



Maui Short Range Transit Plan

April 2016

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Prepared for the
County of Maui Department of Transportation



Prepared by

SSFM
INTERNATIONAL

With

WESLIN Consulting Services, Inc.

&

Pacific Cartography

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Maui County Department of Transportation

Jo Anne Johnson Winer, Director
Marc Takamori, Deputy Director
Darren Konno, Transportation Program Coordinator
Diane Yogi, Transportation Grants Administrative Officer
Jim Oster, Engineer

Consultants and Support

Cheryl Soon Ph.D., FAICP, SSFM International, Project Manager
Linda Frysztacki, Weslin Consulting Services
Wes Frysztacki, PE, Weslin Consulting Services
Christine Feinholz, Pacific Cartography
Jared Chang, SSFM International
Mike Packard, PE, SSFM International
Luana Kai, SSFM International
David Cansana, SSFM International
Noah Baron, SSFM International
Stephanie Nagai, SSFM International
Mike Motoki, SSFM International
April Coloretti, SSFM International

Hawaiian Diacritical Marks

The project consultant team recognizes the use of diacritical marks (i.e., glottal stop (‘), macron (ā)) in place names of Hawai‘i, such as O‘ahu and Ulupō. These are used in this report and are included when possible. We respect the individual use (or not) of these markings for names of organizations and businesses or by others providing content for this document. Therefore, there will be times when we may not have a chance to add or change the markings in all of the places herein. When that happens, e kala mai.

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Credits

The project consultant team has used images from various historical, institutional and personal sources. We greatly appreciate those contributions and acknowledge them as appropriate. Any images displayed where the source is not cited may be attributable to Wes Frysztacki, Weslin Consulting Services, Inc.

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Maui Short Range Transit Plan



EXECUTIVE SUMMARY



POLYNESIA ISLANDS

INTRODUCTION

The County of Maui Department of Transportation (MDOT) commissioned this Maui Short Range Transit Plan (MSRTP) to help guide the agency for a six year period until the year 2022. SSFM International, Weslin Consulting Services and Pacific Cartography (the SSFM team) assisted the County in preparing the MSRTP.

The plan is presented in six chapters: 1) Introduction and Plan Background, 2) Current Fixed Route System, 3) Rider Demand Analysis, 4) Service Analysis and Recommended Improvements, 5) Financial Plan and 6) Action Plan. This Executive Summary provides an overview of the MSRTP.

CURRENT CONDITIONS

Maui Bus provides public transportation service for county residents through regularly scheduled fixed route service and complementary paratransit demand-response service for eligible people with disabilities under the Americans with Disabilities Act (ADA) on the island of Maui. Fixed route services are contracted with Roberts Hawai'i. The heart of the system is the transfer center located at Queen Ka'ahumanu Center.

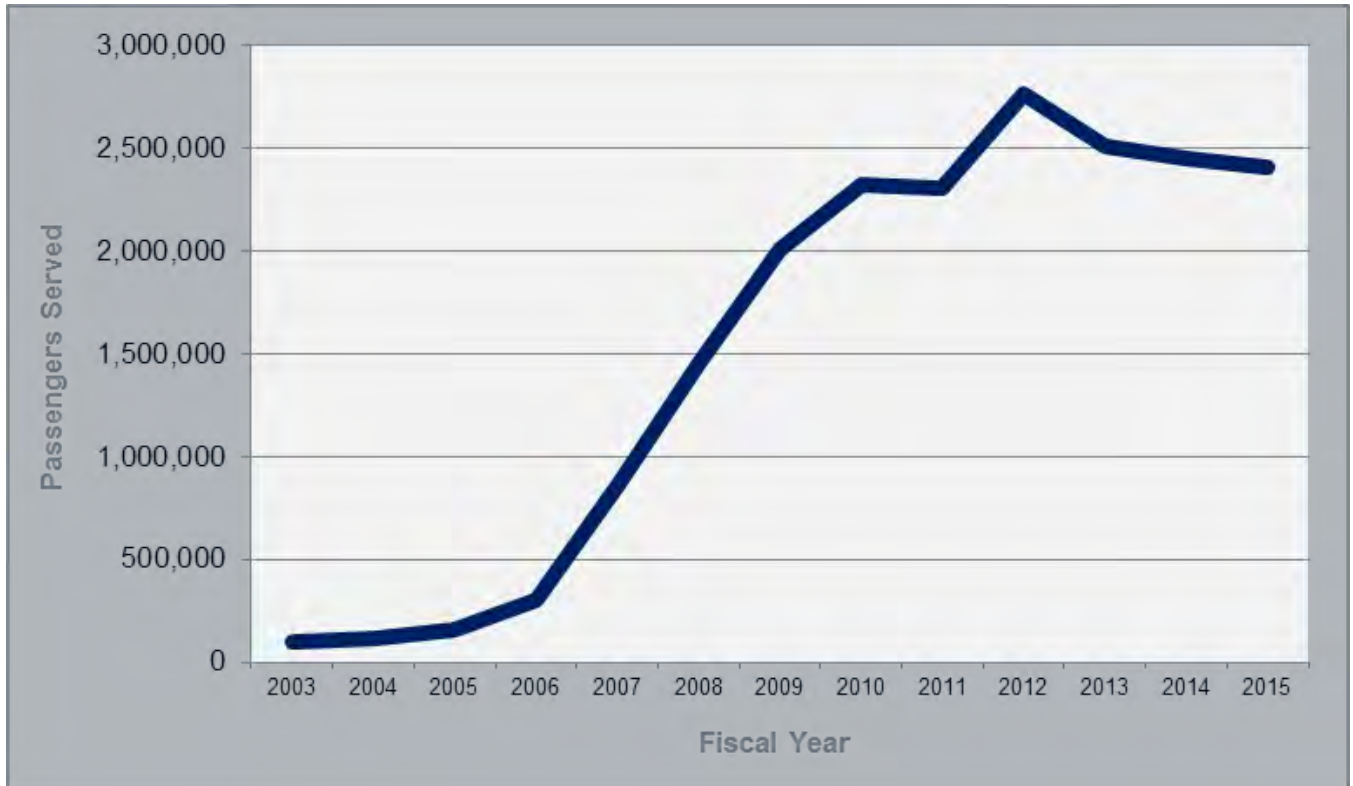
Human service transportation is provided on the Islands of Maui, Lana'i and Moloka'i. ADA paratransit and human services are contracted with Maui Economic Opportunity, Inc. (MEO).

Prior to Maui Bus, public transit service was provided by five fixed routes financed by MDOT and one privately funded fixed route connecting Ka'anapali with Lahaina operated by Akina Aloha Tours. The five fixed routes included two loops serving Wailuku and Kahului operated by MEO, one route connecting Kahului with Lahaina, one route between Kahului and Kihei and continuing to the Shops at Wailea, and one route operating between Ma'alaea Harbor Village to Kihei and Wailea. Roberts Tours operated the three routes. Maui Bus began operations in 2006.



Today, Maui Bus operates thirteen fixed routes, four commuter routes and complimentary paratransit service. The fixed and commuter routes are operated by Roberts Hawai'i. The complimentary paratransit service is provided by MEO. As a result of the service, fleet and bus stop improvements ridership grew significantly until recently as shown by the graph below.

Figure ES-1: Passengers Served By Fiscal Year



FUTURE CONDITIONS

Maui County has experienced population growth and economic development. There has been a marked increase of both 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. The MSRTP is needed to determine how best to respond to these current and future conditions.





Vital social and economic connections are possible with a properly functioning transportation network. This is especially true in rural areas where distance and scattered population make these connections even more important. Public transportation connects people to jobs, health care, and social, recreational and educational opportunities. This availability of mobility enhances the quality of life for many. Public transportation contributes to regional economic growth and development by connecting business to customers, employees to employers and visitors to tourist destinations.

The MSRTTP provides the background necessary to understand the need for future service improvements and capital investments, evaluates the existing transit system and provides recommendations including the actions necessary to implement plan.

IMPORTANT FINDINGS

Extensive analysis was performed to evaluate Maui Bus's performance. Each route was compared to likely concentrations of transit rider trip origins and destinations using various demographic and socio-economic data. Ridership data for each bus stop on the system was reviewed and analyzed. An on-board, self-administered passenger survey was conducted on weekday fixed-route transit services operated by Maui Bus to obtain transit rider characteristics and details of transit trip making behavior. The results of these and other related tasks have resulted in the following important findings:



- Maui Bus is important to Maui's economy. It connects workers to jobs. Over 75% of the passengers are employed. About 54% 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.
- Maui Bus is an amenity used by visitors. About 8% of the passengers identified themselves as a visitor or tourist.
- Maui Bus, now ten years old, has been a phenomenal success! Ridership has increased from less than 200,000 passengers per year to about 2,500,000.



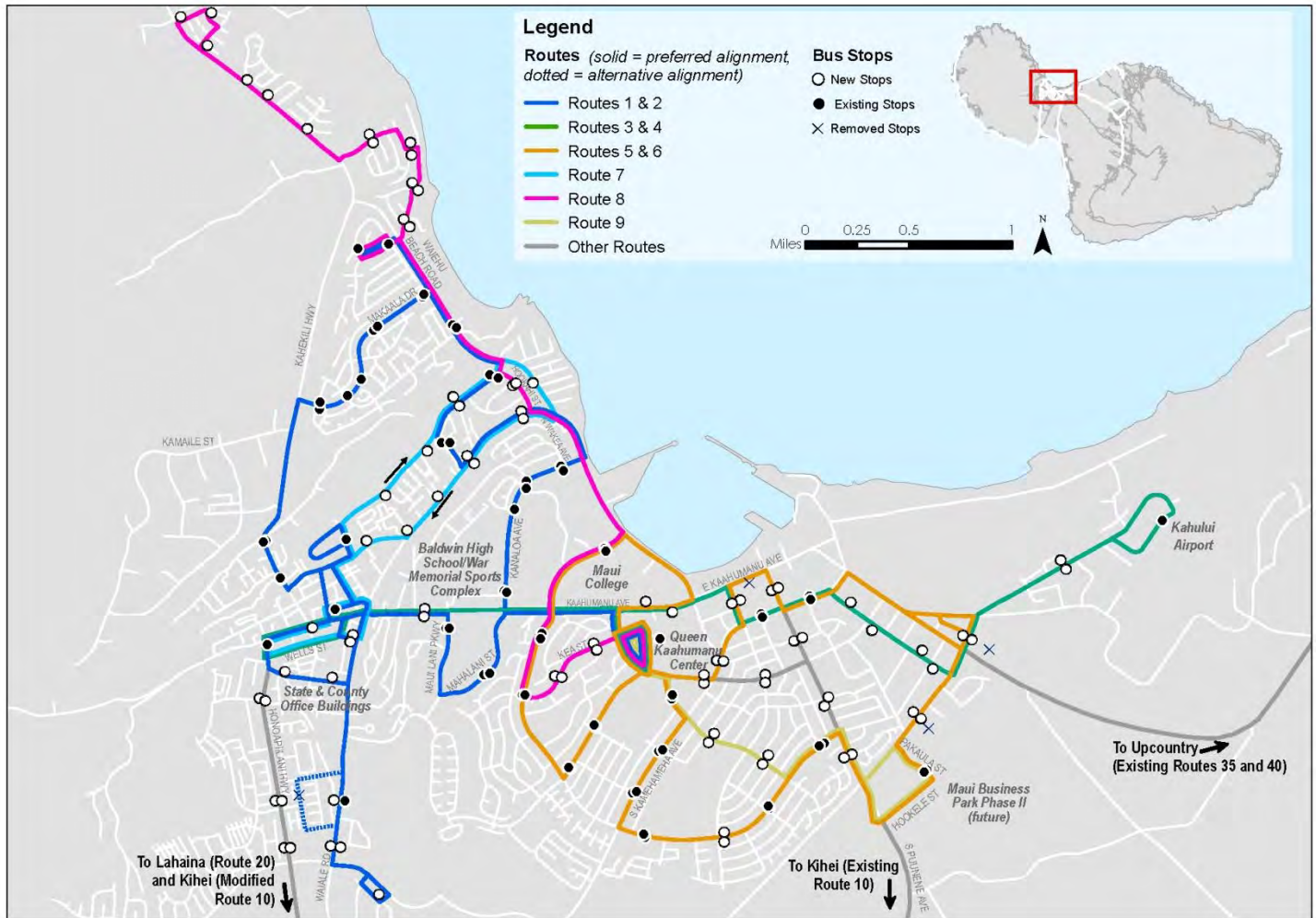
- Maui Bus connects important population centers, attractions and business centers. Some of the connections are so popular buses are over-crowded. Transit centers often experience long lines of people waiting for Maui Bus.
- Maui County should be extremely proud of its accomplishments. The County has been able to leverage local funds to garner over \$39 Million in federal grants in the past six years.
- Maui Bus has significant capital needs that can be funded through continued use of federal funding assured through the passage of the “Fixing America’s Surface Transportation” multi-year authorization legislation on December 4, 2015.

