



**WEST MAUI
GREENWAY**

February 2024 ▶ Final

West Maui Greenway

Data Collection and Site Selection Report

Prepared for
County of Maui Department of Parks and Recreation



SSFM
International

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On August 8, 2023, a mix of high winds and dry conditions resulted in a wildfire spreading through Lahaina and the surrounding area resulting in the death of approximately 100 people and destruction of more than 2,000 buildings. In the wake of this tragedy, efforts associated with the West Maui Greenway Work Plan project are continuing with the acknowledgement that additional public engagement and review will be needed but are not appropriate at this sensitive time for the people of Lahaina, West Maui, and the whole of Maui in general.

A. INTRODUCTION

The West Maui Greenway (WMG) is a proposed 25-mile, shared-use path, spanning the western coast of Maui between Ukumehame in the south and Līpoa Point in the north (see Figure 1). The WMG is envisioned to provide safe, non-motorized forms of transportation and recreation, separated from heavy volumes of high speed vehicles along Honoapiʻilani Highway, while connecting communities throughout West Maui.

The County of Maui (COM) Department of Parks and Recreation (DPR) has been identified as the lead agency within the County for implementation of the WMG, which represents the first project and facility of its kind in Maui County. DPR contracted with SSFM International, Inc. (SSFM) on June 28th, 2023, to advance the WMG by reevaluating the project needs and ultimately providing a comprehensive and detailed work plan for implementation.

This report is the first deliverable under the contract. It reviews previous efforts undertaken and analyzes comparable trails and greenways throughout Hawaiʻi and the continental United States to identify best practices for implementation. It also reassesses the segment prioritization rankings used in the *West Maui Greenway Plan* (WMGP) (Maui MPO, September 2022) that informed the identification of the preferred first segment of greenway to develop.

Separately, a forthcoming work plan deliverable will define specific tasks, deliverables, critical decision points, funding opportunities and deadlines, community engagement needs, permitting, and other recommended studies and plans to implement the WMG.

In 2016, the COM, Maui Bicycling League (MBL), and the State of Hawaiʻi Nā Ala Hele Program partnered with the National Park Service (NPS) as part of the Rivers, Trails, and Conservation Assistance Program to envision design concepts for the WMG through a series of workshops. The WMG Alliance formed in 2017 to further advocate for and advance preliminary planning and design efforts.

Previous planning efforts including the *Bike Plan Hawaiʻi Master Plan* (Hawaiʻi Department of Transportation (HDOT), 2003), and the *Pali to Puamana Parkway Master Plan* (COM Planning Department, February 2005) identified the need for additional forms of multimodal transportation throughout West Maui. More recent planning documents, such as the *Hele Mai Maui: Long Range Transportation Plan 2040* (LRTP) (Maui Metropolitan Planning Organization (MPO), December 2019) have further emphasized the priority of this project, including the WMG as one of six legacy projects on Maui that have been identified as some of the highest priority projects throughout the island. Additionally, the *West Maui Community Plan* (WMCP) (COM Planning Department, January 2022) specifically identifies the completion of the WMG as a high priority project.

In January 2022, the Maui MPO obtained funding and kicked off the WMGP with the objective of developing a preferred route alignment, proposed trail types, and implementation strategies. Towards the end of the project, COM applied for a U.S. Department of Transportation (DOT) Safe Streets and Roads for All (SS4A) implementation grant for the design and construction of the first segment of the greenway using the WMGP as the framework for the proposal. The grant was not awarded, as discussed in a later section.

Figure 1: West Maui Greenway Proposed Route

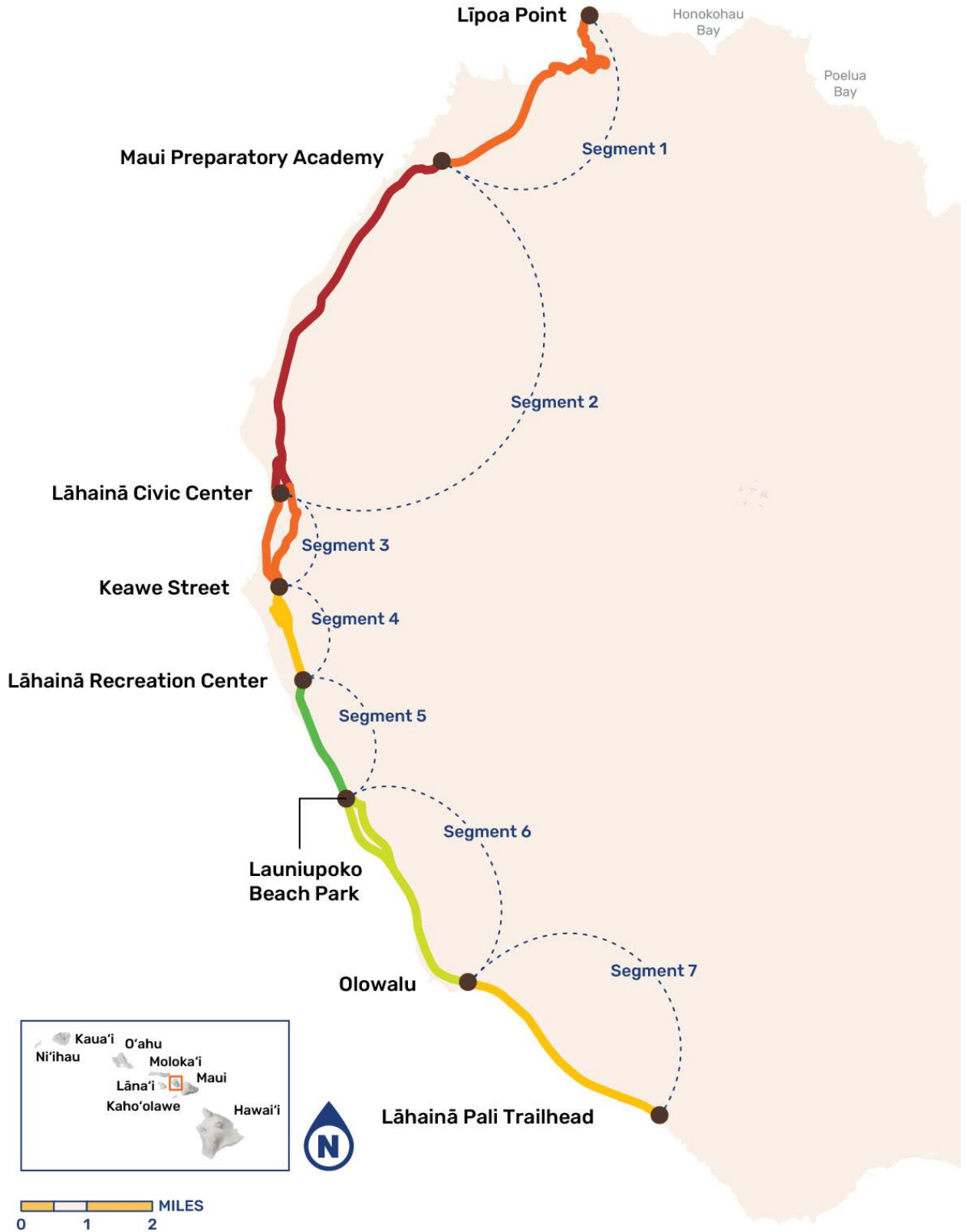
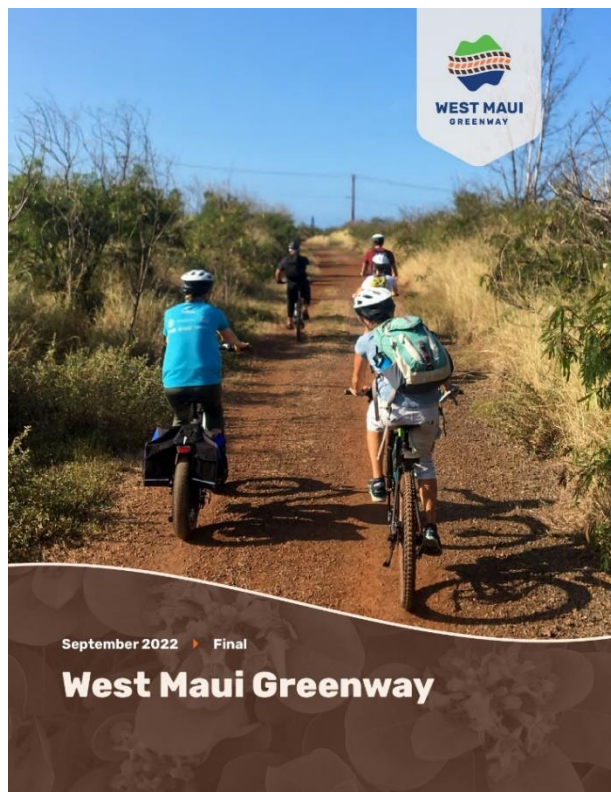


Image Source: (West Maui Greenway Plan, Maui MPO/ALTA, September 2022)

B. PREVIOUS EFFORTS RELATED TO THE WEST MAUI GREENWAY

1. West Maui Greenway Plan

The WMGP was developed to guide the future development of the 25+ mile greenway between Ukumehame and Lipoa Point, with the aim of providing a safe alternative route to using Honoapiʻilani Highway for people of all ages and abilities who walk, bike, use other small-wheeled transportation, or assisted mobility devices. The WMGP outlined five project goals: (1) Foster Community; (2) Bring Joy; (3) Strengthen Connectivity; (4) Promote Safety and Comfort; and (5) Ensure Feasibility. The WMGP built upon previous planning efforts in establishing the WMG’s history and context.



a) Segments and Routes

The WMGP divided the WMG into six segments and identified two to three alternative routes for each. Each route was evaluated based on its alignment with the project goals, in-person site visit observations, and community and stakeholder feedback. Methodology for evaluating each alternative’s alignment with project goals came in both quantitative and qualitative forms and will be described in further detail in a later section. Ultimately, the top scoring options in each segment were combined to create one preferred alignment across the entire 25+ mile greenway.

b) Greenway Typologies

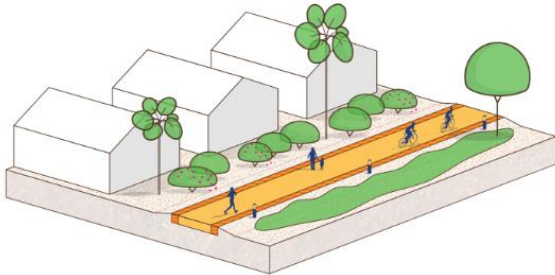
The WMGP identified a variety of conceptual greenway typologies to be implemented throughout the corridor, dependent on specific constraints and opportunities. In total, six primary greenway typologies were envisioned (see Figure 2), including: (1) Rail to Trail; (2) Cane Haul Road; (3) Mauka/Upland; (4) Flood Control Channel Adjacent; (5) In-Town; and (6) Highway Adjacent.

These typologies varied in width, with the most common proposed greenway width being 12-feet but varying in portions between 8-feet to 14-feet, with 2-foot buffer on either side. Surface treatments including concrete, asphalt, cool paving, or decomposed granite were discussed as potential path materials, with selection dependent on location. The greenway aimed to provide green infrastructure, both to create shade and absorb stormwater runoff.

Figure 2: West Maui Greenway Typologies

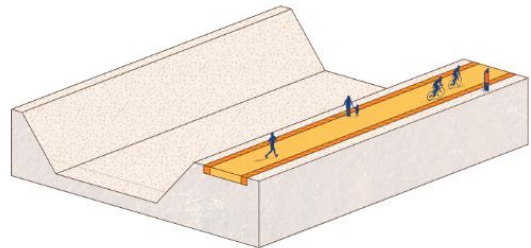
Rail to Trail

Approximately 16% (4.3 miles) of the West Maui Greenway is proposed to use the Rail to Trail typology. This typology would be used along the existing Sugar Cane Train tracks.



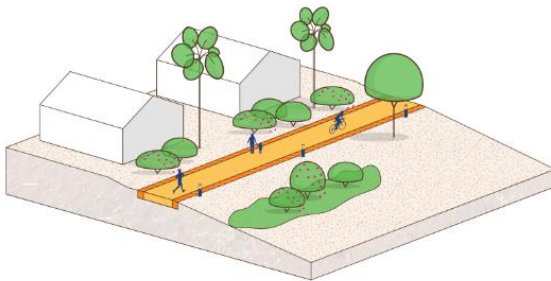
Flood Control Channel Adjacent

Approximately 2% (0.7 miles) of the West Maui Greenway is proposed to use the Flood Control Channel Adjacent typology. This short section is adjacent to Mill Street south of the Lāhainā Recreation Center.



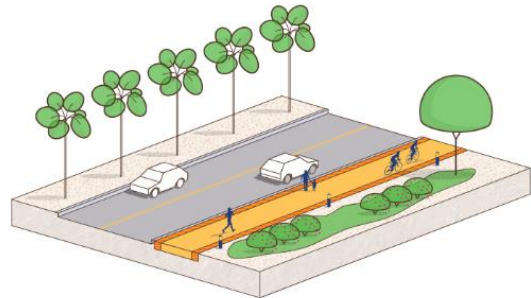
Cane Haul Road

Approximately 22% (6 miles) of the West Maui Greenway is proposed to use the Cane Haul Road or Mauka/Upland typology (shown on the next page). These typologies would primarily be used north of Lāhainā along existing cane haul roads adjacent to the highway or further upland.

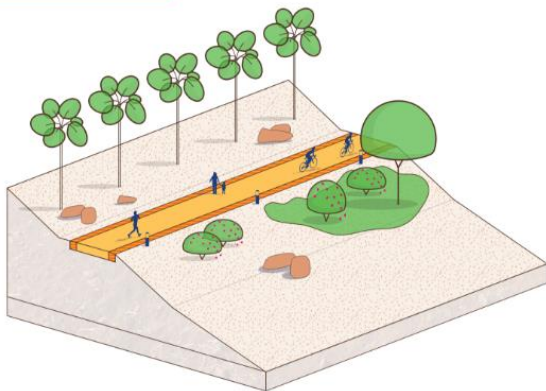


In-Town

Approximately 11% (3 miles) of the West Maui Greenway is proposed to use the In-Town typology. This includes a short stretch near Kā'anapali Beach as well as a section through Lāhainā.



Mauka/Upland



Highway Adjacent

Approximately 45% (12.3 miles) of the West Maui Greenway is proposed to use the Highway Adjacent typology. This is primarily in the northern section of the corridor between Lipoa Point and the Maui Preparatory Academy, as well as in the southern section of the corridor south of Lāhainā.

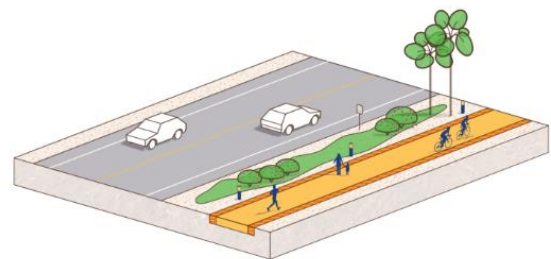


Image Source: (West Maui Greenway Plan, Maui MPO/ALTA, September 2022)

c) Governance and Operations & Management

The WMGP outlined strategies for managing and maintaining the greenway in terms of governance as well as operations and management (O&M), presenting various case studies both in Hawai'i and throughout the continental United States. Acknowledging that no singular entity is likely equipped to manage and maintain the WMG, two potential governance structures were introduced. In both, it was suggested that a "Friends of" group or similar alliance be formed as a nonprofit group dedicated to supporting trail operations and maintenance. These two potential governance structures can be summarized as follows:

OPTION 1

COOPERATIVE ARRANGEMENT

Participants

Potential participants in this structure include:

- ↔ Maui MPO
- ↔ County Department of Public Works
- ↔ County Department of Parks and Recreation
- ↔ County Department of Housing and Human Concerns, Homeless Program Division
- ↔ Maui Police Department
- ↔ Hawai'i Department of Hawaiian Home Lands
- ↔ Hawai'i Department of Land and Natural Resources
- ↔ Maui Bicycling League/West Maui Greenway Alliance/Friends of the West Maui Greenway

Advantages / Disadvantages

Advantages include:

- ↔ Maui MPO has greater flexibility to use federal and state funds
- ↔ Shares responsibility among multiple stakeholders
- ↔ Does not require administrative costs associated with creating a new agency

Disadvantages include:

- ↔ Decentralized structure with greater interagency coordination needs

OPTION 2

NEW COUNTY DIVISION

Participants

Potential participants in this structure include:

- ↔ County Department of Parks and Recreation
- ↔ County Department of Public Works
- ↔ West Maui Greenway Alliance / Friends of the West Maui Greenway

Advantages / Disadvantages

Advantages include:

- ↔ Utilizes existing skills and expertise from within the County
- ↔ Creates a more centralized operations and maintenance structure

Disadvantages include:

- ↔ Creating a new division would require significant political buy-in
- ↔ Potential for less flexibility with funding
- ↔ May require higher administrative costs

.....

