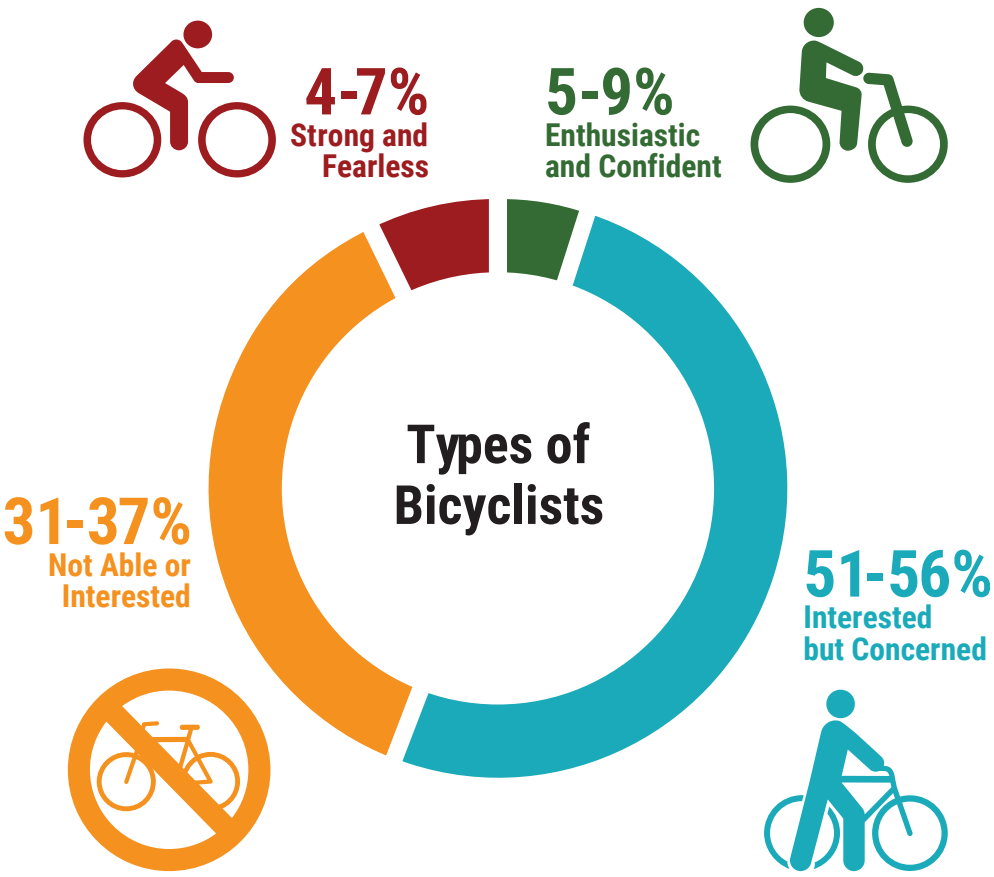
All ages and abilities

Targeting improvements that meet the needs of less confident riders will help to ensure that we are supporting potentially vulnerable users like our keiki and kūpuna. At the same time, more experienced riders will still benefit from the improvements.

Increased bicycle ridership

Since "interested but concerned" riders represent a significant portion of the population and they don't currently ride very often, there is a great potential to increase the number of bicycle trips if these riders can be made to feel comfortable bicycling.

People generally fall into one of four categories based on their level of comfort:



These percentage values are typical ranges for most US communities.

Source: Revisiting the Four Types of Cyclists: Findings from a National Survey. Dill, Jennifer and Nathan McNeil. In Transportation Research Record: Journal of the Transportation Research Board, Issue 2587, Washington, DC, 2016.

2.3
What we heard from you

Honolulu community workshop, January 25, 2018

Windward community workshop, January 16, 2018

The public engagement process started early, and has continued through the completion of this plan update. The initial phase of public engagement comprised a range of participation methods to gather public input on bicycling on O'ahu, including:

Community workshops

Four separate public meetings were held at locations around the island to discuss the O'ahu Bike Plan Update and gather public ideas on potential bicycle projects, policies, and programs.

Stakeholder meetings

Meetings were conducted to gather focused input from key stakeholders including universities, military installations, non-profit advocates, and the Honolulu Authority for Rapid Transit (HART).

Online survey

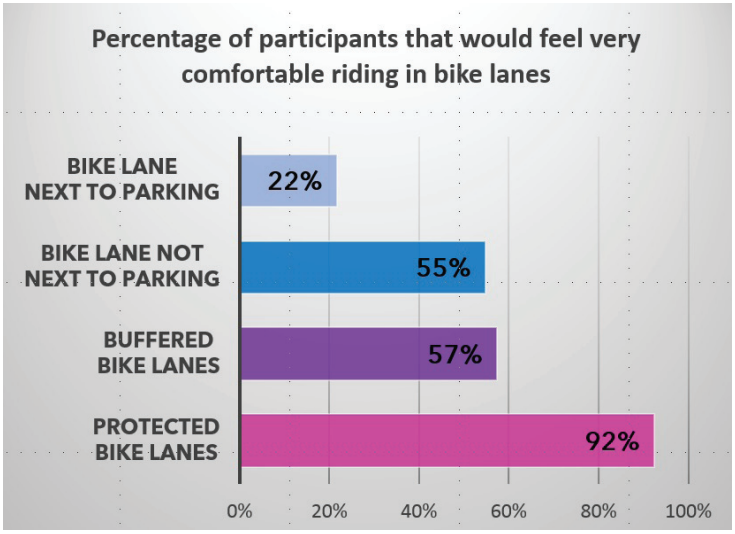
Nearly 300 participants completed the online survey and provided input on their bicycling habits, preferences, and needed improvements.

Interactive crowdsource map

An online WikiMap was set up and the public provided over 1,100 comments on where they like to bike and where they would like to see improvements.

Technical Advisory Committee

A technical advisory committee (TAC) was established with key project advisors from DTS, HDOT, HBL, and the Hawai'i Department of Health (HDOH). The TAC met monthly throughout the project to review interim work products and provide guidance at key points.



92% of survey participants would feel very comfortable riding in a protected bike lane, as opposed to only 22% in a bike lane next to on-street parking

The initial phase of public engagement solicited input from residents in communities around the island and with a wide range of bicycling experience and interests. Still, some key themes emerged:

Safety

Survey respondents and meeting attendees identified safety concerns as the primary reason that they do not ride their bikes more often.

Connectivity

Public comments at the community workshops and on the online WikiMap routinely identified gaps in the bicycle network or even problem intersections. These missed connections can severely affect a bicyclist's comfort level and prevent them from choosing to bike.

Aloha

Whether it is between bicyclists and motorists, or bicyclists and pedestrians, residents recognized the need for increased education and encouragement efforts to enhance cooperation between roadway users and foster the spirit of Aloha on our roadways.

Enforcement

Throughout the engagement process, the public stressed the need for increased cooperation with the Honolulu Police Department (HPD) on enforcement efforts to address bike theft and dangerous behavior on the part of motorists and bicyclists.

These key themes, as well as the specific public input, provided a foundation for the City to develop a draft prioritized bikeway network and the key policy and programmatic recommendations for this update. The Draft Bikeway Network and recommendations were presented at a final public meeting and posted to the project website for public comment in late 2018. Based on the input, the City refined the network and recommendations and this 2019 O'ahu Bike Plan Update is the result.

Public input wordcloud from the initial round of community workshops

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Riding on the Ala Wai Bike Path along Honolulu's Lei of Parks

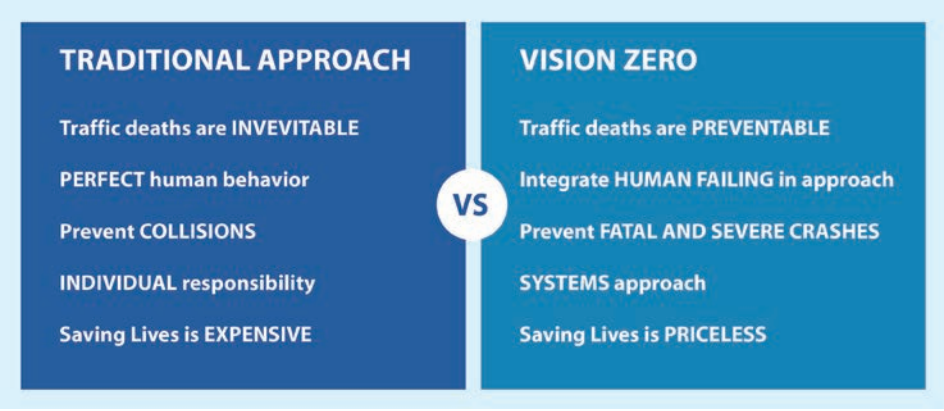
3

KEY RECOMMENDATIONS

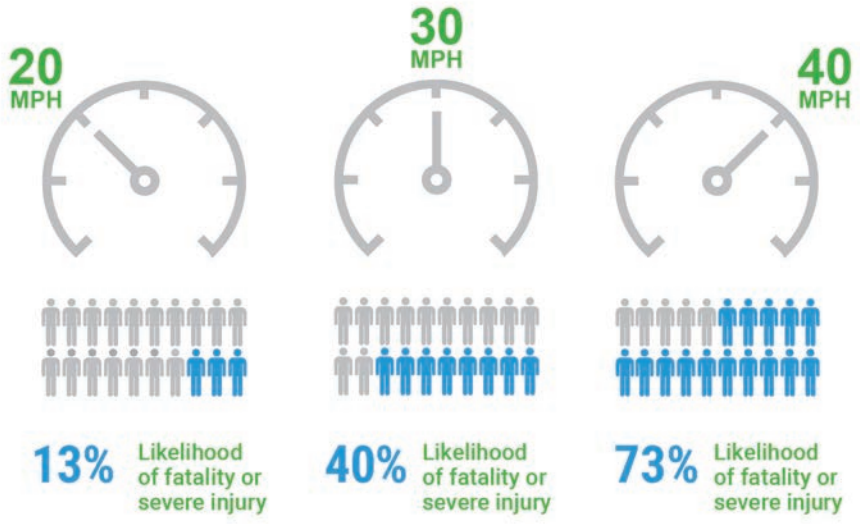
The 2012 O'ahu Bike Plan presented a comprehensive list of program and policy recommendations to support the five Es (Education, Encouragement, Engineering, Enforcement, and Evaluation) of bicycle planning. As part of this 2019 O'ahu Bike Plan Update, the City has reviewed the 2012 policy and program recommendations and supplemented that list with six specific focus areas aimed to meet the needs of less confident bicyclists and increase bicycle ridership.

3.1
Commit to Vision Zero

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, and equitable mobility for all. Eliminating traffic deaths and serious injuries requires a fundamental change in our approach to traffic safety. A clear commitment to Vision Zero will set the stage for implementing the complex and collaborative efforts that are required to reach this goal.



Vision Zero is one strategy that cities around the country are implementing to eliminate traffic fatalities and severe injuries. Source: www.visionzeronetwork.org



Impact speed and a pedestrians risk of severe injury or death. Source: Tefft, 2013

Implement Traffic Calming Measures

Traffic calming aims to slow the speeds of motorists to a "desired speed" (usually 20 mph or less for residential streets). Traffic calming features include speed humps, raised crosswalks, curb extensions and chicanes. A list of traffic calming measures and their design considerations is provided in Appendix A. The greatest benefit of traffic calming is increased safety and comfort for all users on and crossing the street. Compared with conventionally designed streets, traffic-calmed streets typically have fewer collisions and far fewer injuries and fatalities. These safety benefits are the result of slower speeds for motorists that result in greater driver awareness, shorter stopping distances, and less kinetic energy during a collision.

Identify and Implement Emerging Best Practices

O'ahu is not alone is addressing its transportation safety issues. Cities across the country are grappling with many of the same problems and developing innovative solutions. Part of implementing a transportation safety goal should include a commitment to training City staff and building working relationships with other peer cities to evaluate and assess emerging best practices for implementation on O'ahu. This starts with adopting

and implementing contemporary design guidance for bikeways and could also include adapting innovative designs or policies that have proven successful in other cities around the country.

The City was recently accepted as an affiliate member of the National Association of City Transportation Officials (NACTO), whose Urban Bikeway Design Guide provides guidance on state-of-the-art solutions to bicycle infrastructure design. Additionally, the Association of American State Highway Transportation Officials (AASHTO) will be releasing a new edition of their Guide for the Development of Bicycle Facilities, which will include new guidance on the design of protected bike lanes. These resources and others served as critical references in the development of the Honolulu Bicycle Facility Design Toolkit (Appendix A), and will provide the innovative design standards necessary for the implementation of the bicycle infrastructure facilities proposed in this plan.

Develop a collaborative, interagency approach to transportation safety

A comprehensive approach to traffic safety requires collaboration and cooperation among a range of stakeholders. From traffic engineers to maintenance crews, and public health officials to police departments, cooperation at all levels of government is required to create a culture of collaboration and information sharing. The sharing of data and analysis among stakeholders will allow for policy shifts and safety improvements focused on the areas where they will have the most impact.

Example of a 3-foot passing enforcement device. Image credit: Chattanooga Police Department

Cooperate with HPD on effective enforcement

Police departments play a critical role in improving traffic safety and deterring dangerous behavior. However, with limited resources it is critical that their enforcement and community outreach efforts are targeted in areas that will have the most impact. As part of a Vision Zero strategy, DTS would work closely with HPD to analyze crash data and community input to identify hotspots for dangerous activity. Police enforcement would then be able to prioritize enforcement at specific locations and for traffic violations that are most dangerous for vulnerable users (i.e., pedestrians and bicyclists). Enforcement priorities should also include traffic movements that directly conflict with the intended design and safe operation of bikeways (i.e., wrong-way riding by cyclists, vehicles parked in a bike lane, etc.).

The recently passed 3-foot passing law requires motorists to provide at least three feet of clear space when passing a cyclist. This new law represents an important opportunity for DTS and the bicycling community to collaborate with HPD on a public education and enforcement campaign. Additionally, the City and State should consider the policy of using automated enforcement technologies like red light cameras to assist HPD in their enforcement efforts.

3.2

Develop seamless connections between bikes and transit

Thanks to the popularity of The Bus, Honolulu is already ranked fifth in the nation for transit ridership per capita.[10] To augment the bus system and provide additional transportation options, the Honolulu Authority for Rapid Transportation (HART) is in the process of constructing a fixed guideway transit system extending from Kapolei to Ala Moana. Integrating bicycles with the transit system is of critical importance to providing safe and convenient transportation options to O'ahu's residents.

Provide safe bike access to transit stations

Effective integration of bikes and public transit depends on people being able to bicycle comfortably and safely to and from stations and stops. This reduces the need for additional car parking, improves mobility choices, and extends access to transit stops. The Federal Transit Administration (FTA) typically considers all areas within 3 miles of a transit stop to be within reasonable biking distance (approximately a 15 minute bike ride). [11] This is also known as a "bike shed."

Bicycle infrastructure improvements within a transit stop's bike shed can qualify for FTA funding. To provide effective connections to transit, the on-street bicycle network or shared-use paths must link directly to transit stations. Since the HART rail transit system is still under construction, the City has an opportunity to make sure that on-street bicycle facilities outside of transit stations are developed before the transit system is in place. For that reason, the proposed bicycle network identified in Chapter 4 prioritizes projects that are within the bike shed of a HART transit stop.

Private developments can also play a key role in providing connectivity. To the extent possible private landowners should facilitate bicycle and pedestrian connectivity along and/or through their property.

Accommodate bikes on transit

Research on other transit systems across the country suggests that the majority of transit passengers prefer to bring their bikes aboard the train with them. [12] As such, the HART system will allow bicycles on-board trains with accommodations including bike rails to assist in walking bikes up stairways at the stations, and bicycle racks on the train cars. Bicyclists who prefer to bring their bikes on-board transit with them typically do so for a couple of reasons: 1) they need their own bike when they get off

Bicycle rack on a HART train

[10] *American Public Transportation Association. 2017 Public Transportation Fact Book.*

[11] *FTA Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law. 2011.*

[12] *Krizek et al. Bicycling Access and Egress to Transit Informing the Possibilities. 2011.*

the train, and/or 2) they don't feel comfortable locking their bike for several hours at the station.

During peak commuting hours, bikes on transit can contribute to capacity issues on crowded trains. Therefore, it is important to have clear guidelines for where bikes are allowed on the train cars, and rules for bringing your bike on-board. Black out times for bicyclists during commute hours in peak directions are used in other cities, but they should be avoided as they create a major barrier to potential bicycle/transit commuters. Instead, HART could consider designating a train car for bike commuters during peak hours. Additionally, the following two recommendations (secure bike parking and bikeshare) will help to reduce the number of passengers who bring their bikes on-board and relieve potential capacity issues.

Integrate bikeshare around transit stations

Urban Honolulu is served by one of the country's most popular docked bikeshare systems (Biki). It is feasible that other shared mobility services will become available in the city in the near future. The six easternmost stations of the HART system are located within the existing Biki service area, and sufficient bikeshare storage should be located as close as possible to station entrances. The transit stations outside of the City Center should be evaluated for expansion of Biki, or the potential to develop small bikeshare systems (docked or dockless) centered around those stations. Bikeshare at the beginning or end of a trip ("the last mile" in transit planning terminology) will allow transit users to conveniently travel that leg of their journey without having to park or bring their own bike.

Secure bike parking at the Middle Street Transit Center

Provide secure bike parking

Providing plentiful, secure, and convenient bike parking options is necessary to make transit users feel comfortable parking their bikes at the station. Where possible, bike parking should be sited behind fare gates, but that may not always be feasible due to space restrictions. Bike lockers and/or bike cages can also provide secure parking options around transit stops. In general, bike parking of any kind should be well lit, adjacent to main paths of travel, and consistent with Association of Pedestrian and Bicycle Professional (APBP) standards. Additionally, bike stations should be considered for transit stops with high bicycle access demand. These bike stations are typically located adjacent to transit stations and include secure parking, bike valet services, 24-hour controlled access, and bike repair stations.

Private developments will also play a role in improving bicycle parking and access around the rail stations. The bicycle parking ordinance (Section 21-6.150 in the Land Use Ordinance) requires that short- and long-term bicycle parking must be provided whenever new floor area, a new dwelling unit, or a new parking structure is proposed.

3.3

Expand encouragement and education efforts

Beyond the bikeway network, programs and policies that support bicycling are critical to increasing bicycle ridership and building a culture of bicycling. Honolulu has a number of successful encouragement and education programs including Bike Ed and Bike to Work Month. However, the expansion of these programs and the addition of new efforts is needed to support the continued growth of bicycling on O'ahu.

Support the establishment of ongoing Open Streets events

During Open Streets events, also referred to as Ciclovías, a specific route or corridor is closed to vehicle traffic and the event is marketed as a fun, safe, family-friendly activity that provides an opportunity to practice bicycling, get exercise, and experience streets in a new way. The streets become places where people of all ages, abilities, and background can come out and improve their health. While the route may change, the events should be regularly occurring to foster a culture of healthy living and active transportation. Open Streets events can also provide an opportunity for the City to introduce and publicize newly installed bicycle facilities and/or complete streets improvements.

Hele On Kaka'ako in 2013 was the last Open Streets event on O'ahu. Image source: Hawai'i Bicycling League

Working on bikes at the KVIBE Shop. Image source: KVIBE

Prioritize support for programs that target underserved populations

To foster the development of a vibrant and diverse bicycling community and spread the benefits of bicycling to all residents, it is important to implement programs that specifically target underserved populations and address their barriers to bicycling. O'ahu has a successful bicycle education program for elementary school students, Bike Ed. Additional bicycle education efforts should be expanded into middle and high schools to support a culture of safe bicycling among our youth.

Women are typically underrepresented in bicycling, and Honolulu should join other cities around the country in supporting training and encouragement programs specifically for women to increase the number of women bicycling.

The wide-ranging economic benefits of bicycling can be especially significant for communities with limited mobility options and/or expendable income. The Kalihi Valley Instructional Bike Exchange (KVIBE) is a shining example of a community-based organization that is breaking down barriers to bicycling for their community. The City should prioritize support for bicycling programs in low-income communities, and should look to partner with other low-income community centers to encourage safe bicycling through events like bicycle education, helmet distributions, and light giveaways.

Increase staff positions to oversee the City's active transportation education and encouragement efforts.

To develop a truly multimodal transportation system, the City's commitment to Complete Streets must go beyond just infrastructure improvements. Education and encouragement programs and events are a crucial part of introducing transportation options to the public, and supporting a cultural shift towards active transportation. While specific programs may be led by partner agencies, it is critical that a dedicated City staff person is available to provide support and manage the City's outreach efforts. Responsibilities could include tasks such as guiding the development of open streets events, managing grants for education programs, or developing marketing or incentive programs for alternative transportation initiatives.

Leverage the City's network of community partners

Partnerships are very important components of successful encouragement and education campaigns and events. Partners expand the reach of marketing and promotional efforts, and can help encourage people to bike through programmatic support, incentives, and funding. Fortunately, the City already has a wide range of community partners that are dedicated to making O'ahu's streets safer and more accessible for all modes and all users. While it is important to continue these relationships with existing partners, it is also critical to reach out to organizations who may not currently consider themselves advocates for multimodal transportation. These organizations include environmental groups, public safety organizations, businesses, or chambers of commerce, and they could play a key role in ensuring that education and encouragement efforts reach as many residents as possible.

3.4

Establish a comprehensive bikeway maintenance program

Bikeway maintenance is closely linked to bicyclists' safety. Poor maintenance resulting in the accumulation of debris, development of potholes, and other rough surface conditions can lead to unsafe biking conditions, and may necessitate major, expensive repairs. As O'ahu's bikeway network continues to expand, it is critical that the City establishes a comprehensive bikeway maintenance program to preserve safe and comfortable riding conditions.

Installing a bike box at McCully Street and Kapi'olani Boulevard

Create a maintenance and quick build team dedicated to bikeways.