SERVICE IMPROVEMENT PROGRAM

Service proposals are presented by area for Central Maui, Kīhei, Lahaina to Napili and Upcountry. Each of these areas is planned to work well as a system within their service communities while also connecting to the heart of the system in Central Maui.

Central Maui Route System -- As the core and heart of Maui public transportation, Wailuku and Kahului should be served with direct connections between activity centers and residential areas with convenient transferring opportunities. The four current routes have been retained in the near term but will be modified as passengers become accustomed to the new routes. The proposed central Maui system is shown in Figure ES-2. A description of the central Maui routes is provided in the following pages along with individual route maps.

Figure ES-2: Recommendations for Central Maui System



- Wailuku Loop Routes 1 and 2:** A number of new bus stops are identified for current Routes 1 and 2 and one stop is recommended for deletion shown in Figure ES-3. The current bus stop in the Kehalani Subdivision on Kamole Street is recommended to be replaced with a bus stop on Waiale Road across from the current Ka Hale A Ke Ola bus stop. This will allow the route to serve the new retail/shopping district being developed at the intersection of Waiale Road and Maui Lani Parkway. Passengers currently using the bus stop on Kamole Street will be able to access Maui Bus from new bus stops on Honoapi'iilani Highway at Kehalani Makai Parkway in addition to the stops on Waiale Road.

New bus stops are proposed along Kaohu Street and on Waiale Road by Wells Street to provide access to the system for intending passengers. New bus stops are proposed on Eha Street and Lower Main Street to serve residential and business areas. Operating characteristics will remain the same as currently operated with two exceptions. One exception is the diversion to Waiehu Heights would cease with the implementation of the new Route 8.

Figure ES-3: Recommendations for Wailuku Loop Routes 1 and 2



The second exception is the diversion to the Post Office on Imi Kala Street would also cease with the implementation of new Route 7. With the deletion of these two diversions, Routes 1 and 2 would then be able to provide service into new residential and business areas along Waiale Road south of Maui Lani Parkway.

- Kahului Loop Routes 5 and 6:** A number of new bus stops are identified for current loop Routes 5 and 6 and three stops are recommended for deletion. Currently, Routes 5 and 6 divert into three shopping centers: Kahului Shopping Center, Maui Marketplace and K-Mart. All three stops are recommended to be replaced with on-street bus stops to avoid conflicts with vehicles and pedestrians within parking lots and to improve on-time performance. New stops on Ka’ahumanu are recommended to serve Maui College and QKC and new stops on Pu’unēnē and Lono Avenue will serve the Kahului Shopping Center. Other new stops, shown in Figure ES-4, will service residential areas and new stops on Dairy Road will serve Maui Marketplace and K-Mart/Costco. Operating characteristics will remain the same as currently operated with the exception that the route segment to Wahinepio Avenue would cease with the implementation of the new Route 8. The service time saved would be able to be redeployed into currently unserved areas in Kahului.

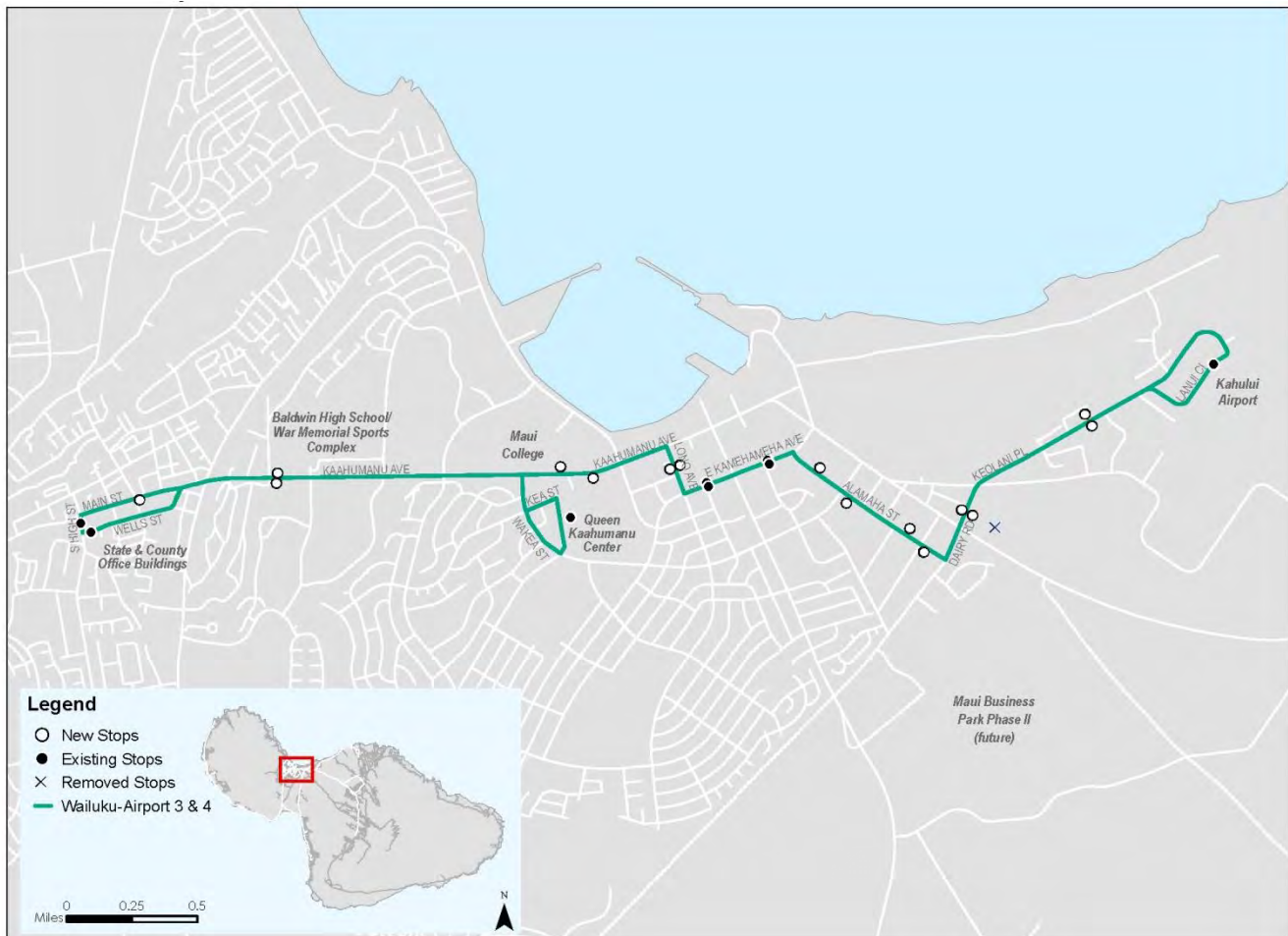
Figure ES-4: Recommendations for Kahului Loop Routes 5 and 6



- Wailuku State and County Buildings Route 3:** This new route travels in both directions between QKC and Main Street via W. Ka’ahumanu Avenue (shown in Figure ES-5). The route would turn left onto Kinipopo Street and right onto Wells Street (the same as the Lahaina Islander) to serve the State Office Building and right onto Main Street serving a new bus stop located just before Central Avenue. New bus stops are added on W. Ka’ahumanu Avenue to serve Baldwin High School and new development by Maui Lani Parkway. Characteristics include:

<i>Span of Service:</i>	6:30 AM to 10:00 PM
<i>Headways:</i>	30-minute AM, mid-day and PM Peak, 60-minute evening
<i>Number of Trips:</i>	29
<i>Number of Vehicles:</i>	.5 (shares a bus)

Figure ES-5: Recommendations for Wailuku-Airport Routes 3 and 4



- Airport Route 4:** Together with Route 3, Airport Route 4 provides the east-west spine of the transit system shown in Figure ES-5. Two-directional service between QKC and the Airport will be provided by this new route. New stops on E. Ka'ahumanu Avenue will serve Maui College to avoid out of direction travel. The route would turn onto Lono Avenue to W. Kamehameha Avenue to serve the Kahului Shopping Center, Salvation Army and the back entrance to Maui Mall. The route continues to Alamaha Street with new bus stops added to serve the large number of businesses along this street. The route continues to Dairy Road serving K-Mart and Costco and the Airport. Characteristics include:

<i>Span of Service:</i>	6:00 AM to 10:00 PM
<i>Headways:</i>	30-minute AM, mid-day and PM Peak, 60-minute evening
<i>Number of Trips:</i>	29
<i>Number of Vehicles:</i>	1

- Wailuku Central Route 7:** This new route, shown in Figure ES-6, connects downtown Wailuku and the County and State buildings with residential and business areas currently not served by transit. The route provides connections with the new Waihee Villager Route 8 and current Wailuku Loop Routes 1 and 2 by Hookahi Street for passengers to reach their destinations with more direct service and without having to travel to QKC to transfer. It also provides connections with the Lahaina Islander and Route 3 on Wells Street at the County and State buildings bus stop. From Main Street, the route turns onto Central and Nani Street serving the health clinic. The route continues to Kaniela Street and Imi Kala Street to serve the post office, continuing on Eha Street providing service to this large residential area. Connections with the new Route 8 and the Wailuku Loop Routes occur at the Eha Street and Hookahi Street (across from the Sack 'n Save) bus stop. New bus stops are offered on lower Main and Mill Streets providing access to transit for the residential, business and industrial areas along these two streets. Characteristics include:

<i>Span of Service:</i>	6:30 AM to 8:00 PM
<i>Headways:</i>	30-minute AM, mid-day and PM Peak, 60-minute evening
<i>Number of Trips:</i>	27
<i>Number of Vehicles:</i>	1

- Waihee Villager Route 8:** This new route provides two-directional service between the Waihee community and QKC as shown in Figure ES-7. The Waihee terminus is bounded by Omilu Street, Limu Eleele Place, Halewaiu and Kahekili Highway. Bus stops along Kahekili Highway are shown as being provided in the outbound direction only for pedestrian safety. This route will provide the transit service for Waiehu Heights and Maui College providing more direct service for these destinations to QKC and allowing the Wailuku and Kahului Loop Routes to provide service to other areas. This route provides new service along Kea Street. Characteristics include:

<i>Span of Service:</i>	6:00 AM to 8:00 PM
<i>Headways:</i>	60-minute AM, mid-day, PM Peak and evening
<i>Number of Trips:</i>	14
<i>Number of Vehicles:</i>	1

Figure ES-6: Recommendations for Wailuku Central Route 7

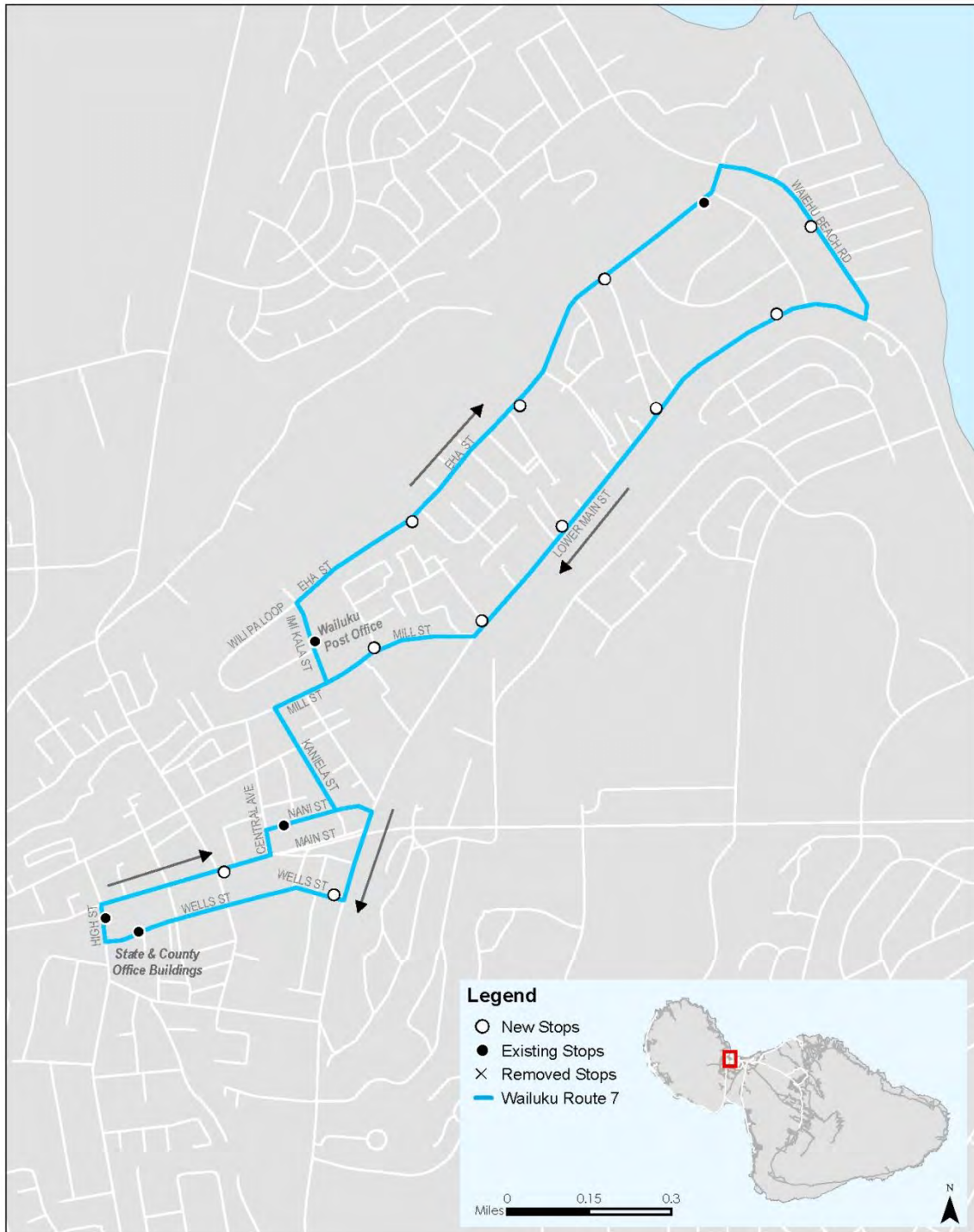


Figure ES-7: Recommendations for Waihee Villager Route 8



- Kahului-Maui Business Park Route 9:** This route shown in Figure ES-8 provides a direct connection from QKC to Walmart/Home Depot along Hina Avenue providing new service to residents along the avenue. This route is designed to be extended to the Maui Business Park (Phase II) and other development sites along Hookele Street as businesses are opened. Characteristics include:

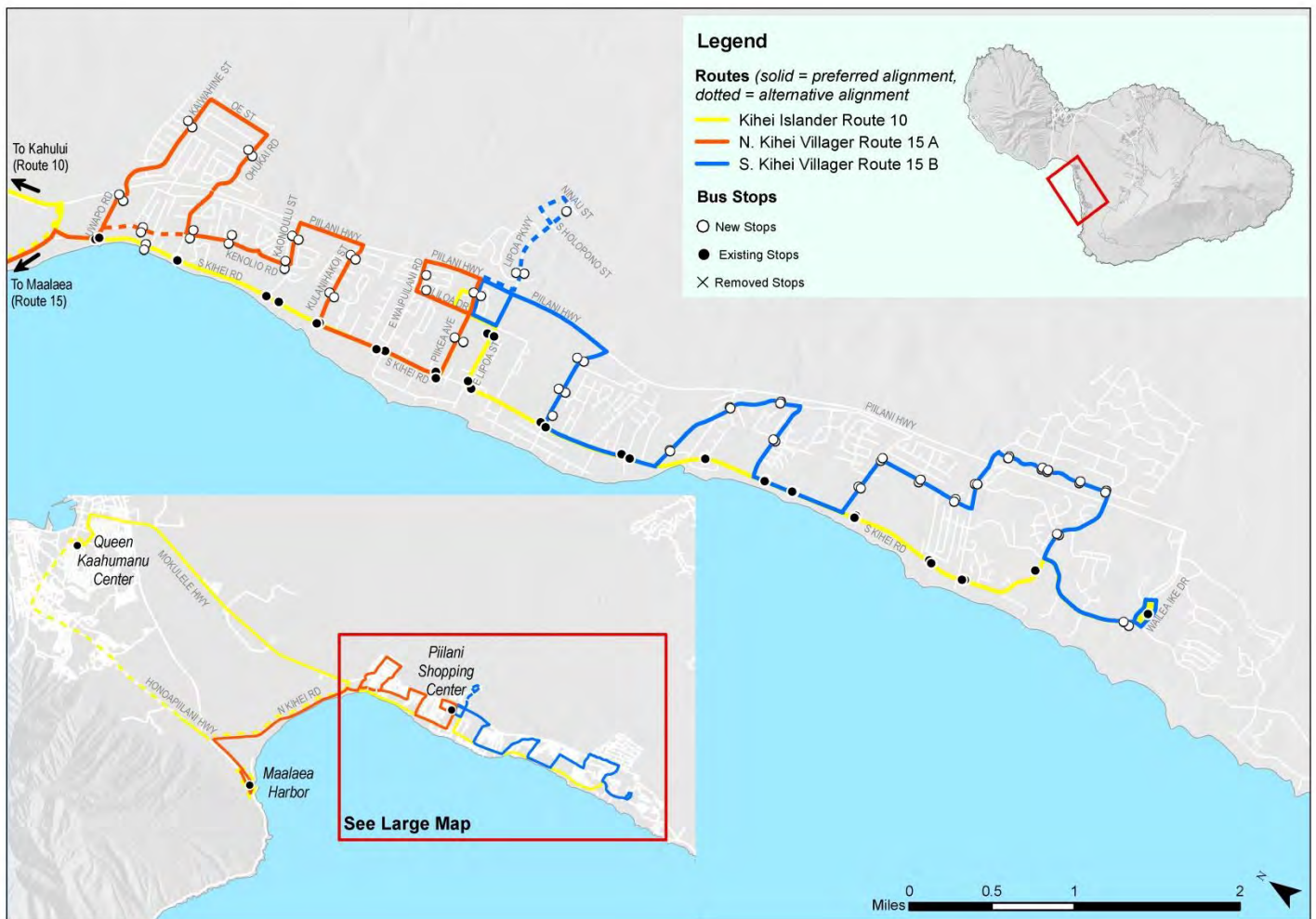
Span of Service: 6:30 AM to 10:00 PM
Headways: 30-minute AM, mid-day and PM Peak, 60-minute evening
Number of Trips: 26
Number of Vehicles: .5 (shares a bus)

Figure ES-8: Recommendations for Kahului-Maui Business Park Route 9



Kihei Route System -- The structure of the Kihei route system is expanded to serve more neighborhoods. The basic structure of the Kihei Islander route is maintained. The route system is focused on a transfer center in the vicinity of the Pi'ilani Village Shopping Center. Figure ES-9 shows that the bus stop at Pi'ilani Village Shopping Center is recommended to be on-street, eliminating the movement through the shopping center.

Figure ES-9: Recommendations for Kihei System



- **Kihei Islander:** The Kihei Islander will operate along its current alignment with only minor changes. These changes include:
 - New bus stops on both sides of Pi'ikea Street. These new stops will be provided by the developer of the adjacent property makai of Liloa Drive.
 - New bus stops added to Pi'ikea Street mauka of Liloa Drive to serve the Pi'ilani Shopping Center. These stops need to accommodate two buses at a time. This will require a minor route alignment change. The route would continue on Pi'ikea Street to right onto Pi'ilani Highway to right onto E. Lipoa Street to continue its alignment.
 - New bus stops should also be added on S. Kihei Road at Leilani Road which is midpoint between current stops located one-half mile apart at Uwapo Road and Ohukai Road.
 - The later evening alignment from Central Maui would be changed to serve Ma'alaea Harbor before traveling to Kihei. This is shown in the yellow dashed line in Figure ES-9. This later evening routing will provide the needed service for workers and provide a connection from Lahaina and beyond.
 - In Central Maui new stops are added along S. Pu'unēnē Avenue near Hololea Street and E. Kauai Street.

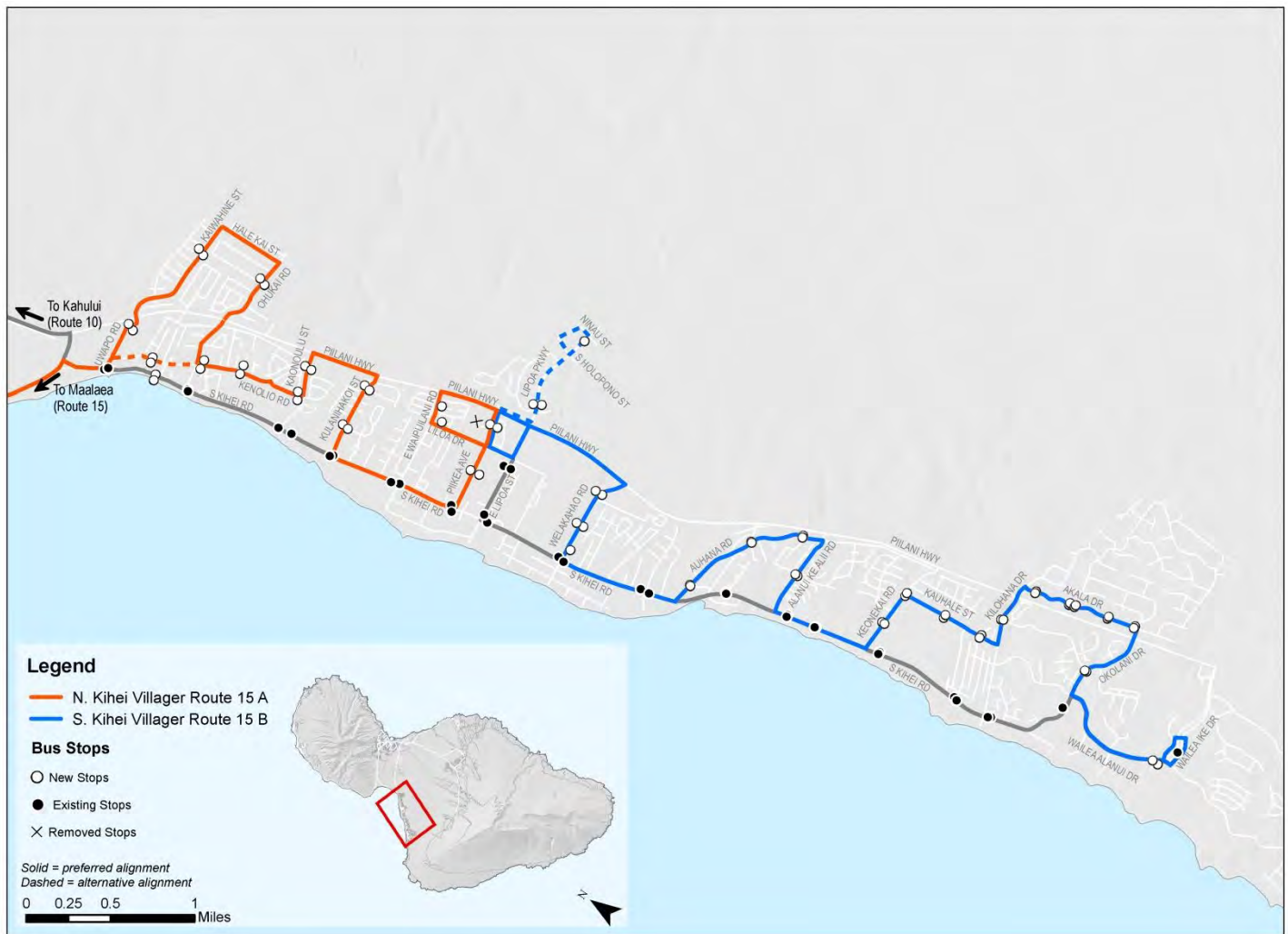
Characteristics include:

<i>Span of Service:</i>	5:30 AM to 11:00 PM
<i>Headways:</i>	60-minute AM Peak, mid-day, PM Peak; and evening; 90-minute later evening
<i>Number of Trips:</i>	17
<i>Number of Vehicles:</i>	2
<i>Express Services</i>	6 trips operated with 1 additional vehicle – 3 trips in the AM peak period and 3 trips in the PM peak period will provide additional capacity.

The Kihei Villager is shown as two shuttle routes: North Kihei and South Kihei both connecting along Pi'ikea Avenue (shown in Figure ES-10).

- **North Kihei Villager Route 15A:** The North Kihei Villager will operate from Ma'alaea Harbor as the current Kihei Villager does today. The route will serve the residential area mauka of Pi'ilani Highway (shown in the solid red line in Figure ES-10). A new housing development is planned in this area near the corner of Hale Kai Street and Kaiwahine Street. The route would turn right onto Ohukai Road and left onto Kenolio Road. From Kenolio Road the route turns left onto Kaonoulu Street to Pi'ilani Highway where the route turns right onto Kulanihako Street to S. Kihei Road, then continues onto Pi'ikea Street. The route returns to Ma'alaea Harbor via Liloa, to return to Pi'ikea Street serving the Pi'ilani Shopping Center from an on-street bus stop.

Figure ES-10: Recommendations for Kīhei Villager Routes 15A and 15B



An alternate alignment (dashed red line) is shown for the North Kīhei Villager. This alignment would have the route travel along Kenolio Road instead of traveling to the residential area mauka of Pi'ilani Highway. This could be an interim alignment prior to providing the full service change if it is determined the full change would take longer than one year to implement. Upon implementing the full service change to mauka of Pi'ilani Highway, the Kīhei Islander could provide the service along Kenolio if demand is warranted.

