WEST MAUI
PLANNING FOR THE FUTURE

COUNTY OF MAUI
DEPARTMENT OF PLANNING

WEST MAUI COMMUNITY PLAN

Transportation & Mobility
Technical Resource Paper

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Introduction

This paper addresses transportation and mobility issues in West Maui including descriptions of the existing conditions, regulatory, programmatic and policy framework, challenges and opportunities for West Maui's roads, public transit, bicycle and pedestrian modes of mobility.

With an expanding population and changing land uses, it is critically important to plan ahead for safe and efficient movement and access for residents and visitors. The County's transportation system is vital to the health of the economy, the islands' communities, and the daily lives of County residents. As stated in the Maui Island Plan (MIP), the streets and highways of Maui County's transportation system play a major role in shaping settlement patterns. The various modes of travel which include automobile, public transit, bicycle and pedestrian are affected by the quality of the roadway system. The condition of Maui's transportation system also impacts the safety of all roadway users, the movement of goods and products, efficiency of emergency public services, and quality of life. The Island's growth and development has a direct impact on demand on the roadway system. A key outcome, as identified by the MIP, is to maintain, improve, and expand where necessary the existing roadway system, and expand multimodal transportation to improve traffic flow, safety and efficiency.

Within the county, the Hawai'i Department of Transportation (HDOT) has jurisdiction over State roadways while the County of Maui, Department of Public Works (DPW), Highways Division, has jurisdiction over County roadways. The County of Maui, Department of Transportation (MDOT) has jurisdiction over the public transit system (Maui Bus).

Countywide Policy Plan and Maui Island Plan

Diversifying transportation options is a key strategy (Strategy H) identified in the 2010 Countywide Policy Plan (CWPP). Diversifying Maui County's transportation network is essential to building capacity within the existing overtaxed transportation systems. The goal in the CWPP is "Maui will have an efficient, economical, and environmentally sensitive means of moving people and goods." This goal is supported by 5 objectives, 46 policies, and 6 actions.

The five CWPP transportation objectives include:

- Provide an effective affordable, and convenient ground-transportation system that is environmentally sustainable.
- Reduce the reliance on the automobile and fossil fuels by encouraging walking, bicycling, and other energy-efficient and safe alternative modes of transportation.
- Improve opportunities for affordable, efficient, safe, and reliable air transportation.
- Improve opportunities for affordable, efficient, safe, and reliable ocean transportation.
- Improve and expand the planning and management of transportation systems.

The CWPP also includes policies that support bicycle and pedestrian facilities and access within Strategy G (Improve Parks and Public Facilities) and Strategy J (Promote Sustainable Land Use and Growth Management).

The transportation goal in the MIP applies to multiple modes of transportation including roadway, public transit, bicycle, pedestrian and others:

> *An interconnected, efficient, and well-maintained multimodal transportation system.*

The MIP describes several challenges facing transportation planning and development. The following presents some of the essential factors needed in planning for an effective transportation and mobility system in Maui and West Maui:

- Integration of transportation and land use planning
- Expansion of the multi-modal transportation network
- Funding road improvements and capacity projects
- Improving roadway congestion through transportation demand and systems management

The MIP also identifies 3 objectives, 13 policies and 12 actions addressing transportation. The public transit goal in the MIP states:

> *An island-wide transit system that addresses the needs of residents and visitors and contributes to healthy and livable communities.*

The MIP also identifies challenges and opportunities in addressing Maui's public transit needs:

- Accommodating current and future transit needs
- Transit supportive roadway infrastructure
- Need for transit hub to be relocated
- Transportation corridors are needed

The MIP identifies 2 objectives, 12 policies and 8 actions addressing transit.

Mobility and access needs span across many sectors including access to public facilities such as schools, services for seniors and persons with disabilities, health care and wellness, and economic development. The MIP includes a number of objectives, policies and actions that address mobility in these sectors.

West Maui Community Plan

The 1996 West Maui Community Plan (WMCP) identified the need to develop a more robust transportation system to meet the ongoing and future development and to support the improvement and expansion of bikeways, pedestrian paths and sidewalks.

The 1996 WMCP transportation policies and objectives call for safe and convenient movement of people and goods throughout the region and in Lahaina town. The Plan promotes the development of a regional network of bikeways and pedestrian paths in addition to ride sharing programs, residential communities with connecting bike and pedestrian routes, alternating work shifts and traffic signal synchronization to help alleviate traffic congestion and to minimize the use of cars.

The update of the WMCP will be consistent with the MIP and CWPP, and will address transportation, including public transit, pedestrian and bicycle needs, primarily from the perspective of promoting a complete, balanced and connected transportation network that provides a multimodal network integrating access to all modes of transportation. The WMCP will also incorporate the findings, policies, programs and projects from the 2019 Hele Mai Maui Long Range Transportation Plan 2040 (Hele Mai Maui 2040). All sections in the WMCP update will address transportation infrastructure because transportation is a cross-cutting issue that touches every aspect of the built environment from housing to parks.

Maui Metropolitan Planning Organization

The Maui Metropolitan Planning Organization (Maui MPO) is a government agency that was formed per federal regulations in 2016, by the State of Hawai'i and County of Maui to facilitate comprehensive planning for federally-funded or regionally significant transportation systems on Maui. The Maui MPO and its partner agencies (County Departments of Planning, Public Works, Transportation and State Department of Transportation) develop plans and programs for a multimodal transportation system that facilitates the movement of people and goods. The Maui MPO does not construct projects or implement these programs directly. The Maui MPO jurisdiction includes only the island of Maui.

The Maui MPO leverages 80% of its annual budget through Federal planning grants from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) to support its operation and planning program. The remaining 20% of funds come from the State of Hawai'i Department of Transportation (HDOT) and County of Maui Department of Transportation (MDOT). The Maui MPO's annual budget is approximately $500,000.