Due to a number of factors, including the size of bicycle tires and the typical location of bikeways near roadway curbs and gutters, bicyclists are especially vulnerable to maintenance issues. As the bikeway network and the number of cyclists continues to grow in Honolulu, it is imperative that a dedicated City team is available to conduct regular bikeway maintenance and address urgent issues. The bikeway maintenance team could develop a prioritization process for bikeway maintenance to ensure the efficient use of limited resources and to enhance public transparency. Protected bikeways in particular can create new maintenance challenges that may require additional equipment such as a narrower street sweeper. A dedicated bikeway maintenance team would be well-suited to address such challenges and could also assist in quick build projects such as the installation of bike parking, pothole repair, and minor restriping projects.

Develop a facility conditions inventory and priorotized maintenance schedule for all off-street shared use paths.

On-street bikeways are subject to typical roadway maintenance efforts including routine street sweeping and roadway repaving. Because of their lack of public visibility, off-street shared use paths often don't receive the same level of maintenance on-street facilities receive. They are not subject to the same maintenance system as on-street facilities, and therefore they are often maintained in a much

more discretionary manner. Often, jurisdiction over off-street paths rests with various City, State, or even Federal agencies which can further complicate maintenance. A comprehensive inventory of off-street shared use paths should be assembled to identify bikeway ownership, establish clearly defined maintenance responsibilities, and assess pavement quality. This inventory should then provide the baseline for prioritizing off-street bikeway maintenance projects to ensure safe and comfortable riding conditions.

Publicize the 311 app and the pothole reporting hotline/ online request system

The City already maintains a pothole hotline (768-7777), an online service request form through the Department of Facility Maintenance website (http://www.honolulu.gov/dfm/pothole.html), and a 311 app that allows the public to submit service requests from their mobile device. The online form has a specific category for bikeway maintenance issues, however, many residents that attended the project meetings were not aware that these tools exist and are available for bicyclist concerns. Moving forward, the City should actively publicize the hotline, website, and 311 app on bicycling materials and at bicycle events to better inform bicyclists of this valuable resource.

Establish Work Zone Accommodation Standards for bikeways, paths, and sidewalks.

Construction projects that cross into the right-of-way, sidewalks, building frontages, bike lanes, or streets can all create dangerous environments, especially for people walking and bicycling. If appropriate accommodations are not made, bicyclists and pedestrians can be forced to travel in the vehicle travel lane, putting them directly in the path of moving vehicles. The Cities of Portland, Oregon and Washington, DC, both have exemplary bicycle and pedestrian work zone accommodation policies that can serve as a starting point for Honolulu.

Key guidelines should include:

- Closure of a bikeway or sidewalk shall be deemed the last resort in the absence of other practicable routing or accommodation options.
- A temporary route shall be clearly marked and include advance notification of bike lane or sidewalk closures, detours, or diversions.
- Bicyclists and pedestrians should be separated from other road users.
- Bicycle and pedestrian routes should be free of obstructions and surface hazards.

Temporary diversion along the King Street Protected Bike Lane during maintenance work.

3.5

Implement a consistent signage and wayfinding program

Branded wayfinding signage in Fort Collins, Colorado.

Recently installed wayfinding signage installed at the intersection of the South and King Street Protected Bike Lanes

Bicycle wayfinding consists of signs and pavement markings that guide bicyclists along identified routes to their destinations, bike parking, or other amenities (e.g., fix-it stations, etc.). Many of the bikeways proposed in this O'ahu Bike Plan Update are new or not well known. Once new routes are established, it is important that they are identified and publicized with clear signage to serve as a guide for new and less confident users. Implementation of bicycle wayfinding should integrate the guidance provided in the City's 2019 TOD Wayfinding Master Plan and augment other multimodal wayfinding efforts being undertaken by the City.

Prioritize signage on low-stress bikeways

Wayfinding and signage can provide critical route guidance and piece of mind to newer and less confident riders that may not be familiar with a given facility. As such, it is important that signage improvements are focused on lower-stress bike routes where those newer riders would feel comfortable. Signage should indicate direction and distance to key destinations to reassure riders that they are on the correct route. The installation of consistent wayfinding signage on low-stress facilities will help to identify the low-stress network and engender a sense of comfort on the part of less confident riders.

Brand and sign major regional paths

Some of O'ahu's greatest bicycling assets are the existing shared use paths that provide regional low-stress facilities. These bikeways include the Lei of Parks, the Pearl Harbor Historic Trail, and the Ke Ala Pūpūkea Bike Path, and they allow less confident riders a comfortable riding environment. Expanded signage, map panels, and pavement markings should be used to brand these bikeways and provide directional guidance, especially at access points and where connections are required.

Develop specialized treatments along iconic bikeway segments

Several existing and proposed bikeways are located along some of the most historic and iconic settings in Honolulu. One example is the Civic Center Path, which travels between the State Capitol Building and 'Iolani Palace. For instances such as these, the design of the bikeway should be developed in coordination with community stakeholders and consider the broader urban landscape. Context-sensitive landscaping, specialized pavement materials, or designated rest areas are all potential design considerations. Additionally, interpretive signage could be installed to convey the cultural and/or historic significance of the area.

3.6 Evaluate bicycle facilities and programs

Consistent evaluation of the programs and projects proposed in this 2019 O'ahu Bike Plan Update can inform future decision making, provide transparency to the public, and garner support for bicycling investments. DTS already conducts a range of evaluation efforts, but an expansion of these efforts is necessary to guide the City's growing investments in bicycling.

Collect, analyze, and publish ridership data

The bicycle commuting data provided by the U.S. Census and the American Community Survey (ACS) is a beneficial gauge of bicycle commuting, but additional data is critical to understanding general trends in bicycle ridership and evaluating individual facilities. Three general types of bicycle counts should be conducted as part of a comprehensive bicycle count program.

Pre- and Post-installation Counts

Bicycle counts should be conducted prior to and after the installation of new bicycle facilities. These counts provide a transparent and objective measure of a facility's impact on ridership, and can help to convey the public benefit of a given facility.

Short Duration Counts

Short duration counts should typically be conducted for seven continuous days, and can be conducted in a cyclical nature at various locations. Count locations should include both on-road and off-road facilities. Each site should preferably be counted during the same week each year to provide a direct comparison between the years.

Continuous Counts

For critical locations in the bikeway network, continuous bicycle counters should be considered. Continuous counting devices count and record bicyclists and/or pedestrians 24 hours per day for the entire year, and they may include a display that presents real-time count information.

The bike count data should be compiled, analyzed, and published as part of the bicycle program's annual reporting efforts. Additionally, a web-based map should be developed to share the count data with the public.

Evaluate the safety of new design treatments

New and innovative roadway designs are critical to improving safety for all modes and all users. It is important that DTS evaluates the effectiveness and compliance with new design treatments to make alterations if necessary and inform future implementation of a given treatment. This evaluation process may include staff observation, video recordings, intersect/neighborhood surveys, and crash analysis.

Continuous bicycle counter in Boulder, Colorado. Image Source: PeopleForBikes

Assess the effectiveness and distribution of bicycle programs

In 2018, over 11,000 people participated in bicycle education programs on O'ahu, and many more took part in outreach and encouragement efforts. As this number continues to expand, it is important that the City evaluates the effectiveness of these programs and ensures that programs are reaching all our communities, especially those that may be traditionally underserved. Evaluation should continue to be a primary condition of any bicycle program funding provided by the City, and a comprehensive evaluation of education and encouragement efforts should be included in the Complete Streets program's annual reporting efforts.

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A group of Biki riders on the South Street Protected Bike Lane.

4

PROPOSED BIKEWAY NETWORK

The bikeways proposed on the following pages will provide a backbone network of low-stress bicycling facilities to make bicycling safe and convenient for bicyclists of all ages and abilities. Additional bikeways have also been included to provide connections for more confident cyclists when lower-stress bikeways were determined to be infeasible.

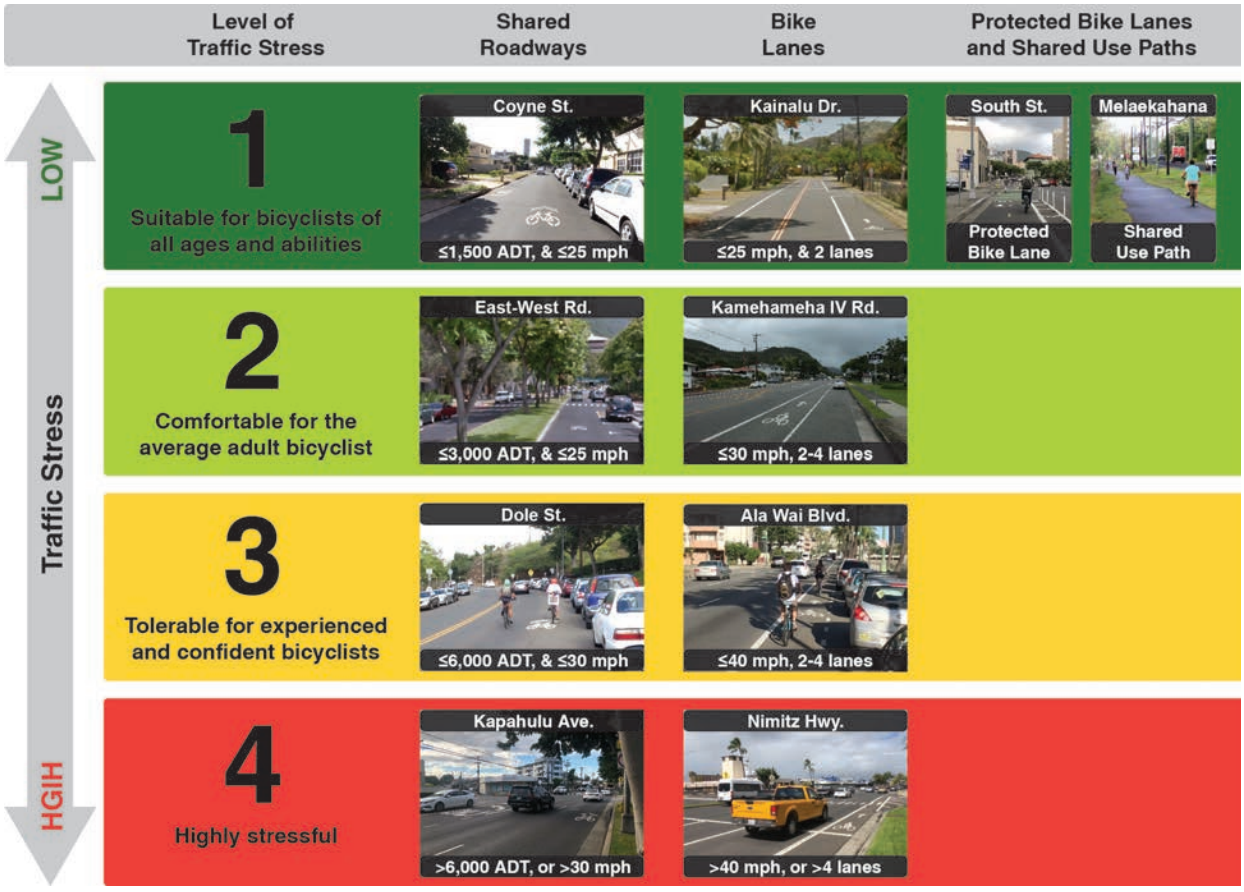
The network was developed and refined based on an objective level of traffic stress (LTS) analysis, as well as public input received throughout the planning process. The individual bikeway projects have been prioritized to ensure that those with the greatest potential to increase bicyclist safety and ridership are implemented the soonest.

4.1
Level of traffic stress (LTS) analysis

Throughout the public engagement process, residents reiterated that a major deterrent to riding a bicycle on O'ahu is the lack of comfortable, connected bikeways to get them to their destinations. This perceived sense of danger associated with riding in or adjacent to vehicle traffic is also referred to as traffic stress.

Bikeways are considered low stress if they involve minimal interaction with vehicular traffic. This might include a shared roadway on a low-speed, low-volume neighborhood street (see chart below). As traffic speed and volume increase, dedicated space (bike lanes) and physical separation (shared use paths and protected bike lanes) are required to maintain a low level of traffic stress that is comfortable for the widest range of potential cyclists. Even if most of a trip could be completed on low-stress bikeways, a single high-stress gap or intersection can deter potential users from riding their bikes.

Traditional traffic impact assessment reports focus on the level of service for vehicular traffic. As part of their Complete Streets efforts, the City is moving towards multimodal traffic assessments that consider the levels of safety, service, and comfort for bicyclists, pedestrians, and transit riders, as well as vehicular traffic. Moving forward, the bicycle LTS methodology presented here will serve as the objective measure of bicycle service for the City's multimodal traffic assessments.



This chart presents general thresholds for traffic volume (average daily traffic [ADT]), speed (mph), and the number of travel lanes for assessing a bicyclist's traffic stress on various types of bikeways. Physically separated bikeways such as protected bike lanes and shared use paths are assessed as LTS 1 facilities.

An LTS rating analysis was conducted for all existing bikeways, as well as those proposed in the 2012 O'ahu Bike Plan to inform project recommendations for this Bike Plan Update. The analysis categorized the streets into four different LTS rating categories with LTS 1 being the lowest stress (most comfortable) and LTS 4 being the highest stress bicycle facilities. For the purpose of this plan, low-stress bikeways, are those rated LTS 1 or 2.

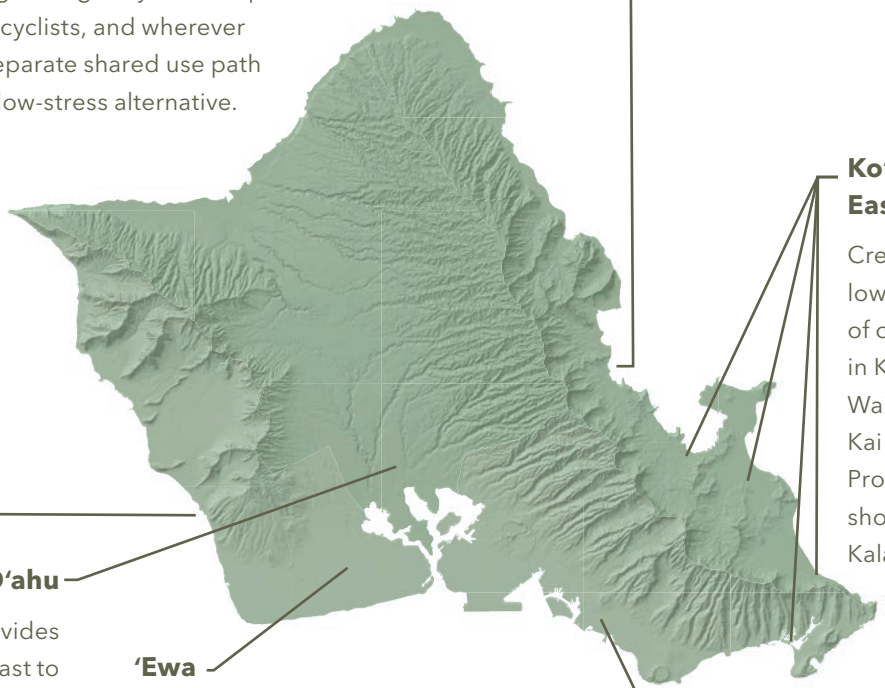
The LTS rating relies on variables such as the number of traffic lanes, traffic speed, traffic volume, type and width of bicycle facility, and the presence or absence of on-street parking (i.e., a bike lane adjacent to on-street parking is assumed to be higher stress than one adjacent to the curb). The methodology used to complete the LTS analysis was based on current standards and refined with guidance from the TAC to reflect local conditions.

The LTS ratings were mapped to determine where high-stress gaps exist, and where low-stress bicycle facilities are most needed to create a bicycle network that is comfortable to the majority of potential bicyclists. A brief summary of the regional findings from the LTS analysis is provided below.

LTS Regional Recommendations

Wai'anae, North Shore, and Ko'olau Loa

Kamehameha and Farrington Highways should provide a shoulder bikeway for bicyclists, and wherever possible, a parallel but separate shared use path should be provided as a low-stress alternative.



Ko'olau Poko and East Honolulu

Create localized, low-stress networks of on-street bikeways in Kailua, Kāne'ohe, Waimānalo, and Hawai'i Kai town centers. Provide/improve shoulder bikeway along Kalaniana'ole Highway

Central O'ahu

The Pearl Harbor Bike Path provides a key low-stress bikeway from east to west, but *mauka* to *makai* bikeways are needed to provide low-stress connections to population centers and transit stops.

'Ewa

There is an extensive network of existing and proposed shared use paths, but low-stress on-street bikeways are needed to connect to major destinations.

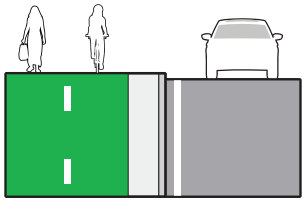
Urban Honolulu

Provide a roughly ¼ mile grid of low-stress bikeways to facilitate safe bicycling in the urban center.

4.2
Bicycle facility types

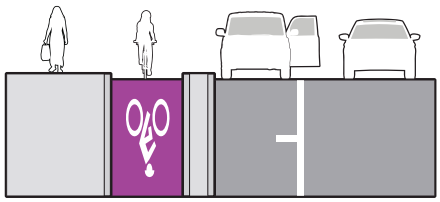
Since the completion of the 2012 O'ahu Bike Plan, a number of new, low-stress bicycle facility types have become increasingly common in cities across the United States, including Honolulu. A critical part of this Bike Plan Update is to incorporate these lower-stress designs into O'ahu's proposed bikeway network. As part of this process, the City has developed a Bicycle Facility Design Toolkit (Appendix A) which identifies current design guidance and best practices for the installation of bicycle facilities. The Design Toolkit serves as a supplement to the Bicycle Chapter of the Honolulu Complete Streets Design Manual, and describes the range of facility types that are identified in the proposed bikeway network. The graphic below illustrates and describes these bikeway facilities.

Shared Use Path SUP



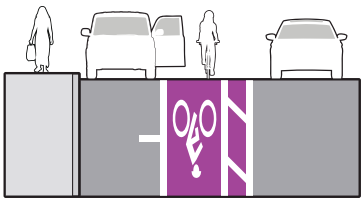
A shared use path is a two-way facility that is physically separated from motor vehicle traffic and used by bicyclists pedestrians, and other non-motorized users. Shared use paths are often located in an independent alignment, such as a greenbelt or abandoned railroad right-of-way, and are used for recreation, leisure, and commuting.

Protected Bike Lane PBL



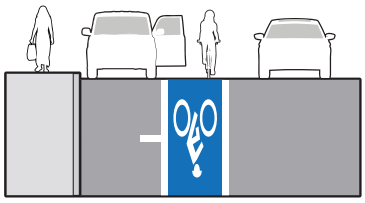
Protected Bike Lanes (also known as separated bike lanes or cycletracks) are an exclusive bikeway facility that combines the user experience of a shared use path with the on-street infrastructure of a conventional bike lane. They are physically separated from motor vehicle traffic and distinct from the sidewalk.

Buffered Bike Lane BBL



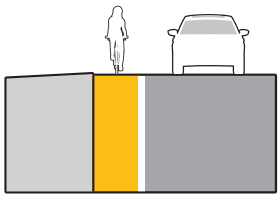
Buffered bike lanes are created by painting a flush buffer zone between a bike lane and the adjacent travel lane. While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists' comfort, they can also be provided between bike lanes and parking lanes to discourage bicyclists from riding too close to parked vehicles.

Bike Lane BL



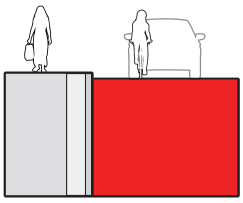
Bike lanes provide an exclusive space for bicyclists in the roadway through the use of lines and symbols. Bike lanes are for one-way travel and are normally provided in both directions on two-way streets and on one side of a one-way street. When roadway width is limited and the road is sloped, a bike lane may be provided in only the uphill direction. This is referred to as a ***climbing lane.***

Shoulder Bikeway SB



Shoulder bikeways are typically reserved for rural road cross-sections. Paved shoulders provide a range of benefits: they reduce motor vehicle crashes; reduce long-term roadway maintenance; ease short-term maintenance, such as debris clearing; and provide space for bicyclists and pedestrians.

Shared Roadway SR



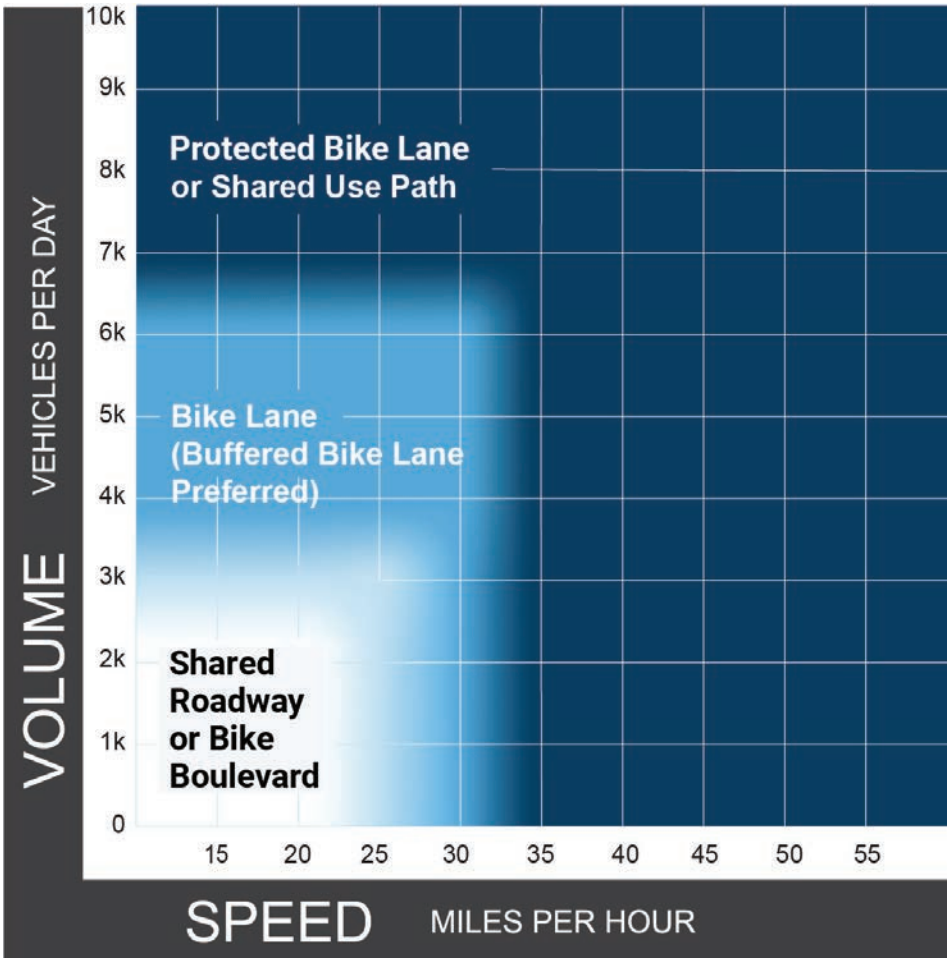
Shared roadways are bikeways where bicyclists and motor vehicles are expected to share the same travel lane. They are denoted by pavement marking (sharrows) and /or signage. They are typically used in locations with low traffic speeds and volumes or as a temporary solution on constrained higher-traffic streets.