Ultimately no singular recommendation was selected, leaving future steps towards implementation of the greenway to be determined. However, both governance structures are still considered valid and viable options. O&M of other trails throughout Hawai'i and the continental United States will be discussed in further detail in a later section and expanded upon in the work plan to be prepared separately.

d) Climate Change and Hazards

The WMGP discussed how sections of the greenway will likely travel through areas subject to wildfires, flooding, and sea level rise which could damage and restrict usage of the greenway, in addition to other roadways and paths. This takes on greater significance in the wake of the Lahaina wildfires and will be considered in greater detail and expanded upon in a later section.

Strategies for managed retreat of the greenway were identified to ensure the longevity of the project. Similarly, the benefits of increasing multimodal (i.e., pedestrian, bicycle, bus transit) access and decreasing the dependence on automobiles was discussed as being a direct contributor to helping reduce greenhouse gas emissions contributing to climate change.

e) Original Segment Prioritization

Additionally, the WMGP ranked each of the segments of the greenway to determine the optimal order for construction. At that point, the WMGP subdivided the original Segment 5 (Lahaina Recreation Center to Olowalu) into two sections, renaming them as Segment 5 (Lahaina Recreation Center to Launiupoko Beach Park) and Segment 6 (Launiupoko Beach Park to Olowalu), resulting in the previous Segment 6 (Olowalu to Lahaina Pali Trailhead) being renamed as Segment 7 with the same limits.

Prioritization was based on projected capital costs, environmental permitting requirements, ROW availability, anticipated O&M needs, and projected opportunities for funding. Ultimately, the WMGP identified the revised Segment 5 (Lahaina Recreation Center to Launiupoko Beach Park) as the highest scoring segment to prioritize. The

prioritized implementation segment schedule is as follows:

- ▶ **Segment 5 (Lahaina Recreation Center to Launiupoko Beach Park)**
- ▶ **Segment 6 (Launiupoko Beach Park to Olowalu)**
- ▶ **Tie between Segment 4 (Keawe Street to Lahaina Recreation Center) and Segment 7 (Olowalu to Lahaina Pali Trailhead)**
- ▶ **Tie between Segment 1 (Lipoa Point to Maui Preparatory Academy) and Segment 3 (Lahaina Civic Center to Keawe Street)**
- ▶ **Segment 2 (Maui Preparatory Academy to Lahaina Civic Center)**

This ranking will be reassessed in a later section to determine whether a revised first priority segment should be considered. Lastly, the WMGP offered potential sources of funding and next steps for the greenway's implementation.

f) Outreach Efforts

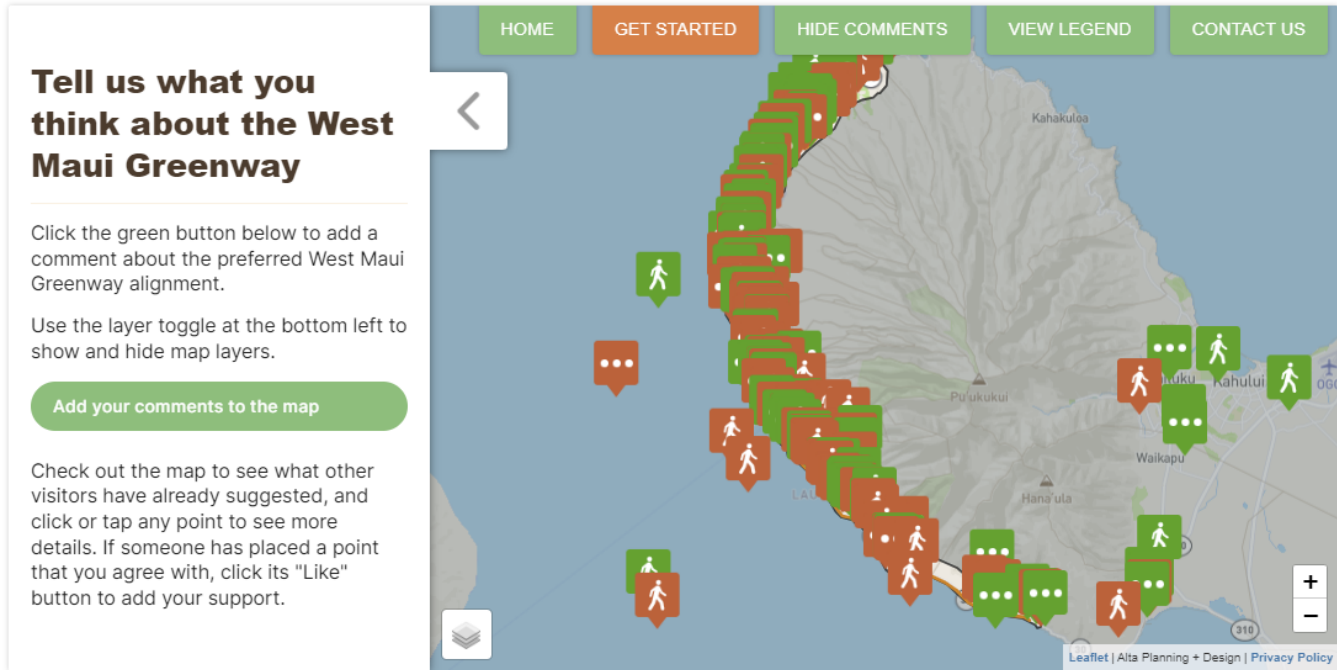
As part of the WMGP, four rounds of community outreach were conducted (see Figure 4). Each round involved various forms of outreach, including individual meetings with key stakeholders, larger community meetings, as well as various forms of in-person site visits and ride (bike) along visits. Additionally, an interactive web map was provided on the project's website (see Figure 3), allowing community members and stakeholders to comment on specific locations of importance.

Figure 3: West Maui Greenway Interactive Web Map

Interactive Map

Launch in new window [↗](#)

What are your priorities for the West Maui Greenway? Please tell us what destinations you would use.



Round 1 (December 2021 – January 2022) - This initial round of outreach involved engaging with stakeholders and community members to develop the WMG’s intended vision, while identifying goals and constraints. Outreach included eight stakeholder meetings and one community meeting, which was attended by 77 community members.

Additionally, a virtual survey included responses from 203 survey participants while an interactive web map noted 231 unique comments. Participants most identified the WMG as an opportunity “To have a safe place to walk or ride my bike that is separated from cars”, followed by “To exercise for health or for fun.” In terms of the pathway alignment and context, the preferred alignment was a meandering path through

nature and various landscapes which provides a variety of amenities, followed by a path for recreation and leisure. There was less of a desire for a path that solely got users from point A to point B as quickly as possible, aligning with previous polling that showed limited desire to use the greenway primarily for commuting to school or work.

However, when it came to the portion through Lahaina Town, a majority of residents desired on-street connections to key destinations. Feedback heard in this round of outreach helped shape the project’s vision and formulate the project goals and alignment evaluation criteria.

Round 2 (March 2022) - This round of outreach focused specifically on each of the six proposed greenway segments and included a three-day site visit, ride along,

and community meeting attended by 32 community members. Through feedback heard in this round of outreach, various segment alignments were tweaked and prioritized, with some being altogether removed.

Round 3 (June 2022) - This round of outreach provided stakeholders and community members with the first look at the preferred greenway alignment, sharing results of the alignment evaluation for each segment. A community meeting included 32 meeting participants. Most participants

(96%) either strongly agreed or somewhat agreed with the preferred alignment. Additionally, participants were polled and asked their opinion on various individual design elements such as shade, seating, lighting, bike parking, bike repair stations, and hydration stations.

Round 4 (August 2022) - This final round of outreach shared a draft version of the WMG Plan with community members and stakeholders and included additional conversations on the construction of the greenway. Outreach included discussion on the identified optimal order for construction.

Figure 4: Original West Maui Greenway Plan Outreach Efforts



2. Safe Streets and Roads for All Grant Application

In 2022, federal funding for the WMG was unsuccessfully requested by COM as part of the U.S. DOT's SS4A grant program. The SS4A grant funds and supports planning, infrastructure, behavioral, and operational initiatives centered around preventing death and serious injuries on roads and streets involving all roadway users, including pedestrians, bicyclists, public transportation, and automobiles.

Applicants are evaluated on selection criteria including: (1) Safety Impact; (2) Equity, Engagement, and Collaboration; (3) Effective Practices and Strategies; and (4) Alignment with Other DOT Strategic Goals, inclusive of climate and sustainability, economic competitiveness, and workforce; and (5) Project Readiness.

Applicants can apply for two types of funding: (1) Planning and Demonstration; and (2) Implementation. Planning and Demonstration funding is for applicants that are looking to develop an Action Plan or conduct supplemental safety planning and/or demonstration activities to enhance and inform an existing Action Plan. Action Plans identify safety projects and strategies shaped by factors such as safety data, engagement and collaboration, equity, and public policies. If an existing Action Plan is in place that meets all U.S. DOT requirements, applicants can request Implementation Grant funding to further plan, design, and construct safety projects and strategies. Funding for both grant types must be expended within five-years of the grant issuance.

Implementation funding in the amount of \$10,343,245 (inclusive of a 20% applicant

match of \$2,068,649) was sought to complete environmental review, design, and construction for Segments 5 and 6, spanning between the Lahaina Recreation Center and Olowalu. The application's narrative was centered around critical road safety issues that arise from limited off-street options for people walking, biking, and rolling, with the greenway aiming to improve safety for all modes by providing separate spaces. The application aimed to align with the Maui Vision Zero Action Plan (MVZAP) (Maui MPO, March 2021) in building safe infrastructure and safety improvements for pedestrians and bicyclists, separated from vehicular traffic.

While no formal written feedback was provided, the following shortcomings of the application were noted and summarized by U.S. DOT to COM:

The application received a recommended review, but not highly recommended.

- ▶ A total of \$3 billion was sought in funding in the 2022 application cycle, with only \$580 million available for award.

The application scored weakest in its Safety Impact writeup.

- ▶ It was noted that the application needed to incorporate and elaborate on specific proven safety countermeasures to be implemented.
- ▶ It was noted that the application needed to more clearly directly tie proposed improvements with existing safety problems at specific locations.
- ▶ It was noted that the application needed to expand upon specific types of greenway crossings to be implemented.
- ▶ It was noted that greater detail was desired for implementation costs.

The application scored highest in its Effective Practices and Strategies and Alignment with Other DOT Strategic Goals writeups. However, the following points were still noted:

- ▶ Maintenance, commercialization, and utilization plans needed to be created and/or expanded upon.
- ▶ Additional discussion on the demographics of who the greenway would serve was desired.
- ▶ Additional discussion on the extent of collaboration and outreach was needed, and that the application needed to better demonstrate how it worked with the community to develop the proposed solution.

It was noted that the application did not provide sufficient evidence to illustrate its readiness to move and be completed within the five-year post issuance requirement.

SS4A funding in the amount of \$5 billion is appropriated between 2022-2026. The application period for fiscal year (FY) 2023 closed on July 10th, 2023, and the next SS4A notice for funding opportunity (NOFO) is anticipated to open in Spring 2024. Previous applicants that were not awarded funding are allowed and encouraged to resubmit a revised application for additional consideration in future submittals.

3. West Maui Community Plan

The WMCP was approved by the Maui County Council in December 2021 and became effective in January 2022. It serves as an update to the 1996 plan by offering “goals, policies and actions to guide growth and preservation in West Maui.” As the WMCP is part of the Maui County Code, it is legally enforceable and includes an implementation program and status reports detailing the enforcement of the community plans.

The WMCP identifies the following transportation network policies and actions applicable to the WMG:

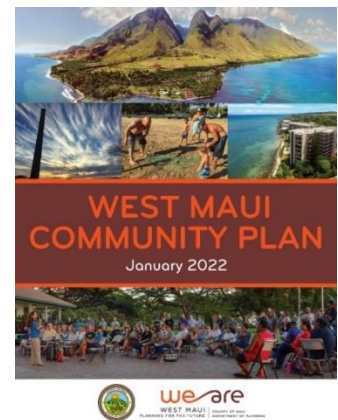
Policy 2.1.9: Encourage the development of firebreaks and bioswales that can be used for recreational paths and greenways around existing communities and between new communities.

Policy 2.2.13: Require new development, redevelopment, and Chapter 201H HRS and Chapter 2.97, Maui County Code, housing projects to incorporate the planned WMG into the project and provide ROW for the greenway if the alignment crosses the property.

- ▶ COM noted that all projects that need discretionary approvals, including special management area (SMA) permits, change in zoning (CIZ) permits, special use permits, and subdivision approval, will trigger compliance with the WMCP and be required to abide by this policy.

Action 1.13: Develop a wildfire information campaign with signage to build public awareness of wildfire hazards. Improve community awareness of the human, economic, and environmental costs associated with wildfires caused by negligence or accident. Engage the community to create and maintain fire breaks, and to encourage native dryland plants in landscaping in the drier areas of West Maui.

Action 2.12: Complete the West Maui Greenway multi-use path to provide a safe, off-road path for walking and bicycling between parks, neighborhoods, and businesses.

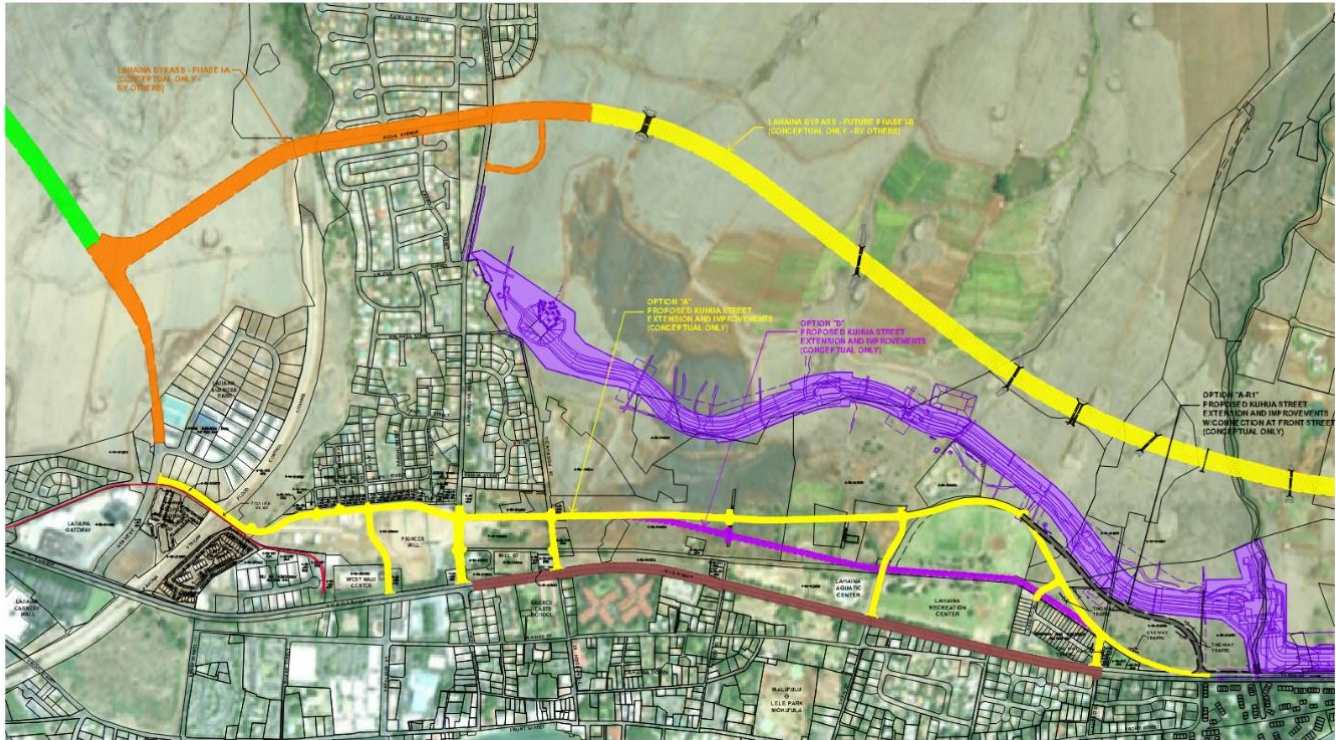


4. Kuhua Street Extension

Previously, COM DPW conducted initial planning efforts related to a portion of the WMG between Keawe Street and Aholo Street, associated with the potential extension of Kuhua Street. Conceptually, the Kuhua Street Extension project involved creating a parallel corridor to the Lahaina Bypass and Honoapiʻilani Highway, connecting Kuhua Street with the Mill Street Extension at Lahainaluna Road, tying back into Honoapiʻilani Highway south of the Lahaina Recreation Center (see "Option A" in yellow and "Option B" in purple in Figure 5).

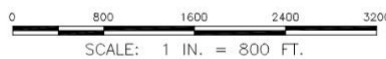
Prior to continuing with design and construction, COM DPW planned to evaluate surrounding traffic impacts post-construction of Phases 1-A and 1-B of the Lahaina Bypass (see "Future Lahaina Bypass – Phase 1-A" in orange and "Future Lahaina Bypass – Phase 1-B" in yellow in Figure 5). However, most recently, COM DPW expressed concerns with ROW availability and property title concerns in the section south of Lahainaluna Road, coinciding with portions of Segment 4 of the WMG, and noted that ROW was not secured for the Kuhua Street Extension, and that the project and funding were no longer top priorities for near term design or construction.