Characteristics are for the alignment shown with the solid red line and include:

<i>Span of Service:</i>	5:30 AM to 9:00 PM
<i>Headways:</i>	60-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	16
<i>Number of Vehicles:</i>	1

- South Kīhei Villager Route 15B:** The South Kīhei Villager is designed to connect with the North Kīhei Villager and the Islander along Pi‘ikea Street. Initially, the route would turn around via E. Lipoa Street, Liloa Drive and Pi‘ikea Street. When demand warrants, the South Kīhei Villager will continue on Pi‘ikea to Pi‘ilani Highway to Lipoa to serve the Industrial Park. This segment is shown in the dashed line on the map.

This new route provides new service to residential areas along East and West Welakahao Road, Auhana, Alanui Kealii, Kauhale and Akala Drive. The route would terminate at the current end point of the Kīhei Islander at Wailea Iki Drive. This route will require 37 new bus stops along the main alignment and three bus stops along its extension. Initially, these stops would be minimal: route sign and schedule. As service develops shelters will be added.

The addition of the South Kīhei Villager will allow the Kīhei Islander to provide additional express services to the Pi‘ilani shopping center allowing continuing passengers to transfer to the Villager routes. The express services would terminate at the Pi‘ilani shopping center. Passengers desiring to continue their trip further south would transfer to the South Kīhei Villager. Three additional morning and three afternoon peak period trips would be added to provide additional passenger capacity. Characteristics include:

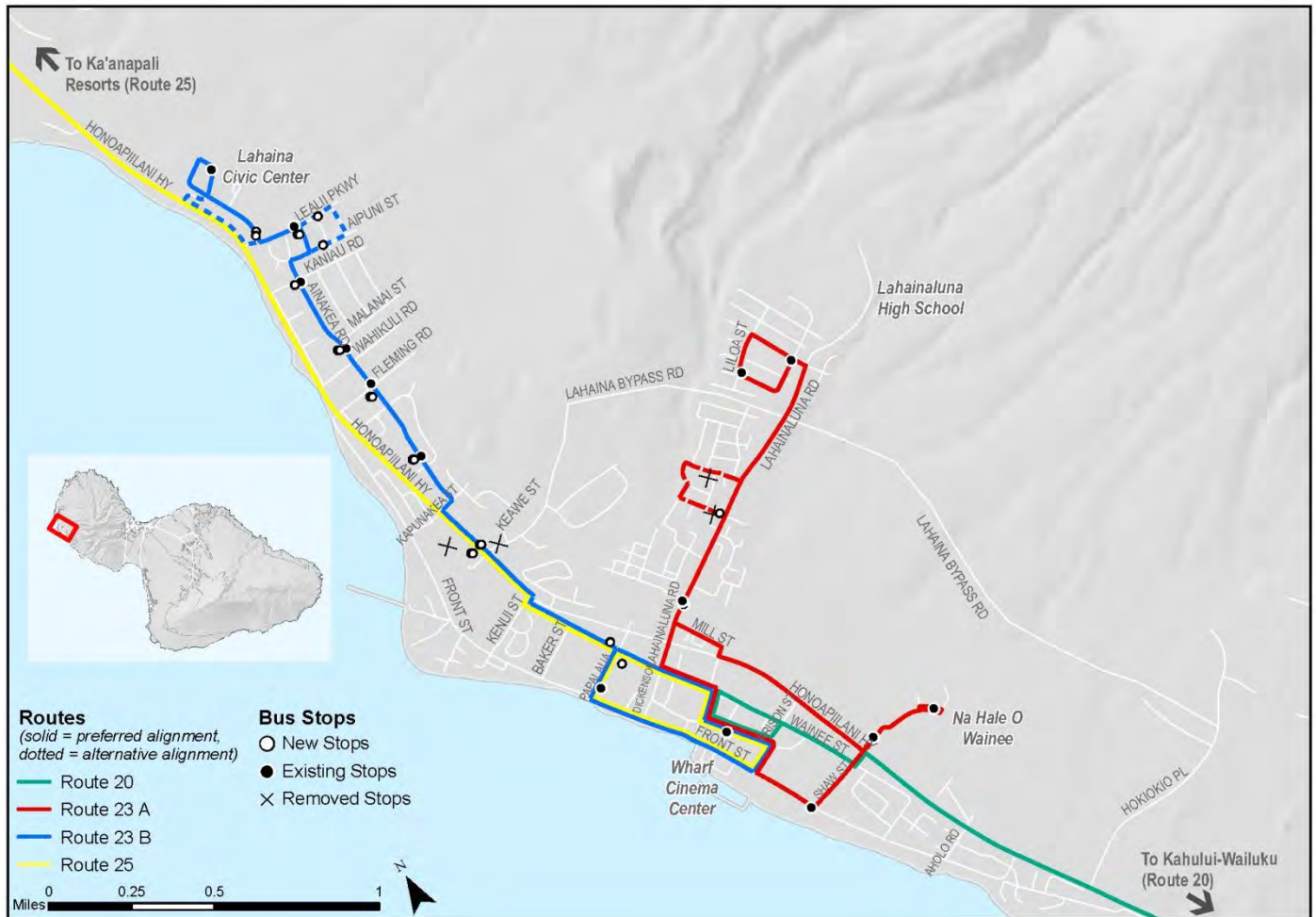
<i>Span of Service:</i>	5:30 AM to 9:00 PM
<i>Headways:</i>	60-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	16
<i>Number of Vehicles:</i>	1

Lahaina, Ka’anapali and Napili Route System – The Lahaina, Ka’anapali and Napili Route System restructures routes to provide more service coverage and more direct service to the transfer center located in the vicinity of the Wharf Cinema Center as shown in Figure ES-11. Later evening service is proposed for the Islander routes.

- Lahaina Villager:** The figure shows the proposed route changes for the Lahaina Villager. The route would operate with two independent segments but is interlined at the Wharf Cinema Center so that customers are not forced to transfer. As shown in the figure, Route 23A is the first segment of the current route. From the Wharf Cinema Center, the alignment travels to the Aquatic Center and Na Hale O Waivee housing. The route proceeds to serve the neighborhoods along Lahainaluna Road, returning to Wharf Cinema Center. Route 23A would operate once per hour.

Route 23B is the second portion of the current Lahaina Villager. The route would operate to the Civic Center from the Wharf Cinema Center along Ainakea Road. New two-way service along Ainakea Road would provide a more convenient alignment for intending passengers and offers an opportunity to increase ridership along this section of the route. New bus stops are shown on Honoapiilani Highway to replace routing within the parking lots of Lahaina Gateway and Cannery Mall. Sufficient space is available to provide bus pullouts along the Highway. Route 23B would operate once per hour.

Figure ES-11: Recommendations for Lahaina System



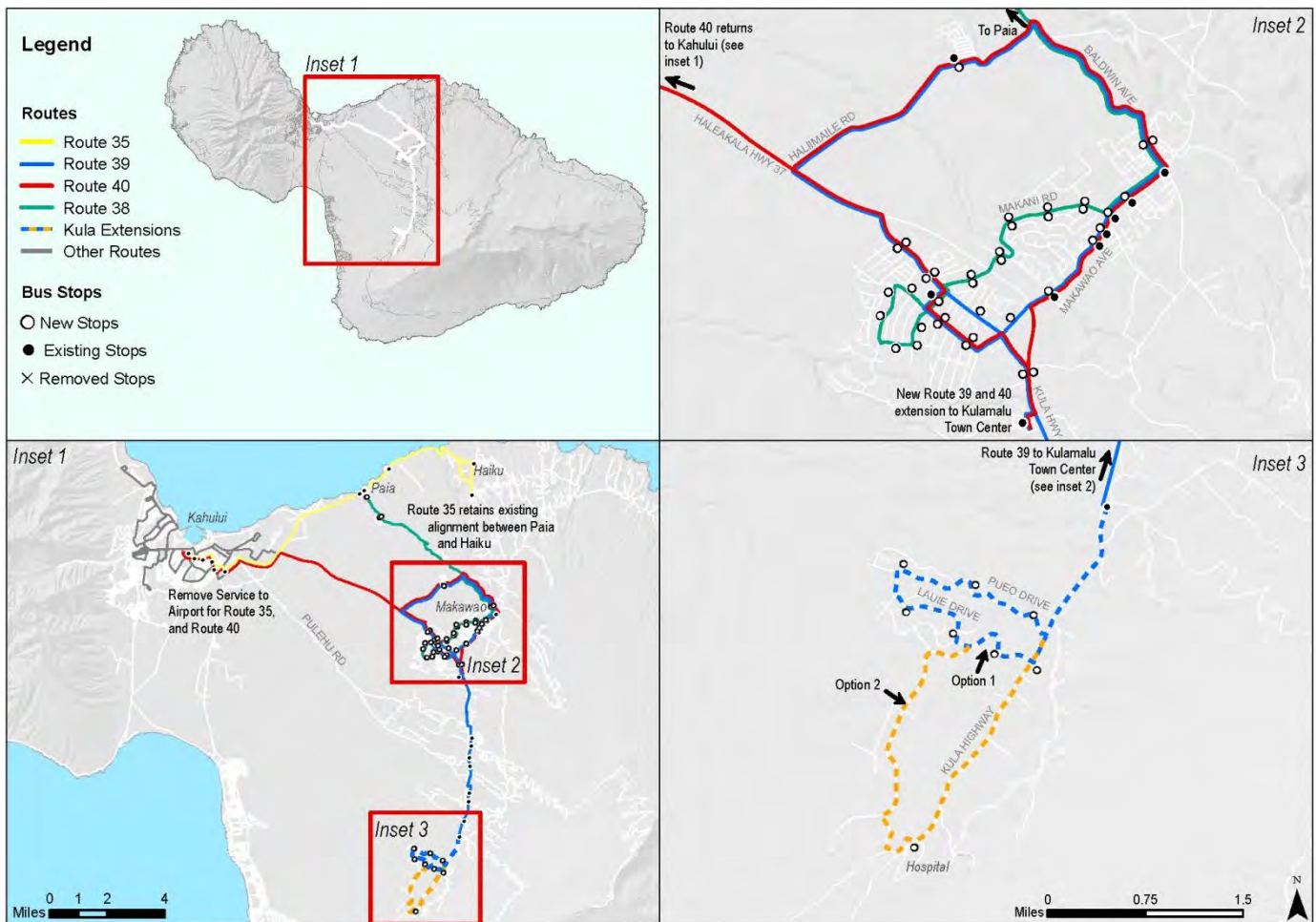
Characteristics for Lahaina Villager 23A and 23B include:

- Span of Service:*
 - 23A - 7:00 AM to 11:00 PM
 - 23B – 7:30 AM to 10:30 PM
- Headways:* 60-minute AM Peak, mid-day, PM Peak and evening
- Number of Trips:*
 - 23A – 16 trips
 - 23B – 15 trips
- Number of Vehicles:* 1 vehicle to operate both routes

- Lahaina, Ka'anapali and Napili Islanders:** The Ka'anapali and Napili Islander routes should be interlined; two buses would operate a two-hour roundtrip from the Wharf Cinema Center to a new turnaround in Kapalua. This combined service is named Route 28 West Maui Islander. Interlining saves time at Whalers Village since passengers would be able to stay on the bus and not transfer. Outbound and inbound buses would not wait for a time-connection at Whalers Village. The interlining would not occur on the afternoon peak period vehicle added to the Ka'anapali Islander route. That bus would operate independently. Driver changes could occur at the Wharf Cinema Center instead of Whalers Village.

Upcountry Route System – Figure ES-12 presents the Haiku and Upcountry route system where both Islander routes are realigned to provide a more direct connection into Kahului, bypassing the airport. The airport service is increased with a new route as part of the Central Maui Route System. Airport service would be on a consistent 30-minute schedule provided by a new route. Both Islander routes would serve Walmart and Home Depot and new stops along South Pu'unē Avenue and West Wakea Avenue.