Developing the Proposed Network

O'ahu's existing bicycle facilities and the facilities proposed in the 2012 O'ahu Bike Plan served as the starting point for this update to the bikeway network. Additionally, proposed bikeways from other recent planning efforts including neighborhood transit-oriented development (TOD) plans, county development and sustainable community plans, and private community master plans were assessed to develop a full inventory of proposed bikeways.

The LTS analysis, a review of bicycle crash data, and public comments were used to identify key gaps in the bikeway network. Some existing or proposed projects were recommended for facility upgrades (e.g., from a conventional bike lane to a protected bike lane) to reduce traffic stress, and other new proposed bikeways were proposed to provide critical connections. Vehicle speed and traffic volume thresholds were used to determine the appropriate facility type for a proposed project to ensure that it would meet the needs of "interested but concerned" riders (see chart at right). All proposed facilities were evaluated for gross technical feasibility to ensure that a given right-of-way could support the proposed bikeway.

Once the preliminary proposed bikeway network was drafted, a series of agency and public reviews were conducted to vet the proposed network. The network was revised and refined accordingly, and the result is the proposed bikeway network presented in this plan.



Facility selection chart with traffic speed and volume thresholds for low-stress bikeways

Bicycle Treatments at Intersections

The treatment of bicycle facilities at intersections is critical to providing continuous low-stress bike routes that are comfortable for riders of all ages and abilities. To address this integral part of the bikeway network, a range of proposed bicycle intersection designs and crossing treatments is provided in the Bicycle Facility Design Toolkit (Appendix A). These design guidelines provide standard intersections treatments for the bikeways proposed in this chapter. In some cases, especially where bicycle traffic is high or there are specific safety concerns, intersections along existing bicycling routes should be considered for upgrades to meet the design guidance provided in Appendix A.

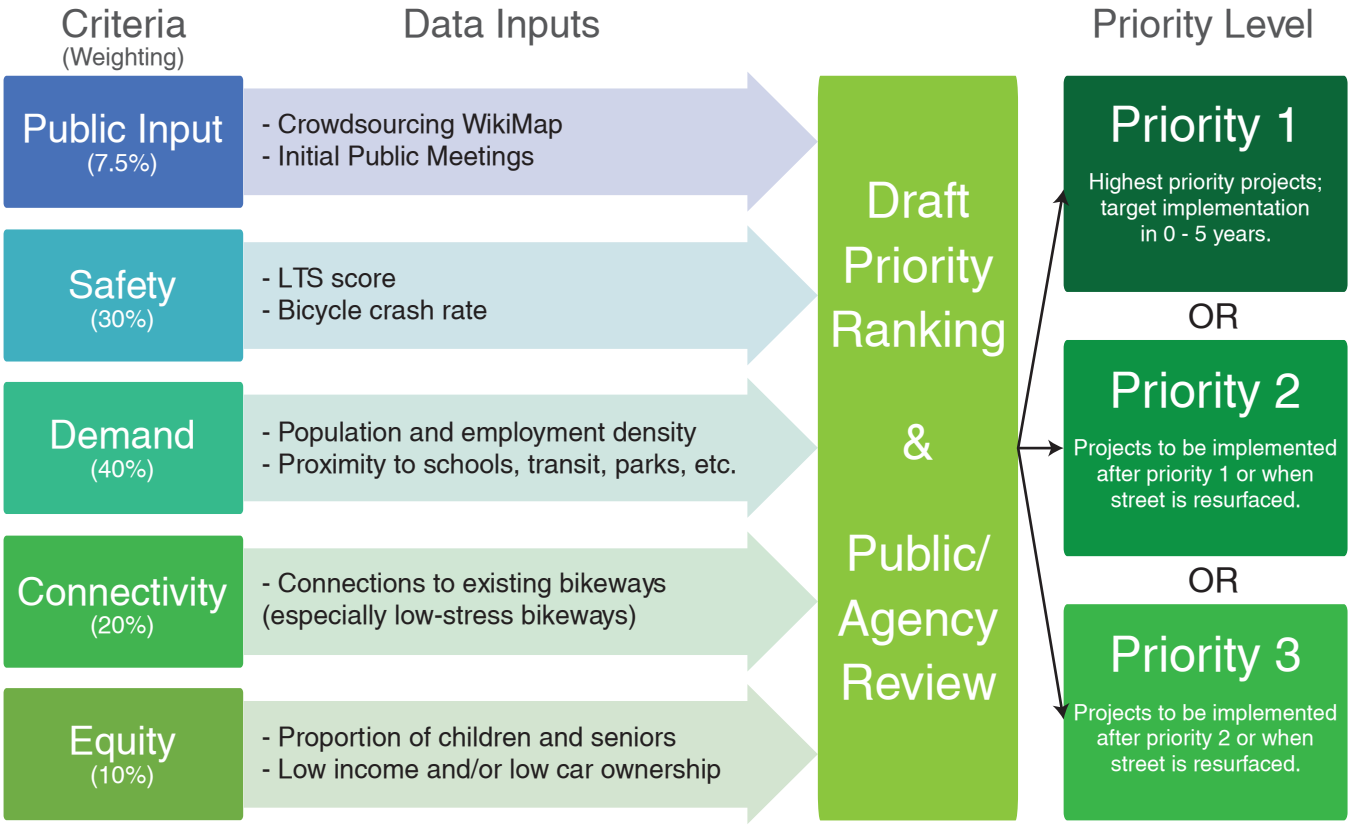
4.3
Project screening and prioritization

After the proposed bikeway network was established, the individual bikeway projects were screened for inclusion in the prioritization process. A number of proposed projects are tied to major redevelopment efforts (e.g., TOD plans, Hoopili, etc.), and would not be constructed as stand-alone projects by the City or State.

These projects were identified as redevelopment projects (RD) in the proposed bikeway network, and they were not included in the prioritization process. While these projects may still provide needed connections, their implementation is dependent upon the associated redevelopment and would not be affected by prioritization in this 2019 O'ahu Bike Plan Update.

The remaining projects were assessed through a data-driven prioritization analysis to determine a project's relative importance and identify a corresponding priority level for implementation. Criteria were developed from input received during public engagement, and specific data factors were identified with guidance from the TAC. For instance, connectivity was scored on the number of existing bikeways a project connected to, with connections to low-stress bikeways counting double.

Once the proposed bikeways were scored through the prioritization process, they were ranked against all other projects within their respective development plan or sustainable community plan (DP/SCP) area and assigned a priority class based on the proposed phase of implementation. The Primary Urban Core (PUC) DP area was divided into east and west sub areas to ensure an equitable prioritization of bikeways from Pearl City to Kāhala. Finally, the prioritized bikeway network was released for public and agency review, and then refined based on review comments.

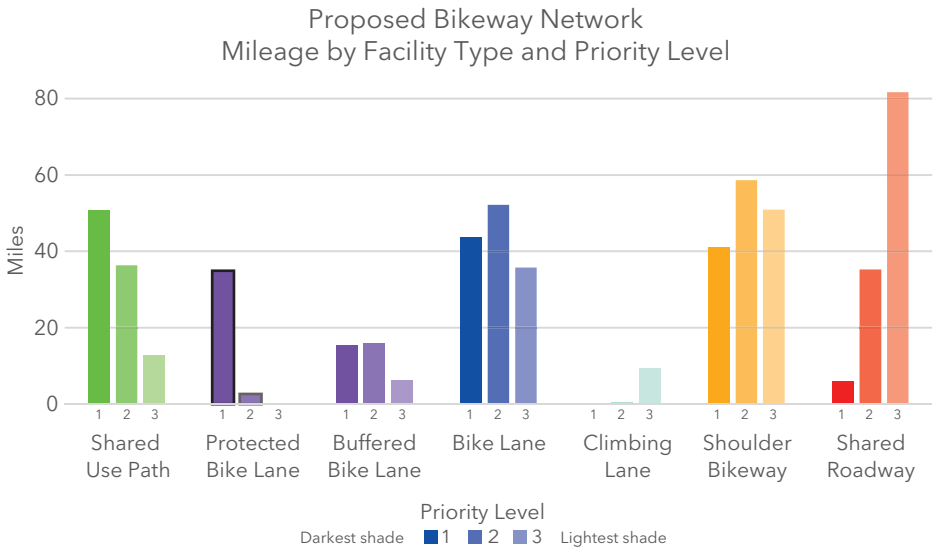


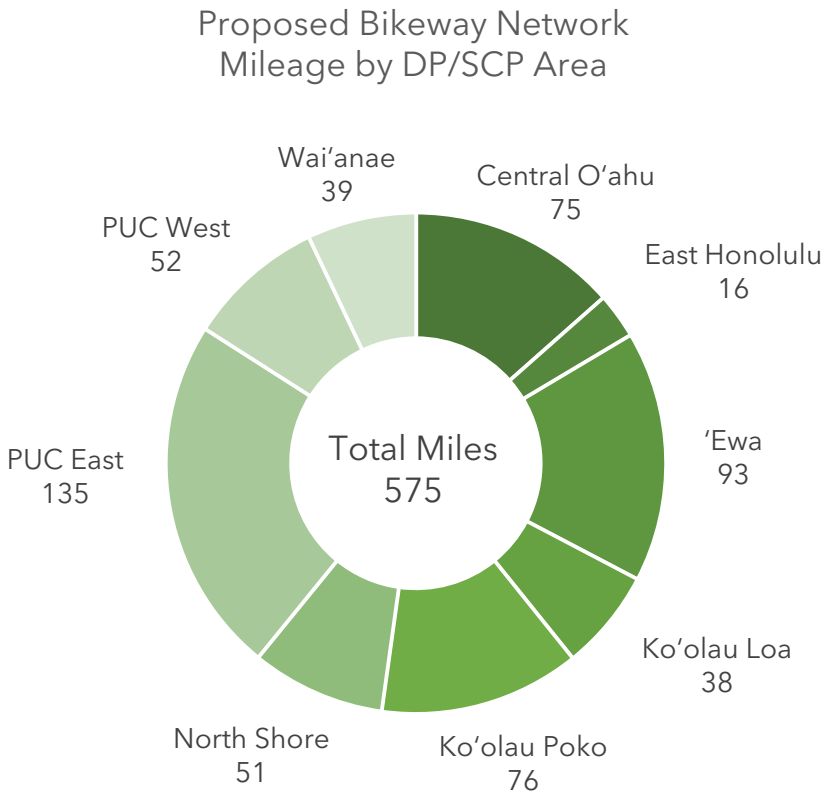
Bikeway prioritization process

4.4
Proposed bikeway network

Implementation of the entire proposed bikeway network would add 575 miles of new bikeways to the 211 miles that currently exist. The total bikeway mileage is roughly evenly split between the three priority levels. However, in the interest of providing a low-stress bicycle network, the priority 1 projects include a much higher proportion of shared use paths, protected bike lanes, and buffered bike lanes. Additional priority 1 projects include conventional bike lanes and shared roadways on lower traffic streets and shoulder bikeways on regional highway connections. Priority 2 and 3 projects are more heavily focused on providing bike lanes, shoulder bikeways, and shared roadway facilities to supplement the critical low-stress network.

Each project in the proposed bikeway network has been assigned a unique project ID (e.g., 1-1, 2-1, 3-1) for identification purposes, with the prefix (i.e., 1-, 2-, or 3-) indicating its priority class. Within each priority class, the projects were sorted by DP area, then alphabetically, and then assigned the second number of the project code. This second number is only for identification, and it does not indicate a project's relative importance within each priority class. Maps illustrating the proposed bikeway network and a full list of the prioritized projects with estimated costs are presented on the following pages.





4.5
Regional Low-stress Bikeways

O'ahu has several off-street shared use paths that provide an existing backbone of regional low-stress bikeways. These facilities include existing parts of the Lei of Parks Path, Pearl Harbor Bike Path, and Ke Ala Pupukea Path, and they allow for regional bikeway connections without having to ride on the road. Ongoing planning and advocacy campaigns are underway to further expand and connect these regional paths including the South Shore trail, Leeward Bike Path, and the North Shore Path efforts.

Off-street paths offer a comfortable riding environment for all riders, but the safety and comfort of paths are especially important for less-confident riders and families. These regional paths representa a critical recreational resource, and they provide much needed access to parks, schools, shopping centers, and other major destinations. Throughout the public engagement process for this plan, community members reiterated the significant value of these regional paths, and expressed their desire to expand upon the path network, fill in gaps, and create safe bikeway connections.

The proposed bikeway projects that expand upon this regional path network, address gaps, and/or provide connections to these paths, are generally well aligned with the prioritization criteria identified in Section 4.3. Therefore, these projects scored well in the prioritization rankings and are mostly identified as Priority 1 projects.

Ke Ala Pupukea Path provides safe walking and biking access to several beach parks and Sunset Beach Elementary School.

4.6
Title VI and Environmental Justice

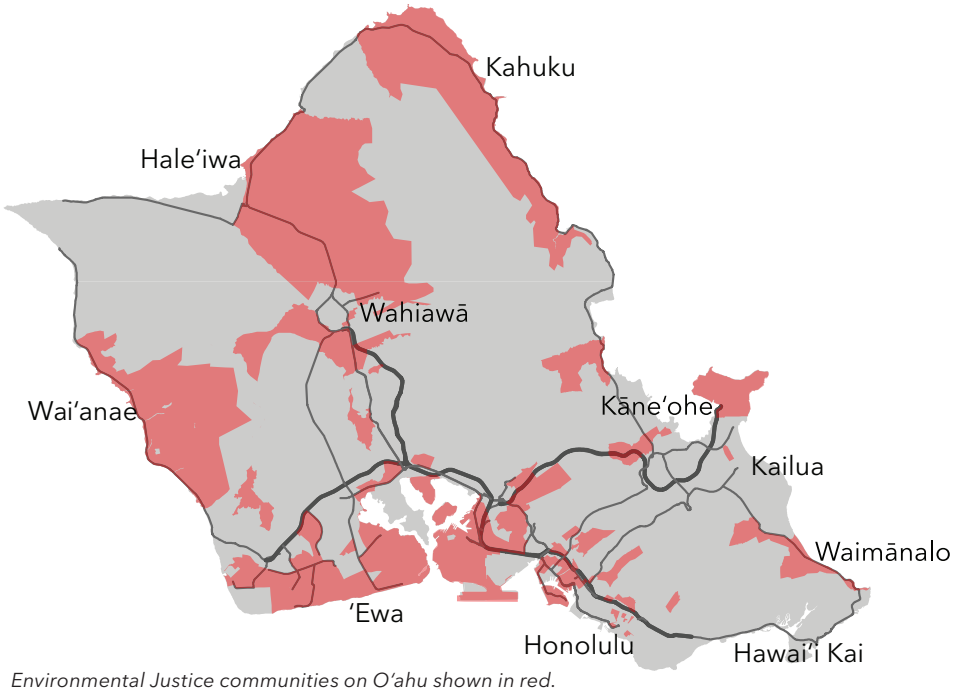
As part of this 2019 O'ahu Bike Plan Update, an analysis was conducted to assess the level at which Environmental Justice (EJ) communities would be served by the proposed bikeway network. Environmental Justice has its roots in Title VI of the Civil Rights Act of 1964 and bars intentional discrimination, as well as disparate impact discrimination (i.e., a neutral policy or practice that has a disparate impact on protected groups). Title VI states, "No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

Due to Hawai'i's unique racial diversity, the O'ahu Metropolitan Planning Organization (O'ahuMPO) developed a methodology to identify EJ communities as those with disproportionate concentrations of minority groups or low-income populations.[14]

EJ communities are identified in red in the map below, and the results of the EJ analysis are provided in the table below. In summary, the proportion of the proposed bikeways that are located in EJ communities is greater than the proportion of O'ahu's population that resides in EJ communities. Therefore, the implementation of the proposed bikeway network complies with Title VI and would significantly improve bicycle access in EJ communities.

[10] *O'ahuMPO. Environmental Justice in the O'ahuMPO Planning Process: Defining Environmental Justice Populations. 2004*

	Proportion of O'ahu population	Proportion of proposed bikeway mileage	Difference
Environmental Justice (EJ) Communities	34%	40%	+6%



Environmental Justice communities on O'ahu shown in red.

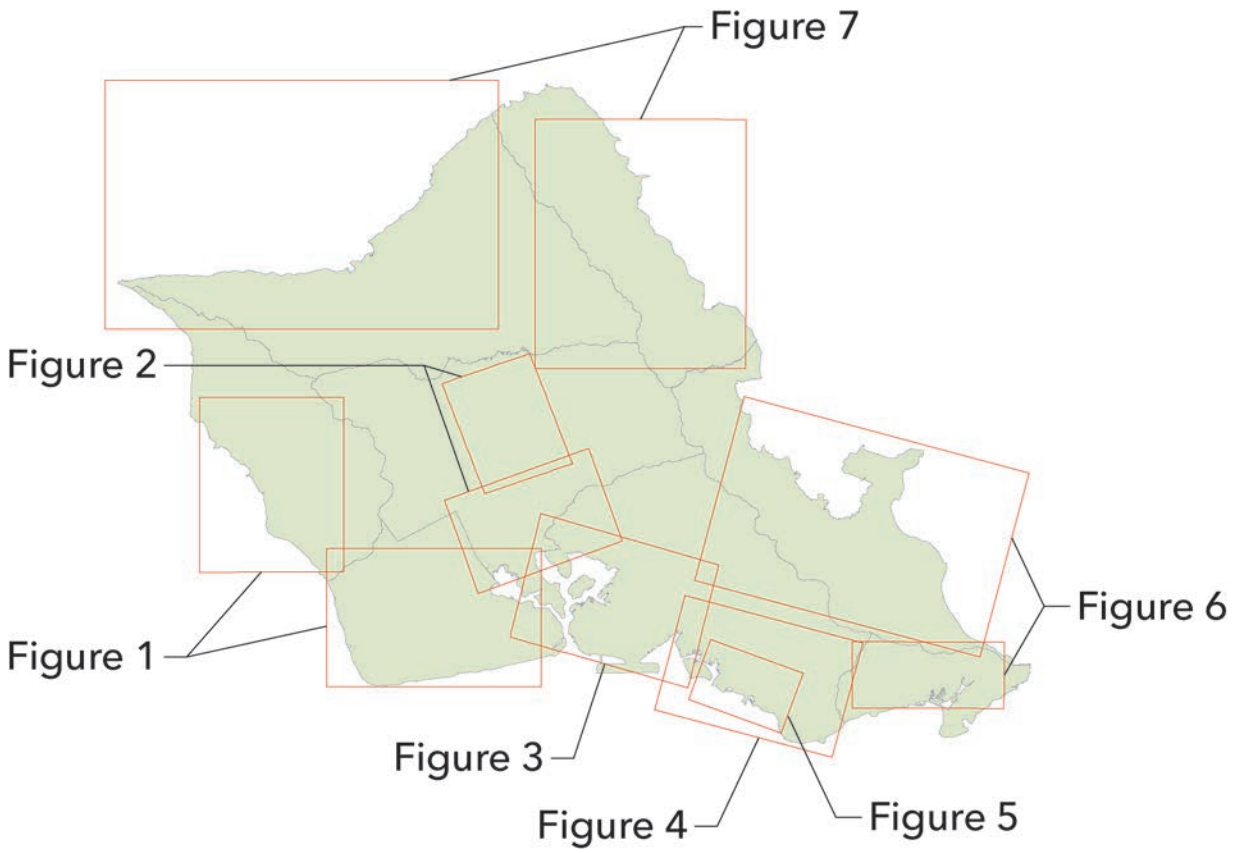
4.7
O‘ahu Bikeway Network Maps and Tables

The following maps illustrate the existing and proposed bikeways around the island in a counter-clockwise direction starting with ‘Ewa and Wai‘anae. The base map shows the proposed rail guideway and stations, and important destinations such as schools, universities, and parks. The proposed bikeways are identified by their name and project ID number. For projects that are tied to new development or redevelopment projects (e.g., Koa Ridge, etc.), the project ID begins with the prefix “RD.” Otherwise, the prefix represents the project’s priority class.

Tables listing every proposed bikeway project are presented following the maps. The tables are organized by priority level, and projects are listed alphabetically by DP/SCP area, then name.

The tables identify a project’s ID, name, description, facility type, owner, length, estimated cost, and DP/SCP area. Additionally, a web map of the existing and proposed bikeway network is available via the project website: www.honolulu.gov/bikeplanupdate.