Figure 5: Proposed Kuhua Street Extension and Improvements



PROPOSED KUHUA STREET EXTENSION AND IMPROVEMENTS (FROM VICINITY OF AHOLO STREET TO KEAWE STREET) OPTIONS "A" AND "B"

- LEGEND:**
- OPTION "A" - PROPOSED KUHUA STREET EXTENSION AND IMPROVEMENTS (CONCEPTUAL ONLY)
 - OPTION "B" - PROPOSED KUHUA STREET EXTENSION AND IMPROVEMENTS WITH CONNECTION AT FRONT STREET (CONCEPTUAL ONLY)
 - OPTION "B" - PROPOSED KUHUA STREET EXTENSION AND IMPROVEMENTS (CONCEPTUAL ONLY)
 - HDOT HONOAPIʻILANI HIGHWAY WIDENING UNDER CONSTRUCTION
 - FUTURE LAHAINA BYPASS - PHASE 1A (CONCEPTUAL ONLY)
 - FUTURE LAHAINA BYPASS - PHASE 1B (CONCEPTUAL ONLY)
 - FUTURE LAHAINA WATERSHED FLOOD CONTROL CHANNEL (BY OTHERS)
 - EXISTING LAHAINA (KAANAPALI) RAILROAD



November 16, 2009
Revised: January 19, 2010

Image Source: (Final Environmental Assessment – Kuhua Street Extension and Improvements Project, Munekiyo & Hiraga, September 2015)

C. COMPARABLE TRAILS AND GREENWAYS

A review and analysis of other comparable trails and greenways both in Hawai'i and the mainland United States was conducted to identify high level issues and best practices for consideration in the WMG.

1. Hawai'i

a) Kaua'i Path (Ke Ala Hele Makālae)

The Kaua'i Path currently spans 7.3-discontinuous miles along Kaua'i's eastern shoreline (see Figure 6), with the intention of one day being extended and connected through future phases to cover up to 16-miles between Anahola and Nāwiliwili. The path is managed by the County of Kaua'i (COK) DPR. The shared use path provides a dedicated space for pedestrians, bicyclists, and people using other forms of non-motorized transportation, and is connected to various beach parks, retail centers, and hotels. Portions of the path run adjacent to the ocean while others run parallel to the main thoroughfare (Kūhiō Highway).

The Kaua'i Path was first envisioned and spearheaded by a citizens advisory committee known as the Ke Ala Hele Makālae Committee, who worked with Hawai'i DOT officials to incorporate the path into the *2003 Bike Plan Hawai'i Master Plan*. Since then, the group was renamed Kaua'i Path, Inc, a registered non-profit that manages path programs including Path Ambassadors, Friends of Path activities, fundraising, development and maintenance.

Similar to the WMG, the path was broken into segments and was anticipated to be planned, designed, and constructed in phases. For example, the *Nāwiliwili – Ahukini Shared-Use Path Final Environmental Assessment (EA)* (Kaua'i Path EA) (COK DPW and HDOT, November 2017) covers a 5-mile segment and was recently finalized. Separate EAs were written for other segments and phases.

COK DPR Park Rangers patrol the path and are responsible for enforcing COK ordinances. A Path Maintenance Plan (see Attachments Section) from the *Ahukini to Lydgate Bicycle/Pedestrian Path EA* (COK DPW and HDOT, July 2016) from the COK guides path maintenance schedule and procedures. Various community members, organizations, and businesses/hotels along the path assist in volunteer efforts to maintain the path. A summary of key considerations related to the Kaua'i Path is seen in Table 1.

Federal-aid transportation programs have been used for the planning, design, and construction of the path. As a result, National Environmental Policy Act (NEPA) requirements are in place. Environmental review for this path was necessary as it proposed the use of public lands and public funds with areas of the path traversing Conservation Land, the Special Management Area (SMA), and archaeologically significant areas.

Figure 6: Ke Ala Hele Makālae



Table 1: Kaua'i Path Planning, Operations/Governance, and Maintenance

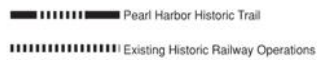
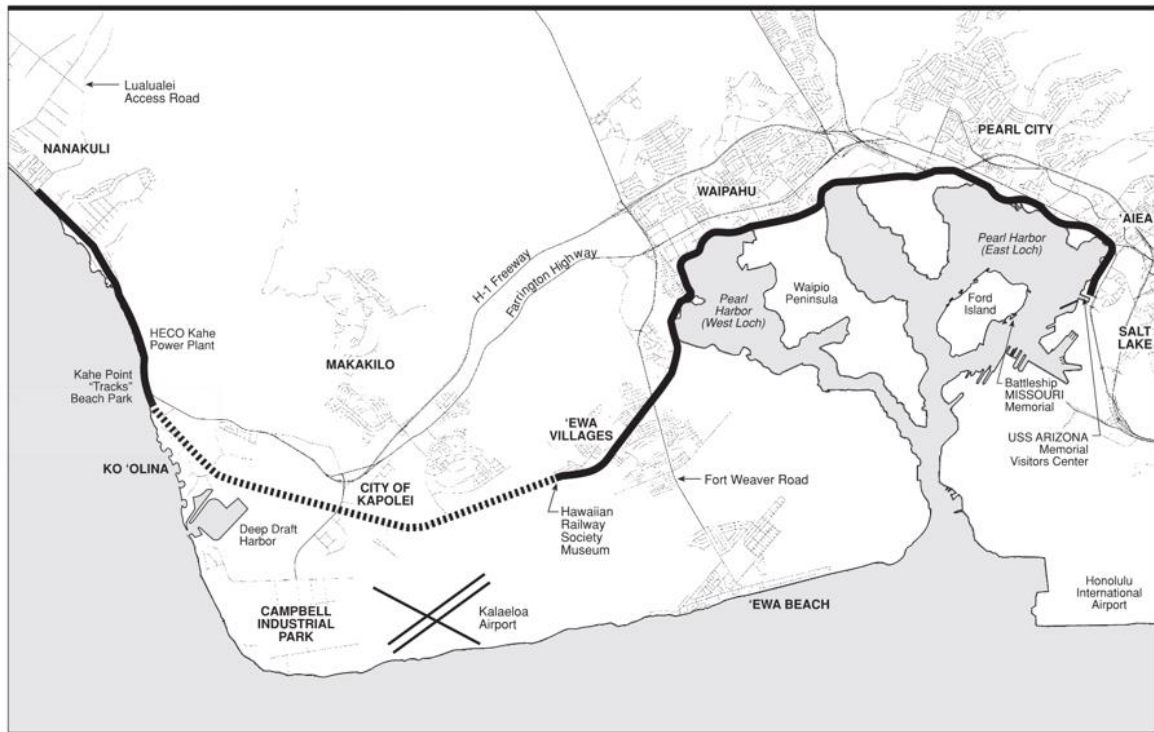
Planning	Operations/Governance	Maintenance
<ul style="list-style-type: none"> <li data-bbox="191 289 591 787"> <p>▪ Funding Congestion Mitigation and Air Quality Improvement (CMAQ) program funds were used to fund a portion of trail development and construction. CMAQ funds are appropriated for State and local governments to fund transportation projects and programs to meet various environmental goals. Funds were appropriated to each specific trail segment, as opposed to the entire path. In portions, the value of the land donation from adjacent parcels was used to leverage and match Federal Highway funds.</p> <li data-bbox="191 829 591 1092"> <p>▪ Right-of-Way (ROW) Constraints The majority of the alignment falls within the COK or HDOT ROW. However, land acquisitions, easements, and condemnation have been needed for various properties along the path.</p> <li data-bbox="191 1134 591 1255"> <p>▪ Path Development The COK DPW developed the path and associated infrastructure, including necessary permitting.</p> 	<ul style="list-style-type: none"> <li data-bbox="613 289 1029 346"> <p>▪ Governance The path is governed by the COK DPR.</p> <li data-bbox="613 388 1029 583"> <p>▪ Commercial Activities Commercial activities in COK parks require a permit, and the path is considered part of the COK parks system. Several businesses in the vicinity of the path rent bicycles for use on the path.</p> <li data-bbox="613 625 1029 888"> <p>▪ Usage As part of a study done in 2017, it was noted that pedestrian and bicyclist usage across the path was fairly equal, and that weekday evenings had the heaviest path use, although the study was limited and may have been impacted by weather.</p> <li data-bbox="613 930 1029 1024"> <p>▪ Park Rangers Park Rangers under the COK DPR are tasked with enforcing rules along the path.</p> 	<ul style="list-style-type: none"> <li data-bbox="1052 289 1425 485"> <p>▪ Staffing COK DPR currently has 4 maintenance staff, of which 2 are dedicated to maintaining the Kaua'i Path. COK DPR hopes to add staff if/when the path is expanded.</p> <li data-bbox="1052 527 1425 684"> <p>▪ Volunteers Previously, volunteer programs assisted with cleaning and vegetation clearing along the path, but efforts have not been sustained.</p> <li data-bbox="1052 726 1425 1052"> <p>▪ Adjacent Properties Various resorts and developments have been required to fund the construction of the path as part of their building conditions. Various businesses assist with general maintenance in sections of the path adjacent to their properties, but no formal agreements are in place with COK.</p>

b) Pearl Harbor Historic Trail (O'ahu)

The existing Pearl Harbor Historic Trail (PHHT) was constructed in 1989 spans 5.2-miles along O'ahu's southern shoreline between the Arizona Memorial parking lot in the east and the Waipi'o Soccer Complex in the west (see Figure 7). In its entirety, the

PHHT is planned as an 18.6-mile shared use path, extending north towards Nānākuli. Portions of the proposed 18.6-mile PHHT follow along the former O'ahu Railway and Land Company (OR&L) rail line, while large portions of the ROW fall within land owned by the United States Navy.

Figure 7: Pearl Harbor Historic Trail Alignment



OR&L Right-of-Way

Image Source: (Pearl Harbor Historic Trail Master Plan, City and County of Honolulu, 2001)



Pearl Harbor Historic Trail Master Plan (2001)

The *Pearl Harbor Historic Trail Master Plan* (Pearl Harbor Plan) (City and County of Honolulu (CCH), May 2001) was developed to discuss enhancements that could be made along the OR&L ROW, offer guidance to community groups and other decisions makers by establishing goals and objectives, and outline funding for trail development.

The Pearl Harbor Plan was comprehensive and addressed many of the same topics that the WMG is facing today. However, the visioning set forth 22 years ago has largely not been realized with portions of the 5.2-mile PHHT in disarray with issues such as squatters and illegal dumping of junk and stolen vehicles (see Figure 8).

Figure 8: Pearl Harbor Historic Trail



Originally, the Pearl Harbor Plan noted that maintenance along the path would be done by the CCH DPR and managed by the CCH Department of Transportation Services (DTS). The Pearl Harbor Plan acknowledged the difficulties that come with managing a path through multiple jurisdictions and landowners and recommended an institutional arrangement to coordinate efforts beginning during the planning process, which was to be led by the CCH

Department of Planning and Permitting (DPP). The Pearl Harbor Plan laid out the following Action Plan items to be pursued following publication. Additional considerations are listed below as subpoints.

- ▶ Form a “Friends of the Pearl Harbor Historic Trail” or Steering Committee.
- ▶ Identify and prioritize short-term and long-term actions.

- ▶ Designate a CCH agency responsible for coordinating CCH activities related to the Master Plan. Department of Design and Construction (DDC) would conduct capital improvement planning and construction. DPP would remain engaged to serve as a resource to the wider community on planning and urban design issues, as well as land use regulations.
- ▶ Introduce a resolution for the Honolulu City Council to adopt the Pearl Harbor Historic Trail Master Plan.
 - ➔ It was noted that funding priorities for surface transportation projects on O’ahu are established through a process managed by the O’ahu MPO, who prioritizes projects to be incorporated into the biennial Statewide Transportation Improvement Program (STIP). To obtain federal transportation funds for the Pearl Harbor Trail, it was noted that the CCH should develop strategies for working with the O’ahu MPO to get the PHHT on the STIP, of which adopting the Pearl Harbor Plan was a start.
- ▶ Seek assistance from the NPS [National Parks Service] Rivers, Trails, and Conservation Assistance [RTCA] Program on individual project plans.
 - ➔ The NPS Rivers, Trails, and Conservation Assistance Program supports locally led conservation and outdoor recreation projects across the United States on an application basis for various organizations, including local, state, and federal agencies. Support is not limited to areas solely in National Parks. NPS-RTCA provides professional planning, design, and technical expertise to help achieve a project’s conservation and outdoor recreation vision. For example, the Hawai’i Bicycling League (HBL) received technical assistance from NPS on advancing the South Shore Trail visioning and implementation.
 - ➔ The NPS-RTCA webpage notes that applications for assistance will become available in November 2023, and are due on March 1st, 2024. The NPS-RTCA notes that interested applicants should contact the NPS program manager for their state to discuss their proposed project and the current NPS-RTCA application process.
- ▶ Develop and fund individual projects. For the Trail to become a “world-class” recreational destination, enhancements must proceed along its entire length in a unified manner. Success in funding projects will be the ultimate factor in determining the time needed to complete projects.
- ▶ Construct a key demonstration project within two to three years to depict the Trail’s positive community and economic benefits. This demonstration project should be feasible, highly visible, well used, and a community priority. The success of a demonstration project can be publicized to rally support and attract future funding.
 - ➔ This is of note, as the demonstration project and prioritized first segment should be highly visible and well used to keep public support for the project and promote eventual expansion of the trail.

An Agreement for the Development, Maintenance, and Upkeep of Bicycle Facilities in the City and County of Honolulu (2020)

An Agreement for the Development, Maintenance, and Upkeep of Bicycle Facilities in the City and County of Honolulu, dated December 31st, 2020, discussed the CCH's updated implementation and maintenance policies for CCH bicycle facilities. It was noted that the CCH DTS would be responsible for updating the O'ahu Bike Plan and coordinating planning, design, and implementation of bicycle facilities. It was noted that the CCH Department of Facilities Maintenance (DFM) is primarily responsible for cleaning and maintaining bicycle facilities such as the PHHT; however, the CCH DPR is responsible for maintenance of facilities on or bordering CCH DPR property, such as facilities throughout Ala Moana Beach Park, while the CCH Department of Enterprise Services (DES) is responsible when facilities are on or border CCH DES property, such as the Honolulu Zoo or Ala Wai Golf Course. In DTS monthly newsletters, the department has highlighted collaboration with community partners including HBL, the American Public Works Association Hawai'i Chapter, Patagonia, and Rotary Clubs who occasionally volunteer in collaboration with CCH DFM to clean and manage CCH bike facilities and keep them in good condition. Volunteer signups are posted online for easy access and shared across multiple CCH platforms.

Senate Resolution Number 37 (2023)

In talking with legislators associated with SR37, it was noted that the CCH previously had some form of a Master Use Agreement with the Navy but it is believed to have lapsed. SR37 was introduced in part to bring

more awareness to the trail and surrounding area, with long-term hopes that the trail would be catalyzed by eventual development from adjacent landowners, along with the continued construction of the Skyline and associated transit-oriented development (TOD). It was also noted that no clear "community champion" has arisen, and elected officials are hesitant to spearhead efforts and repursue community engagement at this time.

2. Continental United States

a) Apple Capital Recreation Loop Trail (Chelan County, WA)

Chelan County is located within central Washington, with a population of approximately 80,000, and the county seat located within the largest town of Wenatchee.

The Apple Capital Recreation Loop Trail (see Figure 9) is a multiuse pedestrian and bicyclist trail running along both sides of the Columbia River for approximately 10-miles, resulting in a loop of more than 20-miles. The trail was completed in 1994 and serves thousands of commuter and recreational trail users each year. The Loop Trail Advisory Committee (Loop TAC) was formed to allow six independent managing agencies to manage the trail cooperatively and consistently, similar to the cooperative arrangement proposed within the WMGP. In addition to the managing agencies, the Loop TAC includes representatives from local law enforcement agencies, the Wenatchee Reclamation District, multiple "Special Interest Organization" representatives, and multiple "Special Perspective/Trail User at Large" representatives. The Loop TAC meets twice annually to discuss challenges associated with the trail and attempt to keep

all rules and regulations the same throughout the entirety of the trail, which runs through multiple jurisdictions. Additional spurs of the trail are in planning phases, with the Chelan County Public Utility District (PUD) spearheading the effort. Each managing agency within the Loop TAC appoints a person whose job duties include trail maintenance for their section of the trail.

Maintenance tasks vary throughout the year depending on weather. Plowing, sweeping, and blowing are regular maintenance tasks. The trail is edged approximately two times per year. The Chelan County PUD notes that specific maintenance costs are not available, however, they tend to vary depending on the sub soil conditions and the amount of trail traffic. Maintenance such as seal coating and crack filling tends to be greater in areas that are irrigated.