Figure ES-12: Recommendations for Haiku and Upcountry System



- Haiku Islander Route 35:** The alignment change shown in Figure ES-13 bypasses the airport and serves new development along Ho'okele Street via the new intersection with Hāna Highway. This change saves 15 minutes per roundtrip. The travel time savings can add two more daily trips to the Haiku Islander schedule but would not provide timed-connections at QKC. Characteristics include:

<i>Span of Service:</i>	5:30 AM to 10:00 PM
<i>Headways:</i>	75-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	13
<i>Number of Vehicles:</i>	1

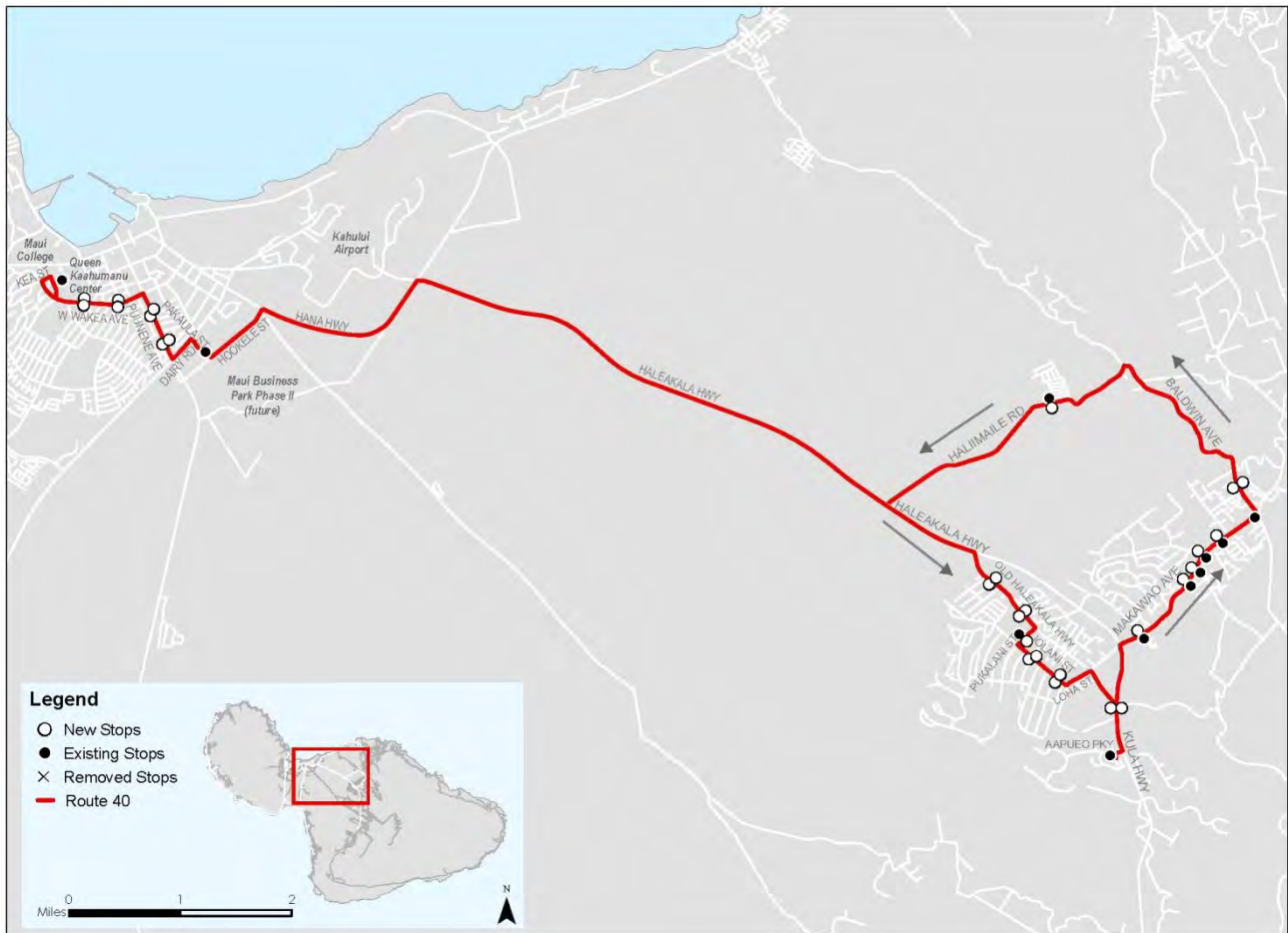
Figure ES-13: Recommendations for Haiku Islander Route 35



- Upcountry Islander Route 40:** MDOT extended this route in February 2015 to Kulamalu Town Center, which is the new transfer point between the Upcountry Islander and Kula Villager Routes. Like the Haiku Islander, the Upcountry Islander would be rerouted from the airport to provide direct connections to QKC as shown in Figure ES-14. Characteristics include:

<i>Span of Service:</i>	6:00 AM to 10:11 PM
<i>Headways:</i>	90-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	11
<i>Number of Vehicles:</i>	1

Figure ES-14: Recommendations for Upcountry Islander Route 40

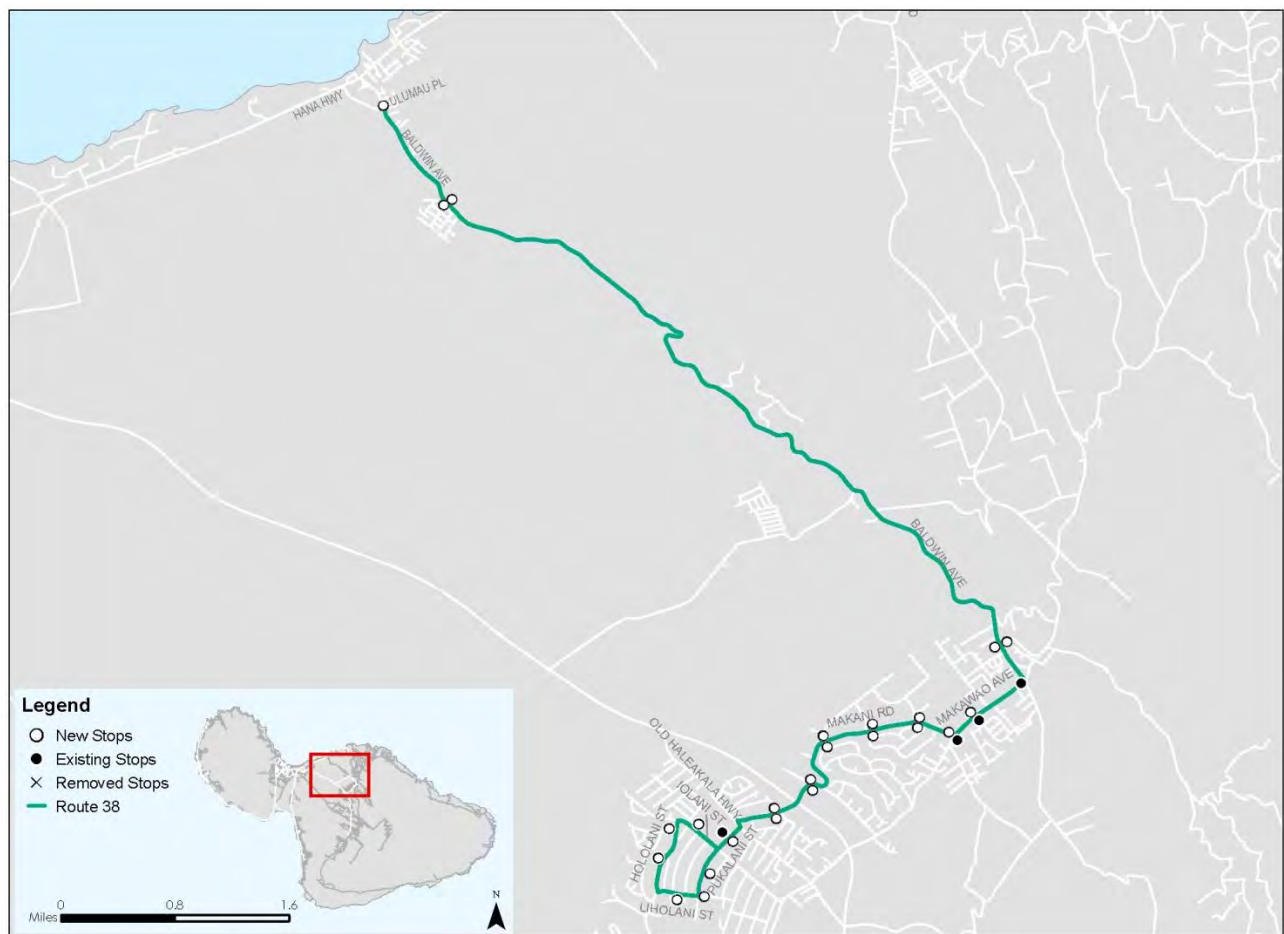


- Pā'ia Town-Makawao Villager Route 38:** Figure ES-15 presents a new route and connection between these two towns. The new Pā'ia route would continue from Baldwin Avenue to Makawao Avenue and turning right onto Makani Road to provide new service to this area. The route would continue to the Pukalani Shopping Center and provide new service to the neighborhood west of the shopping center.

A transit hub is recommended in Pā'ia Town to provide connections with the Haiku Islander. The route would be operated with the same lower capacity vehicle currently operated on the Kula Villager. This route could be interlined with the Kula Villager when fully implemented, thus providing more frequent service for Kula, Hali'imaile, Pā'ia Town and Makawao. Characteristics for a fully implemented Route 38 include:

<i>Span of Service:</i>	8:00 AM to 9:30 PM
<i>Headways:</i>	90-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	10
<i>Number of Vehicles:</i>	1

Figure ES-15: Recommendations for Pā'ia Town-Makawao Villager Route 39



- Kula Villager Route 39:** The Kula Villager is the only route where a decrease in service frequency would occur. This is off-set with new service providing the reverse loop to Hali‘imaile and along Makawao Road as shown in Figure ES-16.

Working in tandem with Route 40, two-direction service would be offered allowing local circulation within the larger upcountry community. The new service requires new bus stops be installed. The new schedule would start at 6:10 AM at Rice Park (or earlier if the route serves Hawaiian Homelands), providing an inbound trip for Kula residents to connect to the inbound Upcountry route at Kulamalu. The route would continue to Pukalani via Iolani Street. New bus stops would be required to serve the shopping center.

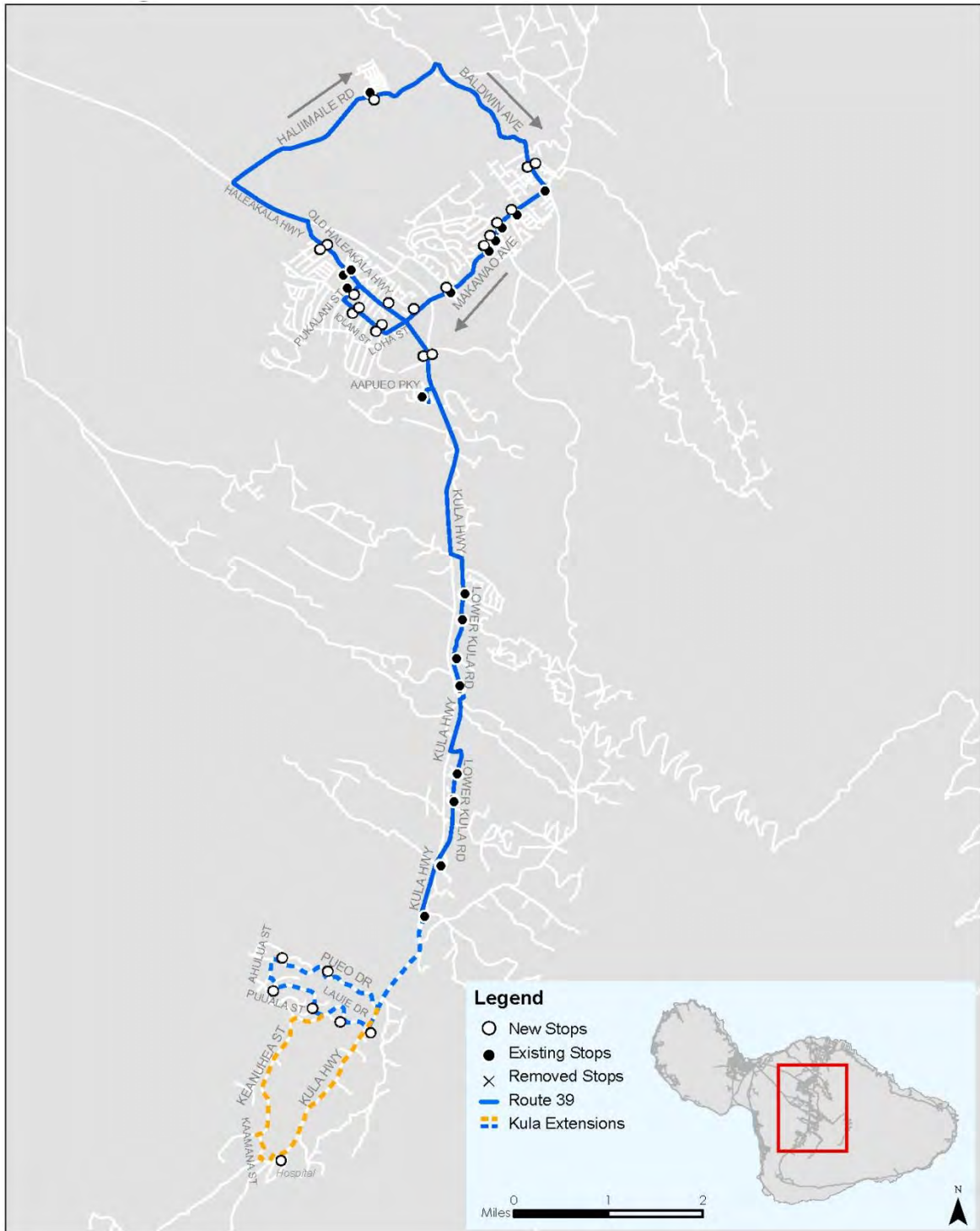
The route would continue via Old Haleakalā Highway to Haleakalā Highway and Hali‘imaile Road to provide the two-directional service. Providing this service with the same bus adds 30 minutes to the running time. Productivity on the Kula Villager will eventually rise with this new service and bus stops may be requested to serve King Kekaulike High School.