Figure #	Map Location
1	‘Ewa & Wai‘anae
2	Central O‘ahu
3	Primary Urban Center - West
4	Primary Urban Center - East
5	Downtown to Waikiki
6	Ko‘olau Poko & East Honolulu
7	North Shore & Ko‘olau Loa



LEGEND

EXISTING & PROPOSED BICYCLE FACILITIES

- Shared Use Path
- Protected Bike Lane
- Buffered Bike Lane
- Bike Lane
- Climbing Lane
- Shoulder Bikeway
- Shared Roadway

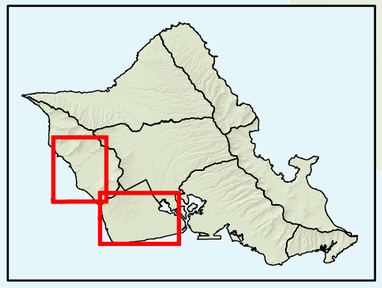
0 3,500 Feet
0 0.5 Miles

- Transit Station
- University/College
- School
- Parks
- Rail Guideway

Wai'anae

0 10,000 Feet
0 2 Miles

Figure 1:
'Ewa & Wai'anae
O'ahu Bikeway Network



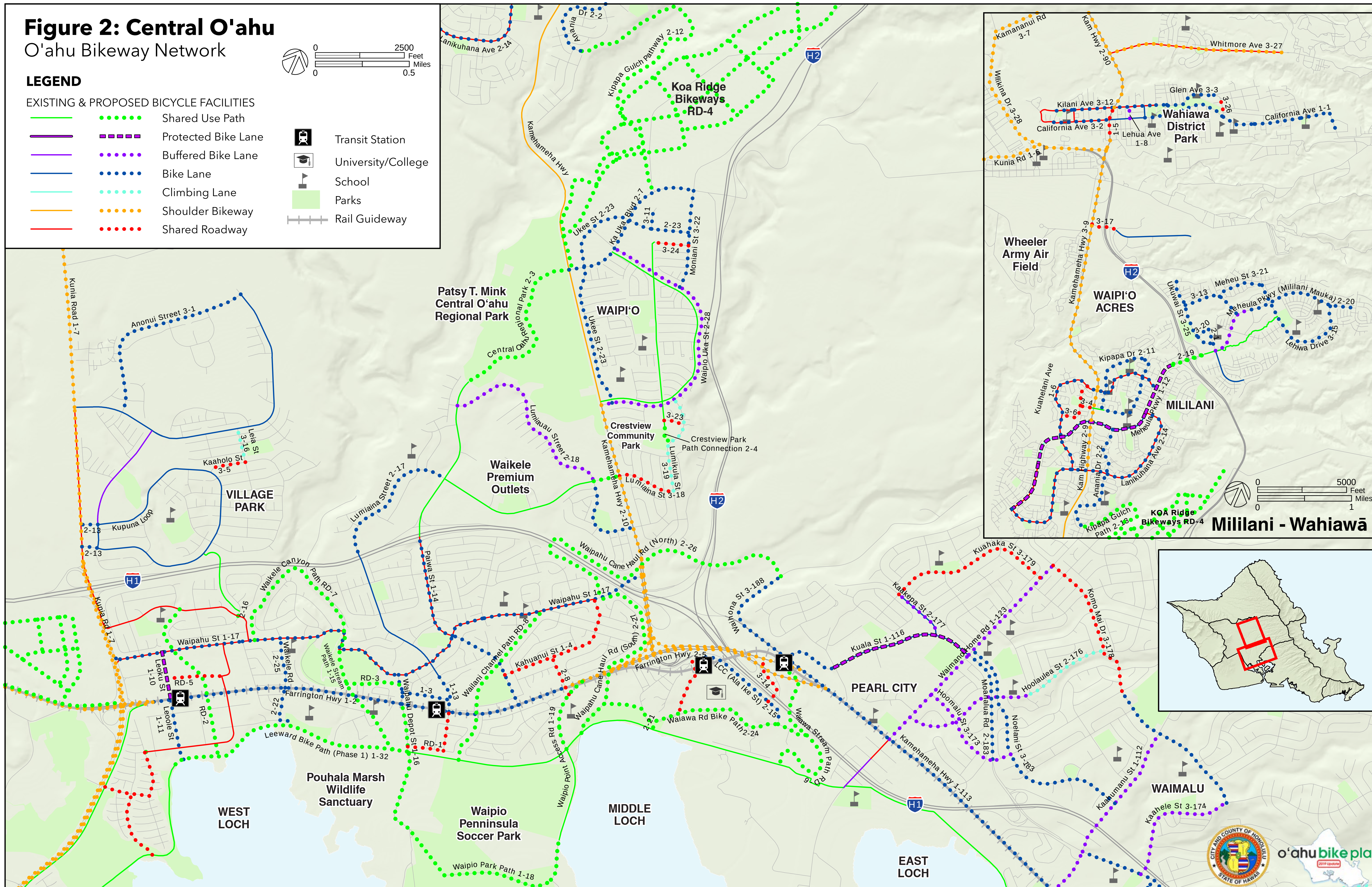


Figure 2: Central O'ahu

O'ahu Bikeway Network

o'ahu bike plan 2019 Update

LEGEND

EXISTING & PROPOSED BICYCLE FACILITIES

- Shared Use Path
- Protected Bike Lane
- Buffered Bike Lane
- Bike Lane
- Climbing Lane
- Shoulder Bikeway
- Shared Roadway

- Transit Station
- University/College
- School
- Parks
- Rail Guideway

0 3000 Feet
0 0.5 Miles

Pearl City High School
PEARL CITY
Komo Mai Drive 3-178
Kuahaka St 3-179
Kaakepa St 2-177
Kuala St 1-116
Waimano Home Rd 1-123
Moanalua Rd 2-183
Hoolaulea St 2-176
Hoomalu St 3-173
Noelani St 3-183
WAIMALU
Kaahumanu St 1-112
Kaahele St 3-174
Kaonohi St 3-177
Waihona St 3-188
H2
H1
Kamehameha Hwy 1-113
Pearl Ridge Community Park
Moanalua Rd 1-117
Kaamilo St 3-175
AIEA
Ulune St 3-187
Halewiliko St 3-172
Ulune St 3-186
HALAWA
Halawa Valley St 3-171
H3
Kamehameha Hwy 2-178
2-169
Red Hill Bikeway Connection RD-51
Moanalua Rd 2-184
3-168
3-167
Fort Shafter
Neal S. Blaisdell Park
RD-48
1-119
Helena St 1-111
Kanuku St 1-114
Kaonohi St 1-115
RD-49
Waipio Penninsula Soccer Park
EAST LOCH
Aloha Stadium Redevelopment Bikeways RD-36
Pearl Harbor Bike Path (ext) 1-118
RD-37
Kalaloa St 2-179
RD-39
RD-54
RD-53
Kahuapaani St 3-176
MIDDLE LOCH
Ford Island
Salt Lake Blvd 1-122
ALIAMANU/ SALT LAKE
Moanalua Gardens
Moanalua Gardens Path and Driveways 2-182
Kaua St
Bougainville Dr 1-110
3-182
3-180
Ala Lilikoi St 1-109
Likini St 3-181
Ala Ilima St 2-171
Salt Lake Blvd 1-120
Puuloa Rd 2-187
Shafter Flats
TOD Redevelopment Bikeways RD-45
JBPHH Station Radford Drive Connector RD-41
2-188
Namur Rd 2-185
Salt Lake Blvd 1-121
Radford Drive 3-184
Navy Redevelopment Bikeways RD-52
RD-46
Center Dr 3-170
JOINT BASE PEARL HARBOR - HICKAM
Valkenburgh St 2-189
Antares Rd 2-173
Camp Catlin Rd 2-174
Nimitz Hwy 2-186
RD-44
Koapaka St RD-44
Ualena St RD-54
Aolele St 3-169
Airport Access Rd 2-175
3-185
Airport Access Path 2-170
Keehi Lagoon - Middle St Path RD-43
Ke'ehi Lagoon Beach Park
Daniel K. Inouye International Airport
Lagoon Drive 2-181
WEST LOCH

Figure 3:
Primary Urban Center - West
O'ahu Bikeway Network

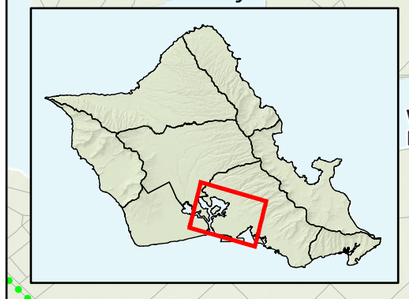


Figure 4:
Primary Urban Center - East
O'ahu Bikeway Network

LEGEND

EXISTING & PROPOSED BICYCLE FACILITIES

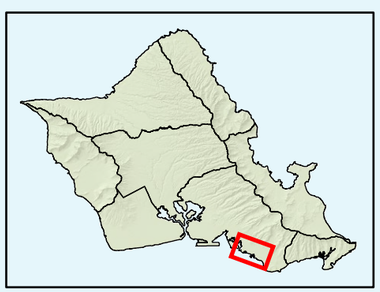
- Shared Use Path
- Protected Bike Lane
- Buffered Bike Lane
- Bike Lane
- Climbing Lane
- Wide Shoulder
- Shared Roadway

- Transit Station
- University/College
- School
- Parks
- Rail Guideway

0 3000 Feet
0 0.5 Miles

See Figure 5: Downtown to Waikiki

Figure 5:
Downtown to Waikiki
O'ahu Bikeway Network



LEGEND

EXISTING & PROPOSED BICYCLE FACILITIES

- Shared Use Path
- Protected Bike Lane
- Buffered Bike Lane
- Bike Lane
- Climbing Lane
- Shoulder Bikeway
- Shared Roadway

- Biki Station
- Transit Station
- University/College
- School
- Parks
- Rail Guideway

0 1500 Feet
0 0.25 Miles

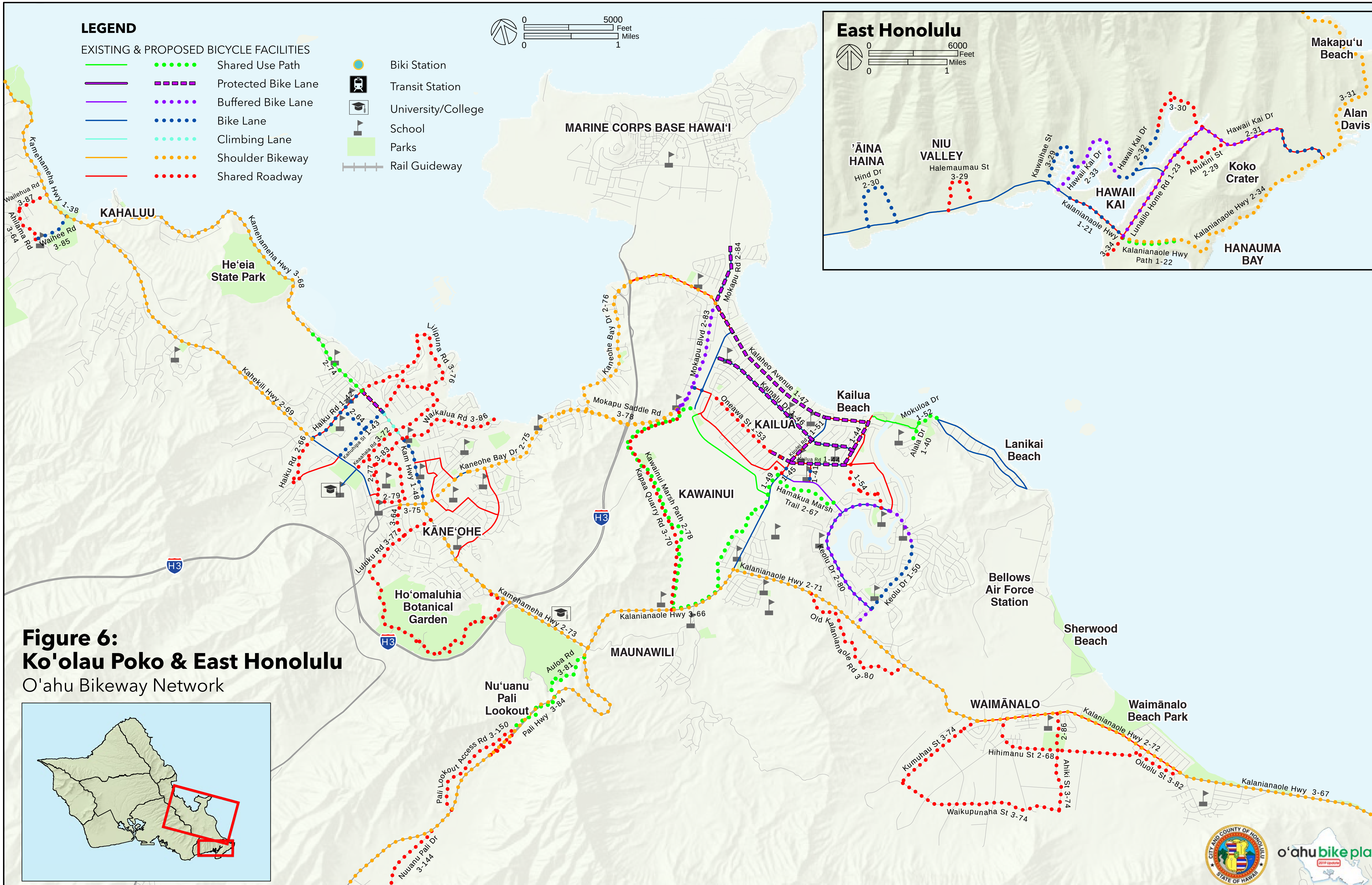


Figure 6: Ko'olau Poko & East Honolulu
O'ahu Bikeway Network

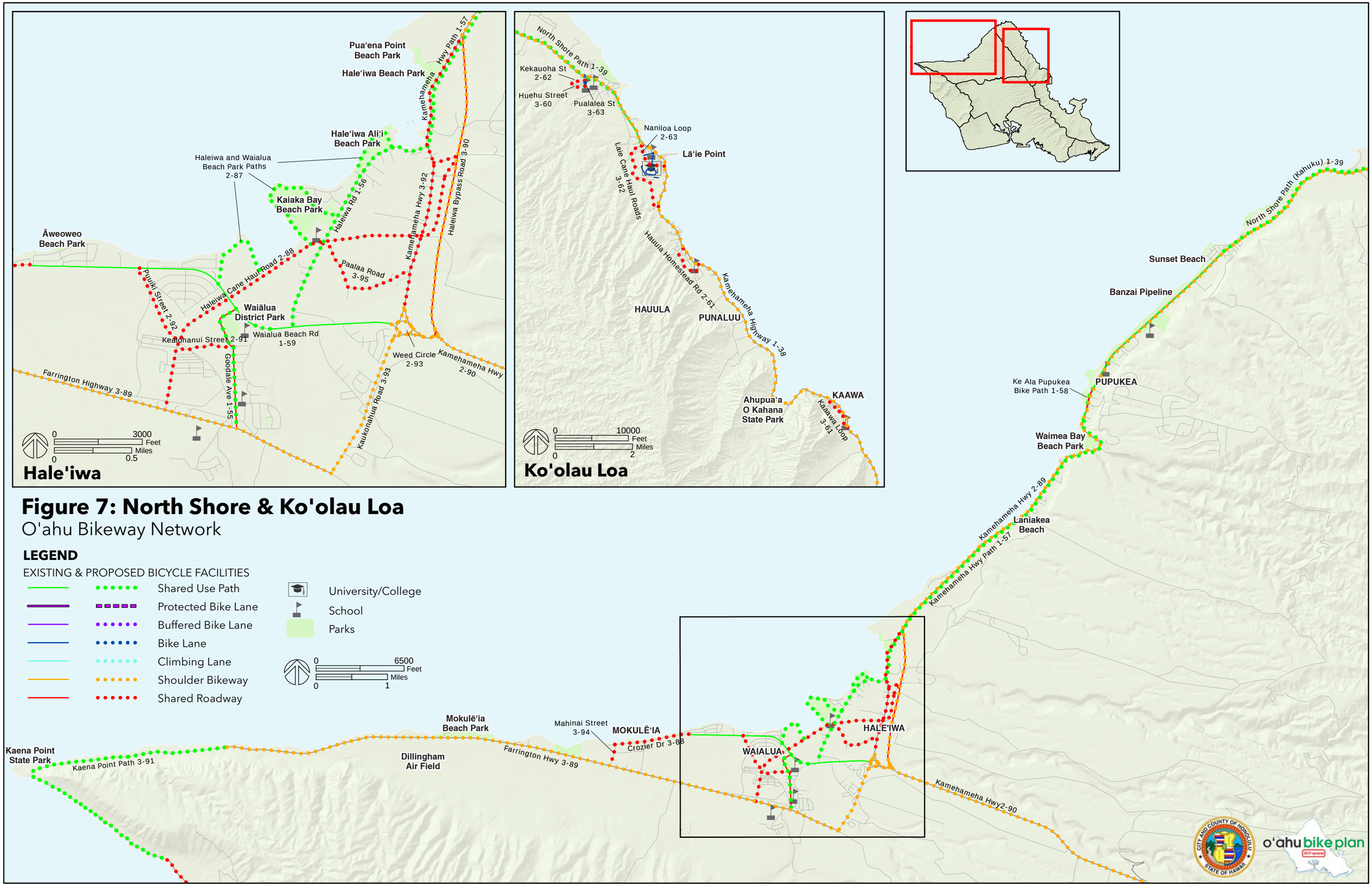


Figure 7: North Shore & Ko'olau Loa

O'ahu Bikeway Network

O'ahu Bike Plan Update - Priority 1 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
1-1	California Avenue	N Cane St to Karsten Drive	BL	C	2.29	$2,366	CO
1-2	Farrington Highway (Waipahu)	Fort Weaver Road to Kahualii Street	BL	S	2.11	$838	CO
1-3	Hikimoe Street	Waipahu Depot Road to Mokuola Street	BL	C	0.24	$95	CO
1-4	Kahuanui Street	Waipahu Street to Paiwa Street	SR	C	0.71	$80	CO
1-5	Kamehameha Highway (Wahiawa)	Kilani Ave to Avocado Street	SR	S	0.36	$40	CO
1-6	Kuahelani Avenue	Meheula Pkwy (north) to Lanikuhana Street	BL	C	2.20	$876	CO
1-7	Kunia Road	Wilikina Drive to Farrington Highway	SB	S	8.69	$6,667	CO
1-8	Lehua Street	Kilani Avenue to California Avenue	BBL	C	0.12	$59	CO
1-9	Leokane Street	Kaihuopalaai Street to Leowahine Street	SUP	C	0.05	$89	CO
1-10	Leoku Street	Waipahu Street to Farrington Highway	PBL	C	0.25	$144	CO
1-11	Leoole Street	Farrington Highway to Pearl Harbor Bike Path	BL	C	0.32	$127	CO
1-12	Meheula Parkway	Lanikuhana Street (south) to H-2 Interchange	PBL	C	2.64	$1,511	CO
1-13	Mokuola Street	Nalii Street to Farrington Highway	BL	C	0.20	$79	CO
1-14	Paiwa Street	Farrington Highway to H-1 Freeway	BL	C	1.08	$428	CO
1-15	Waikele Stream Path	Pearl Harbor Bike Path to Waipahu Street	SUP	C	0.70	$1,197	CO
1-16	Waipahu Depot Street	Farrington Highway to Pearl Harbor Bike Path	SUP	C	0.26	$440	CO
1-16	Waipahu Depot Street	Farrington Highway to Waipahu Street	BL	C	0.16	$62	CO
1-17	Waipahu Street	Kunia Road to Kamehameha Highway	BL	C	3.06	$3,162	CO
1-18	Waipio Peninsula Soccer Park Path	Waipio Point Access Road to Waipahu Depot Road	SUP	C	1.52	$2,187	CO
1-19	Waipio Point Access Road	Pearl Harbor Bike Path to Farrington Highway	SUP	C	0.41	$699	CO
1-20	Kalanianaole Highway	Ainakoa Avenue to Kilauea Avenue	BL	S	0.26	$104	EH
1-21	Kalanianaole Highway	Hawaii Kai to Lunalilo Home Road	BL	S	0.84	$336	EH
1-22	Kalanianaole Highway Path	Hanauma Bay Road to Lunalilo Home Road	SUP	S	0.73	$1,243	EH
1-23	Lunalilo Home Road	Kalanianaole Highway to Hawaii Kai Drive	BBL	C	1.73	$825	EH
1-24	Farrington Highway	Kapolei Golf Course Road to Fort Weaver Road	SB	S	3.75	$2,880	EWA

Bicycle Facilities

BL	Bike Lane
BBL	Buffered Bike Lane
CL	Climbing Lane
PBL	Protected Bike Lane
SB	Shoulder Bikeway
SR	Shared Roadway
SUP	Shared Use Path

Jurisdiction

C	City
F	Federal
S	State
P	Private

DP/SCP Area

CO	Central O'ahu
EH	East Honolulu
KL	Ko'olau Loa
KP	Ko'olau Poko
NS	North Shore
PUC-E	Primary Urban Center - East
PUC-W	Primary Urban Center - West
WAI	Wai'anae

O'ahu Bike Plan Update - Priority 1 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
1-25	Fort Barrette Road Path	Farrington Highway to Leeward Bike Path	SB	S	1.22	$937	EWA
1-26	Fort Weaver Road (Ewa Beach)	Keoneula Boulevard to Kilaha Street	BBL	S	1.19	$566	EWA
1-27	Fort Weaver Road Path (Southern Section)	Keaunui Street to end of public road	SUP	S	2.56	$4,370	EWA
1-28	Kamaaha Loop	Kamaaha Avenue to Kamaaha Avenue	BL	C	0.40	$159	EWA
1-29	Kapolei Parkway	Keoneula Boulevard to west terminus (past Kalealoa Blvd)	BBL	C	5.66	$2,698	EWA
1-30	Keoneula Boulevard	Essex Road to Fort Weaver Road	BBL	C	2.16	$1,029	EWA
1-31	Kolowaka Drive	Keaunui Drive to Koka Street	BL	C	0.43	$170	EWA
1-32	Kualakai Parkway Path	H-1 Freeway to Kapolei Parkway	SUP	S	1.94	$2,802	EWA
1-33	Leeward Bike Path (Phase 1)	Waipio Point Access Road to Hawaiian Railroad Society Train Station	SUP	S	3.47	$5,924	EWA
1-34	Leeward Bike Path (Phase 2)	Lualualei Naval Road to Hawaiian Railroad Society Train Station	SUP	S	7.91	$1,350	EWA
1-35	Palailai Mall	Kamokila Boulevard to Leeward Bike Path	SUP	P	0.33	$558	EWA
1-36	Renton Road	Asing Communigy Park to Oohao Street	BL	C	0.88	$350	EWA
1-36	Renton Road	Kapolei Parkway to Roosevelt Avenue	SR	C	0.41	$46	EWA
1-36	Renton Road	Oohao Street to Kapolei Parkway	PBL	C	0.75	$429	EWA
1-37	Wakea Street	Kapolei Parkway to Leeward Bikeway	BL	C	0.16	$65	EWA
1-38	Kamehameha Highway (Koolauloa)	Turtle Bay to Waiahole Valley Road	SB	S	23.94	$1,836	KL
1-39	North Shore Path (Kahuku)	Ke Ala Pupukea Path to the Melaekahana Bike Path	SUP	S	7.26	$1,240	KL
1-40	Alala Road	Kawailoa Road to Kaohao Public Charter School Driveway	SUP	C	0.08	$143	KP
1-41	Hahani Street	Kailua Road to Hamakua Road	BL	C	0.19	$78	KP
1-42	Haiku Road (Eastern Section)	Kahekili Highway to Kam Highway	BL	C	0.70	$279	KP
1-43	Kahuhipa Street	Kahekili Highway to Kamehameha Highway	BL	C	0.64	$253	KP
1-44	Kailua Road	Kuulei Road to Kalaheo Avenue	PBL	C	1.06	$368	KP
1-45	Kailua Road (Western Section)	Hamakua Drive to Kainalu Drive	BL	C	0.15	$59	KP
1-46	Kainalu Drive	Kainui Drive to Kailua Road	PBL	C	1.76	$100	KP
1-47	Kalaheo Avenue	Mokapu Boulevard to Kailua Road	PBL	C	2.12	$739	KP
1-48	Kamehameha Highway (Kaneohe)	Haiku Road to Kahuhipa Street	PBL	C	0.31	$176	KP