The Maui MPO vision is for Maui communities to be connected by a safe, efficient, and sustainable transportation system. The Maui MPO facilitates regional and local surface transportation planning by serving as a forum for collaboration among local communities and government agencies. Using a data-driven approach, the Maui MPO strives to direct federal funds toward projects that increase access to opportunity and prosperity, while promoting the health and wellness of Maui's people and environment through improved multimodal pedestrian, bicycle and transit options. The Maui MPO led the update of the Hele Mai Maui 2040, a 20-year plan required by the federal government. The plan will help to prioritize spending limited transportation funds on projects that best serve the values identified by the community.

Related Plans and Programs

Maui Transportation Improvement Program
Link to website

Maui MPO coordinates with the State of Hawai'i and County of Maui to develop a Transportation Improvement Program (TIP) for the island of Maui. The TIP is a short-term project implementation plan for all surface transportation projects that are regionally significant or will use Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funds. FHWA funds are typically programmed for highway, bicycle, and pedestrian projects, while FTA funds are typically programmed for acquisition, operation and maintenance of the public transit system.

Approximately $170 million in obligation authority is estimated to be available for the State of Hawai'i each fiscal year. Each of the funding sources and detailed information on the revenues estimated to be available for the State of Hawai'i is available in the STIP. Maui's annual estimated planning target is $25 million per year of FHWA funds for State and County federal-aid projects based on Daily Vehicle Miles Travelled (DVMT).

FTA administers the federal-aid funds apportioned to states for the construction, operation and maintenance of public transit systems. The HDOT Statewide Transportation Planning (STP) office manages FTA grant programs, which provide funding for the Maui Bus, managed by MDOT.

State Transportation Improvement Program
Link to website

The Maui TIP is incorporated without change into the 2019-2022 State Transportation Improvement Program (STIP).The HDOT manages the STIP process.

Project selection for the TIP was based on asset management priorities from the County of Maui Department of Public Works (DPW), Department of Transportation (MDOT) and HDOT, performance measures, and public input. The Maui MPO Policy Board is the governing body that establishes a performance-based process to evaluate projects for their consistency with the goals and objectives of the Federal-Aid Transportation Plan 2035 for the District of Maui, adopted by the Policy Board as the Maui Long Range Transportation Plan in July 2017. The Technical Advisory Committee (TAC) provides technical analysis and recommendations to the PB. Stakeholders, agencies, and members of the public have opportunities to provide input throughout the TIP update process.

The list of TIP projects is financially constrained based on reasonably anticipated FHWA and FTA funds and local matching funds, and includes additional illustrative projects in the planning years. The TIP may be revised between updates, and must be updated at least every four years. The TIP must be approved by the Maui MPO Policy Board and the Governor or Governor's designee before it is included in its entirety in the STIP. Maui MPO provides the TIP to the FHWA and FTA for informational purposes. The Governor or Governor's designee transmits the STIP to the FHWA and FTA for joint approval.

Federal Highway Administration, Transportation Alternatives Program

Funds are made available to the State through the Federal Highway Administration (FHA) and administered by HDOT, Highways Division, and Planning Branch through the Transportation Alternatives Program (TAP). Appropriations are for community-based projects that expand travel choices and enhance the transportation experience in Hawai‘i. TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving access to public transportation and enhanced mobility for non-motorized transportation modes, and community improvement activities.

Hele Mai Maui 2040

Hele Mai Maui 2040 is the update of the Federal-Aid Highways 2035 Transportation Plan for the Island of Maui (2014). This long-range transportation plan is a key federal requirement carried out by the Maui Metropolitan Planning Organization (MPO). This plan will identify a vision for Maui's transportation needs and opportunities over the next 20 years to ensure that our communities are connected by a safe, efficient, and sustainable transportation system.

Hele Mai Maui 2040 was guided by local leaders and community representatives through a Community Think Tank and the MPO's Technical Advisory Committee. The feedback was used to prioritize State and County transportation projects to receive limited funds. Using a data-driven approach, coupled with community input, the plan defined potential projects that align with the vision of the Maui MPO.

The Long Range Transportation Plan addresses transportation issues and opportunities for all of Maui; an evaluation framework for project prioritization; bicycle, pedestrian, transit and auto improvement projects; programs to support people traveling around the island; metric to monitor performance; and funding and financial recommendations for implementation. Information and conclusions from this plan are incorporated into this technical resource paper.

Pali to Puamana Plan

The Pali to Puamana Parkway Plan proposes the realignment of Honoapiʻilani Highway within an approximate eight-mile transportation corridor in West Maui. The purpose of the plan is to serve as a foundation for public policy promoting responsible land preservation and development in the coastal zone. The Plan has five objectives: 1) to recommend a proposed realignment of the Honoapiʻilani Highway from Papalaua Park to Puamana Park; 2) to recommend a proposed open space preserve and to protect the shoreline environment; 3) to increase roadway capacity; 4) to protect public health and safety by getting the highway out of the tsunami inundation zone; and 5) to recommend methods of accommodating new land uses for the area through the implementation of the West Maui Community Plan.

Maui Short Range Transit Plan

The County of Maui Department of Transportation (MDOT) completed the *Maui Short Range Transit Plan* (MSRTP) in 2016 to help guide the agency for a six-year period through 2022. The plan provides background information on the need for future service improvements and capital investments, evaluates the existing transit system, and provides recommendations.

Existing Conditions

West Maui's Roadway System

The island of Maui's roadway network includes State and County major highways that primarily extend from Kahului through the central valley and around the perimeter of the island. Access between the central valley and West Maui is provided by the principal arterial State Route 30, Honoapiʻilani Highway. Located along the western coastline of the West Maui Mountains, the shoreline is a combination of sandy beaches, rocky beaches and low rocky cliffs. The existing highway was developed during the sugar development period which started in the 1880s. Honoapiʻilani Highway serves as the main travel way for people and goods between West Maui and the rest of the island of Maui.