After reviewing comparable trails and greenways both in Hawai'i and the mainland United States, key takeaways included:

- ➔ Establishing a registered non-profit "Friends of" group to assist in fundraising, development, and maintenance.
- ➔ Developing a path maintenance plan and potential agreements with community members, organizations, and businesses adjacent to the path.
- ➔ Prioritize key demonstration projects in early stages of trail development to depict the trail's positive community and economic benefits and rally support to generate future funding.

Figure 9: Apple Capital Recreation Loop Trail



b) Greater Grand Forks Greenway (Grand Forks, North Dakota & East Grand Forks, Minnesota)

Large portions of Grand Forks and East Grand Forks, Minnesota were inundated by extreme flooding in 1997. As a result, a congressional delegation advocated for the development of a greenway (see Figure 10). The U.S. Army Corps of Engineers assisted in developing a plan for a levee system along adjacent rivers which would protect the region from future flooding, which left land within the floodplain for the development of the greenway.

The greenway was not initially supported at the local level, but the region has now embraced the greenway and the benefits it has brought including economic development, stormwater management, and transportation.

The greenway was funded through a 50-50 split between the federal government and local match. Grand Forks and East Grand Forks, along with the Grand Forks Park District, have developed programming for the trails to help fund maintenance, including triathlons, bike races, music festivals, and farmers markets.

As the greenway spans two states, it is managed separately by both North Dakota and Minnesota. Grand Forks, North Dakota established a greenway division to assist with maintenance, while East Grand Forks, Minnesota works with the Minnesota Department of Natural Resources to manage the greenway.

c) Bear Creek Greenway (Jackson County, Oregon)

The Bear Creek Greenway is a 21-mile multi-use trail located along the Bear Creek riparian corridor in southern Oregon. Due to its location between two major highways, it serves a primary active transportation need and connects five cities. The trail was damaged by wildfires in 2020, and resilient aspects of its rebuild will be discussed in a following section.

The Bear Creek Greenway Joint Powers Agreement was established which laid out a joint consistent management and maintenance program between the five cities and Jackson County. General maintenance for the trail includes fog sealing, shouldering, bridge maintenance, and vegetation management.

The trail is divided into nine planning areas based on location in relation to jurisdictional boundaries. Maintenance costs are divided by jurisdiction based on lane miles of trail and population. Average annual maintenance costs range between \$4,000 - \$6,000 per mile per year. Additional funding was allocated post the 2020 wildfires to manage vegetation.

Figure 10: Greater Grand Forks Greenway



D. TRAILS USED AS FIREBREAKS AND EMERGENCY ACCESS

In light of recent tragic events and devastation caused by wildfires in West Maui, the need for firebreaks and supplemental emergency access has risen to a greater level of urgency. The WMGP noted the benefit of planting native shrubs and plants along the WMG to be more fire-resistant in addition to its potential use as an alternate route for emergency vehicles and evacuation during wildfires or other events when the adjacent highway is clogged by evacuations. A literature review of various guidelines and documents on a local and national level was completed and relevant documents are summarized in the following sections.

1. Trails and Resilience: Review of the Role of Trails in Climate Resilience and Emergency Response

FHWA released *Trails and Resilience: Review of the Role of Trails in Climate Resilience and Emergency Response* (FHWA Trails and Resilience Review) (FHWA, March 2023) as a literature review of best practices and noted research gaps. The report noted that trails can be designed and constructed to increase resilience and that trail design should consider the vulnerability and sensitivity of climate change. However, the report notes that research is needed to understand how agencies can use vulnerability and risk information to prioritize funding of future trail projects and integrate resiliency into decision making. Additionally, the report noted that while there is extensive research related to designing roadways to adapt to climate change, research has not yet been integrated with trail-specific design.

FHWA Trails and Resilience Review also highlights how trails can assist in supporting emergency response and recovery but notes there is a gap between the theory and practice of how this is implemented. The report notes that during wildfire evacuations, residents may not consider evacuating using paths, even when it may be faster than driving. The report notes that additional research is needed to identify best practices regarding trail design and management to support evacuations. The report does provide the following considerations to support emergency vehicle access to trails:

- ▶ Use thicker pavement to reduce potential damage from weight of motor vehicles.
- ▶ Paths should provide 10-feet of vertical clearance (minimum 8-feet in constrained areas).
- ▶ Path widths should be 10-feet wide (minimum 8-feet in constrained areas).

Trails and Resilience: Review of the Role of Trails in Climate Resilience and Emergency Response

*Prepared by the U.S. Department of Transportation Volpe Center for the
Federal Highway Administration Office of Human Environment*
March 2023



Image source: Volpe Center



U.S. Department of Transportation
Federal Highway Administration

While removable barriers and gates are often used to limit access to trails only to authorized emergency vehicles, the report suggests it is preferable to restrict access by dividing the path into two sections with low landscaping via “splitter islands” at roadway crossings, which can be driven over in cases of emergency, and do not pose safety hazards for cyclists like bollards do. The report notes that trails can support wildfire management activities and provide access for fire-response teams, while trails can be planned to also act as fuel breaks. The report notes that further research is needed to effectively apply wildfire management strategies to trail design (e.g., guidance on how to strategically locate trails to act as fire breaks).

2. 2018-19 Vegetation Management Rapid Mapping Assessment and Collaborative Action Planning – Maui Report

In the Hawai'i Wildlife Management Organization's (HWMO) *2018-19 Vegetation Management Rapid Mapping Assessment and*

Collaborative Action Planning – Maui Report (HWMO's Wildfire Mapping Assessment) (Hawai'i Wildlife Management Organization, 2019), various existing trails within West Maui, such as the Launiupoko multi-use pathway, were credited by residents as critical infrastructure in allowing firefighters to protect homes during a 2016 wildfire (see Figure 11). The report noted that while firebreaks do not stop wildfires from advancing on their own, they can provide access and a defensible line for firefighters and can double as emergency egress for residents. The greatest protection occurs when the amount of flammable materials/landscape is reduced on either side of the firebreak, or in this case the multi-use pathway.

The HWMO's Wildfire Mapping Assessment (see Figure 12) identified that there is still a substantial need for new and proposed firebreaks, particularly in West Maui. The assessment tool highlights West Maui as part of the 88,000 acres of Maui that need improved fire break protections. This area encompasses the extents of the proposed WMG.

Figure 11: Launiupoko Multi-Use Pathway as a Firebreak



Image Source: (HWMO's Wildfire Mapping Assessment, HWMO, 2019)

Figure 12: Existing and Proposed Firebreaks in Maui

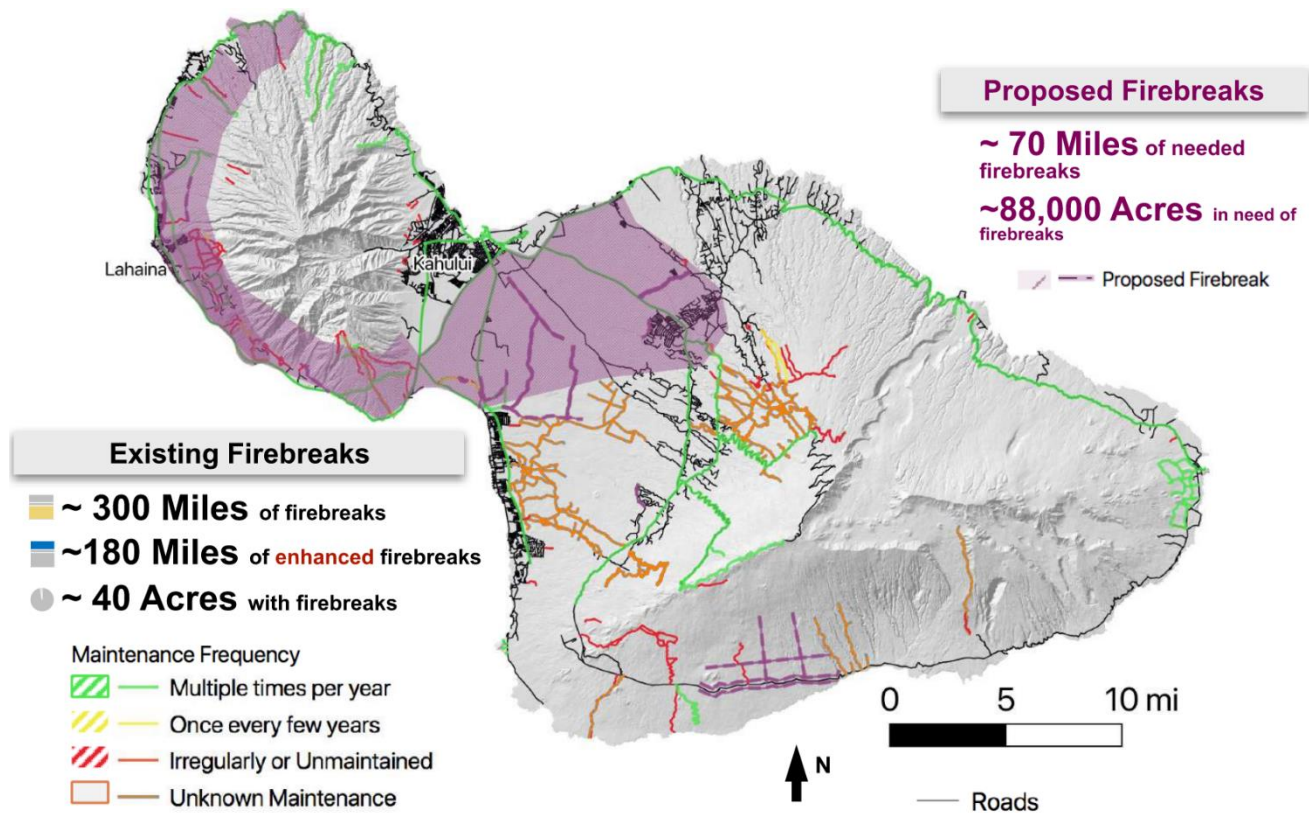


Image Source: (HWMO's Wildfire Mapping Assessment, HWMO, 2019)

3. County of Maui Hazard Mitigation Plan Update

The County of Maui Hazard Mitigation Plan Update (COM HMP Update) (Maui Emergency Management Agency, August 2020) discussed the risk and vulnerability of a variety of hazards, including wildfires, to different regions through the County. All of the WMG falls within the community planning area of West Maui within COM HMP Update. COM HMP Update used the wildland urban interface (WUI), developed for the State of Hawai'i Department of Land and Natural Resources (DLNR), to categorize community planning areas into low, medium, and high risk wildfire areas. The WUI represents the area where urban development meets vegetated, wildfire prone undeveloped lands.

COM HMP Update identified that all current buildings, critical facilities, and populations in Maui County are at risk to wildfire due to varying factors, noting that certain areas are more susceptible to wildfires. COM HMP Update noted that West Maui had the second highest total value of at-risk buildings in the COM, just slightly below that of the community planning area of Kīhei-Mākena.

93% of buildings were categorized as either High or Medium wildfire risk within West Maui. In addition, 71% of critical facilities (emergency services, healthcare buildings, mass care buildings, transportation hubs, water and wastewater systems, etc.) within West Maui were noted as being potentially at-risk to wildfires. Figure 13 shows identified wildfire risk areas throughout West

Maui, along with adjacent critical facilities within the region. Nearly all developed portions of West Maui that the WMG is planned to pass through are categorized as having high to medium risk of wildfires.

COM HMP Update identified numerous action items related to mitigating these hazards. The development of greenways was not specifically discussed, although *High Priority*

Action Item #11 involved establishing an alternative route to and from West Maui for use during disasters.

Additionally, *COM HMP Update* discussed how FEMA *Hazard Mitigation Grant Program* (HMGP) funds can be used to assist with implementing long-term hazard mitigation measures after a major disaster declaration.

Figure 13: West Maui Wildfire Risk Areas

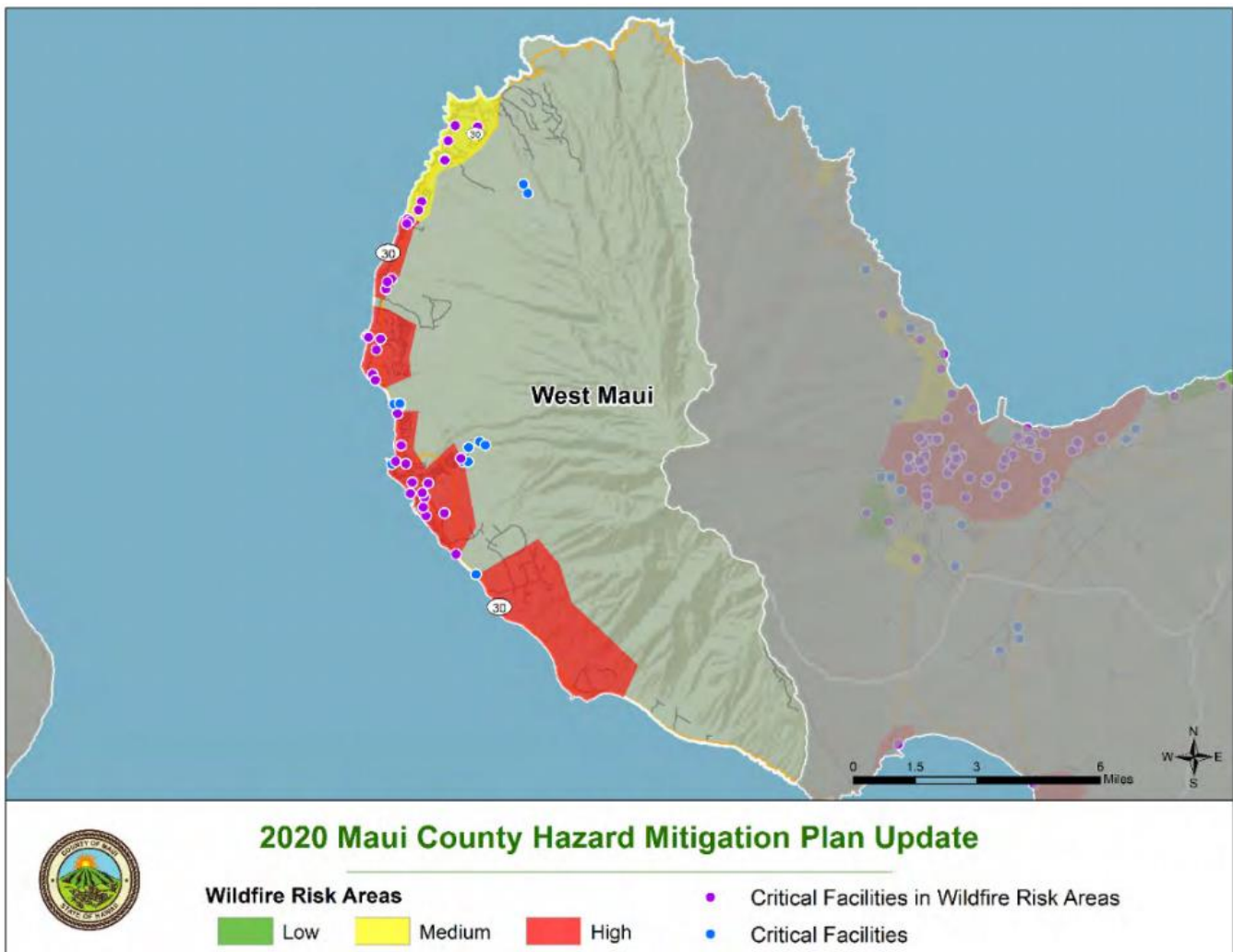


Image Source: County of Maui Hazard Mitigation Plan Update (Maui Emergency Management Agency, August 2020)

4. Critical Role of Greenbelts in Wildfires Resilience

The *Critical Role of Greenbelts in Wildfires Resilience* (Greenbelt Alliance, June 2021) discusses the role of greenbelts – defined as open space, parks, preserves, and agricultural lands which surround or are adjacent to a city or urbanized area that restricts or prohibits residential, commercial, and industrial development – in planning for wildfires, specifically developed for the San Francisco Bay area. Recreational greenways, such as recreational playing fields, golf courses, and bike and walking paths were identified as one of four general categories of greenbelts.

5. The Playbook for the Pyrocene – Design Strategies for Fire-Prone Communities

In the state of California, where wildfires are a common occurrence and threat, open spaces, parks, and greenways are often designed and used as firebreaks (note California refers to these as fuel breaks). Per the California Code of Regulations § 1276.03. Firebreaks are located in consultation with local fire authorities and designed in a condition to reduce the potential of damaging impacts to access routes, buildings, and infrastructure. A key component to this involves planned maintenance and upkeep to ensure these firebreaks function as intended.

In November 2018, the town of Paradise, California was devastated as a result of wildfires. As a part of rebuilding, it has been proposed to surround the town with new parks, athletic fields, and trails that are less likely to burn than forests and could act as firebreaks, while serving recreational

benefits. The town’s DPR recently began acquiring new land surrounding the city to act as a buffer zone, which is in part being funded through settlements that the local government is receiving due to the fire (*Edge of Paradise: Landscape Strategies for Living with Fire*, SWA Group, 2020).