Bicycle Facilities

BL	Bike Lane
BBL	Buffered Bike Lane
CL	Climbing Lane
PBL	Protected Bike Lane
SB	Shoulder Bikeway
SR	Shared Roadway
SUP	Shared Use Path

Jurisdiction

C	City
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DP/SCP Area

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WAI	Wai'anae

O'ahu Bike Plan Update - Priority 1 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
1-48	Kamehameha Highway (Kaneohe)	Kahuhipa Street to Waikalua Road	CL	C	0.35	$93	KP
1-48	Kamehameha Highway (Kaneohe)	Waikalua Road to Kaneohe Bay Drive	BL	C	0.74	$296	KP
1-49	Kawainui Marsh Path (Levee to Hamakua Drive)	Levee Path to Makai Side of Kawainui Canal	SUP	S	0.28	$473	KP
1-50	Keolu Drive	Hui Street to Wanaao Road	BBL	C	0.45	$216	KP
1-50	Keolu Drive	Kalanianaole Highway to Keolu Drive	BBL	C	0.22	$105	KP
1-50	Keolu Drive	Keolu Drive to Hui Street	BL	C	0.79	$312	KP
1-51	Kuulei Road	Kailua Road to Kalaheo Avenue	PBL	C	0.60	$343	KP
1-52	Mokuloa Drive (Path)	Kaneapu Place to Alalapapa Drive	SUP	C	0.23	$328	KP
1-53	Oneawa Street	Kaha Street to Kawainui Street	SR	C	0.86	$96	KP
1-53	Oneawa Street	Kawainui Street to Kuulei Road	PBL	C	0.23	$80	KP
1-53	Oneawa Street	Mokapu Road to Kaha Street	BL	C	0.11	$42	KP
1-54	Pauku St / Ka Awakea Rd / Awakea Rd	Keolu Drive to Wanaao Road	SR	C	0.67	$75	KP
1-55	Goodale Avenue	Farrington Highway to Waialua Beach Road	SUP	C	0.86	$1,469	NS
1-56	Haleiwa Road	Waialua Beach Road to Kamehameha Highway	SUP	C	1.60	$2,736	NS
1-57	Kamehameha Highway Path (North Shore)	Haleiwa Road Kamehameha Hwy intersection to Kamehameha Highway just past Waimea Bay	SUP	S	4.97	$8,480	NS
1-58	Ke Ala Pupukea Bike Path	Sharks Cove to Three Tables	SUP	C	0.27	$461	NS
1-59	Waialua Beach Road	Connection across the Kiikii Stream	SUP	C	0.10	$174	NS
1-60	Aala Street	School Street to Beretania Street	BL	C	0.41	$165	PUC-E
1-61	Ala Moana - Kakaako Waterfront Connector Path	UH Medical School to Ala Moana Shared Use Path	SUP	S	0.71	$1,020	PUC-E
1-62	Ala Moana Boulevard	Kalakaua Avenue to Fort Street Mall	BL	S	3.05	$1,213	PUC-E
1-63	Ala Moana Park Drive	Ala Moana Park to Ala Moana Boulevard	SUP	C	0.16	$272	PUC-E
1-64	Ala Wai Boulevard	Kapahulu Avenue to Ala Moana Boulevard	PBL	C	1.93	$1,142	PUC-E
1-65	Ala Wai Canal Bike/Pedestrian Bridge	University Avenue to Kalaimoku Street	SUP	C	0.15	$251	PUC-E
1-66	Ala Wai Promenade (Kalakaua Crossing)	Ala Moana Boulevard to Date Street	SUP	C	0.02	$42	PUC-E
1-67	Aloha Drive	Lewers Street to Seaside Avenue	SR	C	0.12	$14	PUC-E
1-68	Aloha Tower Path	Aloha Tower to Kakaako Waterfront Park	SUP	S	0.65	$941	PUC-E

Bicycle Facilities

BL	Bike Lane
BBL	Buffered Bike Lane
CL	Climbing Lane
PBL	Protected Bike Lane
SB	Shoulder Bikeway
SR	Shared Roadway
SUP	Shared Use Path

Jurisdiction

C	City
F	Federal
S	State
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DP/SCP Area

CO	Central O'ahu
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KP	Ko'olau Poko
NS	North Shore
PUC-E	Primary Urban Center - East
PUC-W	Primary Urban Center - West
WAI	Wai'anae

O'ahu Bike Plan Update - Priority 1 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
1-69	Auahi Street	Queen Lane to Ward Avenue	PBL	C	0.46	$261	PUC-E
1-69	Auahi Street	Ward Avenue to Kamani Street	BL	C	0.06	$26	PUC-E
1-70	Beretania Street	Alapai Street to North King Street	BL	C	1.12	$222	PUC-E
1-71	Beretania Street	University Ave to Alapai Street (gaps in bike lane)	BL	C	0.53	$106	PUC-E
1-72	Bethel Street	Nimitz Highway to Beretania Street	BL	C	0.33	$65	PUC-E
1-73	Bishop Street	Nimitz Highway to Beretania Street	PBL	C	0.40	$235	PUC-E
1-74	Civic Center Bike Path	Punchbowl Street to Richards Street	SUP	C	0.19	$276	PUC-E
1-75	Cooke Street	Ilalo Street to King Street	BL	C	0.77	$307	PUC-E
1-76	Dole Street	East West Road to St. Louis Drive	BL	C	0.63	$249	PUC-E
1-76	Dole Street	University Avenue to East West Road	PBL	C	0.36	$380	PUC-E
1-77	Fort Street	Pali Highway to Beretania Street	BL	C	0.16	$32	PUC-E
1-78	Halekauwila Street	Ala Moana Boulevard to Ward Avenue	PBL	C	0.77	$454	PUC-E
1-79	Isenberg Street	Kapiolani Boulevard to Coyne Street	BL	C	0.51	$204	PUC-E
1-80	Kaheka Street	Kapiolani Boulevard to King Street	BL	C	0.42	$167	PUC-E
1-80	Kaheka Street	King Street to Young Street	SR	C	0.06	$7	PUC-E
1-81	Kalaimoku Street	Kalakaua Avenue to Ala Wai Boulevard	PBL	C	0.20	$112	PUC-E
1-82	Kalakaua Avenue	Kapahulu Avenue to Kapiolani Boulevard	PBL	C	1.70	$100	PUC-E
1-83	Kalakaua Avenue	Kapiolani Boulevard to Beretania Street	SUP	C	0.48	$819	PUC-E
1-84	Kamakee Street	Ala Moana Boulevard to Auahi Street	BL	C	0.06	$23	PUC-E
1-84	Kamakee Street	Auahi Street to Kapiolani Boulevard	PBL	C	0.29	$165	PUC-E
1-85	Kanekapolei St / Kaiulani Ave	Kalakaua Avenue to Ala Wai Boulevard	PBL	C	0.27	$157	PUC-E
1-86	Kanunu Street	Kaheka Street to Kalakaua Avenue	SR	C	0.15	$17	PUC-E
1-87	Kapahulu Avenue Bike Path (Extension)	Extend existing Kapahulu Avenue Path to Ala Wai Bike Lane	SUP	S	0.11	$195	PUC-E
1-88	Kapiolani Boulevard	South Street to Waialae Avenue	PBL	C	3.55	$2,035	PUC-E
1-89	Keawe Street	Ilalo Street to Queen Street	SR	C	0.50	$56	PUC-E
1-89	Keawe Street	Kakaako Waterfront Park to Ilalo Street	BL	C	0.12	$47	PUC-E
1-90	Keeaumoku Street	Kapiolani Boulevard to Wilder Avenue	PBL	C	0.90	$514	PUC-E

Bicycle Facilities

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O'ahu Bike Plan Update - Priority 1 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
1-90	Keeaumoku Street	Wilder Avenue to Nehoa Street	SR	C	0.29	$33	PUC-E
1-91	King Street	Fort Street to Alapai Street	PBL	C	0.64	$376	PUC-E
1-92	King Street	Isenberg Street to Kapiolani Boulevard	PBL	C	0.78	$444	PUC-E
1-93	Lewers Street	Kalakaua Avenue to Ala Wai Boulevard	BL	C	0.25	$51	PUC-E
1-93	Lewers Street	Kalia Road to Kalakaua Avenue	SR	C	0.17	$19	PUC-E
1-94	Makaloa Street	Piikoi Street to Kalakaua Avenue	BL	C	0.66	$264	PUC-E
1-95	McCully Street	Kalakaua Avenue to Wilder Avenue (fill gaps)	BL	C	0.62	$248	PUC-E
1-96	North King Street	Middle Street to River Street	PBL	C	1.92	$1,097	PUC-E
1-96	North King Street	Middle Street to Umi Street	BL	C	0.46	$181	PUC-E
1-97	Old Waialae Road	Waialae Avenue to South King Street (over H-1)	BL	S	0.49	$970	PUC-E
1-98	Pensacola Street	Waimanu Street to Wilder Avenue	PBL	C	1.05	$367	PUC-E
1-99	Piikoi Street	Ala Moana Boulevard to King Street	PBL	C	0.94	$326	PUC-E
1-99	Piikoi Street	King Street to Wilder Avenue	SR	C	0.54	$61	PUC-E
1-100	Punchbowl Street	King Street to Vineyard Boulevard	BL	C	0.44	$175	PUC-E
1-100	Punchbowl Street	Nimitz Highway to King Street	PBL	C	0.32	$113	PUC-E
1-100	Punchbowl Street	Nimitz Highway to King Street	SR	C	0.08	$9	PUC-E
1-101	Queen Street	Punchbowl Street to Piikoi Street	BL	C	1.19	$472	PUC-E
1-101	Queen Street	Bethel Street to Punchbowl Street	SR	C	0.44	$646	PUC-E
1-102	Richards Street	Beretania Street to Hotel Street	SR	C	0.09	$10	PUC-E
1-102	Richards Street	Hotel Street to Halekauwila Street	BL	C	0.32	$64	PUC-E
1-103	Rycroft Street	Pensacola Street to Kaheka Street	BL	C	0.54	$214	PUC-E
1-104	Seaside Avenue	Kalakaua Avenue to Ala Wai Blvd	SR	C	0.27	$15	PUC-E
1-105	University Avenue	Hihiwai Street to Maile Way	PBL	C	1.25	$716	PUC-E
1-106	Victoria Street	Beretania Street to King Street	BL	C	0.13	$54	PUC-E
1-107	Vineyard Boulevard	Palama Street to Punchbowl Street	BL	S	2.27	$452	PUC-E
1-108	Ward Avenue	Ala Moana Boulevard to King Street	PBL	C	0.69	$397	PUC-E
1-109	Ala Lilikoi Street	Likini Street to Likini Street	BL	C	0.44	$177	PUC-W
1-109	Ala Lilikoi Street	Salt Lake Boulevard to Likini Street	BBL	C	0.34	$163	PUC-W
1-110	Bougainville Drive	Radford Drive to Salt Lake Boulevard	BBL	S	0.60	$285	PUC-W

Bicycle Facilities

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O'ahu Bike Plan Update - Priority 1 Projects

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1-111	Hekaha Street	Moanalua Road to the Pearl Harbor Bike Path	BL	C	0.53	$209	PUC-W
1-112	Kaahumanu Street	Kamehameha Highway to Komo Mai Drive	BBL	C	1.02	$484	PUC-W
1-113	Kamehameha Highway (East Loch)	Waihona Street to Center Drive	BL	S	5.26	$2,091	PUC-W
1-114	Kanuku Street	Hekaha Street to the Pearl Harbor Bike Path	BL	C	0.45	$181	PUC-W
1-115	Kaonohi Street	Kamehameha Highway to Moanalua Road	PBL	C	0.35	$368	PUC-W
1-116	Kuala Street	Acacia Road to Waimano Home Road	PBL	C	0.74	$424	PUC-W
1-116	Kuala Street	Kamehameha Highway to Acacia Road	BL	C	0.06	$22	PUC-W
1-117	Moanalua Road (Aiea)	Kaahumanu Street to Kaimakani Street	BL	C	2.13	$849	PUC-W
1-118	Pearl Harbor Bike Path (Arizona Memorial)	Pearl Harbor Path to Arizona Memorial	SUP	S	0.75	$1,272	PUC-W
1-119	PHBP Connector - Pearl Ridge Transit Station	Kamehameha Highway to Pearl Harbor Bike Path	SUP	C	0.09	$149	PUC-W
1-120	Salt Lake Boulevard	Ala Lilikoi Street to Puuloa Road	PBL	C	0.90	$517	PUC-W
1-120	Salt Lake Boulevard	Kamehameha Highway to Namur Road	PBL	C	1.79	$1,024	PUC-W
1-120	Salt Lake Boulevard	Namur Road to Ala Lilikoi Street	PBL	C	0.99	$569	PUC-W
1-123	Waimano Home Road	Kamehameha Highway to Komo Mai Drive	BBL	C	1.25	$598	PUC-W
1-124	Farrington Highway (Maili)	Ala Hema Street to Piliokahi Avenue	SB	S	6.76	$5,189	WAI
1-125	Farrington Highway (Makaha)	Keaau Beach Park to Orange Street	SB	S	2.36	$1,813	WAI
1-126	Plantation Road	Farrington Highway to Waianae Valley Road	SUP	C	0.70	$1,192	WAI
1-127	Pokai Bay Path	Farrington Highway to Army Street	SUP	C	0.96	$1,635	WAI
1-128	Waianae Coast Path	Lualualei Naval Road to Kili Drive	SUP	S	8.16	$1,393	WAI

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O'ahu Bike Plan Update - Priority 2 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
2-1	Ainamakua Drive	Mililani Mauka Park and Ride to Kualapa Street	BL	C	0.24	$94	CO
2-2	Anania Drive	Meheula Parkway to Kipapa Gulch Path	BL	C	1.32	$524	CO
2-3	Central Oahu Regional Park	Kamehameha Highway to Paiwa Street	SUP	C	0.95	$1,629	CO
2-4	Crestview Park Connection	Connect existing path through park	SUP	C	0.09	$161	CO
2-5	Farrington Highway (LCC)	Kahualii Avenue to Kam Hwy (Pearl City)	SB	S	2.46	$945	CO
2-7	Ka Uka Boulevard	Kamehameha Highway to Moaniani Street	BL	C	0.84	$336	CO
2-8	Kahualii Street	Kahuanui Street to Waipio Point Access Road	SR	C	0.21	$24	CO
2-9	Kamehameha Highway (Mililani)	Meheula Parkway to Ka Uka Boulevard	SB	S	0.86	$659	CO
2-10	Kamehameha Highway (Waipahu)	Waipio Uka Street to Farrington Highway	SB	S	1.32	$1,013	CO
2-11	Kipapa Drive	Kipapa Drive Loop	BL	C	1.80	$716	CO
2-12	Kipapa Gulch Pathway	Anania Drive to Central Oahu Regional Park	SUP	S	2.55	$4,361	CO
2-13	Kupuna Loop (north and south)	Kunia Road to Kupuohi Street	BL	C	0.16	$65	CO
2-14	Lanikuhana Avenue	South end of Meheula Pkwy to Mililani Shopping Center	BL	C	2.64	$1,051	CO
2-15	LCC (Ala Ike Street)	Corner to Pearl Harbor Bike Path Connection	SR	S	0.30	$34	CO
2-15	LCC (Ala Ike Street)	Waiawa Road to Corner	BL	S	0.60	$241	CO
2-16	Loaa Street	Aiki Street to Honowai Street	SUP	C	0.03	$45	CO
2-17	Lumiaina Street	Paiwa Street to Manager's Drive	BL	C	0.73	$291	CO
2-18	Lumiauau Street	Kamehameha Highway to Lumiaina Street	BL	C	0.44	$176	CO
2-18	Lumiauau Street	Lumiaina Street to Paiwa Street	BBL	C	1.00	$478	CO
2-19	Meheula Parkway	H-2 Mililani Interchange bike/ped improvements	SUP	S	0.79	$1,349	CO
2-20	Meheula Parkway (Mililani Mauka)	H-2 Interchange to Kapanoe Street	BBL	C	0.63	$303	CO
2-20	Meheula Parkway (Mililani Mauka)	Kapanoe Street to Kaapeha Street	BL	C	1.18	$469	CO
2-21	PHBP Connector - LCC	Pearl Harbor Bike Path to Waiawa Road	SUP	C	0.05	$88	CO
2-22	Pupupuhi Street	Waipahu Street to Pearl Harbor Bike Path	BL	C	0.26	$103	CO
2-23	Ukee Street	Waipio Uka Street (south) to Moaniani Street	BL	C	1.48	$588	CO
2-24	Waiawa Road Bike Path	Waipahu Cane Haul Road to Waiawa Stream	SUP	C	1.12	$1,908	CO

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2-25	Waikele Road	Waipahu Street to Kamehameha Highway	BL	C	0.26	$104	CO
2-26	Waipahu Cane Haul Road (North)	Waihona Street to Waipahu Street	SUP	P	1.77	$3,030	CO
2-27	Waipahu Cane Haul Road (South)	Waipahu Street to Pearl Harbor Bike Path	SUP	P	1.04	$1,768	CO
2-28	Waipio Uka Street	Ka Uka Boulevard to Kamehameha Highway	BBL	C	1.44	$685	CO
2-29	Ahukini Street	Lunalilo Home Road to Hawaii Kai Drive	SR	C	0.73	$82	EH
2-30	East & West Hind Drive	Aina Haina Valley Loop	BL	C	1.15	$458	EH
2-31	Hawaii Kai Drive (Eastern Section)	Lunalilo Home Road to Kealahou Street	BBL	C	1.12	$534	EH
2-32	Hawaii Kai Drive (Middle Section)	Keahole Street to Kanoenoe Street	BL	C	0.91	$362	EH
2-33	Hawaii Kai Drive (Western Section)	Kalanianiole Highway to Keahole Street	BBL	C	1.44	$689	EH
2-34	Kalanianaole Highway (Hanauma Bay)	Lunalilo Home Road to Kealahou Street	SB	S	3.18	$2,436	EH
2-35	Aliinui Drive	Ko Olina entrance to dead end	BBL	C	1.90	$905	EWA
2-36	Boxer Road	Roosevelt Avenue to Midway Street	BL	C	0.24	$97	EWA
2-37	Coral Sea Road - Saratoga Avenue	Around Kalaeloa Airfield	SUP	S	5.58	$9,525	EWA
2-38	Farrington Highway Bike Path (Hoopili)	Kualakai Parkway to Ft Weaver Rd	SUP	S	2.21	$3,775	EWA
2-39	Farrington Highway Bike Path (UHWO)	Kapolei Golf Course Road to Kualakai Parkway	SUP	S	2.04	$3,487	EWA
2-40	Fort Barrette Road	Farrington Highway to Renton Road	SUP	S	1.21	$2,065	EWA
2-41	Fort Weaver Road	Farrington Highway to Keoneula Boulevard	BL	S	3.90	$1,551	EWA
2-42	Geiger Road	Roosevelt Avenue to Fort Weaver Road	BL	C	1.12	$447	EWA
2-43	Kaihuopalaai Street	Leokane Street to Laulaunui Lane	SR	C	0.24	$27	EWA
2-44	Kaimalie Street	Fort Weaver Road to Kaiee Street	BL	C	0.72	$285	EWA
2-45	Kinoiki Street	Kapolei Parkway to UHWO	BBL	S	0.61	$289	EWA
2-46	Koka/Pahika Street Connector	Connection to Leeward Bike Path	SUP	C	0.05	$79	EWA
2-47	Kualakai Parkway	H-1 Freeway to Kapolei Parkway	BL	S	2.56	$1,019	EWA
2-48	Kuloa Avenue	Kealanani Avenue to Kamaaha Avenue	BL	C	0.59	$234	EWA
2-49	Kumuiki Street	Kuloa Street - Kumuiki Street - Kamaaha Street Loop	BL	C	0.44	$173	EWA
2-50	Laulaunui Lane	Fort Weaver Road to Kaihuopalaai Street	SR	C	0.24	$27	EWA