According to HDOT the average daily traffic volumes indicate that Honoapiʻilani Highway is one of Maui's most heavily traveled roadways. Honoapiʻilani Highway is classified as a principal arterial through Lahaina, and then becomes a collector roadway through Kapalua. The highway serves as the primary "belt road" access around west Maui and connects the area's towns and communities. This highway is critical as there is no access through or across west Maui.

Land ownership of the existing highway corridor is a mixture of government (County of Maui and State of Hawai‘i) and privately owned lands. The existing highway corridor is under the jurisdiction of HDOT. Local streets are under the jurisdiction of the County of Maui Department of Public Works (DPW). Government owned lands are located ma uka and ma kai of the highway. The lands south of Ukumehame are owned by the State.

Coastal erosion is now threatening the highway to the extent that the highway shoulder is being hardened in many places along the highway to protect the roadway from further erosion and to keep vehicular traffic moving. Studies conducted by the U.S. Army Corps of Engineers have suggested that hardening of the shoreline often increases erosion though reflective energy of the waves against the hardened structure. Certain areas required additional barrier protection to prevent ocean waves from impacting the road. The highway also falls within a tsunami inundation zone and is susceptible to coastal flooding. Coastal flooding resulting from storms, high tides and King Tides is a common event along the existing corridor, as shown in Figure 1 below. After moderate events, debris and sand overwash from the storm is washed onto the highway causing road hazards. In severe storm events, the highway is closed to traffic to safeguard motorists. The distance inland that is impacted by coastal flooding varies with location and topography. Low lying areas in Ukumehame and Olowalu are the most prone to coastal flooding. These hazards not only affect the highway presently, but also are significant factors in the location of future realignment plans.

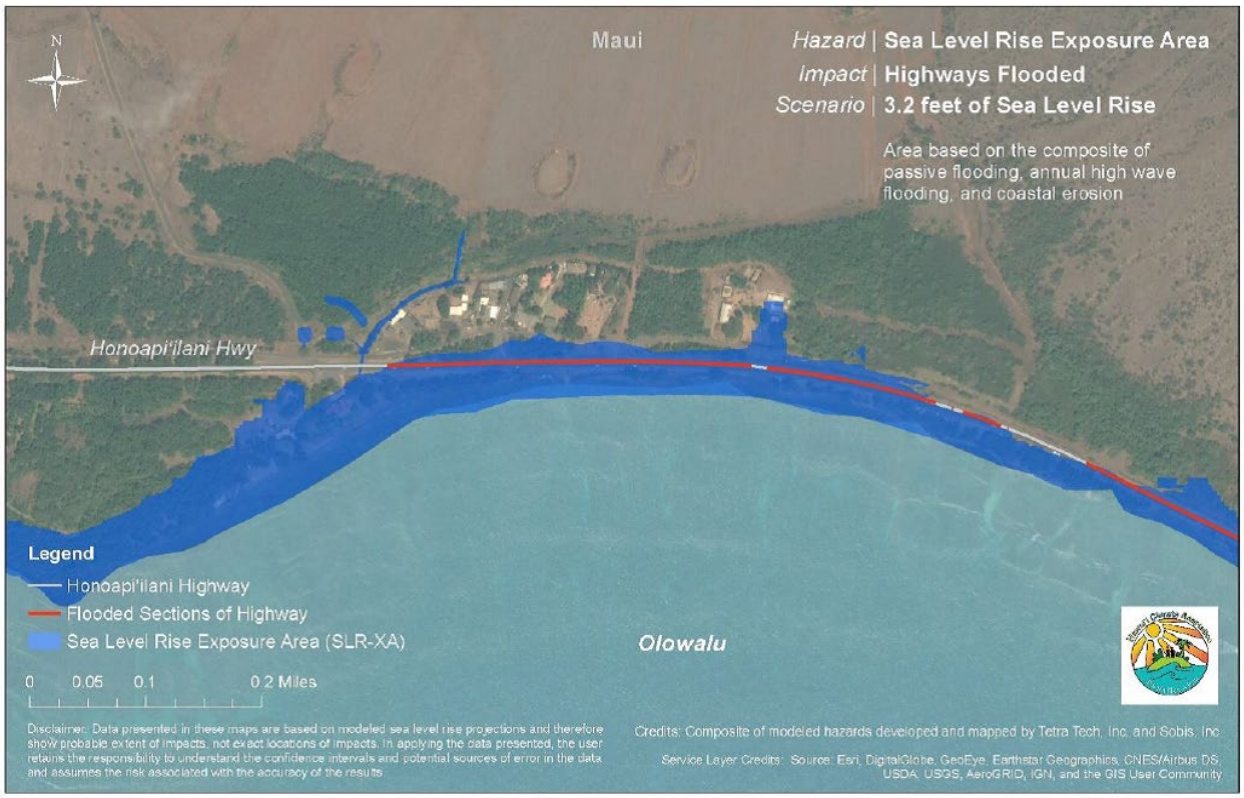


Figure 1: Honoapi‘ilani Highway at Olowalu with 3.2 Feet Sea Level Rise

The completed sections of the Lahaina Bypass, from Launiupoko to Keawe Street, provides an alternate route and some traffic relief, however, the segment from Keawe Street north is yet to be constructed. Keawe Street has become the main corridor funneling traffic from the bypass onto Honoapiʻilani Highway.

Within the different areas of West Maui, local County roadways provide connections within and between neighborhoods, commercial centers, and communities. Front Street is a major urban collector that provides internal circulation within Lahaina Town. Lahainaluna Road is the main roadway connecting Lahaina Town with the neighborhoods and schools mauka of Honoapiʻilani Highway. Farther north, Lower Honoapiʻilani Road services as a major collector from north of Kāʻanapali to Kapalua.