The Playbook for the Pyrocene – Design Strategies for Fire-Prone Communities (SWA Group, 2023) discusses strategies related to planning and designing for wildfires. It is intended for use by planners, designers, and developers to use in mitigating associated risks. Numerous strategies are directly related to trails and greenways, including:

- ▶ **Armor the Edges** - Turn areas immediately surrounding a development into firebreaks or areas with little or no combustible materials, such as paved trails, roadways, athletic courts, parking lots, etc.
- ▶ **Design Double-Duty Trails** - Reducing fuels along recreational corridors can provide an effective barrier to fire spread, lower the risk of human-caused ignitions, and increase firefighter safety when used as access points for wildfire defense.
- ▶ **Establish Greenways** - In addition to buffers around the edges of a community, smaller-scale greenways strategically integrated within a community can help reduce the risk of loss during wildfire events. Designing greenways with multiple entry points can make it significantly easier for firefighting resources to access and use them in wildfire defense.

6. Case Studies

a) Coachella Valley Link (Coachella, CA)

Coachella Valley Link (CV Link) is a 50-mile off-street multi-use path running parallel to the Whitewater River and Tahquitz Creek between Palm Spring and Coachella in California (see Figure 14). The CV Link was planned as an alternative escape route in emergencies, providing network redundancy

when portions of the primary roadway network may be damaged. The *CV Link Conceptual Master Plan Volume 1* (ALTA, January 2016) recommended providing numerous access points to the trail for police departments and emergency services. Physical addresses would be created in the 911-response system and a shortest path route would be mapped to emergency service providers.

Figure 14: Coachella Valley Link



b) Bear Creek Greenway (Oregon)

The Bear Creek Greenway is a 21-mile paved multi-use trail spanning numerous municipalities in Oregon. A large portion of the trail falls within the WUI, and in 2020, the Almeda Wildfire significantly damaged a portion of the trail. Since the wildfire, the municipalities have collectively worked with the community, conducting public outreach (see Figure 15) and discussing management strategies to prevent future wildfires along the corridor. The *Bear Creek Fire Management Plan* (City of Medford, 2021) was developed and discusses various recommendations to reduce fire risk:

Management of vegetation:

- ▶ Use of herbicides and non-herbicide methods to control invasive plants
- ▶ Fuel reduction around structures

The Bear Creek Greenway has discussed creating a Greenway Vegetation Management Plan to map existing greenway vegetation and fire loads, discuss fire load reduction tools broken down into management units based on vegetation type, jurisdiction, and location, while identifying implantation timelines and costs.

Figure 15: Bear Creek Greenway Outreach



c) Griffith Park (Los Angeles, CA)

Griffith Park, located in Los Angeles, California, is a large municipal park with over 4,210 acres of natural terrain and landscaped park land. The park was specifically designed to include wide fire

roads which connect to various parts throughout the park to be used as part of emergency response and evacuation and can be used as multi-use recreational trails outside of emergencies.

E. TRAIL-ORIENTED DEVELOPMENT

The concept of trail-oriented development (TrOD) involves concentrating development around alternative modes of transportation and incorporating safe and accessible multimodal access between public spaces and trails. The concept is similar to transit-oriented development, which concentrates on similar means but specifically emphasizes connections with transit systems.

1. Bellevue, WA

Recommendations for Trail-Oriented Development (Bellevue TrOD Study) (City of Bellevue, Fall 2018) identified the following positive outcomes that can come as part of TrOD:

- ▶ Retail, recreational, and tourist businesses flourish as a result of TrOD. As these industries gain momentum, more community gathering spaces and social and economic hubs form. This enhances the property tax base within walkable distances of trails and increases both retiree retention and younger generation influx to trail-adjacent neighborhoods.
- ▶ TrOD makes efficient use of space, merging park-like recreation and aesthetic values with dense, mixed-use development. It also offers a greater level of proximity for compatible services and land uses. This results in reduced travel times. It also reduces automobile-reliance and improves residents' capacity to comfortably live and work without the stress of navigating traffic and finding a place to park.

- ▶ TrOD encourages greater density and accessibility among employment and educational sites, and commercial, utilitarian and healthcare services, recreational facilities, and transit stations. It builds upon and extends the benefits of transit-oriented development.

The Bellevue TrOD Study did note that oftentimes TrOD can have adverse consequences for existing low-to-moderate income residents. These residents may not be able to keep up with rising rents and property taxes associated with the increased property values that often result in areas located near trails. Preemptive measures to protect against this should be considered.

2. BeltLine (Atlanta, GA)

In its case study review, the BeltLine in Atlanta, Georgia was highlighted. The BeltLine is a planned 33-mile loop of dedicated multimodal trails that will connect to schools, parks, neighborhoods, transit hubs and urban centers, in which 95,000 residents will live within a ½-mile radius. The trail follows the route of a former railroad, similar to portions of the WMG.

Portions of the BeltLine have been completed, with construction beginning in 2006 and the project slated for completion by 2030. The City of Atlanta created a Tax Allocation District (TAD) to dedicate significant portions of the area's increasing property tax revenues to support housing and community development efforts. The TAD could provide funding for up to 28,000 additional housing units over the next 25-years, a portion of which will be dedicated to affordable housing.

3. Midtown Greenway (Minneapolis, MN)

Active Transportation and Real Estate: The Next Frontier (ULI Active Transportation) (Urban Land Institute, March 2016) discusses the Midtown Greenway in Minneapolis, Minnesota, a 5.5-mile commuter trail built between 2000 and 2007 to provide safe connections for pedestrians and bicyclists between key destinations in south Minneapolis and the downtown core.

Prior to its construction, the railway corridor was unused and riddled with trash and misuse. The development of the Midtown Greenway came from a variety of government (federal, county, state, city, and neighborhood) funds, a congressional earmark, and private funds from real estate developers. Between 2004 and 2014, an explosion of residential and commercial development worth upwards of \$750 million occurred along the corridor. The *Midtown Greenway Coalition* was developed initially as an advocacy group for the railway's transformation and worked with the City of Minneapolis throughout the process of planning and construction, while they continue to engage with residents, business, and developers within the area.

F. "FRIENDS OF" WMG

The Pearl Harbor Plan specifically stated that studies by the Rails-to-Trails Conservancy (RTC) noted that trails that do not have a "Friends of" groups or other active champions can stagnate and are more likely to eventually fail.

The Pearl Harbor Plan outlined a goal of establishing a "Friends of Pearl Harbor Historic Trail" to assist in various advocacy

efforts. It recommended establishing the group through a memorandum of understanding (MOU) between CCH DPP and key parties, such as the Navy, HDOT, utility agencies, O'ahu MPO and key landowners.

A similar "Friends of" group and MOU could be set up between key stakeholders involved with the WMG, such as DPR, DPW, HDOT, Maui MPO, the Maui Bicycling League and key landowners and businesses. A "Friends of" group may serve multiple functions, and assist with:

- ▶ Serving as the trail "champion" and assisting in connecting community and decision-making agencies.
- ▶ Provide technical expertise.
- ▶ Assist in creating legislation.
- ▶ Organize community events, clean-up and maintenance efforts.

Successful "Friends of" groups also may assist with identifying funding opportunities from private businesses and nonprofit organizations. "Friends of" groups should look to encourage development along the trail and may assist in facilitating land donations from key landowners and businesses along the trail alignment. Some "Friends of" groups are registered as 501c(3) nonprofit agencies, allowing them to receive monetary contributions with tax-exempt status.

"Friends of" groups typically have a board of directors, tasked with ensuring bylaws and the group's mission are being followed. In addition, many "Friends of" groups appoint a facility manager who is tasked with coordinating maintenance volunteer efforts with appropriate agencies. Outside of the board of directors, general members are crucial in sustaining community and financial support.

G. QUALITATIVE RANKING REASSESSMENT

The WMGP ranked each of the segments of the greenway to determine the optimal order for construction. This ranking is being reassessed to determine whether a revised first priority should be considered.

1. WMGP Segment Ranking

The WMGP acknowledged that the WMG would be built in phases, based on available funding and ROW approval. To prioritize individual segments, the WMGP considered criteria as shown in Table 2. The criteria were weighted, with ROW availability and

opportunities for funding having the highest importance. Each criterion was scored as “Lower Performing” (equated to a score of “1”), “Medium Performing” (equated to a score of “2”), or “Higher Performing” (equated to a score of “3”). Scores were then multiplied by criterion weights to determine an overall weighted score for each segment, which ultimately determined the segment prioritization rankings.

Ultimately, the WMG Plan identified the revised Segment 5 (Lahaina Recreation Center to Launiupoko Beach Park) as the highest scoring segment to prioritize, as shown in Table 3.

Table 2: Existing West Maui Greenway Plan Segment Prioritization Criteria and Weighting

Criteria	Description	Metric	Weight
Order of Magnitude Capital Cost	Score based on typology costs	1 (highest cost) – 3 (lowest cost)	1
Environmental Permitting	Permitting matrix score	1 (highest need) – 3 (lowest need)	1
ROW Availability	Score based on landowner support	1 (lowest support) – 3 (highest support)	4
Operations and Maintenance (O&M)	Score based on anticipated O&M needs based on typology	1 (highest need) – 3 (lowest need)	1
Opportunities for Funding	Score based on anticipated greenway demand/proximity to residential areas	1 (lowest demand) – 3 (highest demand)	2

Table 3: Existing West Maui Greenway Plan Segment Prioritization

Criteria	1	2	3	4	5	6	7
Order of Magnitude Capital Cost							
Environmental Permitting							
ROW Availability							
Operations and Maintenance							
Opportunities for Funding							
Overall	●	○	●	●	●	●	●
Rank	5	7	5	3	1	2	3

Criteria

Goals

2. Ranking Methodology Reassessment

In light of the recent wildfires in West Maui, it is acknowledged that much of the core surrounding Lahaina town will forever be impacted, leaving uncertainty as to WMG’s path forward in this area. It was also noted by COM that there may be other factors that could influence segment prioritization that were not considered in the WMGP. As such, it was requested that the current effort revisit these and make updated recommendations around the priority for initial construction. The original methodology and criteria ranking used by the WMGP were reviewed and considered for inclusion or expansion as a part of the proposed segment ranking reassessment.

As a result of this, most criteria were considered to still be appropriate and accurate. However, in the immediate wake of the West Maui wildfire destruction, federal money has been provided to assist with emergency response efforts. In the coming months and years, it is likely that additional

federal funds will become available for work associated with the rebuilding of buildings as well as infrastructure in the impacted areas. The availability of these funds provides an opportunity for the COM to pursue the construction of WMG segments that fall within the qualifying areas. Nearly the entirety of WMG segments 3 and 4 traverse through portions of the impacted area (see Figure 16) and thus are assumed to have the greatest opportunity for immediate funding. As the original assessment had scored these segments highest, no subsequent changes are proposed. By comparison, a much smaller portion of WMG segment 5 traverses through portions of the impacted area. To differentiate segment 5 from the significantly impacted WMG segments 3 and 4, the *Opportunities for Funding* for WMG segment 5 was downgraded from a 3 (higher performing) to a 2 (medium performing). All other original rankings and scorings for each segment remained as is.

The original methodology used by the WMGP is expanded upon here by evaluating the segments against additional criteria,

including *Resilience Planning, Planned Development, Transportation Safety and Equity, and Existing Benefit/Use*. Each segment is ranked against these additional criteria as “Lower Performing”, “Medium Performing”, or “Higher Performing” and assigned a score, as done with the original WMGP rankings. Each criterion score is weighted and combined with the original WMGP criteria to determine a revised segment prioritization as described in the following sections.

Figure 16: WMG Lahaina Wildfire Impacted Area



a) Resilience Planning

This criterion considers each segment in relation to resilience, existing infrastructure, and emergency response. This includes:

- ▶ **Number of Primary North/South Access Roads** (source: Google Maps) - West Maui has limited routes providing continuous north/south access such as Honoapiʻilani Highway, Lower Honoapiʻilani Highway, the Lahaina Bypass, and Front Street. In portions of the region, there is only one primary north/south road, posing potential concerns during emergencies when access may be blocked. Greenways can serve as alternative emergency access routes for both first responders and evacuating citizens. The number of primary north/south access routes were approximated using Google Maps. In segments where an access route spanned portions of the segment, but not its entirety, it was counted as ½. Segments with fewer primary north/south access roads were prioritized, representing a potential higher need for alternative routes during emergencies.
- ▶ **Sea Level Rise Exposure** (source: WMGP Map Book, September 2022) - Portions of WMG segments fall within areas that may be impacted based upon projections of 3.2 feet of sea level rise by 2100, as outlined in the State of Hawaiʻi Sea Level Rise Vulnerability and Adaptation Report (2017) and discussed in the WMGP Map Book. Segments that fall within project sea level rise exposure areas may present certain risks or need to be relocated over time, and as such, segments that fell outside of these areas were prioritized.

► **Infrastructure Makai of Trail** (source: Google Maps) - As previously discussed, greenways can potentially act as firebreaks (or “fuelbreaks”), slowing the spread of wildfires. This takes on greater significance in the wake of the Lahaina wildfires and will be a point of community discussion going forward. Firebreaks may have the highest potential benefit when there are significant amounts of infrastructure present on the makai (meaning ‘towards the ocean’) side of the

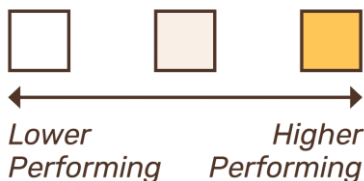
greenway. Infrastructure was generally categorized by the amount of critical facilities (government offices, hospitals, etc.), residential, and commercial development/buildings. As such, segments perceived to have higher amounts of density and infrastructure makai of the trail were prioritized.

Based on these three variables, each segment was given an overall criterion score, as shown in Table 4.

Table 4: Revised Rankings - Resilience Planning Criterion Scores

Criteria Related to Resilience	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7
Number of Primary North/South Access Roads <i>(source: Google Maps)</i>	1.5	1.5	1.5	3.0	2.0	1.5	1.0
Within Sea Level Rise Exposure Area (3.2 feet) <i>(source: WMGMP Map Book)</i>	No	No	Small Portion	No	No	No	Multiple Portions
Infrastructure Makai of Trail <i>(source: Google Maps)</i>	Some	Some	Significant	Significant	Minimal	Minimal	Minimal
Score	Higher Performing (3)	Higher Performing (3)	Higher Performing (3)	Higher Performing (3)	Medium Performing (2)	Medium Performing (2)	Lower Performing (1)

Criteria



b) Planned Development

WMCP Policy 2.2.13 requires new development, redevelopment, and Chapter 201H HRS and Chapter 2.97, Maui County Code, housing projects to incorporate the planned WMG into the project and provide ROW for the greenway if the alignment crosses the property.

COM Planning Department Long Range Division maintains a Project Status Viewer (PSV) which visually displays planned major residential and commercial developments and includes the permitting status of each project. The PSV was reviewed and it was noted where the WMG preferred alignment either ran through or directly adjacent to one

of these planned developments. Only developments with a permitting status of conceptual or proposed, application in process, or approved (discretionary) were considered. While other planned projects are shown in the vicinity of the WMG preferred alignment and are likely to use and benefit from the WMG development, they were not considered as they would not be subject to the WMCP Policy 2.2.13.

Based on the number of development projects where the WMG preferred alignments either ran through or directly adjacent planned developments, each segment was given an overall criterion score, as shown in Table 5, which notes the specific development projects. A map of the planned developments is included in the Attachments.

Table 5: Revised Rankings - Planned Developments Criterion Scores

Criteria Related to Planned Developments	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7
Conceptual or Proposed	-	<i>Ka'anapali Lower 'North' Honokowai</i>	<i>Ka'anapali 2020 - Lower 'South' Honokowai Villages of Leialii</i>	-	-	-	-
Application in Process	-	<i>Pulelehua Honokowai</i>	-	-	-	-	-
Approved (Discretionary)	<i>Kapalua Mauka Project District 2</i>	-	<i>Keawe Street Apartments</i>	-	-	-	-
Total Number of Developments	1	3	3	-	-	-	-
Score	Medium Performing (2)	Higher Performing (3)	Higher Performing (3)	Low Performing (1)	Low Performing (1)	Low Performing (1)	Low Performing (1)

c) Transportation Safety and Equity

An additional criterion applied to the reassessment of priority was the consideration of quantitative criteria related to transportation safety and equity throughout West Maui. Data was pulled from various sources such as the U.S. Census, MVZAP, and the U.S. DOT's Equitable Transportation Community (ETC) Explorer Tool, with the goal of prioritizing areas with potentially higher immediate needs when it comes to safety and equity. Variables considered included:

- ▶ **% of Households Below Poverty Line** (source: U.S. Census ACS 2021 5-year) - Prioritizing census tracts with higher rates of poverty who may be more susceptible to limited transportation options and a lack of safe recreational opportunities.
- ▶ **% of Households with No Personal Vehicle** (source: U.S. DOT ETC Explorer tool) - Prioritizing census tracts with higher rates of households lacking personal vehicles, representing a potential higher need for alternative transportation options.
- ▶ **Transportation Burden Cost** (source: U.S. DOT ETC Explorer tool) - Represents the percentage on an average a household spends of their household income on transportation. Prioritizing census tracts with higher rates of transportation burden cost, representing a potential higher need for alternative, accessible transportation options.
- ▶ **Pedestrian Involved Collisions** (source: MVZAP Dashboard) - Represents the number of pedestrian-involved collisions (all severities) between 2014-2018, as displayed in the MVZAP dashboard. Collisions with injury

severities listed as incapacitating or fatal were weighted higher. Prioritizing census tracts with higher numbers of collisions, representing a potential higher need for safer pedestrian infrastructure.