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2-51	Makakilo Drive	Palailai Street to end	BBL	C	2.92	$1,394	EWA
2-51	Makakilo Drive (H-1 overpass bike/ped improvements)	Farrington Highway to Palailai Street	SUP	S	0.38	$656	EWA
2-52	Manawai Street	Kamokila Boulevard to Kamahaa Street	BL	C	0.60	$237	EWA
2-53	Mango Tree Road	Leeward Bikeway to Honouliuli Path	SUP	C	2.12	$3,612	EWA
2-54	North Road	Fort Weaver Road to Iroquois Avenue	BL	C	1.72	$1,780	EWA
2-55	Old Fort Weaver Road	Farrington Highway to Fort Weaver Road	SR	C	1.30	$146	EWA
2-56	Oneula Beach Park	Through Oneula Beach Park	SUP	C	0.87	$1,488	EWA
2-57	Papipi Keoneula Connector	Papipi Road to Keoneula Boulevard	BL	C	0.26	$102	EWA
2-58	Pohakupuna Road	Papipi Road to Fort Weaver Road	SR	C	0.87	$98	EWA
2-59	Roosevelt Avenue	Renton Road to Geiger Road	BL	C	0.74	$294	EWA
2-60	BYUH Campus	Naniloa Loop to Laie Cane Haul Roads	SR	P	0.16	$18	KL
2-61	Hauula Homestead Road	Kamehameha Hwy to Kamehameha Hwy	SR	C	1.18	$132	KL
2-62	Kekauoha Street	Huehu Street to Pualalea Street	SR	C	0.35	$40	KL
2-63	Naniloa Loop	Kamehameha Highway to Kamehameha Highway	SR	C	0.99	$111	KL
2-64	Alaloa Street	Haiku Rd to Kahuhipa St	BL	C	0.30	$119	KP
2-65	Anoi Road (Northern Section)	Keaahala Road to Paleka Road	SR	C	0.11	$12	KP
2-66	Haiku Road (Western Section)	Kahekili Highway to Kahuhipa Street	SR	C	0.60	$67	KP
2-67	Hamakua Marsh Trail	Kailua Road to Hamakua Drive	SUP	C	0.67	$1,146	KP
2-68	Hihimanu St / Poalima St	Kalanianaole Hwy to Kalanianaole Hwy	SR	C	1.69	$82	KP
2-69	Kahekili Highway	Kamehameha Highway to Haiku Road	SB	S	3.32	$2,551	KP
2-70	Kainehe Street	Kihapai Street to Kailua Road	SR	C	0.12	$14	KP
2-71	Kalanianaole Highway (Kailua)	Kailua Road to Flamingo Street	SB	S	3.05	$2,343	KP
2-72	Kalanianaole Highway (Waimanalo)	Flamingo Street to Wailea Street	SB	S	2.22	$1,704	KP
2-73	Kamehameha Highway (HPU Campus)	Kaneohe Bay Drive to Pali Highway	SB	S	2.34	$1,792	KP
2-74	Kamehameha Highway Path (Heeia)	Imiloa Street to Haiku Road	SUP	C	0.86	$1,464	KP
2-75	Kaneohe Bay Drive	Kamehameha Highway to Mokapu Saddle Road	SB	S	2.27	$1,745	KP
2-76	Kaneohe Bay Drive	Mokapu Saddle Road to Kalaheo Avenue	SB	C	2.99	$2,296	KP

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2-77	Kapunahala Road	Anoi Road to Keneke Street	SR	C	0.12	$13	KP
2-78	Kawainui Marsh Path (Mauka Perimeter)	Mokapu Boulevard to Levee Path	SUP	S	4.58	$7,821	KP
2-79	Keneke Street	Kapunahala Road to Kapoo Street	SR	C	1.05	$118	KP
2-80	Keolu Drive (improve existing lane)	Wanaao Road to Keolu Drive	BBL	C	1.72	$820	KP
2-83	Mokapu Boulevard	Kapaa Quarry Road to Kalaheo Avenue	BBL	S	1.41	$673	KP
2-84	Mokapu Road	Kaneohe Bay Drive to Old Mokapu Road	PBL	C	0.61	$351	KP
2-86	Waimanalo District Park	Kamehameha Highway to Hihimanu Street	SR	C	0.41	$20	KP
2-87	Haleiwa and Waialua Beach Park Paths	Kaiaka Bay and Haleiwa Beach Park	SUP	C	2.07	$3,531	NS
2-88	Haleiwa Cane Haul Road	Farrington Highway to Haleiwa Bypass Road	SR	P	2.98	$145	NS
2-89	Kamehameha Highway (North Shore)	Haleiwa Bypass Road to Turtle Bay	SB	S	10.39	$7,974	NS
2-90	Kamehameha Highway (Wahiawa)	Haleiwa Bypass to Kilani Avenue	SB	S	8.10	$6,217	NS
2-91	Kealohanui Street	Puuiki Street to Goodale Avenue	SR	C	0.38	$18	NS
2-92	Puuiki Street	Waialua Beach Road to Kealohanui Street	SR	C	0.56	$27	NS
2-93	Weed Circle	Kam Hwy - Kaukonahua Rd - Waialua Beach Rd	SB	C	1.05	$809	NS
2-94	Alakawa Street	Nimitz Highway to Dillingham Boulevard	BL	C	0.40	$160	PUC-E
2-95	Alakea Street	Nimitz Highway to King Street	SR	C	0.18	$20	PUC-E
2-95	Alakea Street	King Street to Hotel Street	PBL	C	0.12	$41	PUC-E
2-95	Alakea Street	Hotel Street to Beretania Street	SR	C	0.12	$13	PUC-E
2-96	Alapai Street	branch from the main path to King Street	SUP	C	0.16	$233	PUC-E
2-97	Atkinson Drive	Ala Moana Boulevard to Kapiolani Boulevard	BL	C	0.33	$131	PUC-E
2-98	Auahi Street	Cooke Street to South Street	BBL	C	0.24	$114	PUC-E
2-99	Bishop Street	Aloha Tower Drive to Ala Moana Boulevard	SR	C	0.08	$9	PUC-E
2-100	Civic Center Bike Path	branch from the main path to King/Beretania Street	SUP	C	0.20	$293	PUC-E
2-101	Date Street	Isenberg Street to Laau Street	BL	C	0.55	$218	PUC-E
2-102	Date Street Bike Path Bridge	Bridge crossing over Manoa-Palolo Stream	SUP	C	0.03	$43	PUC-E
2-103	Dole Street	University Avenue to Punahou Street	SR	C	0.88	$98	PUC-E
2-104	East-West Road	Dole Street to Maile Way (sharrows)	PBL	C	0.37	$220	PUC-E

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O'ahu Bike Plan Update - Priority 2 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
2-105	East-West Road	Maile Way to Upper University Fire Road	SR	C	0.29	$32	PUC-E
2-106	Ena Road	Kalakaua Avenue to Ala Moana Boulevard	SR	C	0.21	$23	PUC-E
2-107	Fern Street	Kalakaua Avenue to Isenberg Street	SR	C	0.65	$73	PUC-E
2-108	Fort Street Mall	Nimitz Highway to Beretania Street	SUP	C	0.38	$554	PUC-E
2-109	Hauoli Street	Kapiolani Boulevard to King Street	SR	C	0.40	$44	PUC-E
2-110	Hilton/Fort De Russy Boardwalk	Ala Wai Harbor to Saratoga Road	SUP	C	0.63	$904	PUC-E
2-111	Hobron Lane	Ena Road to Holomoana Street	SR	C	0.39	$43	PUC-E
2-112	Honolulu Harbor Promenade	Shared use promenade along the harbor front in downtown	SUP	C	0.50	$724	PUC-E
2-113	Hotel Street	Alapai Street to Ward Avenue	SR	C	0.16	$18	PUC-E
2-114	Ilalo Street	Keawe Street to Ahui Street	PBL	C	0.57	$327	PUC-E
2-115	Kaimuki Avenue	Kapiolani Blvd to Kapahulu Avenue	SR	C	0.27	$30	PUC-E
2-116	Kaimuki High School Bike Path	Kapiolani Boulevard to Crane Park (Olokele Avenue)	SUP	S	0.24	$417	PUC-E
2-117	Kalani Street	Bike/Ped Bridge over Kapalama Canal at Kalani Street	SUP	C	0.04	$63	PUC-E
2-117	Kalani Street	Puuhale Road to Kouhou Street	SR	C	0.71	$80	PUC-E
2-118	Kam IV Rd / Kahauiki St	School Street to Middle Street	SR	C	0.50	$56	PUC-E
2-119	Kanewai St / Kamakini St	Palolo Stream Bridge to Dole Street	SR	C	0.28	$31	PUC-E
2-120	Kapahulu Ave	Kalakaua Avenue to Waialae Avenue	BL	C	1.65	$657	PUC-E
2-121	Kapalama Canal (Kohou Street Side South Section)	Nimitz Highway to Houghtailing Street	SUP	C	1.11	$1,898	PUC-E
2-122	Kapalama Canal (Kokea Street Side)	Nimitz Highway to Olomea Street	SUP	C	0.76	$1,300	PUC-E
2-123	Kaumualii Street	Kohou Street to Puuhale Rd	SR	C	0.91	$10	PUC-E
2-124	Keawe Street-Waterfront Park Path Connection	Connects existing shared use path to Keawe Street at the ewa end of the park.	SUP	S	0.04	$61	PUC-E
2-125	Kekaulike Mall Shared Use	Hotel Street to Nimitz Highway	SUP	C	0.13	$215	PUC-E
2-126	Kona Street	Kamakee Street to Ala Moana Station	BL	C	0.41	$164	PUC-E
2-127	Kuhio Avenue	Kalakaua Avenue to Kapahulu Avenue	SR	C	1.17	$132	PUC-E
2-128	Kukui Street	Aala Street to Queen Emma Street	BL	C	0.45	$179	PUC-E
2-129	Liliha Street (Palama)	King Street to School Street	BL	S	0.45	$179	PUC-E

Bicycle Facilities

BL	Bike Lane
BBL	Buffered Bike Lane
CL	Climbing Lane
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SR	Shared Roadway
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2-130	Liliuokalani Botanical Garden Path	H-1 Freeway to Kuakini Street	SUP	C	0.33	$477	PUC-E
2-131	Linapuni Street	School Street to Kam IV Road	SR	C	0.43	$48	PUC-E
2-132	Lipeepee Street	Ala Wai Boulevard to Hobron Lane	SR	C	0.06	$7	PUC-E
2-133	Mahukona Street	Kapiolani Boulevard to Atkinson Drive	BL	C	0.17	$66	PUC-E
2-134	Maile Way	University Avenue to East-West Road (sharrows)	PBL	C	0.40	$238	PUC-E
2-135	Makuahine Street	North School Street to Kalihi Street	BBL	C	0.31	$147	PUC-E
2-136	Manoa-Palolo Stream Path (Kaimuki HS)	Date Street to Kaimuki Avenue	SUP	S	0.33	$482	PUC-E
2-137	McNeill Street	Kaumualii Street to Waiakamilo Road	SR	C	0.21	$24	PUC-E
2-138	Middle Street	School Street to Kamehameha Highway	BL	S	1.11	$442	PUC-E
2-139	Mililani Street	Halekauwila Street to Queen Street	SUP	C	0.09	$160	PUC-E
2-139	Mililani Street	Queen Street to King Street	SR	C	0.09	$1	PUC-E
2-140	Monsarrat Avenue Path	Kalakaua Avenue to Paki Avenue	SUP	C	0.43	$625	PUC-E
2-141	Nimitz Highway	Sand Island Access Raod to Waiakamilo Road	BL	S	1.38	$547	PUC-E
2-142	Nuuanu Avenue (Downtown)	School Street to Beretania Street	BL	C	0.41	$163	PUC-E
2-143	Nuuanu Stream Promenade (DH side)	Nimitz Highway to H-1	SUP	C	0.60	$871	PUC-E
2-144	Nuuanu Stream Promenade (Ewa side)	Nimitz Highway to Existing Nuuanu Stream Path	SUP	C	0.07	$127	PUC-E
2-145	Ohua Avenue	Kalakaua Avenue to Ala Wai Boulevard	BL	C	0.34	$67	PUC-E
2-146	Olomea Street	Palama Street to Houghtailing Street	BL	S	0.56	$111	PUC-E
2-147	Paki Ave	Kapahulu Ave to Diamond Head Rd	SR	C	1.01	$113	PUC-E
2-148	Palama Street	School Street to North King Street	BL	C	0.22	$87	PUC-E
2-148	Palama Street	School Street to North King Street	SR	C	0.19	$21	PUC-E
2-149	Pali Highway (Downtown)	Vineyard Boulevard to Beretania Street	BL	C	0.37	$73	PUC-E
2-150	Paoakalani Avenue	Kalakaua Avenue to Ala Wai Boulevard	BBL	C	0.36	$86	PUC-E
2-151	Pau Street	Kalakaua Avenue to Ala Wai Boulevard	BL	C	0.11	$22	PUC-E
2-152	Philip St / Kuikahi St / Citron St	Isenberg Street to Kalakaua Avenue	SR	C	0.77	$86	PUC-E

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2-153	Pohukaina Street	Kamani Street to Punchbowl Street	BL	C	0.53	$212	PUC-E
2-154	Pumehana Street	Kapiolani Boulevard to King Street	SR	C	0.40	$44	PUC-E
2-155	Punahou Street	King Street to Philip Street	SR	C	0.13	$15	PUC-E
2-156	Puuhale Road	Nimitz Highway to Kaumualii Street	SR	C	0.34	$38	PUC-E
2-157	Queen Lane	Ala Moana Boulevard to Auahi Street	BL	C	0.06	$23	PUC-E
2-158	River Street	Nimitz Highway to Beretania Street	SR	C	0.22	$25	PUC-E
2-159	Royal Hawaiian Avenue	Aloha Drive to Kalakaua Avenue	BL	C	0.21	$42	PUC-E
2-160	Sand Island Access Road	Keehi Boat Harbor to Matson Terminal	BL	S	0.77	$308	PUC-E
2-161	Saratoga Road	Kalia Road to Kalakaua Avenue	BL	C	0.27	$108	PUC-E
2-162	School Street	Iolani Avenue to Liliha Street	SR	C	0.75	$84	PUC-E
2-162	School Street	Liliha Street to Middle Street	BL	C	2.06	$819	PUC-E
2-163	Sheridan Street	Kapiolani Boulevard to King Street	SR	C	0.44	$50	PUC-E
2-164	Thomas Square Park	Victoria Street to Ward Avenue	SUP	C	0.11	$158	PUC-E
2-165	Thomas Square Park Path (Ward)	King Street to Beretania Street	SUP	C	0.14	$195	PUC-E
2-166	Waiaka Road / Kuilei Street	Kapiolani Boulevard to University Avenue	SR	C	0.41	$47	PUC-E
2-167	Waialae Avenue (Kaimuki)	Old Waialae Road to 17th Avenue (fill gaps)	BL	C	1.15	$456	PUC-E
2-168	Wilder Avenue	Dole Street to Metcalf Street	SR	C	0.17	$19	PUC-E
2-168	Wilder Avenue	Metcalf Street to Spencer Street	BL	C	1.20	$479	PUC-E
2-169	Aiea Heights Drive	Moanalua Road to Halewiliko Street	BL	C	0.23	$91	PUC-W
2-170	Airport Access Path	Rodgers Blvd to Airport HART Station	SUP	C	0.26	$442	PUC-W
2-171	Ala Ilima Street	Ala Napunani Street to Likini Street	SR	C	1.18	$133	PUC-W
2-172	Ala Napunani Street (Southern Section)	Likini Street to Salt Lake Boulevard	SR	C	0.09	$1	PUC-W
2-173	Arizona Road	Camp Catlin Road to Salt Lake Boulevard	SUP	C	0.30	$436	PUC-W
2-174	Camp Catlin Road	Nimitz Highway to Arizona Road	BL	C	0.23	$90	PUC-W
2-175	Honolulu Airport Access Route	Aolele Street to Paiea Street	SR	S	1.19	$133	PUC-W
2-176	Hoolaulea Street	Hoomaemae Street to Komo Mai Drive	CL	C	0.44	$119	PUC-W
2-176	Hoolaulea Street	Waimano Home Road to Hoomaemae Street	BBL	C	0.68	$323	PUC-W

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2-177	Kaakepa St	Kuahaka Street to Kuala Street	BBL	C	0.29	$137	PUC-W
2-178	Kaimakani Street	Moanalua Road to Ulune Street	BL	C	0.29	$113	PUC-W
2-179	Kalaloa Street	Kamehameha Highway to Salt Lake Boulevard	BL	C	0.48	$193	PUC-W
2-181	Lagoon Drive	Nimitz Hwy to End	BL	S	2.29	$911	PUC-W
2-182	Moanalua Gardens Path and Driveway	Moanalua Gardens Parking lot to Moanalua Highway Path	SR	C	0.40	$44	PUC-W
2-182	Moanalua Gardens Path and Driveway	Path through Moanalua Gardens (Kaua Street to Driveway)	SUP	C	0.24	$412	PUC-W
2-183	Moanalua Road (Pearl City)	Hoomalu Street to Waimano Home Road	BL	C	0.59	$236	PUC-W
2-184	Moanalua Road (Tripler)	Ala Aolani Street to Ala Kapuna Street	SUP	S	0.58	$982	PUC-W
2-185	Namur Road	Radford Drive to Salt Lake Boulevard	SR	F	0.34	$38	PUC-W
2-186	Nimitz Highway	Valkenburgh Street to Sand Island Access Road	BL	S	6.03	$1,199	PUC-W
2-187	Puuloa Road	Salt Lake Boulevard to Mahiole Street	BL	S	1.09	$217	PUC-W
2-187	Puuloa Road	Salt Lake Boulevard to Nimitz Higway	PBL	S	0.71	$405	PUC-W
2-188	Radford Drive (Western Section)	Kamehameha Highway to Bougainville Drive	BL	S	0.25	$980	PUC-W
2-189	Valkenburgh Street	Radford Drive to Nimitz Highway	BL	F	0.57	$226	PUC-W
2-191	Lahaina Street	Water Street to Makaha Valley Road	SR	C	1.01	$114	WAI
2-192	Leihoku Street	Farrington Highway to Lualualei Homestead Road	BL	C	0.77	$307	WAI
2-193	Lualualei Homestead Road (Western Section)	Farrington Highway to Halona Road	SR	C	1.10	$124	WAI
2-194	Makaha Valley Loop	Makaha Valley - Huipu Drive - Kili Drive	SR	C	3.20	$156	WAI
2-195	Waianae Valley Road	Farrington Highway to McArthur Street	SR	C	0.34	$39	WAI
2-195	Waianae Valley Road	McArthur Street to Kaneaki Street	SB	C	1.44	$1,101	WAI
2-196	Water Street	Farrington Highway to Lahaina Street	SR	C	0.09	$1	WAI

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O'ahu Bike Plan Update - Priority 3 Projects

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3-1	Anonui Street	Anonui Street to Royal Kunia Golf Course (north)	BL	C	1.04	$415	CO
3-2	California Avenue (Western Section)	Anoni Street to Kamehameha Highway	BL	C	0.59	$236	CO
3-3	Glen Avenue - Royal Palm Drive	Kilani Street to Uuku Street	BL	C	0.61	$241	CO
3-4	Hakupokano Loop	Kaloapau Street to Kamehameha Highway underpass	SR	C	0.10	$12	CO
3-5	Kaaholo Street	Kupuna Loop to Leia Street	SR	C	0.19	$21	CO
3-6	Kaloapau Street	Kuahelani Avenue to Kuahelani Avenue	SR	C	0.53	$60	CO
3-7	Kamananui Road	Wilikina Drive to Kamehameha Highway	SB	S	1.35	$1,035	CO
3-9	Kamehameha Highway (Wahiawa)	Kuahelani Avenue to Avacado Street	SB	S	2.82	$2,160	CO
3-11	Kau Street	Waipio Uka Street to Shopping Center	BL	C	0.12	$46	CO
3-12	Kilani Avenue	Anoni Street to Glen Avenue	BL	C	1.19	$474	CO
3-13	Koolani Drive	Ukuwai Street to Meheula Parkway	BL	C	0.66	$262	CO
3-14	LCC Access Road (Mauka)	Kamehameha Highway to LCC	SR	S	0.26	$29	CO
3-15	Lehiwa Drive	Meheula Parkway (east) to Meheu Street	BL	C	1.37	$544	CO
3-16	Leia Street	Kaaholo Street to Anonui Street	CL	C	0.18	$48	CO
3-17	Leilehua Golf Course Road	Kamehameha Highway to Wikao Street	SR	C	0.27	$31	CO
3-18	Lumiaina Street	Kamehameha Highway to Lumikula Street	SR	C	0.29	$32	CO
3-18	Lumiaina Street	Lumiauau Street to Kamehameha Highway	SUP	C	0.13	$227	CO
3-19	Lumikula Street	Lumiaina Street to Waipio Uka Street	CL	C	0.53	$141	CO
3-20	Makaikai Street	Ainamakua Drive to Mililani Park and Ride	BL	C	0.14	$55	CO
3-21	Meheu Street	Lehiwa Drive to Koolani Drive	BL	C	0.50	$200	CO
3-22	Moniani Street	Ka Uka Boulevard to Waipio Uka Street	BL	C	0.52	$207	CO
3-23	Penakii Place	Waipio Crestview Park Connector Path to Lumikula Street	SR	C	0.10	$11	CO
3-24	Pokeo Street	Waipio Crestview Park Connector Path to Moaniani Street	SR	C	0.17	$19	CO
3-25	Ukuwai Street	Kelakela Street to Ainamakua Drive	BL	C	0.83	$332	CO
3-26	Uuku Street	Royal Palm Drive to California Avenue	SR	C	0.22	$24	CO