Lower Honoapiʻilani Road is also facing coastal erosion. In 2018, floodwaters from Tropical Storm Olivia eroded part of the roadway. The County has installed temporary measures, but a long term solution is required.

West Maui's Public Transit System

Public transportation connects people to jobs, health care, and social, recreational and educational opportunities. Availability of public transit enhances the quality of life for many people through easier and more affordable transportation options. It contributes to regional economic growth and development by connecting residents to jobs and services and visitors to tourist destinations. The availability of public transit also helps to reduce the numbers of cars on the road.

The MDOT has jurisdiction over the public transit system, Maui Bus which began in July 2006 and includes fixed-route, paratransit, and commuter programs. Also included under MDOT's jurisdiction is human services transportation which includes rural shuttles, dialysis transportation, and a variety of social services transportation programs. The most striking aspect of Maui's bus service is its rapid growth and high ridership for its size. Ridership has increased from less than 200,000 passengers per year to about 2,500,000. The service is utilized by a diverse ridership base that includes: students, workers, tourists, elderly, low-income residents and others.

Maui Bus connects important population centers, attractions and business centers. West Maui is served by Maui Bus routes that connect West Maui to Central Maui and other communities. Islander Routes provide service between Central Maui and Lahaina, Kāʻanapali, and Nāpili/Kapalua. The Lahaina Villager route provides internal circulation within the Lahaina community. Three Commuter Routes provide peak morning and afternoon service between other communities and employment centers in West Maui: Kīhei-Kapalua; Makawao-Kapalua; Wailuku-Kapalua. The Maui Bus routes also serve the tourist centers in Lahaina, Kāʻanapali and Kapalua.

West Maui has two transfer points: Lahaina Wharf Cinema Center and Whalers Village. There are also two park-and-ride lots for commuters who reside outside of West Maui: War Memorial Stadium and Kūihelani Highway. A third park-and-ride lot at the intersection of Honoapiʻilani Highway and North Kīhei Road is not currently served by Maui Bus, but could be served in the future. A full schedule is operated seven days a week all year including holidays.

Maui Bus is important to Maui's economy. It connects workers to jobs. More than 75% of the passengers are employed. About 54% of the passengers use Maui Bus to get to work. Maui Bus provides options to low income people to get to work and appointments. Twenty-one percent of the passengers reported a household income of less than $15,000 per year. Over the years there has been a marked increase of low income, aging and disabled residents living in the county who rely on public transit systems as a primary means for their transportation needs. Demand from the human services sector is increasing. The commuter bus trips leaving from the War Memorial Stadium are full. With the population in West Maui projected to grow over the next 20 years, the attention of transit planners is on the crowded and overloaded fixed route public transit serving this area (County of Maui Short Range Transit Plan, 2016).

West Maui Bicycle/Pedestrian System

Having safe ways to move around West Maui is one of the residents' top concerns according to survey results taken during the development of the Hele Mai Maui 2040. People worry about fast moving vehicles and limited facilities for safe walking and biking. Those same concerns have an impact on the health of West Maui residents, as a lack of a safe and connected bicycle and pedestrian networks impacts our individual and community health.

Traffic collisions claim many lives in Maui each year – including people walking, biking and driving – and these collisions are preventable. To better understand how safe West Maui's roadways are today, crash data was analyzed from 2010 – 2017. Figure 2 shows "crash density" which highlights areas of West Maui where more pedestrians and cyclists are hit by vehicles. Lahaina has some of the highest number of collisions that involve a bicycle or pedestrian on the island. Of note, crashes are between either bikes and motor vehicles or pedestrians and motor vehicles. This analysis helps to point to areas where safety improvements are needed.

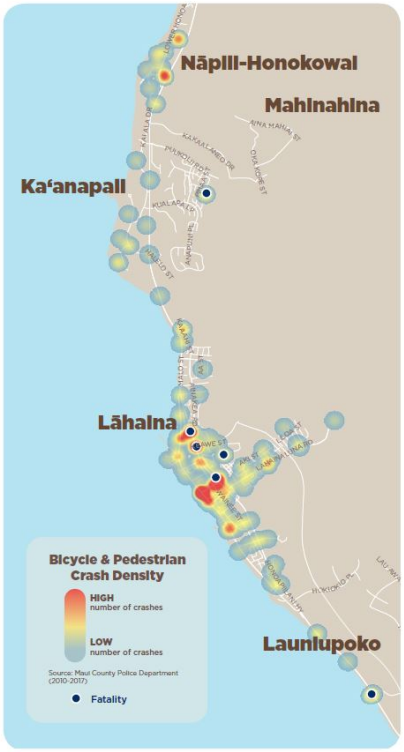


Figure 2: Crash Density in West Maui, 2010 - 2017

Retail developments with large parking lots and multiple driveways have high concentrations of collisions, such as Lahaina Gateway, Lahaina Cannery Mall, and destinations along Papalaua Street like the Old Lahaina Center and Outlets of Maui. Slip lanes create challenging crossings for pedestrians and bikes where Keawe Street joins Honoapi`ilani Highway and where Honoapi`ilani Highway meets Lower Honoapi`ilani Road.

Lahaina Town has large numbers of people walking, including many visitors, in the historic district center. Lahaina has some sidewalks along Front Street around shops and offices, however, both new and old neighborhoods lack connected sidewalk networks, pathways and trails throughout West Maui.

Even in areas where some of the densest residential development exists, there are major gaps in the pedestrian network. Additional bicycle facilities and multiuse pathways could provide excellent opportunities to diversify residents' transportation alternatives, in addition to offering recreational options. There is no West Maui specific pedestrian and bicycle plan. Nonetheless, the Countywide Policy Plan and the Maui Island Plan have overall value statements for the County and provide guidance supporting non-motorized transportation.