- ▶ **Bike Involved Collisions** (source: MVZAP Dashboard) - Represents the number of bicyclist-involved collisions (all severities) between 2014-2018, as displayed in the MVZAP dashboard. Collisions with injury severities listed as incapacitating or fatal were weighted higher. Prioritizing census tracts with higher numbers of collisions, representing a potential higher need for safer bicyclist infrastructure. (See Attachments).
- ▶ **Bike Commute Percentage** (source: U.S. Census ACS 2021 5-year) - Represents the percentage of commuters who typically bike to work. Prioritizing census tracts with higher bike commute percentages, representing a potential higher need and projected use of additional bicyclist infrastructure.
- ▶ **Walk Commute Percentage** (source: U.S. Census ACS 2021 5-year) - Represents the percentage of commuters who typically walk to work. Prioritizing census tracts with higher walk commute percentages, representing a potential higher need and projected use of additional pedestrian infrastructure.
- ▶ **Mean Travel Time to Work** (source: U.S. Census ACS 2021 5-year) - Prioritizing census tracts with longer mean travel times to work, who potentially face increased transportation burdens.

- ▶ **Per Capita Income** (source: U.S. Census ACS 2021 5-year) - Prioritizing census tracts with lower per capita incomes, representing potential higher needs for safe, alternative forms of transportation and recreation.

This methodology is in line with various federal grant opportunities, such as SS4A, that use quantifiable metrics, specifically related to safety and equity, to allocate funding to potential grant applicants. However, it should be noted that many sources that provide data on transportation safety and equity do so on a census tract basis, and the WMG segments do not exactly align with census tracts. Some segments cross multiple tracts, and some segments abut the border of two census tracts. For comparison, an overlay of the WMG with West Maui census tracts is shown in Figure 17, while census tracts and their corresponding segments are listed below.

- ▶ **Segment 1** - All within Census Tract 315.04.
- ▶ **Segment 2** - Portions within Census Tracts 315.04, 315.05, 315.03, and 314.02.
- ▶ **Segment 3** - All within Census Tract 314.02.
- ▶ **Segment 4** - All within/adjacent to Census Tracts 314.04/314.05.
- ▶ **Segment 5** - Portions within/adjacent to Census Tracts 314.04/314.05 and 320.
- ▶ **Segment 6** - All within Census Tract 320.
- ▶ **Segment 7** - All within Census Tract 320.

Based on these variables, each census tract was given an overall criterion score, as shown in Table 6. Each segment was assigned the criterion score of the census tract that it most aligned with. In cases where a segment ran through multiple census tracts, such as Segment 2, the highest scoring census tract was applied. Converted segment rankings are seen in Table 7.

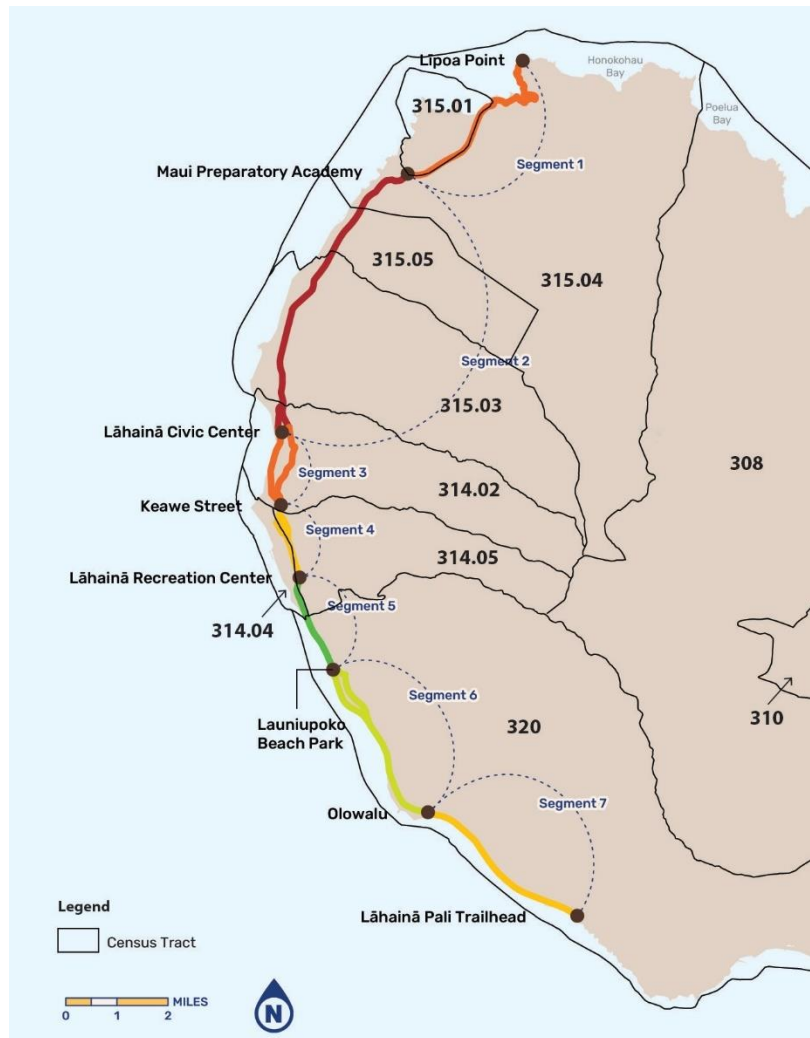


Figure 17: West Maui Census Tracts

Image Source: (2010 U.S. Census)

Table 6: Revised Rankings - Transportation Safety and Equity Segment Analysis

Criteria Related to Grant Funding	Census Tract							Criteria
	315.04	315.05	315.03	314.02	314.04	314.05	320	
Percentage of Households Below Poverty Line <i>(Source: US Census)</i>	2.2%	5.1%	13.1%	8.3%	16.2%	11.4%	4.8%	
Number of Households with No Personal Vehicle <i>(Source: USDOT ETC Tool)</i>	3.2%	13.9%	10.8%	2.0%	5.2%	5.8%	2.7%	
Transportation Cost Burden <i>(Source: USDOT ETC Tool)</i>	7.9%	12.2%	12.7%	12.1%	14.6%	12.1%	9.4%	
Pedestrian/Bike Involved Collisions <i>(Source: Maui Vision Zero Action Plan Dashboard)</i>								
-Pedestrian - Fatal or Incapacitating	0	1	2	0	0	0	0	
-Pedestrian - Non-Incapacitating	2	1	2	8	11	0	3	
-Bike - Fatal or Incapacitating	0	0	0	2	2	0	0	
-Bike Collisions - Non-Incapacitating	1	0	2	4	7	0	3	
Pedestrian/Bike Collisions (Weighted)	3	3	8	16	22	0	6	
Bike Commuter Percentage <i>(Source: US Census)</i>	0%	0%	2%	4%	6%	3%	1%	
Walk Commuter Percentage <i>(Source: US Census)</i>	0%	0%	5%	3%	16%	2%	4%	
Mean Travel Time to Work (minutes) <i>(Source: US Census)</i>	24.1	17.2	14.9	15.2	15.5	20.9	22.5	
Per Capita Income <i>(Source: US Census)</i>	\$ 79,839	\$ 63,812	\$ 59,383	\$ 30,137	\$ 31,812	\$ 30,608	\$ 65,260	
Rank	7	6	2	3	1	4	5	
Score	Lower Performing (1)	Lower Performing (1)	Higher Performing (3)	Medium Performing (2)	Higher Performing (3)	Medium Performing (2)	Medium Performing (2)	

Table 7: Revised Rankings - Transportation Safety and Equity Criterion

Segment 1 (Census Tract 315.04)	Segment 2 (Multiple Census Tracts)	Segment 3 (Census Tract 314.02)	Segment 4 (Multiple Census Tracts)	Segment 5 (Multiple Census Tracts)	Segment 6 (Census Tract 320)	Segment 7 (Census Tract 320)
Lower Performing (1)	Higher Performing (3)	Medium Performing (2)	Higher Performing (3)	Medium Performing (2)	Lower Performing (1)	Lower Performing (1)

d) Public Visibility/Potential Existing Usage

Numerous references and plans for other trails emphasized the importance of the first segment of a trail being highly visible and well used to garner public support for the project and promote eventual expansion. To evaluate this criterion, existing populations adjacent to each segment were evaluated.

- **Population** (source: U.S. Census 2020 Block Groups) - Prioritizing census blocks with higher populations that are more likely to be highly visible and well used.

For simplicity, where a segment either ran through or adjacent to a U.S. Census block group, the entirety of the block group population was applied to the segment. Based on this, each segment was given an overall criterion score, as shown in Table 8.

Table 8: Revised Rankings - Public Visibility/Potential Existing Usage

Criteria Related to Public Visibility/Existing Usage	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7
Population	2,438	6,085	3,208	3,663	2,612	1,112	1,112
Score	Medium Performing (2)	Higher Performing (3)	Higher Performing (3)	Higher Performing (3)	Medium Performing (2)	Low Performing (1)	Low Performing (1)

e) WMG Segment Priority Reassessment

Four additional criterion - Resilience Planning, Planned Development, Transportation Safety and Equity, and Existing Benefit/Use – were added to the existing five criteria considered in the original WMGP segment rankings. All additional criteria were weighted equally as “1”. Segment scores for the additional criteria, as discussed in the previous sections, were multiplied against this weight, and added to the segment scores from the

original WMGP segment rankings (note that *Opportunities for Funding* for Segment 5 was modified). Results can be seen in Table 9

After considering these additional criteria, Segment 3 (Lahaina Civic Center to Keawe Street), Segment 4 (Keawe Street to Lahaina Recreation Center), and Segment 5 (Lahaina Recreation Center to Launiupoko Beach Park) all scored similarly, all three segments of which were directly impacted by the West Maui wildfires.

Table 9: Revised West Maui Greenway Segment Prioritization

Criteria	Criterion Weight	Segment Score						
		Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7
Original West Maui Greenway Master Plan Criteria and Scores								
Order of Magnitude of Cost	1	2	1	1	2	3	2	2
Environmental Permitting	1	2	3	3	3	2	2	2
ROW Availability	4	3	2	2	2	3	3	3
Operations and Maintenance	1	2	1	2	2	3	3	3
Opportunities for Funding	2	1	2	3	3	2*	2	1
Additional Criteria and Scores								
Resilience Planning	1	3	3	3	3	2	2	1
Planned Development	1	2	3	3	1	1	1	1
Transportation Safety + Equity	1	1	3	2	3	2	1	1
Public Visibility/Potential Existing Usage	1	2	3	3	3	2	1	1
Weighted Score		28	29	31	31	31	28	25
Revised Rankings		5	4	1	1	1	5	7

Note: Modified from a 3 to a 2 to reflect the higher opportunity for funding for the most significantly wildfire impacted Segments 3 and 4.

H. RECOMMENDATIONS

It is recommended that a combination of Segments 3 through 5 (Lahaina Civic Center to Launiupoko Beach Park) be pursued as the initial priority as all three scored highest overall when factoring in Resilience Planning, Planned Development, Transportation Safety and Equity, and Public Visibility/Potential Existing Usage. Portions of all three of these segments were directly impacted by the West Maui wildfires. Efforts associated with the WMG acknowledge that additional public engagement and review are needed but are not appropriate at this sensitive time for the people of Lahaina. It is also acknowledged that many uncertainties exist around the future planning and rebuilding process within these three segments. As such, it is acknowledged that future studies associated with environmental permitting and planning, along with the availability of ROW, will help guide which alternative and portions of these segments should be constructed first. Segments may be subdivided based on the results of future studies and efforts and may be constructed incrementally to avoid delays in implementation.

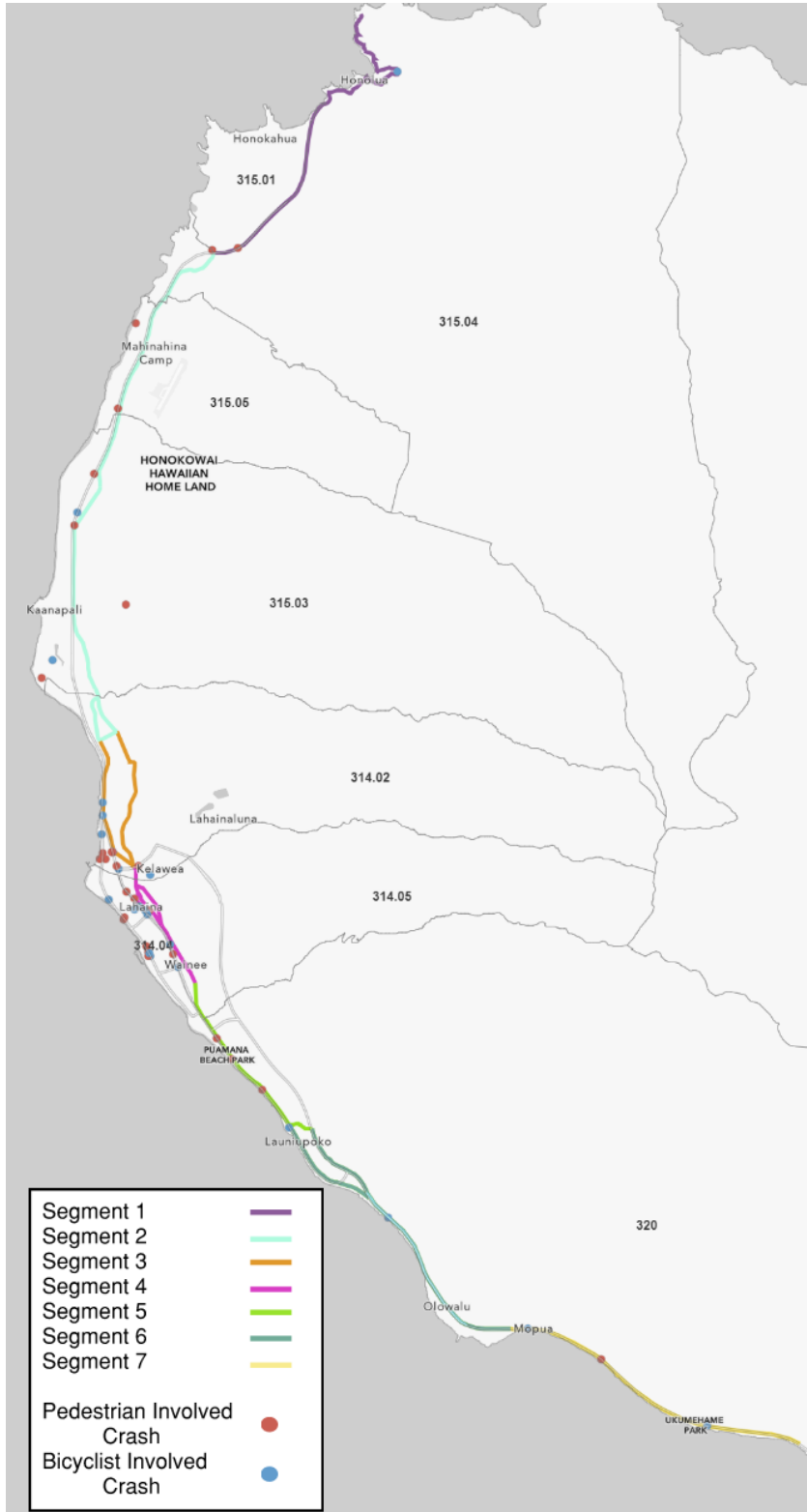
Local news reporting has touched on the need to not only plan for the rebuilding of West Maui, but to also take precautionary steps to protect against future disasters. While federal funding is expected to be made available to the County and State to assist in

the rebuild and recovery efforts, there are uncertainties regarding the specifics. In the context of planning for a more resilient Lahaina, the WMG could serve as a multi-benefit infrastructure project that is eligible for federal funding. The project would not only provide a safe alternative route for people of all ages and abilities who walk, bike, use other small-wheeled transportation, or assisted mobility devices, but it can also be used as an integral part of the community's resiliency. The WMG will expand upon the transportation network, providing redundancy, providing emergency vehicular access while serving as a potential evacuation route during disasters. The project may have the opportunity to incorporate green infrastructure to treat stormwater runoff and may be designed to serve as a fuelbreak in areas prone to wildfire. Additionally, the project may allow for the undergrounding of utilities, and may help spur trail-oriented development and serve as a catalyst to the construction of future resilient communities.