Two alternate alignments are shown to serve Hawaiian Home Lands in Kula. Serving that community would require an additional bus or alternating service could occur with the extended Makawao service. Kula Villager would serve new bus stops on the Iolani Street reverse loop, on Old Haleakalā Highway and at the High School on Kula Highway. Prior to returning to Kulamalu Town Center following service to Makawao, Route 39 would provide the missing link to Pukalani Shopping Center for Makawao residents. Characteristics include:

<i>Span of Service:</i>	6:10 AM to 10:00 PM
<i>Headways:</i>	90-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	11
<i>Number of Vehicles:</i>	1



Figure ES-16: Recommendations for Kula Villager Route 39



The fixed route service improvements are proposed to be implemented in annual steps. Some of the service improvements are scheduled to coincide with transit center improvements listed in the capital program needed to address capacity constraints. The sequencing of the service improvements are as follows:

- **2017:** In 2017 additions to current routes include expanding the span of service on Kula Villager, Lahaina Villager and the North Kīhei Villager. New route service is provided to the Maui Airport.
- **2018:** Additions to current routes include later evening service on the Kīhei Islander, Lahaina Islander, Ka'anapali Islander and the Napili Islander routes.
- **2019:** Additions to current routes includes the introduction of the Kīhei Express route adding 6 additional trips per day. Supporting the Kīhei Express route is the addition of the South Kīhei Villager route.
- **2020:** Three new routes are added to Central Maui in 2020. These routes will serve new areas in Kahului and Wailuku.
- **2021:** One new route providing service to communities in north Wailuku including Waihee is added in 2021.
- **2022:** A new route connecting Pā'ia Town with Makawao is added to the system in 2022. This route will provide service to residential areas within Makawao that are currently unserved.
- **Paratransit:** The service plan increases ADA paratransit to match the span of service on those routes where scheduled service is being improved. Paratransit service hours are increased relative to correspond with the introduction of new fixed routes and existing fixed route extensions



CAPITAL IMPROVEMENT PROGRAM

The MSRTP Capital Improvement Program includes the continuation of the existing bus stop and shelter investment program and the installation of the additional stops required by service expansions.

MDOT's goal is to review bus stop ridership statistics on a yearly basis and determine the need to improve bus stop locations. Bus stops with daily boardings of 25 or more passengers may be identified for shelters. Bike racks, solar lighting and recycle bins are included in the design for Maui Bus shelters responding to the desires of residents. They are designed such that wheelchairs can fit within the cover. Other stops have a range of amenities some with just the Maui Bus stop sign on a pole and others with a bench or trash can depending upon the location of the stop.



The Capital Improvement Program features new transit centers, maintenance and operations facility and other investments as follows:

- **Queen Ka'ahumanu Center** -- The heart of the current system is the transfer center located at Queen Ka'ahumanu Center. This location is already over capacity to support existing services with the pulse operation.

The pulse is operating effectively and is expected to be used to integrate new services with the additional services. However, this important existing transit center location cannot be expanded and is located on private property so the transit operation survives at the will of the mall. A new transit center is needed that should be able to accommodate up to 12 buses at the same time and be located as close as possible to the existing site but on land dedicated to serving as the Maui Bus transit center.



- Other Transit Centers and Transfer Locations** - Timed connections are made at the Wharf Cinema Center where passengers wait on private property. A new transit center is needed and should be located close to the existing site, but on land dedicated to serving Maui Bus. The Whaler’s Village transfer point is off-street but on private property. The size is adequate, but it may become necessary for this transfer point to move to an on-street location. The Pi’ilani Village Shopping Center transfer point is on private property and currently serves two bus routes. This stop is proposed to move to on-street and will serve three routes in the future. The War Memorial Stadium could benefit from a large shelter(s) for waiting passengers.



- Transit Vehicle Maintenance and Operations Facility** -- Maui Bus now contracts for all fixed route services including vehicle maintenance. The goal is to bid out services and provide a facility to support all operations. The MS RTP includes the planning, design, land acquisition (if County land is not available), construction, equipment and installation costs for a public transit maintenance and operations facility. Bus base facility needs are created by changes in fleet size, technology advances, shifts in fleet composition, modifications in service delivery characteristics, introduction of new public transportation modes and new comprehensive initiatives requiring a substantial transit system response. Extensive planning is required to identify and investigate alternative sites for a maintenance and operations facility. The County may have land available for the maintenance and operations facility but the suitability of any possible site needs to be confirmed and evaluated against possible alternative locations.

7	RAINIER BEACH, VIA RAINIER AVE S 04:34 - 2 mins early	2
3	MADRONA AND 34TH AVE, VIA E CHERRY ST 04:35 - 2 min delay	3
66E	DOWNTOWN SEATTLE, EASTLAKE 04:37 - 10 min delay	6
2	MADRONA PARK, VIA E UNION ST 04:37 - 6 min delay	6
16	DOWNTOWN SEATTLE, WALLINGFORD 04:37 - 9 min delay	6
36	OTHELLO STATION, N BEACON HILL 04:40 - on time	9
40	DOWNTOWN SEATTLE, BALLARD 04:44 - 8 min delay	13

Be advised:
Bus arrival estimates are based on the best available information but actual times will vary.
Traffic and other conditions can affect the accuracy of this information.

OneBusAway.org | SDOT | King County METRO

- Transit Passenger Systems** – It is recommended that transit passenger systems include real time electronic information displays. These could be procured as an independent program to seek partnerships that allow some degree of advertising on the displays to generate revenue or be self-sustaining. The real time arrival information is enabled by many competitive applications now widely available. It is also recommended that Maui Bus implement a fare collection system that takes full advantage of current technology. Smart cards are particularly beneficial for both the system and the passenger. The benefits to the system include more secure financial transactions, more accurate and quicker accounting and real time monitoring of passenger movements that can be included in the electronic displays.

- **Fleet Acquisitions** -- It is proposed that seven high capacity buses be acquired in 2018 to replace the existing double decker bus and the six El Dorado National 2007 model year buses. Sufficient numbers of buses are available to fulfill fleet needs but not to respond to the analysis and service recommendations in this plan that identify the need for higher capacity buses. It is necessary to have more higher-capacity buses just to serve existing passenger demands. No replacement vehicles are needed until the year 2019 based upon FTA's service-life policy with the exception of the Alexander Dennis double-decker bus which is a 2004 model year and should be replaced in the first year of the fleet acquisition program. However, it is not practical to have just one high capacity bus in terms of spare parts inventory and mechanical familiarity.



FINANCIAL PLAN

Table ES-1 includes the expenses, operating revenue and capital funding for the period 2017 to 2022. The projected expenses represent all plan elements: administration, operations and capital. Operating revenue includes periodic fare increases to maintain the same proportionate contribution passengers have made to support Maui Bus's costs. Capital funding includes continued participation by the Federal government consistent with past experience.



Table ES-1: Recommendations for Financial Plan Using Current Sources By Fiscal Year

ITEM	MAUI BUS FINANCIAL PLAN BY YEAR					
	2017	2018	2019	2020	2021	2022
Expenses						
Administration & Marketing	\$246,000	\$258,300	\$271,215	\$284,776	\$299,015	\$313,965
Operations	\$10,504,426	\$11,225,361	\$12,738,354	\$14,088,545	\$15,066,913	\$16,146,581
Capital Investments	\$1,350,000	\$12,100,000	\$15,310,000	\$16,565,000	\$12,600,000	\$13,360,000
Total Expense	\$12,100,426	\$23,583,661	\$28,319,569	\$30,938,321	\$27,965,927	\$29,820,546
Operating Revenue						
Fare Revenue & related	\$3,094,919	\$3,216,665	\$3,535,028	\$3,922,162	\$4,273,167	\$4,979,080
Farebox Recovery Ratio	28.8%	28.0%	27.2%	27.3%	27.8%	30.2%
County Highway Fund	\$7,655,508	\$8,266,996	\$9,474,542	\$10,451,159	\$11,092,760	\$11,481,466
Capital Funding						
Federal Grants by formula	\$2,620,000	\$2,698,600	\$2,779,558	\$2,862,945	\$2,948,833	\$3,037,298
Federal Grants Discretionary	\$0	\$0	\$768,000	\$3,200,000	\$200,000	\$3,744,000
County CIP	\$524,000	\$7,607,400	\$11,762,442	\$10,502,055	\$9,451,167	\$6,578,702
Notes: Administration expense is based on FY 2015 plus 3%. Added staff required to support planning, design and specifications development included as part of capital program. Operations expense is from Table 5-19. Capital investments from Table 5-18. Fare revenue from Table 5-5-20.						

The financial plan increases the projected funding obligations from Maui County's highway and general funds to support the desired service improvements and needed capital investments. Some of those capital investments represent extraordinarily large amounts of local funding requirements. These are not recurring costs or funding needs. The costs of the required transit centers and bus maintenance and operations center are one-time expenses with long serviceable life cycles. Therefore, it is fortunate that an alternative one time funding opportunity exists that would not place a heavy future burden on the Maui County highway and/or general funds.

Act 240 was approved by the Governor on July 14, 2015. Section 46-16.9, Hawaii Revised Statutes was amended to allow Maui County to establish a general excise tax surcharge for transportation purposes. Maui County may establish this surcharge by ordinance. The ordinance must be adopted prior to July 1, 2016. The excise tax may be used to support the needs of the MS RTP as shown in Table ES-2. The enactment of a general excise tax would reduce Maui County highway and general fund needs by approximately \$88 Million over the multi-year period shown in Table ES-1.

Table ES-2: Recommendations for Financial Plan Using General Excise Tax Option By Fiscal Year

ITEM	MAUI BUS FINANCIAL PLAN BY YEAR					
	2017	2018	2019	2020	2021	2022
Expenses						
Administration & Marketing	\$246,000	\$258,300	\$271,215	\$284,776	\$299,015	\$313,965
Operations	\$10,504,426	\$11,225,361	\$12,738,354	\$14,088,545	\$15,066,913	\$16,146,581
Capital Investments	\$1,350,000	\$12,100,000	\$15,310,000	\$16,565,000	\$12,600,000	\$13,360,000
Total Expense	\$12,100,426	\$23,583,661	\$28,319,569	\$30,938,321	\$27,965,927	\$29,820,546
Operating Revenue						
Fare Revenue & related	\$3,094,919	\$3,216,665	\$3,535,028	\$3,922,162	\$4,273,167	\$4,979,080
Farebox Recovery Ratio	28.8%	28.0%	27.2%	27.3%	27.8%	30.2%
County Highway Fund	\$7,655,508	\$8,266,996	\$0	\$0	\$0	\$0
Capital Funding						
Federal Grants by formula	\$2,620,000	\$2,698,600	\$2,779,558	\$2,862,945	\$2,948,833	\$3,037,298
Federal Grants Discretionary	\$0	\$0	\$768,000	\$3,200,000	\$200,000	\$3,744,000
County CIP	\$524,000	\$0	\$0	\$0	\$0	\$0
General Excise Tax Funding						
Estimated Total Revenue	\$0	\$12,084,999	\$36,291,289	\$36,291,289	\$36,291,289	\$36,291,289
Operating Subsidy	\$0	\$0	\$9,474,542	\$10,451,159	\$11,092,760	\$11,481,466
Capital Funding	\$0	\$9,401,400	\$11,762,442	\$10,502,055	\$9,451,167	\$6,578,702
<i>Carryover balance</i>	<i>\$0</i>	<i>\$2,683,599</i>	<i>\$17,737,905</i>	<i>\$33,075,979</i>	<i>\$48,823,341</i>	<i>\$67,054,462</i>



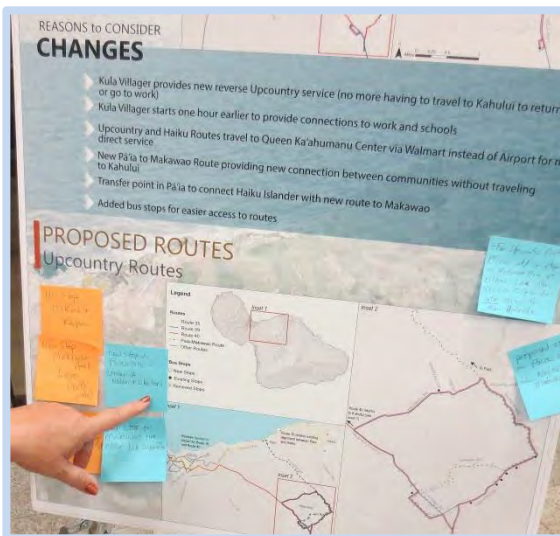
Another benefit of considering taking advantage of the limited window of opportunity offered by Act 240 is the other transportation projects that could be funded. Table 1-2 includes a year-by-year projection of the estimated total revenue generated by a Maui general excise tax surcharge. The last row provides a “carryover balance” estimate of the amount of available revenue for other Maui County transportation investments. The \$67 Million carryover balance available beyond the funding requirements of the MS RTP can be used for pedestrian, bicycle and roadway projects.