Key Challenges

Traffic Congestion

Traffic congestion on West Maui's roadways, particularly on Honoapi'ilani Highway, has been a longstanding issue with residents, commuters, and visitors. Traffic often backs up for several miles and can delay commuters trying to get home and travelers trying to catch flights at the Kahului airport. The long delays that are a daily occurrence on West Maui roadways negatively impact the free movement of freight, employee commutes, visitor experience, and the quality of life of residents.

The rental car facility at the airport is the primary rental car facility on the island. In addition to visitor rental cars and commuters, an imbalance of jobs to housing located on the West Side, is likely contributing to traffic congestion. West Maui had more than two jobs for every occupied housing unit. This shortage of housing units forces many workers to live outside the area and commute from Central, South and Upcountry Maui to work. Over 6,800 workers commuted into West Maui from outside the area, while over 5,800 West Maui residents commuted outside the area to work (U.S. Census Bureau 2017). *Please see Housing Technical Resources Paper, October 2018.*

Honoapi'ilani Highway serves as the only route for freight to all of West Maui. This route is often congested at peak hours and at times has been shut down due to fires, vehicle accidents and other road closures. These delays and closures can result in slow delivery times negatively impacting West Maui residents and businesses. With the increase in online shopping, freight and delivery needs are likely to increase.

The Lahaina Bypass from Launiupoko to Keawe Street provides some traffic relief, however southbound traffic is often backed up from Olowalu to the bypass. Also, Keawe Street has become the main corridor funneling traffic from the bypass onto Honoapi'ilani Highway, creating traffic congestion at this intersection and safety concerns for motorists, pedestrians and bicyclists along Keawe Street. Using rental car revenues, HDOT has scheduled Phase 1C of the Lahaina Bypass to commence, with the design build phase to occur in FY21 and construction to follow. It is not known at this point in time if the environmental review documents will need to be updated.

Climate Change and Hazards

Another critical issue is the increasing impact of coastal flooding events on various segments of the Honoapi'ilani Highway. A recent study found that sea level rise of 3.2 feet by 2100 would render more than 11 miles of major coastal roads on Maui impassible, jeopardizing critical access to and from many communities. This is particularly concerning for West Maui as Honoapi'ilani Highway provides the only access to and from West Maui. Many sections of this highway already experience impacts from extreme high tides and coastal storm events, particularly between Olowalu to Ukumehame. HDOT is moving forward with long term plans to realign the highway inland. However, before the highway can be moved, officials and the community are trying to address what can be done now.

In addition to Honoapi'ilani Highway, Lower Honoapi'ilani Road is also susceptible to the coastal flooding impacts resulting from high tides and coastal storms. Road closures have also recently occurred with an alarming frequency as a result of wildfires that have spread out of control and jumped the highway. *Please also see Climate Change and Sea Level Rise Technical Resource Paper, December 2018.*

Statewide Coastal Highway Program Report, Project Number HWY-06-16
College of Engineering, University of Hawaii at Manoa

Sponsored by HDOT, the objective of this project is to develop a scientifically rigorous methodology to assess and rank the susceptibility of State of Hawaii coastal roads to erosion and structural degradation due to ocean hazards such as waves, currents, tides and sea level rise. On January 31, 2018, HDOT issued an interim report containing the results of preliminary field investigations, rankings and recommendations focused on the need to undertake short-term remediation measures to prevent traffic interruptions and road closures during upcoming storm and hurricane seasons. Due to time constraints, this preliminary report relied on scientific understanding, a review of previous studies, input from field DOT personnel, and site visits to all the islands during the summer of 2017.

This final project report presents a new index methodology that considers the principal factors that determine coastal erosion and road degradation. The method is based on determination of the index CRESI (Coastal Road Erosion Susceptibility Index), which is described in Chapter 1 of the full report (link to report here). CRESI is evaluated at discrete locations along coastal roads in relatively close proximity to the ocean. Based on values of this index, coastal roads are segmented into lengths that are considered to have low, medium or high susceptibility to structural degradation. Of the 20 most critical road locations throughout the State of Hawaii, various sections along Honoapiilani Highway are ranked in the top 20. In the full report, Chapter 1, Table 1.2 Statewide Coastal Highway Prioritized Road Sections provides a prioritized listing based on CRESI values, milepost locations and recommended alternatives. Aerial maps of the study areas on Maui and CRESI values for the Honoapiilani Highway sections are depicted in Figures 1.13, 1.14, 1.15 and 1.16.

HDOT is expected to issue updated assessments of road vulnerability and risk as the scientific work and data collection continue. This report also addresses the Federal Highway Administration (FHWA) Asset Management Plan, 23 CFR Part 515, a process proposed by the FHWA for developing a State asset management plan to improve or preserve the condition of the assets and the performance of the National Highway System (NHS) as they relate to physical assets.

Visitor Industry Impacts on Public Transit

In 2017, the estimated daytime population of visitors in West Maui was about 33,551 persons with many using rental cars to travel within West Maui and the rest of Maui (ESRI 2017, DBEDT 2017). According to the Maui Hotel & Lodging Association (MHLA), there were approximately 662,400 car rentals on Maui in 2016, contributing to traffic congestion (MHLA 2017).

With regard to the impact on Maui Bus, the 2016 Maui Short Range Transportation Plan (MSRTP) reports about 8% of Maui Bus passengers identify themselves as a visitor. The Lahaina and Kāʻanapali Islander routes are frequently overloaded with people left behind at the Wharf Cinema Center who need to wait another 60 minutes for the next bus or find another way to Kahului (in 2017, the Kāʻanapali and Napili Islander were combined into one new route called the West Maui Islander). According to the report, this overcrowding occurs regularly when the cruise ships come to Lahaina Harbor.

To help address the impact on transportation, a few newer resort properties have become part of a Traffic Implementation Plan where the resorts provide alternatives to driving for both its employees and guests. For employees, travel allowances for alternative modes of transportation are given. For guests, complimentary shuttle service is provided into Lahaina, to West Maui airport and to Kāʻanapali. There is opportunity for this type of program to expand to other resorts to help alleviate traffic congestion on roadways and improve the visitor experience.