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3-27	Whitmore Avenue	Kamehameha Highway to NCS Wahiawa	SB	S	1.85	$1,422	CO
3-28	Wilikina Drive	Kamehameha Highway to Kamananui Road	SB	S	2.15	$1,649	CO
3-29	Halemaumau Street	Niu Valley Loop	SR	C	0.85	$95	EH
3-30	Hawaii Kai Drive	Kanoenoe Street to Lunalilo Home Road	SR	C	1.16	$56	EH
3-32	Kawaihae Street	Kalanianaole Highway to Hawaii Kai Drive	BL	C	0.90	$357	EH
3-33	Kealahou Street	Kalanianaole Highway to Hawaii Kai Drive	BL	C	0.79	$315	EH
3-34	Lunalilo Home Road (makai)	Kalanianaole Highway to Portlock Road	SR	C	0.31	$35	EH
3-35	Aliinui Drive Extension (Northern Section)	Aliinui Drive to Farrington Highway	BL	C	0.23	$91	EWA
3-37	Eisenhower Road	Coral Sea Road to Tripoli Road	SUP	C	1.08	$1,842	EWA
3-38	Enterprise Avenue	Renton Road to Saratoga Avenue	BL	C	0.31	$124	EWA
3-38	Enterprise Avenue	Saratoga Avenue to Midway Street	SR	C	0.70	$79	EWA
3-39	Essex Road	Geiger Road to White Plains Beach	SR	C	2.24	$251	EWA
3-40	Farrington Highway (Ko Olina)	Aliinui Drive to Kalaeloa Boulevard	SB	S	5.14	$657	EWA
3-41	Fort Weaver Road	Kilaha Street to Puuloa Beach Park	BL	S	0.92	$948	EWA
3-43	Hornet Street	Leeward Bikeway to Saratoga Avenue	BL	C	0.27	$107	EWA
3-44	Iroquois Avenue	North Road to Heron Avenue	BL	C	1.34	$1,383	EWA
3-45	Iroquois Road/West Loch Drive Path	Iroquois Avenue to Hoomaka Street	SUP	C	2.74	$4,672	EWA
3-46	Kalaeloa Boulevard	Kapolei Parkway to Malakole Road	BL	S	1.77	$703	EWA
3-46	Kalaeloa Boulevard	Malakole Road to Olai Street	SR	S	0.96	$10	EWA
3-47	Kapapapuhi Street	Laulaunui Lane to Pearl Harbor Bike Path	SR	C	0.37	$41	EWA
3-48	Koio Drive	Aliinui Drive to Farrington Highway	BL	C	0.48	$190	EWA
3-49	Koka Street	Kolowaka Drive to Leeward Bike Path	SR	C	0.21	$24	EWA
3-50	Malakole Street	Kalaeloa Harbor to Coral Sea Road	SB	C	2.30	$1,763	EWA
3-51	Maunakapu Street	Keahumoa Parkway to end	BL	C	0.57	$225	EWA
3-52	Maweke Street	Keahumoa Parkway to end	BL	C	0.28	$111	EWA
3-53	Midway Street / Mumba Street / Saratoga Avenue	Boxer Street to Malakole Street	BL	C	0.67	$267	EWA
3-54	Olai Street	Coral Sea Road to Barbers Point Beach Park	SR	C	1.34	$150	EWA

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3-55	Pahika Street	Renton Road to Leeward Bike Path	SR	C	0.16	$18	EWA
3-58	Uluohia Street	Kamokila Boulevard to Kamaaha Avenue	BL	C	0.27	$106	EWA
3-59	Waipahe Place	Aliinui Drive to Ko Olina Marina	SR	C	0.33	$37	EWA
3-60	Huehu Street	Pualalea Street to Kekauoha Street	SR	C	0.45	$50	KL
3-61	Kaaawa Loop	Huamalani Street - Lihimauna - Hauhele - Kekio - Pohuehue Road	SR	C	1.11	$125	KL
3-62	Laie Cane Haul Roads	Cane Haul Roads	SR	C	2.28	$111	KL
3-63	Pualalea Street	Kamehameha Highway to Huehu Street	BL	C	0.28	$110	KL
3-64	Ahilama Road / Lamaula Road	Wailehua Road to Waihee Road	SR	C	0.42	$20	KP
3-65	Anoi Road (Southern Section)	Luluku Road to Keneke Street	SR	C	0.39	$19	KP
3-66	Kalanianaole Highway (Castle Junction)	Kamehameha Highway to Kailua Road	SB	S	1.83	$1,400	KP
3-67	Kalanianaole Highway (Makapuu)	Wailea Street to Makapuu Lighthouse	SB	S	3.53	$2,710	KP
3-68	Kamehameha Highway (Heeia)	Kahekili Highway to Imiloa Street	SB	C	3.29	$2,525	KP
3-70	Kapaa Quarry Road	Mokapu Boulevard to Kalanianaole Highway	SR	C	2.54	$124	KP
3-71	Kapoo Street	Keneke Street to Paleka Road	SR	C	0.08	$9	KP
3-72	Keaahala Road	Kahekili Highway to Lilipuna Road	SR	C	1.28	$144	KP
3-73	Kihapai Street	Hoolai Street to Oneawa Street	SR	C	0.06	$6	KP
3-74	Kumuhau St / Waikupunaha St / Ahiki St	Hihimanu Street to Kalanianaole Highway	SR	C	3.31	$161	KP
3-75	Likelike Highway	Kahekili Highway to Kamehameha Highway	SB	S	0.24	$182	KP
3-76	Lilipuna Road	Kamehameha Highway to Kamehameha Highway	SR	C	2.40	$270	KP
3-77	Luluku Road	Loop around Hoomaluhia Gardens	SR	C	3.55	$172	KP
3-78	Mokapu Saddle Road	Kaneohe Bay Drive to Kapaa Quarry Road	SB	S	1.95	$125	KP
3-80	Old Kalanianaole Road	Kalanianaole Highway to Kalanianaole Highway	SR	C	1.56	$76	KP
3-81	Old Pali Road / Auloa Road	Nuuanu Pali Lookout to Pali Hwy	SUP	C	1.36	$2,326	KP
3-82	Oluolu Street	Kalanianaole Highway to Hihimanu Street	SR	C	0.51	$25	KP
3-83	Paleka Road	Anoi Road to Kamehameha Highway	SR	C	0.40	$45	KP

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ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
3-84	Pali Highway (Windward)	Kamehameha Highway to Pali Lookout Access Road	SB	S	2.36	$1,812	KP
3-85	Waihee Road	Kamehameha Highway to Ahilama Road	BL	C	0.41	$162	KP
3-86	Waikalua Road	Kamehameha Highway to Kaneohe Beach Park	SR	C	1.03	$116	KP
3-87	Wailehua Road	Kamehameha Hwy to Lamaula Road	SR	C	0.31	$15	KP
3-88	Crozier Drive	Waialua Beach Road to Mahinai Street	SR	C	0.98	$110	NS
3-89	Farrington Highway (Mokuleia)	Kaukonahua Road to End (Kaena Beach)	SB	S	8.22	$6,304	NS
3-91	Kaena Point Path	Farrington Highway (Waianae) to Farrington Highway (Mokuleia)	SUP	S	4.78	$8,168	NS
3-92	Kamehameha Highway (Haleiwa)	Weed Circle to Haleiwa Bypass Road	SR	S	1.84	$207	NS
3-93	Kaukonahua Road	Weed Circle to Thomson Corner	SB	C	0.95	$726	NS
3-94	Mahinai Street	Crozier Drive to Farrington Highway	SR	C	0.30	$34	NS
3-95	Paalaa Road	Haleiwa Road to Kamehameha Highway	SR	C	0.77	$37	NS
3-96	10th Avenue	Waialae Avenue to Alohea Avenue	SR	C	0.77	$87	PUC-E
3-97	16th Avenue	Waialae Avenue to Kilauea Avenue	SR	C	0.61	$69	PUC-E
3-98	6th Avenue	Alohea Ave / 10th Ave Intersection to Palolo Place	SR	C	0.17	$19	PUC-E
3-98	6th Avenue	Waialae Avenue to Alohea Avenue	BL	C	0.74	$766	PUC-E
3-99	7th Avenue	Harding Ave to Pahoa Ave	BL	C	0.12	$49	PUC-E
3-100	Ala Moana Beach Park (Extension)	Connect existing mauka and makai bike paths, extend path to Kewalo Basin	SUP	C	0.15	$213	PUC-E
3-101	Alani Drive	Woodlawn Drive to East Manoa Road	SR	C	0.25	$28	PUC-E
3-102	Alapai Street	Iolani Avenue to Spencer Street	SR	C	0.05	$6	PUC-E
3-103	Alaula Way	Oahu Avenue to Pamoa Road	SR	C	0.18	$20	PUC-E
3-104	Alohea Avenue	6th Avenue to Makapuu Avenue	BL	C	0.61	$634	PUC-E
3-105	Auiki Street	Sand Island Access Road to Libby Street	SR	C	0.58	$65	PUC-E
3-106	Auwaiolimu Street	Hookui Street to Lusitana Street	CL	C	0.47	$127	PUC-E
3-106	Auwaiolimu Street	Nehoa Street to Hookui Street	BL	C	0.46	$185	PUC-E
3-107	Campbell Avenue	Monsarrat Avenue to Kapahulu Avenue	BL	C	0.62	$248	PUC-E
3-108	Date Street	University Avenue to Kapahulu Avenue	SR	C	0.58	$65	PUC-E

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O'ahu Bike Plan Update - Priority 3 Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP/SCP Area
3-109	Diamond Head Road	Kalakaua Avenue to begin bike lane on the makai side	SUP	C	0.49	$709	PUC-E
3-110	Diamond Head Road	Trousseau Street to Kahala Avenue (fill gaps)	BL	C	0.74	$296	PUC-E
3-111	East Manoa Road	Kamehameha Avenue to Alani Drive	SR	C	1.83	$205	PUC-E
3-112	Forrest Avenue	Ala Moana Blvd. to Ilalo St.	BL	C	0.14	$55	PUC-E
3-113	Gulick Avenue	School Street to North King Street	BL	C	0.56	$222	PUC-E
3-114	Halona Street	Palama Street to Houghtailing Street	BL	S	0.55	$110	PUC-E
3-115	Harding Avenue	Kapiolani Boulevard to 16th Avenue	SR	C	1.69	$190	PUC-E
3-116	Hayden Street	Kanaina Street to Alohea Avenue	SR	C	0.35	$39	PUC-E
3-117	Herbert Street	Kapahulu Avenue to 6th Avenue	SR	C	0.31	$35	PUC-E
3-118	Holomoana Street	Ala Moana Blvd to Hilton Boardwalk	SUP	S	0.31	$448	PUC-E
3-118	Holomoana Street	Ala Moana Blvd to Hilton Boardwalk	SR	S	0.20	$22	PUC-E
3-119	Hunakai Street	Pahoa Avenue to Waialae Avenue	BL	C	0.32	$129	PUC-E
3-119	Hunakai Street	Pahoa Avenue to Waialae Avenue	SR	C	0.82	$92	PUC-E
3-120	Iolani Avenue	South School Street to Alapai Street	BL	C	0.37	$146	PUC-E
3-121	Kahala Avenue	Diamond Head Road to Papu Circle	BBL	C	0.28	$134	PUC-E
3-121	Kahala Avenue	Papu Circle to Kealaolu Avenue	BL	C	1.23	$488	PUC-E
3-122	Kalia Road	Ala Moana Boulevard to Lewers Street	SR	C	0.57	$64	PUC-E
3-123	Kalihi Street	Lehua Street to Nalanieha Street	SR	C	0.33	$37	PUC-E
3-123	Kalihi Street	Makuahine Street to Lehua Street	CL	C	0.65	$176	PUC-E
3-124	Kamani Street	Auahi Street to Pohukaina Street	BL	C	0.05	$21	PUC-E
3-125	Kanealii Avenue	Lusitana Street to Kapalu Street	SR	C	0.55	$61	PUC-E
3-126	Kapalu Street	Kanealii Avenue to Pauoa Road	SR	C	0.09	$11	PUC-E
3-127	Kilauea Avenue	Hunakai Street (mauka) to Makapuu Avenue	BBL	C	1.29	$616	PUC-E
3-127	Kilauea Avenue	Hunakai Street (mauka) to Makapuu Avenue	BL	C	0.54	$217	PUC-E
3-128	King Street (Chinatown)	River Street to South Street	SR	C	0.34	$38	PUC-E
3-129	Koali Road	Old Waialae Road to Kanewai Park	SR	C	0.22	$24	PUC-E
3-130	Lanihuli Dr - Kamehemeha Ave	Manoa Road to Oahu Avenue	SR	C	0.39	$43	PUC-E
3-131	Libby Street	Auiki Street to Nimitz Highway	SR	C	0.21	$23	PUC-E
3-132	Liliha Street (Nuuanu)	School Street to Wyllie Street	CL	C	0.97	$260	PUC-E

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3-133	Lincoln Ave / 3rd Ave	Kapahulu Avenue to Pahoa Avenue	SR	C	0.21	$23	PUC-E
3-134	Lowrey Avenue	Manoa Road to Woodlawn Drive	SR	C	0.53	$59	PUC-E
3-135	Lusitana Street	Iolani Avenue to Pauoa Road	SR	C	0.55	$62	PUC-E
3-136	Makapuu Avenue	Diamond Head Road to Alohea Avenue	CL	C	0.06	$15	PUC-E
3-137	Manoa Road	Oahu Avenue to Waakaua Street	CL	C	1.07	$287	PUC-E
3-138	Manoa Road	Punahou Street to East Manoa Road	CL	C	0.42	$112	PUC-E
3-138	Manoa Road	Waakaua Street to Paradise Park	SR	C	0.56	$63	PUC-E
3-139	Manoa Stream Path (Kanewai Park)	Koali Road to Dole Street	SUP	C	0.17	$297	PUC-E
3-140	Mokauea Street	Auiki Street to North King Street	BL	C	0.94	$376	PUC-E
3-141	Nalanieha St / Kula Kolea Dr	Kalihi Street to Kalihi Elementary School	SR	C	0.29	$32	PUC-E
3-142	Nehoa Street	Pensacola Street to Manoa Road	BL	C	0.72	$288	PUC-E
3-143	Nuuanu Avenue (Nuuanu)	School Street to Pali Highway	CL	C	0.99	$265	PUC-E
3-144	Nuuanu Pali Drive	Waokanaka Street to Pali Highway	SR	C	1.80	$87	PUC-E
3-145	Oahu Avenue	University Avenue to Manoa Road	SR	C	0.62	$70	PUC-E
3-146	Olokele Avenue	Crane Park to Date Street	SR	C	0.27	$30	PUC-E
3-147	Pahoa Avenue	22nd Avenue to Kilauea Avenue	BBL	C	0.36	$173	PUC-E
3-147	Pahoa Avenue	3rd Avenue to 22nd Avenue	SR	C	1.51	$169	PUC-E
3-148	Pakanu Street	East Manoa Road to Pawaina Street	SR	C	0.16	$18	PUC-E
3-149	Pali Highway (Nuuanu Valley)	Nuuanu Ave to Pali Lookout Access Road	SB	S	4.32	$3,311	PUC-E
3-150	Pali Lookout Access Road	Pali Highway to Pali Lookout	SR	C	1.55	$75	PUC-E
3-151	Palolo Avenue	Waialae Avenue to 10th Avenue	CL	C	1.86	$498	PUC-E
3-152	Pamoa Road	Woodlawn Drive to end	SR	C	0.35	$39	PUC-E
3-153	Pauoa Road	Nuuanu Avenue to Kapalu Street	SR	C	0.83	$93	PUC-E
3-154	Pawaina Street	Pakanu Street to Manoa Road	SR	C	0.48	$54	PUC-E
3-155	Pensacola Street	Wilder Avenue to Nehoa Street	SR	C	0.23	$26	PUC-E
3-156	Poni Moi Road	Kalakaua Avenue to Diamond Head Road	BL	C	0.07	$29	PUC-E
3-157	Prospect Street	Alapai Street to Pensacola Street	BL	C	0.80	$318	PUC-E
3-158	Punahou Street	Wilder Avenue to Nehoa Street	CL	C	0.21	$56	PUC-E
3-159	Queen Emma Street	Beretania Street to Kukui Street	SR	C	0.09	$1	PUC-E
3-159	Queen Emma Street	Kukui Street to School Street	BL	C	0.32	$127	PUC-E
3-160	Queen's Beach Path	Kalakaua/Monsarrat Intersection to Natatorium	SUP	C	0.45	$644	PUC-E
3-161	Spencer Street	Alapai Street to Wilder Avenue	SR	C	0.51	$58	PUC-E

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3-162	Tantalus Loop	Makiki Street - Makiki Hts Dr - Tantalus - Round Top	SR	C	9.72	$472	PUC-E
3-163	Waialae Avenue (H-1 Viaduct)	17th Avenue to Kilauea Avenue	BL	S	0.95	$376	PUC-E
3-164	Winam Avenue	Hayden Street to Olokele Avenue	SR	C	0.93	$10	PUC-E
3-165	Woodlawn Drive	East Manoa Road to Alani Drive	SR	C	1.27	$143	PUC-E
3-166	Wyllie Street	Liliha Street to Nuuanu Avenue	SR	C	0.28	$31	PUC-E
3-167	Ala Aolani Street	Ala Napunani Street to H-1 off ramp	BL	C	0.11	$45	PUC-W
3-168	Ala Napunani Street (Northern Section)	Moanalua Road to Ala Aolani Street	BL	C	0.12	$49	PUC-W
3-169	Aolele Street	Airport Loop to Lagoon Drive	BL	S	0.87	$345	PUC-W
3-170	Center Drive	Kamehameha Highway to Radford Drive	BL	C	0.26	$105	PUC-W
3-171	Halawa Valley Street	Ulune extension to Iwaiwa Street	BL	C	0.21	$82	PUC-W
3-172	Halewiliko St / Aiea Heights Dr / Ulune St	Kaamilo Street to Ulune Street	BL	C	0.57	$228	PUC-W
3-173	Hoomalu Street	Waimano Home Road to Noelani Street	BBL	C	0.57	$270	PUC-W
3-174	Kaahele Street	Moanalua Road to Komo Mai Drive	BBL	C	0.69	$327	PUC-W
3-175	Kaamilo Street	Moanalua Road to Ulune Street	BL	C	0.33	$132	PUC-W
3-175	Kaamilo Street	Ulune Street to Kulawai Street	CL	C	0.92	$248	PUC-W
3-176	Kahuapaani Street	Salt Lake Boulevard to Ulune Street	BBL	C	1.78	$424	PUC-W
3-177	Kaonohi Street	Moanalua Road to Kahapili Street	BL	C	0.16	$62	PUC-W
3-177	Kaonohi Street	Pearl Country Club to Kahapili Street	CL	C	1.08	$290	PUC-W
3-178	Komo Mai Drive	Hoomalu Street to Kaahele Street	BL	C	0.79	$314	PUC-W
3-178	Komo Mai Drive	Waimano Home Road to Hoomalu Street	SR	C	0.77	$87	PUC-W
3-179	Kuahaka Street	Kaakepa Street to Waimano Home Road	SR	C	0.85	$95	PUC-W
3-180	Lawehana Street	Bougainville Drive to Salt Lake Boulevard	BL	C	0.38	$152	PUC-W
3-181	Likini Street	Ala Napunani Street to Ala Ilima Street	SR	C	0.95	$10	PUC-W
3-182	Malaai Street	Lawehana Street to Lawehana Street	BL	C	0.29	$115	PUC-W
3-183	Noelani Street	Waimano Home Road to Kaahumanu Street	BL	C	1.23	$490	PUC-W

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O'ahu Bike Plan Update - Priority 3 Projects

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3-184	Radford Drive (Eastern Section)	Bougainville Drive to Salt Lake Boulevard	BL	F	1.24	$493	PUC-W
3-185	Rodgers Boulevard	Nimitz Highway to airport shared use path	BL	C	0.11	$43	PUC-W
3-186	Ulune Street (Eastern Section)	Halewiliko Street to Kahuapaani Street	BBL	C	0.64	$304	PUC-W
3-186	Ulune Street (Eastern Section)	Kahuapaani Street to Halawa Valley Drive	BL	C	0.14	$56	PUC-W
3-187	Ulune Street (Western Section)	Aiea Heights Drive to Halewiliko Street	SR	C	0.18	$20	PUC-W
3-188	Waihona Street	Cane Haul Road Bike Path to Kamehameha Highway Bike Lanes	BL	C	0.37	$148	PUC-W
3-189	Farrington Highway (Kaena Point State Park)	Kaena Point State Park	SR	S	0.89	$99	WAI
3-190	Farrington Highway (Makua)	Kaena Point State Park to Keaau Beach Park	SB	S	4.40	$3,373	WAI
3-191	Halona Road	Lualualei Homestead Road to Puhawai Road	SR	C	0.84	$41	WAI
3-192	Lualualei Homestead Road (Eastern Section)	Puhawai Road to Mailiili Road	SR	C	0.70	$34	WAI
3-193	Lualualei Naval Road	Maili to Waianae (Valley Route)	SR	C	1.66	$81	WAI
3-194	Mailiili Road	Farrington Highway to Lualualei Homestead Road	SR	C	1.13	$55	WAI
3-195	Paakea Road	Mailiili Road to Lualualei Naval Road	SR	C	2.67	$130	WAI
3-196	Puhawai Road	Halona Road to Lualualei Homestead Road	SR	C	0.26	$13	WAI