A separate work plan deliverable will define specific tasks, deliverables, critical decision points, funding opportunities and deadlines, community engagement needs, permitting, and other recommended studies and plans to take the prioritized segment into the next stages, with the ultimate goal of implementing the full vision for the WMG.

I. ATTACHMENTS

1. Maui Vision Zero Pedestrian/Bicyclist Involved Crashes along WMG Corridor



Source: Maui Vision Zero Action Plan Dashboard (2014 – 2018, All Crashes)

2. Kaua'i Path – Path Maintenance Plan

PATH MAINTENANCE PLAN

Path Maintenance Program Goals

- design methods and materials—durable and low maintenance
- maintenance pro-active, not reactive
- path corridor kept clean and safe on a daily basis
- maintenance activities should:
 - avoid damage to the path & amenities
 - not interfere with safe and enjoyable path use
 - be cost effective, efficient, and appropriate

Parks & Recreation Department Maintenance Tasks

- daily cleaning of amenities
- activities requiring safety training or certification (some machinery)
- maintenance requiring specialized tools or equipment
- mowing operations
- removal of heavy debris such as trees, boulders, etc
- moving or installing amenities that require machinery **w/ assistance from DPW.**

Parks & Recreation Department Maintenance Personnel

- Park Caretakers – Assigned to sections of path for daily maintenance
- Park Rangers – Assigned island wide and monitor path for safety and compliance to rules
- Path Rangers – Potential future program
- Volunteers – Community volunteers

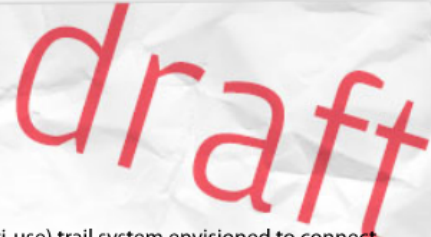
Park Caretakers

- daily cleaning of restrooms\trash collection & removal
- painting and graffiti removal
- installation of small items not requiring machinery such as path signs (installation/replacement by DPW)
- planting, watering, and weed removal, edging vegetation from the path
- public relations by assisting the public
- note problems not related to park maintenance function & refer to appropriate department/division

Park Rangers

- periodic checks along the path to enforce path and park rules
 - monitor path usage
 - dog walkers compliance (checking for correct leash length/no retractable leashes, poop bags, current dog license, cleaning up after their dogs and keeping dogs within the designated portions along the path)
 - no motorized vehicles
 - unauthorized use

3. Kaua'i Path – DRAFT Pathways Management Plan



Terms Ke Ala Hele Makalae is the name of the linear park pedestrian and bicycle (multi-use) trail system envisioned to connect Lihue and Anahola. As of this writing, one portion of Ke Ala Hele Makalae is in use in Lydgate Park and a second section is under construction between Kapaa and Kuna Bay in Kealia. "Ke Ala Hele Makalae" translates as "The Path That Goes by the Coast." Ke Ala Hele Makalae committee is the citizens' group that was convened in the 1990s to assure community oversight of the pathways development and culture. The committee is currently in the process of establishing a non-profit organization, tentatively to be named "Ke Ala Hele O Kaua'i to advocate for pathway enhancements. The proposed Ke Ala Hele O Kaua'i organization is expected to assume the role presently fulfilled by the Ke Ala Hele Makalae committee. References to the Ke Ala Hele Makalae committee in this Plan also apply to the successor organization. Path, trail, linear park, or pathway refers to the improved park areas designated for public use by pedestrians, bicyclists, equestrians, and other muscle powered activities within the Ke Ala Hele Makalae corridor. If found useful, this Path Management Plan may be adopted for other linear parks developed around the island.

Multi-Use Path Design In order to maximize safety, enjoyment, and functionality for users, and to minimize liability exposure for the County of Kauai, the linear park designs will meet all mandatory and advisory standards as identified by the American Association of State Highway and Transportation Officials (AASHTO), the International Mountain Biking Association (IMBA), and other relevant agencies and documents. As Ke Ala Hele Makalae is Kauai's most ambitious linear park project undertaken to date, it is desirable to apply the standards established in Lydgate Park (Phase I of Ke Ala Hele Makalae) and expanded in this Pathways Management Plan to future components of an island wide pedestrian and bicycle friendly network. Linear park facilities will have consistent and predictable review procedures, standardized graphic elements, attractive and appropriate signage, and effective usage guidelines. The linear parks will encourage and embrace cultural and heritage expressions.

Maintenance Issues

- Adequate pavement structural sections should be provided to support emergency response vehicles.
- Provide vandal-proof or resistant features that minimize maintenance needs.
- Provide adequate access to the path to minimize trespassing.
- Provide adequate railing and fencing where appropriate.
- Provide drinking fountains and water hookups along pathway.

Bike Path Management Responsibilities The County of Kauai Parks Division (PD) will serve as the designated Path Manager for pathway projects and will be responsible for operating the pathways. Ke Ala Hele Makalae committee will partner with the County to further these objectives. The following sections address specific operating procedures and responsibilities.

Developing Linear Park Use Regulations The purpose of linear park regulations is to promote trail etiquette, user safety, and enhance the enjoyment of all users. Concise pathway etiquette and use regulations will be posted at entry and key access points, and in published trail guides. Establishing that the pathway facility is a regulated traffic environment like other public rights-of-way is critical for compliance and often results in a facility requiring minimal enforcement. Appropriate civil statutes and penalties will be referenced on regulatory signs other than basic traffic control signage such as speed limit signs. The pathway management agency will review proposed pathway regulations with the County Attorney for consistency with existing ordinances and enforceability. The Ke Ala Hele Makalae committee recommends that the Offices of Community Assistance submit an Ordinance to amend the Kauai County Code to allow animals (primarily horses and dogs) on the pathways without permits, subject to the terms contained in this Path Management Plan.

Guidelines Currently in Effect in Lydgate Park

- Be courteous: All trail users should be respectful of other users regardless of their mode of travel, speed, or skill level.
- Keep Path Clear: Use no more than one-half of the trail when in a group.
- Keep Right: Stay to the right on the path except when passing. Move back or to the right once safely past.
- Respect Private Property: Stay on designated paths or roadways. Avoid shortcutting switchbacks.
- Signal When Passing: Give a clear warning signal by voice, bell, or horn before you pass.
- Be Predictable: Travel in a consistent manner. Look behind you before changing position on the path.
- Yield to Slower Traffic: Cyclists yield to pedestrians.
- Respect the Park: Keep litter in trash receptacles.

Additional Guidelines for Ke Ala Hele Makalae Expansion

- Motor vehicles are prohibited except for power-assisted wheelchairs, light service vehicles, and authorized emergency response vehicles.
- Standard Kauai County Codes apply on the trails: no vandalism; no dumping, etc.
- Yield to on-coming traffic when passing.
- Bicyclists and pedestrians yield to equestrians.
- Bicyclists yield to pedestrians and roller bladers: Let your fellow trail users know you're coming. A friendly greeting or bell is considerate and works well; don't startle others. Show your respect when passing by slowing to a walking pace or even stopping. Anticipate other trail users around corners or in blind spots. Yielding means slow down, establish communication, be prepared to stop if necessary and pass safely.
- Make room for those who are overtaking you.
- Upon resolution of admitting animals to pathways, pets must always be on short leashes.
- Place your trash, including souvenirs left by pets, in the available trashcans, or pack it out. (see next item regarding equestrians)
- Equestrians will immediately remove horse droppings from paved sections of the path and staging areas, but may leave droppings on the equestrian trails.
- Leave no trace: be sensitive to the dirt beneath you. Recognize different types of soils and trail construction; practice low-impact cycling. Wet and muddy trails are more vulnerable to damage. When the trailbed is soft, consider other riding options. This also means staying on existing trails and not creating new ones. Don't cut switchbacks. Be sure to pack out at least as much as you pack in.
- Unpaved trails will be provided in specified Ke Ala Hele Makalae trail areas for use by equestrians.
- Equestrians should not ride on the paved sections of Ke Ala Hele Makalae except within designated staging areas and at crossing points, or in cases where the safety of the horse or rider may be jeopardized.
- Equestrians are allowed on designated equestrian paths and designated equestrian trailhead areas.
- Give a audible warning when passing.
- Travel no more than two abreast.
- 20 mph speed limit.
- Respect the workers who care for the trails.
- Service vehicles yield to all trail users.
- Service vehicles are clearly marked. Report those that do not seem to be appropriate to the trail.
- Bicyclists and equestrians may ride on open trails only: Respect trail and road closures (ask if uncertain); avoid trespassing on private land; obtain permits or other authorization as may be required. Federal and state Wilderness areas are closed to cycling. The way you ride will influence trail management decisions and policies.
- Control your bicycle: Inattention for even a second can cause problems. Obey all bicycle speed regulations and recommendations.
- Never scare animals: All animals are startled by an unannounced approach, a sudden movement, or a loud noise. This can be dangerous for you, others, and the animals. Give animals extra room and time to adjust to you. When bicyclists or runners are passing horses use special care and follow directions from the horseback riders (ask if uncertain). Running cattle and disturbing wildlife is a serious offense. Leave gates as you found them, or as marked.

- Plan ahead: Know your equipment, your ability, and the area in which you are riding -- and prepare accordingly. Be self-sufficient at all times, keep your equipment in good repair, and carry necessary supplies for changes in weather or other conditions. A well-executed trip is a satisfaction to you and not a burden to others.
- Leave your guns, bows and arrows, fireworks, explosives, and drugs at home. The trails are places of peace.
- Bicyclists and equestrians are advised to always wear a helmet and appropriate safety gear.

Multi-Use Path Maintenance Plan Proper maintenance of the pathway is of utmost importance for the productive use of the facility and the protection of the financial investment the community has made in the pathways. The following list represents suggested maintenance practices to be followed by PD.

Table 1: Bike Path Maintenance Activities and Frequencies

Item	Estimated Frequency
Shoulder and grass mowing/hedge trimming	As needed
Remove fallen trees	As needed
Trash pickup/disposal	Weekly
Pavement repair	As needed
Bollard replacement	As needed
Graffiti removal	Immediately or within 24 hours of discovery
Pavement sweeping	Monthly - annually as needed
Weed control	Monthly - as needed
Sign replacement/repair	As needed
Repaint pavement markings	1-3 years
Fence/barrier repair and replacement	Immediate
Clean drainage system	As needed
Lighting replacement/repair	As needed
Maintain emergency telephones	As needed
Pavement sealing/repaving/repouring	As needed and within budgetary limitations

It is assumed in this plan that limited landscaping and amenities (plaza, historic markers, benches) will be provided as integral features along Ke Ala Hele Makalae. PD maintenance responsibility will be limited to the pathway and pathway elements only (see table above), and will not include structural or major maintenance issues related bridges, water and sewer lines, roadways, culverts, or other major infrastructure components. As PD staff or members of a path ranger program (recommended to be developed) will travel the bike path daily, they will note items needing repair: also the bike path users will inform the PD. PD maintenance staff will be trained to limit maintenance vehicle operation (engine running) to a minimum. Manure on any specific section of equestrian path system will not be regarded as a concern until such time as the administrator of the Parks Division provides written notification to the Ke Ala Hele Makalae committee (or a similar successor organization) that droppings are accumulating at an unacceptable rate. The notified organization will then have one calendar month from receipt of notification to respond to the administrator of the Parks Division with a mitigation plan, and two calendar months from receipt of such notification to implement the agreed upon mitigation plan.

Security and Public Safety Ke Ala Hele Makalae will benefit from a reasonable level of self-enforcement in terms of user safety and security. Studies by the Rails-to-Trails Conservancy indicate that the frequency and character of crime and other problems on multi-use paths is generally similar to that of adjoining communities. These studies have also shown that the best and most effective method of enhancing safety and security is to design a functional facility that is well used by the general public. Although multi-use paths will pass through isolated locations, similar trails in other communities nationally have not experienced significant safety problems. The approach to safety and security outlined in this plan is to provide reasonable security features and be prepared to enhance those efforts in the future if safety and security prove to be problems.

Hours of Operation Ke Ala Hele Makalae is being funded and designed to accommodate bicycle, pedestrian, and equestrian uses (in specified areas), and is envisioned to provide a key linkage between Anahola and Lihue and other destinations. Based on comments raised at the public meetings, and in order to meet the requirements of project funding, the pathway should be accessible 24 hours a day. It is proposed that a test period of one (1) year from initial opening be conducted to evaluate the open access policy. Adjustments in hours, patrols, and other items will be made by the PD based on incidents reported to the County of Kauai fire and police departments. If these departments record in excess of three (3) significant incidents (vandalism, arson, assault, or other significant crimes) after the first year of operation, operating hours would be reevaluated by the parks Division in consultation with the Ke Ala Hele Makalae committee.

Signage Installation of standardized regulatory signs at regular intervals along Ke Ala Hele Makalae will help users internalize the rules. This could include "Bicyclists Yield to Pedestrians," "Pass on the Left," "Slower Traffic Stay Right" and speed limits (if applicable).

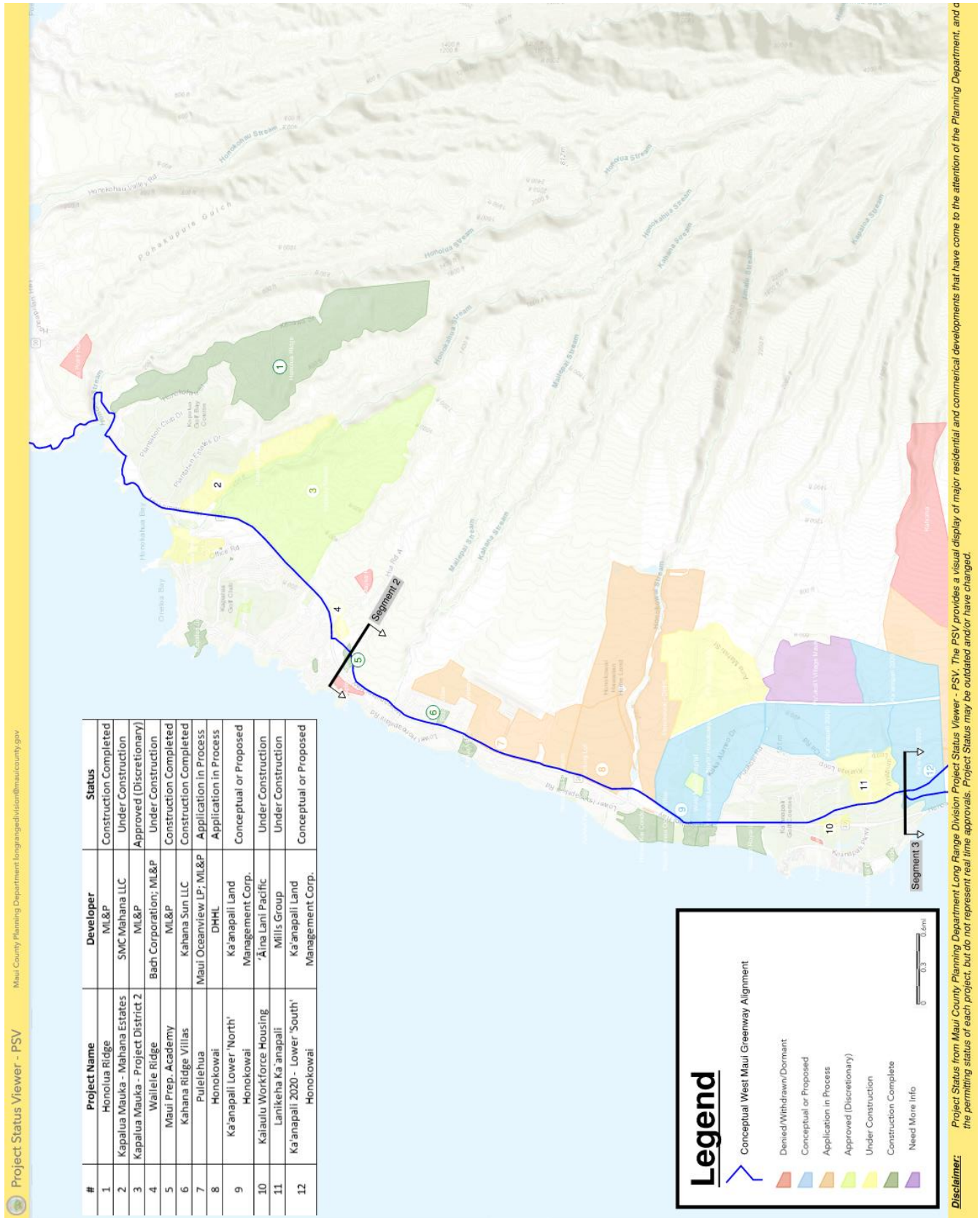
Patrols and Enforcement Based on experience with other multi-use paths nationwide, Ke Ala Hele Makalae is expected to be generally self-enforcing by the general public. The PD staff (or path ranger program participants) will patrol the bike path on bicycles on a daily basis, reporting issues to the PD, local police, or fire departments as they are encountered and as appropriate. The ultimate level of patrols will be based on reported incidents and problems.