SUMMARY

The proposals of the MSRTP were modified based upon extensive public review. Four public workshops were held in November of 2015 where residents expressed their desires for more Maui Bus service. They understood the needs for the significant capital investments identified in the plan. Many people spoke in favor of the MSRTP proposals.



Pukalani Pg 1
 For years, people had to walk up steep hills to the Pukalani Bus stop. Need another stop at least by Pukalani School to serve homes down there.
 Buses need GPS tracking so riders know where buses are in real time.
 * County App coming soon!
 11/18/15
 270-7511





MAUI MALL

Maui Short Range Transit Plan

Chapter 1 INTRODUCTION AND PLAN BACKGROUND



maui bus




BUS STOP
871-4838

STOP



**NO LEFT
TURN**

**EXACT FARE ONLY
DRIVER CARRIES
NO CASH**

FULL SERVICE

1. INTRODUCTION AND PLAN BACKGROUND

This chapter introduces the MSRTP by providing the background offered by previous and ongoing studies, a detailed presentation of demographic, geographic and land use characteristics and a description of the legal requirements that significantly influence the transit planning process.

1.1 PREVIOUS AND ONGOING STUDIES AND PROJECTS

Other Maui transportation plans and road projects impact the delivery of public transportation. This section identifies those plans and road projects benefiting public transportation with opportunities for new bus routes and stops. Projects containing specific public transportation elements are noted.



Park and Ride lot at Honoapilani Highway and North Kihei Road.

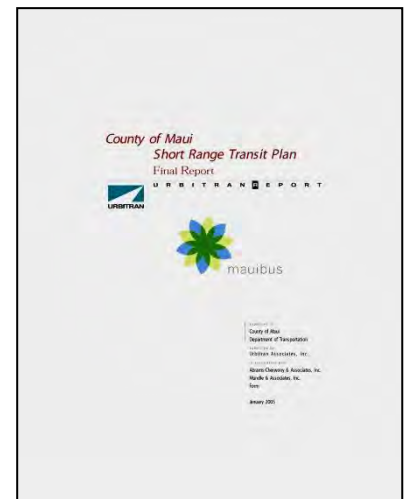
1.1.1 Transit Planning

The *County of Maui Short Range Transit Plan*, completed in 2005, was a county-wide plan. This was preceded by the *Public Transportation Plan for the Island of Maui* dated November 2003. Other recent plans include the *County of Maui ADA Paratransit Plan* and the *Maui County Bus Stop Planning & Design Services*.

County of Maui Short Range Transit Plan

The *County of Maui Short Range Transit Plan*, dated January 2005, is a county-wide plan to evaluate the existing fixed route transit and paratransit system and to develop a five year implementation plan for transportation services for three islands in the county.¹ (All footnotes are included at the end of each chapter.) The plan was focused on Island of Maui services; both fixed route and complementary paratransit services. As with the current Short Range Transit Plan, the human service transportation provision on the islands of Lana'i and Moloka'i were considered sufficient. The service improvement recommendations included the following:

- **Service Administration** -- The County should own and administer the transit system and contract the day-to-day operation of the service to a private contractor.²
- **Organizational Structure** -- The Maui Department of Transportation should establish a transit division whose duties are defined separately from general MDOT functions.³



- **Fixed Route Service** -- The fixed routes should be phased in over the five-year timeframe with three types of services:⁴
 - *Fixed-Route Circulator Service*. Fixed-route, circulator service would operate on two loops, one in Wailuku and one in Kahului.
 - *Islander Service*. Regional, express bus service that would connect communities on the Island of Maui with fixed route, limited stop service. Islander services utilize Central Maui as a main hub and provide connections for workers and visitors to communities throughout the island.
 - *Villager Service*. Routes operating in Maui's outlying communities designed to deviate off of the fixed route within communities that can support fixed-route transit service, but that do not require the same level of service as in Kahului and Wailuku.
- **Transit Centers** -- Two key hubs were proposed. The primary hub should be the Queen Ka'ahumanu Center. A secondary hub provides a transfer location between the south and west sides of the island at the Maui Ocean Center in Ma'alaea.
- **Complementary Paratransit Program** -- To fulfill the requirements for the ADA mandated complementary paratransit service. The operation should be contracted out to a service provider to contain costs.⁵
- **Capital Investments** -- The plan recommended Maui County accept FTA Section 5309 funds to finance the capital investments. Capital elements needed to implement public transit and complementary paratransit services included:⁶
 - *Transit Vehicles* -- Fleet requirements represented the largest capital expenditure. Transit vehicle needs included nine cutaways to initiate new service and fourteen heavy-duty vehicles to sustain and expand service. A total of \$5.4 million was allocated for fleet needs over five years.
 - *Facilities* -- Other capital needs identified in the previous plan included bus stop signs, information kiosks, passenger waiting benches and shelters, a transit center, and bicycle racks. A total of \$1.2 million was estimated over five years for these basic elements.

The SRTP reviewed potential funding sources, operating and capital cost estimates, and revenue estimates. A recommended fare structure attempted to conserve as much of the existing fare structure as possible while developing a simple zone system. The recommended fare structure included the following elements:⁷

- All local routes have a single fare of \$1.00 with free transfers between those routes only.
- Regional services have a single fare of \$2.00 with no transfers allowed.
- Monthly passes would cost \$25 for local service and \$45 for regional service. Corresponding discounted passes cost \$15 and \$30, respectively.
- Reduced price passes would be available to senior citizens, students, and persons with disabilities. Children 5 years and younger would ride free of charge when accompanied by a fare-paying adult.



The SRTP concluded with the following statement:

*"There is no doubt that the community, which includes residents and visitors, wants additional transit service. Although the network of specialized transit services provides a lifeline for specific populations, there is a growing need and demand for transit service that is available to everyone, according to their own schedule."*⁸

Public Transportation Plan for the Island of Maui

The *Public Transportation Plan for the Island of Maui* (PTPIM) prepared in 2003 updated the 1992 *Public Transportation Plan for the Island of Maui*. The study assessed existing public transportation services and provided recommendations for an improvement program. The study made four recommendations:⁹

1. Continue to support the transportation services provided by Maui Economic Opportunity, Inc., a non-profit which provides transportation to the disabled, the elderly, the young, rural residents, and low-income individuals;
2. Continue to support the then existing public transportation services provided by MEO, Inc. and Akina Aloha Tours in the Kahului/Wailuku area (MEO) and in and between the Lahaina/Ka'anapali and Kihei /Wailea areas (Akina);
3. Replace or expand MEO and Akina public bus service in the Kihei - Wailea corridor, between Kahului/Wailuku and Kihei, and between Kahului/Wailuku and Lahaina/Ka'anapali; and
4. Expand upon the use of the mechanism that allows the private sector to provide the broader-based public transportation system that currently exists on the island.

County of Maui Other Transit Plans and Reports

A *County of Maui Draft ADA Paratransit Plan* prepared in accordance with Federal Regulations was released in September 2005.¹⁰ The plan provides an estimate of 675 American with Disabilities Act (ADA) eligible people resulting in a demand of 25 trips per day. The plan outlines its relationship with existing paratransit services, service modifications, implementation timetable, service characteristics, budget, application and certification procedures and the public participation process. *The State of Hawai'i Coordinated Public Transit – Human Services Transportation Plan* dated May 2011 updated the 2005 plan by identifying newer federal programs, guidance and opportunities.

Two reports offer public transportation as an alternative when addressing West Maui's congestion problems. The *Mayor's Transportation Action Committee: Report and Recommendations* suggests implementing "transportation alternatives including air, sea, [and] car-pooling."¹¹



The Central and West Maui Connector Task Force suggests in its report that bus transit and/or a ferry system should be expanded in West Maui.¹²

The *Maui County Bus Stop Planning & Design Services*, dated August 2008, provided an assessment and inventory of the bus stops operated by Maui County. The report identified bus stop guidelines including those used by other transit agencies. These include bus stop placement, amenities and minimum requirements. The inventory of bus stops with associated amenities including passenger shelters and benches has been maintained by the County.

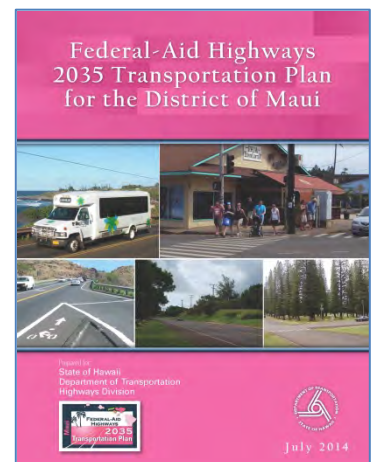
1.1.2 Transportation Planning

Significant land transportation planning efforts have been completed or are near completion for the County of Maui and certain transportation improvements have been under development and are in construction. The improvements may impact the provision of transit services by opening new routes between major destinations. This section reviews recent plans and projects with an emphasis on any features related to transit.

Federal-Aid Highways 2035 Transportation Plan for the District of Maui (2035 TP-DM): The Plan identifies projects and priorities for land transportation on the islands of Maui, Moloka'i, and Lāna'i. The 2035 TP-DM is meant to guide the Hawai'i Department of Transportation (HDOT) financial plan. The study reviewed existing transportation plans and reports to identify measures previously recommended and investigated their status. The plan involved a policy committee, technical advisory committee, technical resource committee, statewide stakeholder advisory committee, and the general public to provide input throughout the plan development process.

The report cited transit projects as playing a major role in achieving Maui District's goal to "improve modal integration and transit service (provide complete streets and promote safe, efficient modal connections)."¹³ The plan identified expanded and new transit infrastructure (e.g., transit hubs, bus shelters, park and ride locations), increased frequency of bus services on the island of Maui, and new transit service on Moloka'i as potential solutions. The plan mentioned that capacity and congestion related projects would enhance transit service by reducing travel times and improving schedule adherence.

Joint County/State Maui Interim Transportation Plan (Maui ITP): The ITP developed interim solutions to relieve traffic congestion on the island of Maui while long-term solutions are being pursued.¹⁴ This collaborative effort was developed under the auspices of the Countywide Transportation Planning Process – Maui (CTPP-M) to involve the appropriate parties and secure their commitment and support of the recommendations. This effort consolidated multiple efforts to develop alternative solutions to mitigate traffic congestions, including the efforts of the West Maui Traffic Action Committee and the Mayor's Transportation Action Committee.



The study reviewed existing transportation plans and reports to identify measures previously recommended and investigated their status. Interim strategies were explored and alternatives identified and evaluated. An ad hoc Citizens Advisory Committee (CAC) was convened to provide assistance in verifying problem areas, and recommending and screening viable solutions/projects.

The study concluded that past planning efforts have produced recommendations which, when implemented, should address many of the existing and future congestion problems. The study recognized that improvements to various key facilities have been delayed and, in the meantime, the demands on the transportation systems have continued to increase.

The study offered a series of recommendations intended to provide guidance such as phased construction of projects, interim strategies to provide near term relief and updating transportation plans and programs to reflect current policies and conditions. Opportunities for implementation of interim measures to relieve congestion were developed and evaluated. Alternative strategies considered included Transportation System Management (TSM) measures and Transportation Demand Management (TDM) techniques.¹⁵

Maui Long-Range Land Transportation Plan (MLRLTP): The MLRLTP was guided by three committees: a Policy Committee, a Technical Advisory Committee and a Citizen Advisory Committee. The MLRLTP “intended to identify long-range (to the year 2020) strategies and actions that will lead to the development of an integrated inter-modal transportation system.”¹⁶ The MLRLTP concluded that: “Although the transit program is normally one of the elements of this plan, the transit system does not have any improvement plans available for inclusion in this plan.”¹⁷ The documents outlined in the previous section now provide such a plan.

Khei Traffic Master Plan (KTMP): The KTMP was guided by two committees: a Technical Advisory Committee and a Citizen Advisory Committee. The *Maui Long-Range Land Transportation Plan* served as the primary reference for the KTMP. The KTMP focuses on street and highway solutions in the 1996 to 2005 timeframe. It does not mention transit, bicycle or pedestrian solutions.¹⁸

Moloka'i Long-Range Land Transportation Plan (Moloka'i LRLTP): This Plan was guided by three committees: a Policy Committee, a Technical Advisory Committee and a Citizens Advisory Committee.¹⁹ The Moloka'i LRLTP reviewed existing transit service and bicycle usage. The report identified the Maui Economic Opportunity, Inc., (MEO) transit operation. MEO is a non-profit entity providing transportation to the disabled, the elderly, the young, rural residents, and low-income individuals. MEO ran five bus vehicles with an average seating capacity of 25 on Moloka'i. MEO transported almost 34,000 people per annum on Moloka'i at the time.²⁰

The Moloka'i LRLTP reported no dedicated bikeway facilities existing on Moloka'i. However, most bicyclists were satisfied with the roadway facilities in the western part of the island because the shoulders were paved, wide, and there was not much vehicular traffic. While some study recommendations would benefit both buses and bicyclists, no specific mention of public transit or bicycles is made in the recommendations chapter.²¹

1.1.3 Significant Roadway Improvements

The County of Maui has 636 miles of roads of which 579 are paved.²² Demands for new roads require continuing development. The following sections provide an overview to some of the more significant transportation projects in the County of Maui and their relationship to public transportation where appropriate.