Bike and Pedestrian Safety

Having safe ways for people to move around West Maui, especially Lahaina, Kā‘anapali, and along Lower Honoapi‘ilani Road is a major concern with the West Maui community. People worry about fast-moving vehicles, lack of safe cross walks and limited facilities such as bike lanes and a connected sidewalk network for people walking and biking. Bike routes and sidewalks in West Maui are somewhat disconnected and many of the existing facilities are inadequate. Missing and disconnected facilities contribute to safety concerns and limited opportunities for physical activity that impact individual needs and community health.

People must be kept safe on streets and sidewalks, to eliminate crashes and encourage people to walk and bike to improve health and alleviate traffic congestion. Safety issues and the lack of pedestrian and bicycle facilities most significantly impact more vulnerable populations such as children, seniors, and those who are unable or choose not to drive. Walking is the least-expensive form of transportation, and it is important to keep in mind that all trips begin and end with walking regardless of the interim transportation mode. A more complete network of bicycle facilities and multi-use pathways are needed to increase safe transportation alternatives and promote equity.

Planning Related Concepts and Strategies

Land use patterns have a significant effect on the costs of providing public infrastructure and services such as roads, drinking water, solid waste collection, wastewater treatment, and school facilities. Integrating land use and transportation planning to create denser and more compact communities located closer to employment centers, public transit, walking and bicycling opportunities can have not only economic but also social and environmental benefits.

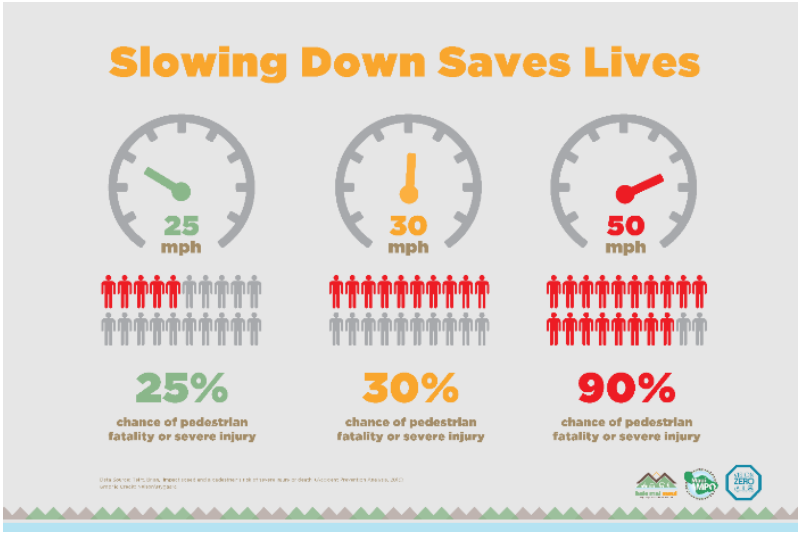
Many communities have been working on ways to create more livable and healthier communities by creating compact communities through infill development. In order to promote more sustainable and equitable regions, many policy makers are working to find ways to concentrate future employment growth in higher density mixed-use districts. Public transit is seen as a central mechanism for facilitating increased densities in town centers and countering the need to sprawl into undeveloped areas. Providing transit corridors that serve major existing employment centers promotes ridership and sustains businesses. For environmental and sustainability reasons, a greater percentage of future transportation investment must shift away from the construction of additional roads and move towards the expansion of a public multimodal transportation network.

This section includes a brief description of planning related concepts as well as strategies identified in the Maui Island Plan, Hele Mai Maui 2040, and Maui Short Range Transit Plan.

Complete Streets

Complete Streets include safe and accessible facilities for people traveling by many modes. Routine maintenance projects and new capital improvement projects can both support implementation. Maui's transportation network includes public and private projects built at many different times. Street design guidelines help to ensure that streets, sidewalks, and bike facilities are designed consistently using best practices. The existing Maui County Complete Streets policy needs to be adopted by Council as an ordinance for more consistent implementation by County agencies and the developers as well as better opportunities for funding and enforcement. The Maui County Streets Design Manual (2018) can be used to support right-of-way decisions that create great places and connect people.

Vision Zero



Between 2012 and 2017, there were 75 fatalities on Maui's roads. In September 2018 Mayor Arakawa made a Vision Zero Proclamation to eliminate traffic deaths on Maui by 2040. In June 2019 the Maui County Council adopted a Vision Zero resolution urging the Mayor to form a Vision Zero Advisory Group to create an action plan. The Vision Zero Initiative implements a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.

Safe Routes to School

Nearly 20% of collisions involving people walking and biking on Maui involve kids under the age 18. A *Safe Routes to School* program prioritizes safety for some of Maui's most vulnerable pedestrians and bicyclists, encourages walking and biking to school, and improves health outcomes for children. This program provides a prioritization process and funding for safety improvements near schools. In addition to the physical improvements, a *Safe Routes to School* program educated children and their caregivers and improves awareness of the benefits of walking and biking to school. To implement this program in West Maui, plans may be developed at the level of individual campuses or for clusters of schools, depending on distance between campuses.

Safe Routes for Seniors

More than 20% of collisions involving people walking and biking on Maui are people over the age of 60, and older adults are expected to be nearly a quarter of the population by 2040. A *Safe Routes for Seniors* program prioritizes safety for some of Maui's most vulnerable pedestrians and bicyclists, improves access to services, and encourages physical activity among older adults.

Safe Routes to Transit

A *Safe Routes to Transit* program identifies safety improvements needed for connections to transit stops and transit hubs on Maui that are difficult to access, especially for people walking or biking. This program is supported by education and encouragement efforts that connect people to transit stops and hubs.