Security Features Below are suggested security measures:

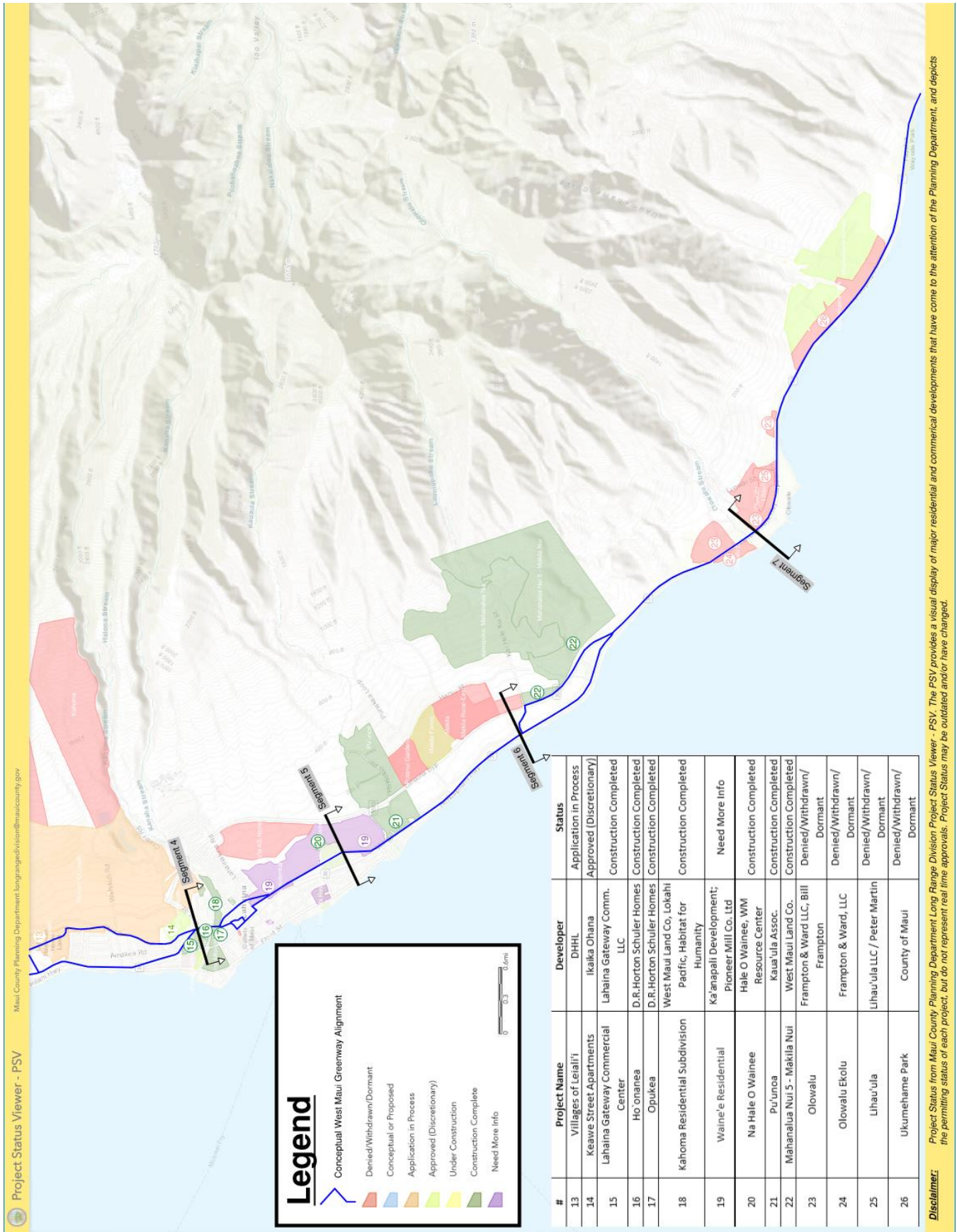
- Provide emergency services (e.g. fire, police departments) with a map of the system, along with access points and keys/combinations to any gates/bollards.
- Locate mileposts every 1/10th mile; identify markers on maps.
- Provide emergency telephones or call box systems linked to the local 911 network with instructions for use and penalties for mis-use.
- Provide adequate lighting within any tunnel built along any pathway.
- Trim all vegetation at least 10 feet from the pathway where possible to maximize visibility, and try to minimize thick undergrowth.
- Enforce speed limits and other rules of the road.
- Consider installation of CCTV cameras, with internet feeds if warranted. It is not expected these would be continually monitored, and law enforcement has indicated their only interest in CCTV would be for incident investigation. As visible cameras may imply to users a level of security and monitoring that does not exist, the County should carefully consider whether it wishes to incorporate this feature.

Emergency Response and Access Emergency access for safety, security, or maintenance purposes will be based on an established protocol between the County of Kauai fire and police departments. Response protocol will be developed along with an Emergency Plan/Memorandum of Understanding (MOU) that will be developed between the operator and these departments. The initial responding party will notify the other departments as soon as possible. Ke Ala Hele Makalae itself is designed to allow emergency vehicles full access to the facility and adequate vehicular access/egress.

4. Maui County Planning Department Project Status Viewer



Source: Maui County Planning Department Long Range Division Project Status Viewer



Source: Maui County Planning Department Long Range Division Project Status Viewer

5. City and County of Honolulu Development, Maintenance and Upkeep of Bicycle Facilities

**An Agreement for the
Development, Maintenance, and Upkeep of Bicycle Facilities
in the City and County of Honolulu**

WITNESSETH THAT:

WHEREAS, the City and County of Honolulu (City) desires to promote bicycling as a safe work commuter mode and as a safe recreation form; and

WHEREAS, various departments of the City are committed to implementing bicycle facilities that would encourage safe bicycling; and

WHEREAS, bicycle facilities include bicycle paths which are on completely separated right-of-way, bicycle lanes (including protected bicycle lanes that are on portions of roadway striped, signed or marked for the preferential or exclusive use of bicycles), bicycle routes which are streets designated for the shared use of bicycles and motor vehicles or pedestrians or both, and bicycle parking and storage facilities; and

WHEREAS, bicycle facilities will require maintenance and upkeep to remain in a safe and aesthetically pleasing condition; and

WHEREAS, the responsibilities of the various City departments are such that no one City department can do all required maintenance tasks; and

WHEREAS, the undersigned departments desire to cancel An Agreement for the Maintenance and Upkeep of Bicycle Facilities of the City and County of Honolulu dated September 18, 1996 and effective September 24, 1996, and the Supplement to an Agreement for the Maintenance and Upkeep of Bicycle Facilities of the City and County of Honolulu by and between the Department of Parks and Recreation (DPR), the Department of Public Works, and the Department of Transportation Services (DTS) of the City and County of Honolulu governing the maintenance of bicycle facilities; and

WHEREAS, DPR, Department of Facility Maintenance (DFM), Department of Transportation Services (DTS), Department of Design and Construction (DDC), Department of Enterprise Services (DES), and the Department of Planning and Permitting (DPP), have agreed to enter into a new Agreement to be effective January 1, 2021 that will identify and address the responsibilities of each City department for the maintenance and upkeep of bicycle facilities.

NOW, THEREFORE, the Directors of DPR, DFM, DTS, DDC, DES, and DPP agree to the following division of responsibilities:

1. **Implementation** – the DTS shall be responsible for the preparation and updating of the City's Bicycle Master Plan. For DTS initiated stand-alone projects, the DTS shall coordinate planning and implementation with: the DPR for facilities on park lands, the DES for facilities on DES property, and the DFM for facilities on City-owned/maintained road rights-of-way to establish the maintenance responsibilities of the bicycle facility. In situations of privately constructed bicycle

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TRANSPORTATION SERVICE

facilities that are to be dedicated to the City, the DPP shall be responsible for the review and approval of all privately constructed bicycle facilities in coordination with the DTS and the DPR for facilities on park lands, the DES on DES properties, and the DFM for facilities on City-owned/maintained road rights-of-way. In cases where the City obtains easements for City bicycle facilities, the City agency obtaining the easement shall coordinate with the appropriate agency for maintenance of the bicycle facilities. If agencies are unable to agree on which agency is responsible for the maintenance of the bicycle facility, the City Managing Director shall determine the responsible agency.

2. **Funding** – Upon appropriation of funds, the DPR and DFM shall procure all equipment, tools, parts, materials and supplies necessary to maintain the bicycle facility. In the event that repairs are not feasible or beyond in-house capabilities, as determined by the respective agency, the agency will request major replacement or reconstruction via the DDC.

3. **Traffic Signs, Markings, Etc.** – The DTS shall be responsible for the determination of appropriate traffic signs and pavement markings for bicycle facilities. The DTS shall conduct periodic assessments of off-street bicycle facilities and prepare legal Paint and Sign Work Orders accordingly and subsequently issue to the DFM for the installation and replacement of traffic signs and markings needing replacement or repair.

4. **Cleaning** – Cleaning tasks shall include but not be limited to sweeping and clearing vegetation for two (2) feet on each side of the bicycle facility. In general, the DPR shall be responsible for cleaning City bicycle paths on or bordering DPR property. The DES shall be responsible for cleaning bicycle paths on or bordering DES properties. The DFM shall be responsible for cleaning bicycle lanes and bicycle routes on or adjacent to City maintained streets. Low-hanging branches over the bicycle facility originating from City owned/maintained property shall be pruned to provide proper clearance to a height of a minimum of ten (10) feet by the DPR after notification to DPR by the City agency maintaining the specific bicycle facility. Low-hanging branches originating from non-City property shall be reported to the DPP by the City agency maintaining the specific bicycle facility. A list of facilities under each agency's jurisdiction is attached hereto and incorporated herein as Exhibit A to this agreement and shall be updated as required. Maintenance for new or added facilities shall be done according to this Agreement.

5. **Asphalt Concrete Repairs** – The DFM shall be responsible for performing temporary asphalt concrete repairs on all City bicycle facilities. The DPR, the DES, and the DTS shall provide a written request to the DFM for work to be done, or prepare a service request in the DFM asset management system (CityWorks). The DTS shall initiate the determination of necessary repairs and shall coordinate with the DDC on the implementation of periodic, large scale resurfacing of existing, mature bicycle facilities by contract when appropriate. The DDC/DTS shall coordinate with the DFM, DPR, the DES, and the DTS or DDC (as applicable) for the reconstruction of all City bicycle facilities as necessary.

6. **Concrete and Other Material Repairs** – Concrete and other material repairs shall be by the agency responsible for the cleaning of the facility. In the event that repairs are not feasible or beyond in-house capability, as determined by the respective agency, the agency will request major replacement or reconstruction via the DDC. Bridges and other structural elements of bicycle facilities shall be placed on the DDC bridge inventory. The Agency responsible for cleaning shall coordinate with the DDC for inspection, repair and replacement of these facilities.
7. **Inspection** – The DTS shall conduct periodic assessments of off-street bicycle facilities, primarily to assess the condition of signs, pavement markings and riding surfaces. The DTS shall coordinate these assessments with the DDC and the agency responsible for cleaning and maintaining the bicycle facility, either: the DFM, the DES, or the DPR as appropriate. Damages, defects, deficiencies or improvements shall be identified during these inspections, and these results will be transmitted to the designated agency to schedule the repair, replacement or reconstruction as appropriate. The DDC shall inspect bridges and other structural element portions of the bicycle facility annually or as required. If repairs are needed that are within the capabilities of in-house City staff, the DDC shall identify the defects, prepare sketches, provide specifications, and initiate written work requests as needed for proper repair by the DFM. If repairs cannot be performed by in-house staff, the DDC shall notify the DTS in writing and the DTS shall coordinate with the DDC to request funds for repair by contract. Construction management will be provided by the DDC.
8. **Bicycle Parking and Storage** – The DPR shall be responsible for maintaining bicycle parking, including but not limited to bicycle racks, as needed, on DPR property. The DES shall be responsible for maintaining bicycle parking, including but not limited to bicycle racks as needed, on DES property. The DFM shall be responsible for maintaining City-owned bicycle racks on City roadways and sidewalks. The DTS shall maintain records of the bicycle parking and storage facilities on City roadways and sidewalks, and initiate a request to DFM for repairs necessary due to damage or vandalism. In the event of damage, vandalism, or theft of bicycle parking and/or storage facilities are beyond repair on City roadways and sidewalks, the DTS shall determine the proper replacement unit(s) and procure for reinstallation. The DTS shall be responsible for maintaining bicycle parking and storage on DTS property including bus stops, transit stations and rail stations.
9. **Volunteer and Community Cleaning** – If volunteer or community groups request permission to clean City bicycle facilities, arrangements should be made directly with the City agency responsible for cleaning and maintaining the path or specific facility. The specific agency in charge shall determine what supplies or services will be provided to the volunteers/community group.
10. **Resilience Planning** – In addition to the responsibility for planning, funds requests, coordination of construction and maintenance, the DTS shall also be responsible to ensure City bicycle facilities are improved, redesigned, relocated, or removed to mitigate the effects of climate change and sea level rise while continuing to provide connected City bicycle facilities for the benefit of the communities around Oahu. The appropriate mitigation and resilience measures


must also take into consideration rising ground water tables and potential inland dry weather flooding. Coordination of the construction of climate change related improvements shall include the DPP, the DDC, and the City agency maintaining the specific bicycle facility.

IN WITNESS WHEREOF, the parties hereto have caused this to be executed and made effective as of January 1, 2021.

DEPARTMENT OF PARKS AND RECREATION

By: 
Director of Parks and Recreation

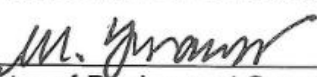
DEPARTMENT OF FACILITY MAINTENANCE

By: 
Director and Chief Engineer

DEPARTMENT OF TRANSPORTATION SERVICES

By: 
Director of Transportation Services

DEPARTMENT OF DESIGN AND CONSTRUCTION

By: 
Director of Design and Construction

DEPARTMENT OF ENTERPRISE SERVICES

By: 
Director of Enterprise Services

DEPARTMENT OF PLANNING AND PERMITTING

By: 
Director of Planning and Permitting

EXHIBIT A

This Exhibit A identifies specific bicycle facilities and the agencies responsible for cleaning and maintaining bicycle paths not located on the City's roadway system.

Bicycle Facility	Segment	Length (Mi)	Agency
Kapahulu Avenue Bicycle Path	Kalakaua Avenue to Ala Wai Boulevard, adjacent to Zoo	0.4	DES
Kapahulu Avenue Bicycle Path Extension	Ala Wai Golf Course Access Road to Date Street	0.4	DES
Waipio Point Access Rd. Bicycle Path	Waipio Point Access Road Bridge to Ted Makalena Golf Course Entrance	0.4	DES
Total Distance		1.2	
Civic Center Multi-Use Path	Alapai Street to Punchbowl Street	0.3	DFM
Date Street Bicycle Path	Laa Street to Kapahulu Avenue	1	DFM (except portion adjacent to Ala Wai Golf Course – DES)
Goodale Ave. Bicycle Path	Waiialua Beach Rd. to Waiialua Town Center	0.4	DFM
KCC Bicycle Staging Area	Comfort Station	0	DFM
King Street Protected Bicycle Lane	Alapai Street to Isenberg Street (miles)	3.1	DFM
	Alapai Street to Alakea Street (miles)	1.7	DFM
Pearl Harbor Bicycle Path	Marina Boat Landing to Lehua Avenue	3.5	DFM
Pearl Harbor Bicycle Path Extension I	Lehua Avenue to Waipio Access Road	1.5	DFM
Pearl Harbor Bicycle Path Extension II	Waipio Point Access Road to Waipahu Depot Road	1	DFM
Pensacola Street	Beretania Street to Kapiolani Boulevard	1	DFM
	Future extension	0	DFM
South Street Bicycle Lane	Ala Moana Boulevard to Kapiolani Boulevard	0.7	DFM
University Avenue	Metcalfe Street to Kapiolani Boulevard	1.5	DFM
	Future extension	0	DFM

Bicycle Facility	Segment	Length (Mi)	Agency
Waialua Beach Road Bicycle Path	Crozier Loop to near Weed Circle	2.5	DFM
Ward Avenue Protected Bicycle Lanes	South King Street to Ala Moana Boulevard	0.7	DFM
Total Distance		18.9	
Ala Moana Beach Park Path	Concrete path from Atkinson entrance to Ewa entrance	0.9	DPR
Kailua Area Bicycle Path System	Kailua Road to Kaneapu Place	0.6	DPR (through Kailua Beach Park)
Ke Ala Pupukea Bicycle Path	Waimea Bay to Oopuola Road	3.2	DPR (for portions in park lands, and 1,600 feet alongside Kamehameha Highway)
McCully Promenade	McCully Street to Laau Street	0.6	DPR
Paki Avenue	Kapahulu Avenue to Monsarrat Avenue to Poni Moi Street	1	DPR
West Loch Bicycle Path – West Loch Park	Kaihuopalaai Street to past Asing Park at Renton Road	2.5	DPR
Total Distance		8.8	