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O'ahu Bike Plan Update - Redevelopment (RD) Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost ($1,000s)	DP Area
RD-1	Awalau Street	Farrington Highway to Awanei Street	SR	C	0.39	n/a	CO
RD-2	Hoaeae Stream Path	Honowai Street to Pearl Harbor Bike Path	SUP	C	0.88	n/a	CO
RD-3	Kapakahi Stream Path (North)	Hawaii's Plantation Village to Waipahu Depot Street	SUP	C	0.27	n/a	CO
RD-4	Koa Ridge Bikeways	Proposed internal bike network in the Koa Ridge Development	SUP	P	6.88	n/a	CO
RD-5	Leowahine Street	Leoku Street to Waipahu Street	SR	P	0.27	n/a	CO
RD-6	Waiawa Stream Path	Shared use path along Waiawa Stream	SUP	S	0.98	n/a	CO
RD-7	Waikele Canyon Path	Naval Access Road to C&C ROW	SUP	C	0.90	n/a	CO
RD-8	Wailani Flood Control Channel Path	Pearl Harbor Bike Path to Waipahu Street	SUP	C	0.94	n/a	CO
RD-9	East Kapolei II Development	East Kapolei II Development Bike Ways	BL	S	1.03	n/a	EWA
RD-10	Hoopili Bikeways	Proposed internal bike network in the Hoopili Develop	BL	P	4.32	n/a	EWA
RD-10	Hoopili Bikeways	Proposed internal bike network in the Hoopili Develop	SUP	P	18.83	n/a	EWA
RD-11	Kamakana Street	Waikapuna Street to Akai Street	BL	P	0.09	n/a	EWA
RD-12	Kapolei Parkway Path (Western Section)	Aliinui Drive to Kapolei Parkway	SUP	P	0.93	n/a	EWA
RD-13	Keaunui Drive Extension	Leeward Bikeway to beginning of Keaunui Bike Path	SUP	P	0.33	n/a	EWA
RD-14	Keoneula Boulevard Extension	Coral Sea Road to Kamakana Street	SUP	F	0.85	n/a	EWA
RD-15	Kualakai Parkway Path Extension	Kapolei Parkway to Tripoli Road	SUP	S	2.02	n/a	EWA
RD-16	Makaiwa Hills Path	North of Ko Olina to Makakilo Drive	SUP	P	4.90	n/a	EWA
RD-17	Makakilo Drive Extension	H-1 to Makakilo Drive end	BBL	P	0.79	n/a	EWA
RD-18	Saratoga Avenue (extension)	Boxer Road to Geiger Road	BL	C	1.48	n/a	EWA
RD-19	UH West Oahu Bikeways	UHWO Development Bike Ways	BL	S	3.96	n/a	EWA
RD-20	Ahui Street	TOD proposed new road from Ilalo Street to Halekauwila Street	SR	P	0.34	n/a	PUC-E
RD-21	Ala Moana Beach Park Piikoi path extension	TOD proposed path across the park	SUP	C	0.09	n/a	PUC-E
RD-22	Atkinson-Ala Wai Promenade Connector	TOD proposed path connecting Atkinson Drive to the Ala Wai Promenade	SUP	P	0.11	n/a	PUC-E
RD-23	Dillingham Boulevard	Middle Street to N. King Street	PBL	C	2.10	n/a	PUC-E
RD-25	HCC Bikeways	TOD proposed shared use paths on HCC campus	SUP	S	0.60	n/a	PUC-E
RD-24	Harbor Promenade	TOD proposed shared use promenade along the harbor front in downtown	SUP	S	0.67	n/a	PUC-E

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ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP Area
RD-26	Iwilei TOD Bikeways	Proposed bike network for Iwilei TOD redevelopment	SUP	C	0.33	n/a	PUC-E
RD-26	Iwilei TOD Bikeways	Proposed bike network for Iwilei TOD redevelopment	BL	P	1.52	n/a	PUC-E
RD-27	Kakaako TOD street	Cooke Street to Blaisdell	BL	P	0.33	n/a	PUC-E
RD-28	Kalihi Stream Bike Path	Middle Street HART Station to North King Street	SUP	C	0.67	n/a	PUC-E
RD-29	Kona Iki Street Path	TOD proposed path from Kona Street to Makaloa Street	SUP	P	0.13	n/a	PUC-E
RD-30	Laumaka Street	Kamehameha Hwy to Kaumualii St	SR	S	0.12	n/a	PUC-E
RD-31	OCCC Redevelopment Bikeways	Middle Street Station TOD Plan	SR	S	0.25	n/a	PUC-E
RD-32	Pauahi Street bike/ped bridge (TOD)	over Nuuanu Stream	SUP	C	0.02	n/a	PUC-E
RD-33	Pohukaina-Auahi Connection	Proposed new roadway connection from Pohukaina to Auahi Street	PBL	P	0.11	n/a	PUC-E
RD-34	Sumner Street	Dillingham Boulevard to Nimitz Highway	BL	C	0.38	n/a	PUC-E
RD-35	Victoria Street Extension (Blaisdell Redevelopment)	Kapiolani Boulevard to King Street	BL	C	0.34	n/a	PUC-E
RD-36	Aloha Stadium Redevelopment Bikeways	TOD proposed bike network for the redevelopment of Aloha Stadium	BL	S	1.77	n/a	PUC-W
RD-36	Aloha Stadium Redevelopment Bikeways	TOD proposed bike network for the redevelopment of Aloha Stadium	SUP	S	0.47	n/a	PUC-W
RD-36	Aloha Stadium Redevelopment Bikeways	TOD proposed bike network for the redevelopment of Aloha Stadium	SR	S	0.29	n/a	PUC-W
RD-37	Aloha Stadium Station Promenade	Salt Lake Boulevard to Kalaloa Street	SUP	S	0.40	n/a	PUC-W
RD-38	Halawa Stream Path	H1 interchange to Stadium Marketplace	SUP	C	0.51	n/a	PUC-W
RD-39	Halawa Stream Path Bridge	Ohekani Loop to Stadium Marketplace	SUP	C	0.06	n/a	PUC-W
RD-40	HART Maintenance Yard Path	Waiwai Loop to Keehi Lagoon Parking Lot	SUP	C	0.08	n/a	PUC-W
RD-41	JBPHH Station Radford Drive Connector	Path from the JBPHH station to the existing path on Bougainville Dr	SUP	F	0.24	n/a	PUC-W
RD-43	Keehi Lagoon - Middle Street Shared Use Path	Lagoon Drive to Middle Street HART Station	SUP	S	1.39	n/a	PUC-W
RD-44	Koapaka Street Extension	Rodgers Boulevard to Paiea Street	BL	P	0.25	n/a	PUC-W
RD-44	Koapaka Street	Paiea Street to Lagoon Drive	SR	C	0.87	n/a	PUC-W

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WAI	Wai'anae

O'ahu Bike Plan Update - Redevelopment (RD) Projects

ID	Name	Description	Type	Owner	Length (Miles)	Cost (1,000s)	DP Area
RD-45	Navy Redevelopment Bikeways	Pearl Harbor Station TOD Plan	BL	F	0.52	n/a	PUC-W
RD-45	Navy Redevelopment Bikeways	Pearl Harbor Station TOD Plan	SUP	F	0.58	n/a	PUC-W
RD-45	Navy Redevelopment Bikeways	Pearl Harbor Station TOD Plan	SR	F	1.35	n/a	PUC-W
RD-46	New Bike/ped bridge over H-1	Center Drive to Bougainville Drive	SUP	S	0.07	n/a	PUC-W
RD-47	Opukea Street	Kalaloa Street to Ohekani Loop	SR	C	0.10	n/a	PUC-W
RD-48	Pearl Harbor Historic Trail Shorline Connection	Create an alternate shared use path along the shoreline east of Blaisdell Park	SUP	P	0.46	n/a	PUC-W
RD-49	PHBP Connector - Pearlridge Center (TOD)	Pearlridge Center to Pearl Harbor Bike Path	SUP	P	0.72	n/a	PUC-W
RD-50	Puuwai Momi Redevelopment Bikeways	TOD proposed bike network for redevelopment at Puuwai Momi	SUP	S	0.08	n/a	PUC-W
RD-50	Puuwai Momi Redevelopment Bikeways	TOD proposed bike network for redevelopment at Puuwai Momi	SR	S	0.48	n/a	PUC-W
RD-51	Red Hill Bikeway Connection	Icarus Way to Ulune Street	SUP	S	1.01	n/a	PUC-W
RD-53	Stadium Mall Site bike route	Bike route on a new proposed road at the Stadium Mall site	SR	P	0.25	n/a	PUC-W
RD-54	Stadium Marketplace site bike route	Bike route on proposed roadways in the redeveloped Stadium Marketplace site	SR	P	0.16	n/a	PUC-W
RD-55	Ualena Street	Paiea Street to Lagoon Drive	SR	C	0.86	n/a	PUC-W

Bicycle Facilities

BL	Bike Lane
BBL	Buffered Bike Lane
CL	Climbing Lane
PBL	Protected Bike Lane
SB	Shoulder Bikeway
SR	Shared Roadway
SUP	Shared Use Path

Jurisdiction

C	City
F	Federal
S	State
P	Private

DP/SCP Area

CO	Central O'ahu
EH	East Honolulu
KL	Ko'olau Loa
KP	Ko'olau Poko
NS	North Shore
PUC-E	Primary Urban Center - East
PUC-W	Primary Urban Center - West
WAI	Wai'anae

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Enjoying the view riding through Ala Moana Regional Park

5

IMPLEMENTATION

The infrastructure and program recommendations described in this plan will support O'ahu's vision of becoming a truly bicycle-friendly community, where bicycling is a safe, viable, and enjoyable transportation option for riders of all ages and abilities. While policies at both the City and State make it clear that bicycling and multi-modal transportation are well-supported community priorities, implementation of these recommendations will take time and adequate funding and commitment. The purpose of this chapter is to provide a guide for the phasing, funding, and implementation strategies that will be necessary to implement the plan recommendations.

5.1 Bikeway Jurisdiction

This 2019 O'ahu Bike Plan Update proposes a total of 575 miles of new bikeways. A majority of these proposed bikeways, 325 miles, are located on City streets or other City property like parks, but a significant portion of the proposed bikeways (242 miles) are located on roadways or property owned by the State of Hawai'i. Establishing bicycling as a safe and convenient mode of transportation for residents and visitors throughout the state is a goal of the State of Hawai'i Department of Transportation (HDOT) and is articulated in the State Bike Plan (Bike Plan Hawai'i). HDOT has participated in the development of this O'ahu Bike Plan Update via the TAC, and they are committed to working cooperatively with the City to implement the goals of this 2019 O'ahu Bike Plan Update.

City Bikeways Crossing HDOT Facilities

In locations where City roadways cross State highways, HDOT maintains jurisdiction. These intersections and over/underpasses represent some of the most critical connection points for the low-stress bicycle network. HDOT has made it a policy to work with the City to find design solutions that allow City bikeways to continue and safely connect across HDOT jurisdiction. The City would still pay for the improvement, but the State is committed to finding design solutions that address the needs of all roadway users.

HDOT recently improved the shoulders along Kamehameha Highway between Waipi'o and Mililani as part of a major highway repair project.

Bikeways Along HDOT Facilities

First consideration was given to City facilities to develop O'ahu's bikeway network, especially the low-stress network. If City facilities were not available to complete the network, state and other facilities were considered. On O'ahu, HDOT jurisdiction includes major transportation facilities such as Kamehameha, Farrington, Nimitz, and Kalaniana'ole Highways. These facilities circle the island and at times provide the only surface transportation connections between communities, making them vital parts of the bikeway network. As such, this plan proposes 242 miles of bikeway improvements on HDOT facilities (similar to the 2012 Bike Plan); consisting primarily of shoulder bikeways following the American Association of State Highway and Transportation Officials (AASHTO) standards.

Cost was not a factor in the prioritization criteria. Due to the significant length of the HDOT facilities, the cost of installing bikeways along them can be very expensive in the aggregate, and thus will need to be phased over time. Bikeway improvements need to be programmed under the State highways budgeting process, but due to HDOT's existing budget constraints most bikeway implementation projects are likely to be piggy backed with major roadway repair projects for cost efficiency purposes (see photo above).

While all projects were assessed for general technical feasibility, engineering complexity was not factored into the prioritization process. During implementation, adjustments to the bikeway network may be necessary to overcome engineering issues and to keep bikeways away from high-stress roads. This bike plan has prioritized bikeways to help focus HDOT's bicycle improvement efforts and budgeting requests to facilities where they are most needed, and to meet Hawai'i's Clean Energy Goal by 2045. State of Hawai'i Law (§264-18 HRS) requires that at least 2% of eligible federal funds, as well as other available state highway fund moneys, shall be expended to: 1) establish multi-use paths, bicycle paths, and bicycle lanes; and 2) install signage and safety devices along bikeways.

5.2 Project Costs

To assist in the implementation of the proposed bikeway network, planning-level costs have been developed for each facility type. The costs are parametric estimates and were developed based on unit costs from bid tabulations for recent City projects. They also include a soft cost and contingency budget of 25%. Each proposed project was categorized into one of the below facility types, and the associated planning-level cost was multiplied by the project length to determine the project's estimated cost. To remain conservative, the cost estimates assume the projects are built on an individual, stand-alone basis. However, this is likely to overstate the actual costs since many projects will be implemented as part of larger street rehabilitation and improvement projects.

Project Type	Planning-Level Cost Estimate (per mile)
Shared Roadway (SR)	
Signed bike route	$49,000
Shared roadway with sharrows and signs	$112,000
Shoulder Bikeway (SB)	
Restripe and sign existing wide shoulder	$128,000
Widen shoulder, stripe, and sign	$767,000
Climbing Lane (CL)	
Climbing bike lane with sharrows downhill	$268,000
Conventional Bike Lane (BL)	
Restripe with bike lane	$398,000
Improve shoulder and restripe with bike lane	$1,035,000
Buffered Bike Lane (BBL)	
Restripe with buffered bike lane	$477,000
Protected Bike Lane (PBL)	
Two-way PBL on one side of street; flex post and paint	$349,000
Directional PBL; flex post and paint	$573,000
Two-way PBL on one side of street; concrete curb separator	$591,000
Directional PBL; concrete curb separator	$1,058,000
Shared Use Path (SUP)	
New shared use path (moderate work)	$1,442,000
New shared use path (major work)	$1,707,000

Planning-level cost estimates by facility type in 2019 dollars; assumes two-way street with matching bike facilities on each side unless otherwise noted, stand alone construction, and 25% budget for soft costs and contingency.

5.3 Funding Sources

Proposed Bikeway Network					
Projected City Costs			Projected State Costs		
Priority	Miles	Cost ($ million)	Priority	Miles	Cost ($ million)
1	88	$52.2	1	103	$56.9
2	103	$54.7	2	85	$73.6
3	134	$40.0	3	54	$37.6

2019 dollars; assumes stand alone construction, and 25% budget for soft costs and contingency.

The estimated bikeway costs assume that all proposed bikeways would be completed as stand-alone projects. However, the City often combines bikeway installation with roadway rehabilitation projects. This allows for installation of bicycle facilities at incremental costs much lower than the planning-level estimates. Still, the proposed bikeway network represents a significant investment in bicycling, and implementation will require funding from a variety of sources.

Operating Budget

Since 2012, the City's budget has appropriated an annual average of $720,000 for bicycle programs, maintenance, and City staff support. Additionally, highway funds are occasionally used to resurface City roadways and this can include the installation of bikeways if they are proposed for a street being resurfaced. Moving forward, additional operational funds will be needed to support maintenance of the growing bikeway network and the expanded bicycling programs identified in Chapter 3.

Capital Improvements Program (CIP) Budget

Since 2012, the City's budget has appropriated an annual average of $1.31 million specifically for the design and construction of new bikeways. Bikeway improvements are also included in other CIP budget items such as Complete Streets, Transit Station Access, or rehabilitation of streets projects. A significant increase in CIP funding for bicycle infrastructure will be required to achieve the bikeway network proposed in this plan. The bikeway project priority levels and cost estimates identified in this plan can help to serve as a starting point for future budget requests.

Federal Highway Administration (FHWA) Funding

FHWA administers funding sources through HDOT and O'ahuMPO that can be used for bicycle projects, including the Transportation Alternatives Program (TAP), Surface Transportation Program (STP), and Congestion Mitigation and Air Quality Improvement Program (CMAQ). Funds are provided on a reimbursement basis, so the City must fund 100% of a project up front. The federal government will then reimburse the City up to 80% of a project's costs at completion.

Federal Transit Authority (FTA) Grants

Transit grants such as the Urbanized Area Formula can be used for improving bicycle access to transit facilities. The proposed bikeway network includes a number of projects that would provide direct connections to transit stops, and could be candidates for FTA grants.

Safe Routes to School (SRTS)

HDOT distributes federal SRTS funds through a grant application process. HDOT also manages an SRTS special fund consisting of traffic violation surcharges which is distributed amongst the counties. SRTS funds can be used for infrastructure and non-infrastructure projects to encourage keiki to walk and bicycle to school.

Impact Fees

Local governments can use impact fees to charge new developments for their impacts on existing infrastructure. Impact fees must be both related to and proportionate to the impacts of a new development. The City should consider charging impact fees, particularly in TOD districts and Waikiki, in order to fund bicycle infrastructure improvements to off-set the impacts of a new development.

The Hamakua Drive buffered bike lanes were completed with 80% federal funding.

5.4 Implementation Strategies

Every community on O'ahu is unique, and the implementation of individual projects and programs can require nuanced efforts to ensure that they fit within the context of a given community. The following tools and strategies will assist the City in the successful implementation of this plan's recommendations.

Community Engagement

Prior to the installation of bicycle projects, the City routinely consults with the affected community. Typically the breadth and scale of community consultation is determined based on the potential impact of the proposed project. For instance, if the project involves only restriping, a presentation to the Neighborhood Board will likely suffice. For projects that may have significant impacts to parking and/or traffic flow, additional engagement efforts are undertaken to gather community input and address potential concerns. This may include outreach to businesses and residents along the affected corridor, project-specific public meetings, and/or a dedicated project website. Successful community engagement relies on a constructive dialogue between the City and the community.

Demonstration Projects

Demonstration projects provide an opportunity for agencies to test various bicycle facility design configurations and gauge public acceptance of the installation. These types of projects should be implemented in areas with known bicycle activity, where the demonstration project is likely to see frequent use. Gathering public input on the project is an important step in the demonstration project process. Websites can be useful tools to solicit feedback through surveys or other interactive forums. Temporary installations should be designed to be as attractive as possible in order to dissuade feedback based primarily on the aesthetics, rather than the merits, of the project.

Roadway Resurfacing

The City regularly incorporates Complete Streets design principals and installs bikeways as part of roadway resurfacing projects. Completing bikeway projects simultaneous to street resurfacing can result in significant cost savings and can minimize inconveniences associated with additional roadwork. Successful integration of the proposed bikeway network and the resurfacing schedule requires close coordination between City departments to incorporate the new bikeway designs at the earliest stage possible.

Complete Streets Projects

Over the past several years, the City has engaged with communities around the island to identify needed Complete Streets improvements to make their roadways safer for all modes and all users. These Complete Streets projects provide important opportunities to install bicycle facilities that fit within the multi-modal context of a given street. Additionally, the Complete Streets projects provide more broad opportunities to calm vehicular traffic and improve safety for all roadway users.

The recently completed climbing lane on Monsarrat Avenue was installed as part of a roadway resurfacing project.

5.5
Bikeway Maintenance Standards

As O'ahu's bikeway network continues to expand, maintenance will only grow in importance. Maintenance should be carefully considered during the design and installation of new bikeways, and a comprehensive bikeway maintenance program should be established (see section 3.4).

For on-street bicycle facilities, maintenance generally falls to the Department of Facility Maintenance (DFM) for City streets and to HDOT for State highways. For off-street shared use paths, maintenance responsibilities can be more complex and nuanced. Some shared use paths are located on private property, some are within City parks, and others are along State highways or in State parks. Due to this complexity, maintenance agreements are typically established to identify maintenance responsibilities.

Regardless of jurisdiction, there are standard maintenance procedures that should be undertaken. The 2012 AASHTO Guide to Bicycle Facilities identifies the following recommended maintenance programs and activities that serve as a guide to maintaining safe and comfortable bikeways.

Maintenance Activity	Recommended Best Practice	Maintenance Frequency	
		On-street Bikeways	Shared Use Paths
Resurfacing	• Develop a pavement preservation program to minimize deterioration and cracking. • Extend the pavement improvement over the entire roadway surface, including bike lanes and shoulders.	With roadway resurfacing	Assess annually; repair as needed
Sweeping	• For curbed sections, use sweepers that pick up debris. • For flush shoulders, debris can be swept off pavement. • Purchase a protected bikeway specific sweeper.	Weekly	As needed
Surface Repairs (e.g., Cracks, Potholes, etc.)	• Establish a process to respond to user complaints. • Install a flush surface repair and prevent the edge of the repair from running longnitudinally through the bikeway.	On request/ As needed	On request/ As needed
Utility Cuts	• Avoid bicycle facility if possible. • If unavoidable, make cut perpendicular to bicycle traffic. • Ensure utility cuts are backfilled, compacted, and repaired flush to pavement surface.	As needed	As needed
Vegetation	• Trim vegetation to prevent encroachment. • Cut back intrusive tree roots and install root barriers.	Monthly	Monthly
Traffic Signal Detectors	• Adjust detector sensitivity for bikes. • Place a stencil over the detector.	As needed	As needed
Signs and Markings	• Replace defective or damaged signs. • Replace faded pavement striping and markings.	Assess annually; repair as needed	Assess annually; repair as needed
Drainage Improvements	• Reset catch basin grates flush with pavement. • Replace drainage grates with bike compatible grates.	As needed	As needed

5.6 Performance Measures

Performance measures are important tools in making informed and effective implementation decisions. They can aid in planning, prioritizing investments, and measuring progress.

Performance measures should be based on available data or data that is reasonably attainable so that progress can be measured on an annual basis.

They should also be directly related to at least one or more of the O'ahu Bike Plan goals presented in Chapter 1. By measuring the City's progress towards meeting these goals and documenting the associated benefits to O'ahu's residents, these performance measures can provide an effective communication tool for requesting funds and garnering public support.

With these characteristics in mind, a series of performance measures have been identified to track the City's process toward meeting the goals of the O'ahu Bike Plan. For each measure, a baseline is provided where available. The Revised Ordinances of Honolulu (ROH 2-12.1) directs the O'ahu Bike Plan to be updated every five years, so the target date for the performance measures is 2024.

5-year Performance Measure (2024)	Baseline	Data Source	Plan Goals			
			1. Increase bicycle mode share	2. Enhance roadway cooperation	3. Encourage safe, convenient and pleasurable bicycling	4. Gold level Bicycle Friendly Community
Double the bicycle commuting mode share.	1.2% average (2013 - 2017)	ACS	✓			✓
Eliminate bicycle fatalities.	1.2 per year (2013 - 2017)	HDOH		✓	✓	✓
Reduce bicycle crashes by 25%.	199 per year (2013 - 2017)	HDOH		✓	✓	✓
Complete 100% of priority 1 bikeway projects.	0%	DTS	✓	✓	✓	✓
Provide secure bicycle parking at all HART stations and allow bikes on transit.	N/A	DTS/ HART	✓		✓	✓
Double the number of participants in education and outreach events.	11,358 participants (FY 2018)	HBL/DTS		✓	✓	✓
Assess the condition of all shared use paths and complete or program repairs.	N/A	DTS/ DFM/ HDOT	✓		✓	✓
Conduct and publish annual bike counts for at least five separate locations.	N/A	DTS	✓			✓
Achieve gold level Bicycle Friendly Community status from the League of American Bicyclists	Bronze	LAB/DTS				✓


o‘ahu bike plan
2019 Update