Transit-Oriented Development

Transit-Oriented Development (TOD) is a type of community development that includes a mix of land uses such as housing, office, retail, commercial and other amenities integrated into a walkable, moderate-to-high-density neighborhood, and located within a one-half mile radius of public transportation nodes. Successful TOD must have sufficient density, typically much higher than the outlying community, and walkability with ready access to the transit hub or service to support transit ridership. Communities throughout the United States and world utilize TOD to address significant challenges within their communities such as the shortage of affordable housing, aging infrastructure systems, traffic, congestion and costs of infrastructure improvement and replacement, housing density, jobs in close proximity to housing, to name a few examples.

TOD provides many benefits:

- Reduction of transportation costs for residents, especially those with lower incomes and those who depend on public transportation;
- Increases more efficient use of existing roads and highways by decreasing the number of cars on the road;
- Decreases dependence on automobile use;
- Encourages compact development by concentrating higher density housing around transit centers and routes; and
  Promotes the development of walkable communities where residents can live, work and recreate.

Healthy Communities and Transit-Oriented Development (TOD)
This program would create an organizational structure and capacity to develop and implement Master Plans for healthy communities and walkable, mixed used TOD. The objective is to catalyze public and private investments in healthy communities that are walkable, provide a range of transportation options, affordable housing and a network of connected parks and open spaces.

Transportation Demand Management

Transportation Demand Management (TDM) involves the implementation of plans or programs aimed at reducing the use of single-occupant vehicles. TDM strategies are primarily aimed at influencing the travel trends and options of weekday commuters. These strategies include supporting alternative travel modes and altering the time and amount of travel through programs and amenities such as guaranteed ride home programs, bicycle lockers, commuter benefits, telework, and alternative work schedules. Roadway and congestion pricing have also become increasingly common TDM and infrastructure financing strategies.

High Occupancy Vehicle (HOV) Lanes/Tolls
As Maui grows, there will be more demand on key corridors. To address congestion and preserve natural resources, HOV lanes and tolling programs could help control demand to popular destinations and provide funding for maintenance. HOV lanes/tolling roads are examples of travel demand management programs aimed to reduce congestion in order to help manage demand on key corridors such as Honoapi‘ilani highway.

Multi-modal Transportation

Mobility issues on Maui can be addressed by expanding transportation alternatives including public transit, paratransit, human services transportation, biking and pedestrian movement. A balanced multimodal network provides more choices and contributes to an efficient network that meets varied needs of all users, including those with mobility challenges. The State’s policy, as embodied in Act 54 (2009), favors Complete Streets to reasonably accommodate convenient access and mobility for all users of the public highway, including pedestrians, bicyclists, transit users, motorists, and persons of all ages and abilities.

Visitor Management
There are 61,000 visitors on the island on an average day. Many visitors to Maui choose to rent a car for the entire duration of their stay and may not know what other travel options they have. The objective of these programs is to manage visitor travel including car rental, shuttle, taxi, rideshare, and car share opportunities. The large number of visitors on Maui and current car rental rates put a tremendous strain on Maui’s roadways and communities. This type of program could help to ensure that there are more options for visitors to get around Maui. Examples include an island-wide campaign that promotes a car-free stay on Maui.

Employer Shuttle Program
Employees generate a large number of vehicle trips on Honoapi‘ilani Highway traveling from outside of West Maui to hotels and resorts. This program would build on the success of the existing County commuter bus service to provide affordable, non-driving options to major employment sites. This program would provide technical assistance to employers to sponsor shuttle or other shared ride programs to connect employees to jobs.

Emerging Shared Mobility Pilot Programs

Expanded travel options give people more choices to get around the island which will benefit both Maui residents and visitors. Car share services, for example, can provide a short term vehicle option for people who prefer not to drive or rent a car. Services like Turtle Tracks are providing new and innovative ways to safely get around West Maui. These services provide options for visitors in West Maui and can be an economic development opportunity. This program would provide new mobility options to introduce or expand new mobility options, like bike share, scooter share, or microtransit in West Maui. These pilot programs explore the opportunity to implement non-traditional/slow speed mobility options to help people get around areas that are typically congested and have parking challenges such as Lahaina and Kāʻanapali.

Transportation System Management

Transportation System Management (TSM) strategies increase the efficiency and effectiveness of existing and future roadway systems, without widening streets, through innovative technologies and effective prioritization of resource use. Strategies may include the use of intelligent transportation system (ITS-adaptive "Real-Time" Traffic Operations using: cameras and a centralized traffic management center to control traffic and incidents as they occur; changeable message signs along major roads to advise drivers of road problems). TSM strategies may also apply intersection modifications at signalized and non-signalized intersections, restriping travel lanes, one-way couplets, installing pavement markers, and relocating transit stops. Such modifications in traffic operations are designed to increase the operational efficiency, safety, and capacity of the existing roadway system without corridor-wide street widening.

Keawe Street and Honoapi`ilani Highway intersection

Maui's Public Transit System

To accommodate West Maui's needs, long range transit planning must be integrated with land use decisions. The location of future transit operations is directly dependent on future development patterns. The 2016 Maui Short Range Transit Plan (MSRTP) called for a number of improvements to the bus service system in West Maui including:

- Improved route alignments
- Later evening service
- Earlier starts
- Added bus stops

Another idea the MDOT is considering is relocation of the transit hub in West Maui to provide safer and more efficient service.

Possible Opportunities

Throughout the development of the 2019 Long Range Transportation Plan (Hele Mai Maui 2040), social media, community meetings and popup events held around the island (of which many were held in West Maui) reached more than 8,500 people. Throughout the community engagement of the West Maui Community Plan update many community meetings and presentations by state and county agencies were held, as well as workshops, online surveys and open houses addressing transportation and mobility. These efforts helped the Planning Department to understand West Maui's transportation opportunities and challenges and helped to identify possible solutions. Some of the key themes include:

- A more resilient and sustainable transportation system
- Make biking and walking safer
- Make travel by car more reliable
- Make it more comfortable and convenient to ride public transit
- Make more multimodal connections and opportunities

Based on the themes above derived from community feedback, Hele Mai Maui 2040 includes five goals to reflect today's needs and priorities and the outcomes to achieve in the next 20 years. The goals are also the basis for the transportation project selection and scenario evaluation process that helped to refine the priorities. While meant to be addressed Island wide, these five goals also reflect the same challenges faced by West Maui and should therefore be considered when identifying policies and actions for the West Maui Community Plan update.

GOAL 1: Improve safety and promote health.

GOAL 2: Enhance cultural and natural resources, climate resilience, and sustainability.

GOAL 3: Expand mobility choices to reduce traffic congestion.

GOAL 4: Connect and strengthen communities to improve the quality of life.

GOAL 5: Maintain assets and invest strategically for economic vitality.

Based on the goals above, Hele Mai Maui 2040 identified projects in the following categories, all of which are relevant for West Maui to consider.

- Maintenance and preservation projects to address critical infrastructure and support State and County projects.
- Safety corridors to slow traffic speeds and make roads safer for everyone.
- New connections to focus on resiliency and opportunities to encourage infill development.
- Multi-use paths and greenways to provide dedicated places for people to bike and walk.
- Transit improvements to create transit corridors, bus shelters, park-n-ride facilities and transit hubs to support affordability, more reliable trips and decrease the number of cars on Honoapi'ilani Highway.
- Complete Streets projects to provide travel options and promote health.
- Intersection improvements to install roundabouts and new traffic signals that keep people moving and make it safer to cross the street.

The projects and capital improvement programs identified for Maui were based on a data driven evaluation process that best meet the goals and include: 88 projects, ranging from sidewalks to new roads were selected. Additionally, there are 13 island wide capital programs that set aside state funds for maintenance and repairs. Of these, West Maui has 16 projects, of which two are capital programs (Honoapi'ilani Highway realignment and Lahaina Bypass Phase 1C).

New connection projects create new roads on the island to add capacity to the transportation system and better support communities. The projects included in the recommendation scenario prioritize connections that build resilience from the impacts of sea level rise and provide alternative routes to communities with limited travel options. However, we will not be able to build our way out of congestion with just more lanes, we must also provide ample opportunities for non-automobile mobility. Therefore, these projects also include space for walking, biking, and riding the bus as well as for driving.

Project List:

ID	Project Name	Priority	Cost ($1,000)
S8	Keawe St Improvements	»	$447
S16	Dickenson St Improvements	» »	$1,077
S17	Prison St Improvements	» »	$1,059
S52	Front St Pedestrian Esplanade	» »	$619
G1	West Maui Greenway and Multi-Use Path Phase 1	»	$1,750
G2	West Maui Greenway and Multi-Use Path Phase 2	» »	$5,743
G3	West Maui Greenway and Multi-Use Path Phase 3	»	$4,121
I14	Waine'e St & Lahainaluna Rd Intersection Safety Analysis	» »	$2,517
I44	Keawe St/Honoapi'ilani Hwy Intersection Safety Analysis	» »	$2,517
B5	Honolua Stream Bridge Repair	»	$7,208
B7	Kahana Nui Bridge Replacement	»	$5,733
C10	Honoapi'ilani Hwy Realignment	»	$75,000
C11	Lahaina Bypass Phase 1C	»	$75,000
S2	Lower Honoapi'ilani Rd Improvements	»	$25,400
T3	Lahaina Transit Hub	»	$15,000
T16	Lahaina Transit & Multimodal Corridor	» »	$10,000

Phasing by Priority

» Near-Term (1-5 years) » » Medium Term (6-11 years) » Long Term (12-20 years)

The projects recommended in Hele Mai Maui 2040 will provide travel options for everyone. For example, transit improvement projects make riding the bus on Maui more convenient, safer and comfortable. Improvements may include new bus routes, more frequent service, and amenities such as shelters, seating, lighting and shade. A West Maui transit hub would provide access to key bus routes, display easy to understand information regarding the transit system, alternative mobility options for residents and visitors alike and host multi-modal transportation options such as bike share services.

Hele Mai Maui 2040 Project Highlights

West Maui Greenway: Multi-Use Paths

Multi-use paths or greenways are paved or unpaved shared paths for walking and biking. They are separated from vehicular traffic and offer longer distance connections on the island. Multi-use paths provide an option for safe travel for people of all ages and abilities and serve as recreational resources for community members.

The West Maui Greenway is a transformational project that will build on precedent set by the North Shore Greenway. This multiuse path will provide a separated right-of-way for pedestrians and bicyclists to travel safely throughout West Maui . The path will provide safe crossing opportunities, signs directing people to key destinations, and a comfortable place to walk, bike and roll for residents and visitors alike. The long term vision for West Maui Greenway is to connect from Ukumehame to Līpoa Point, connecting neighborhoods, towns and resort areas, and providing context sensitive design for each section of the project.

Honoapi‘ilani Highway Realignment

The Honoapi‘ilani Highway Realignment Project is a critical project for Maui. Perhaps more than any other corridor, the Honoapi‘ilani Highway is a visible example of the impact of rising sea levels on Maui’s infrastructure, with many sections eroded and routinely overtopped during storms. Reconstruction of this corridor further inland will ensure connectivity and resiliency for West Maui and the rest of the island for years to come.

Managed retreat of Honoapi‘ilani Highway is an alternative to using sea walls to protect the existing highway in place. Coastal armoring, like sea walls, destroys beaches, limits public access, and threatens coral reefs. Following the vision set forth in the Pali to Puamana Parkway Master Plan, the open space and parks area on the ocean-side of the new highway could provide safe recreational access to a living shoreline where beaches can migrate inland as sea level rise occurs.

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