Pu'unēnē Ave. (Rte. 3500) Widening: Pu'unēnē Avenue (State Route 311) is a principal arterial, which services a growing residential area and provides access to Kahului's commercial and retail centers. The road also adjoins several major roadways (Ka'ahumanu Avenue, Kuihelani Highway, Mokulele Highway, and Dairy Road). The widening of Pu'unēnē Avenue from Wakea Avenue to Kuihelani Highway is currently under design. This project includes the addition of sidewalks, bicycle facilities, two new traffic signals and crosswalks.

Currently, two Maui Bus routes provide service on this road. The Kahului Loop (Routes 5 and 6) operates on the portion of Pu'unēnē Avenue from Kuihelani Highway to Papa Avenue. Completion of the Pu'unēnē Avenue widening should reduce traffic congestion in that area, and subsequently improve bus travel times and schedule adherence.

Lahaina Bypass Road: Fifty-five percent of Maui's 10,000 visitor units are located in West Maui. Of those, 80% are located north of Lahaina. About half of the approximately 45,000 people in West Maui on any given day are tourists.²³

A bypass road around Lahaina has been under discussion since the 1980's to alleviate traffic. The four-lane bypass would be approximately nine miles long and would extend from the Launiupoko area in the south to near the Kapalua Airport in the north.²⁴ The first phase out of five, a two-lane section between Keawe Street and Lahainaluna Road, was completed in March 2013.²⁵ The second phase from Keawe Street to Hōkiokio Place was completed in December 2013. The next two phases between Keawe Street Extension to Ka'anapali Connector Road, and between Hōkiokio Place and the Relocated Southern Terminus are under design with construction beginning in 2018 or 2019. When completed, the Lahaina Bypass could improve the speed and the on-time performance of public buses in West Maui.

Honoapi'ilani Highway (Route 30), Shoreline Improvements: Honoapi'ilani Highway is the major traffic route between Central and West Maui. Sections of the two-lane highway between Ukumehame and Launiupoko are so close to the ocean that high waves can close the road. Shoreline erosion is jeopardizing the current route's long-term viability. Maui County spent \$4 million to purchase 100 acres at Ukumehame as the first step in a program to move the highway mauka.²⁶

A number of projects have been identified to protect Honoapi'ilani Highway. These include lane widening, boulder fills, installation of jersey barriers and a retaining wall in sections along the highway. The state is spending \$2.5 million for a planning study to realign and widen Honoapi'ilani Highway from Ma'alaea to Launiupoko.²⁷ Estimates of \$450 to \$750 million have been identified to relocate the highway mauka which would connect to the future southern point of the Lahaina Bypass. A more reliable route between Central and West Maui has important implications for public bus service between the two areas.

Pā'ia Relief Route: Traffic in Pā'ia is often very congested. The State, in cooperation with the Federal Highway Administration (FHWA), is preparing an Environmental Impact Statement (EIS) to evaluate new relief roadway alignments or adjustments to the existing Hāna Highway alternatives. The purpose is to provide increased roadway capacity, safety, and reliability for the Pā'ia-Ha'ikū area. The Pā'ia Relief Route EIS is targeted for completion by 2016 and construction of the road is estimated to cost \$90 to \$111 million depending upon the chosen alternative.²⁸

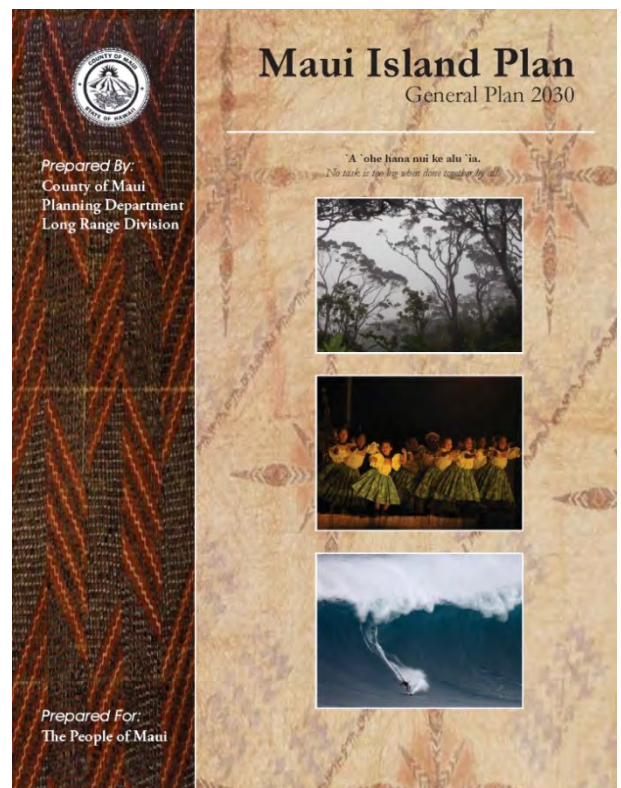
While waiting for this project to advance a one-lane “mini-bypass” was opened in 2006. The mini-bypass begins along the constructed shoulder lane on Hāna Highway in the vicinity of Baldwin Park. The bypass travels over Alexander & Baldwin property and ends at Baldwin Avenue in Pā'ia town.

Buses are not allowed to travel on the mini-bypass.²⁹ The completion of the Pā'ia Relief Route in conjunction with the Haleakala widening could be used to improve public bus service for points between Pā'ia and Hāna and Upcountry Maui.

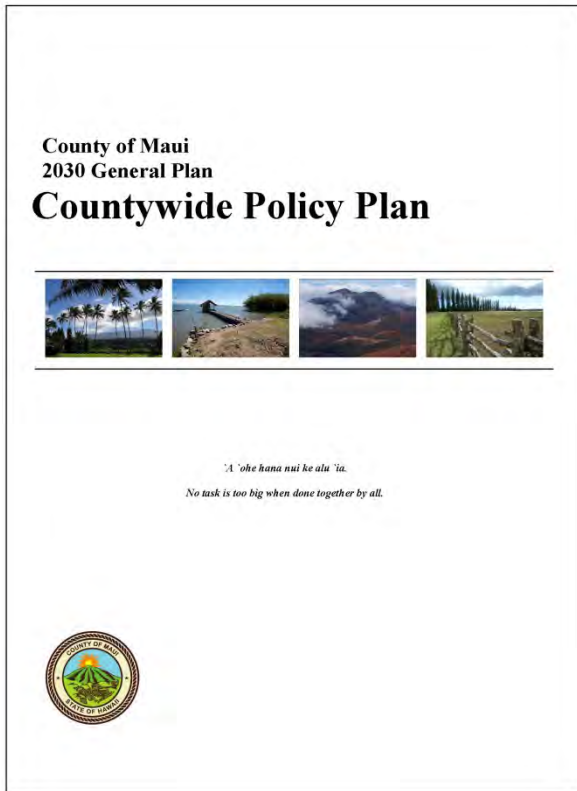
1.1.4 General Planning

This section presents data depicting how Maui County has experienced significant changes in its economic, demographic, social and physical environments. These are addressed in the scope of the *Maui County General Plan* objectives and policies. There is a large dependency on the visitor industry and greater demands upon infrastructure systems, particularly with regard to transportation.

Maui County's General Plan was adopted in 1980, updated in 1990 and in 2010. The Maui Island General Plan is a long-term, comprehensive blueprint for the physical, economic, environmental development and cultural identity of the island. It comprises goals, policies, programs and actions which are based on an assessment of current and future needs and available resources. Once it has been adopted, the document becomes the principal tool for the County and its citizens to use when evaluating public and private projects and their impacts on land use, the economy, environment, infrastructure, and cultural resources.



The *Countywide Policy Plan* is the initial component of the total General Plan update process. It will serve as the basis for subsequent implementation programs including: 1) The Maui Island Plan and nine Community Plans, 2) Budgeting and Capital Improvement Programs, 3) County Laws and 4) Public Participation.³⁰



The 2010 *Countywide Policy Plan* included a key strategy to “Diversify Transportation Options” with the goal that “Maui County will have an efficient, economical, and environmentally sensitive means of moving people and goods.” This key strategy included the following objectives:

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

The *Countywide Policy Plan* includes several underlying policies related to improving public transportation, which are aimed at achieving the above objectives. The first objective listed three policies directly related to public transportation.

1. “Increase route and mode options in the ground-transportation network.”
2. “Promote a variety of affordable and convenient transportation services that meet countywide and community needs and expand ridership of transit systems.”
3. “Develop and expand an attractive, island-appropriate, and efficient public transportation system.”

These policies are supported by two transit related implementation actions:

1. “Establish efficient public-transit routes between employment centers and primary workforce residential areas;”
2. “Create attractive, island-appropriate, conveniently located park-and-ride and ride-share facilities.”

The second transportation objective included a policy to “Design new and retrofit existing rights-of-way with adequate sidewalks, bicycle lanes, or separated multi-use transit corridors.”

Among the policies listed under the fifth objective was “Plan for multi-modal transportation and utility corridors on each island.” This policy is reflected in the most recent draft of the Lāna‘i Community Plan, which includes transit in its envisioned multi-modal transportation system.

The *Maui Island Plan: General Plan 2030* (MIP) is a second tier plan, which falls under the Maui County General Plan. It is the guiding document for all Community Plans for the Island of Maui. The MIP provides a comprehensive policy direction for the entire island, and sets the foundation for all capital improvement priorities, revised zoning ordinances, and the development of other implementation tools.³¹

The MIP included the following transportation objectives:

1. Provide for a more integrated island-wide transportation and land use planning program that reduces congestion and promotes more efficient (transit-friendly) land use patterns;
2. Safe, interconnected transit, roadway, bicycle, equestrian, and pedestrian network; and
3. An island-wide, multimodal transportation system that respects and enhances the natural environment, scenic views, and each community’s character.

And two transit objectives:

1. An integrated transit system that better serves all mobility needs of Maui’s residents and visitors;
2. Plan for a more diversified and stable funding base to support transportation goals.

Under these objectives are several policies related to improving Maui’s transit system. These policies include planning for, investing in, and integrating transit infrastructure into existing communities and new developments. Some of the recommended implementing actions included establishing new park-and-ride facilities, revising the subdivision ordinance to require transit infrastructure, and adopting and amending County regulations to incorporate design standards for transit facilities to ensure protection of the natural environment and each community’s sense of place.³²

1.2 DEMOGRAPHIC AND SOCIO-ECONOMIC DATA

This section presents the demographic and socio-economic conditions that contribute to the need and demand for public transportation in Maui County. The County is composed of four islands: Maui, Lana'i, Moloka'i and Kaho'olawe. MDOT provides transportation services on three of the four islands. Kaho'olawe has no permanent residents and is not included in the following review.

The factors leading to the need for transit and its use include population and employment density and demographic factors such as age, household income, vehicle availability and household size. These factors help to identify areas with transit-dependent populations. Tables, maps, graphics and other displays of social factors affecting potential transit use such as population, employment, geographic and economic characteristics are presented in this section. Much of the data was obtained from Maui County including the *Maui County Data Book* (2013), the State of Hawai'i Department of Business, Economic Development and Tourism (DBEDT) and the U.S. Census.

1.2.1 Population

The 2010 Census indicated Maui County had a resident population of 154,924. As of July 1, 2013, Maui County's resident population was 160,292 out of a state population of 1,404,054. This is 11.4% of the state population, a growing proportion of the state population when compared to 1980 when Maui County had 7.3% of the state total and 1990 when it had 9.1%.

The resident population is defined as the number of persons whose usual place of residence is in an area, regardless of physical location on the estimate or census date. It includes military personnel stationed or home ported in the area but excludes persons of local origin attending school or in military service outside the area. Maui County's population figures include residents in Kalawao County in the Kalaupapa Settlement. Kalawao County had 90 people in 2013, dropping from 147 in 2000.

Table 1-1 shows the resident and average daily visitor population for 2010. Maui Island receives the vast majority of daily visitors adding 46,263 to the daily population. The Maui Island Plan, General Plan 2030 forecasts Maui Island population to grow by approximately 17.4% from 2010 to 2020 for a total of 169,540.³³

Table 1-1: 2010 Resident and Visitor Population
(Source: Hawai'i State Department of Business, Economic Development and Tourism)

Maui County	Resident Population	Average Daily Visitors	Total Daily Population
Maui	144,444	46,263	190,707
Lana'i	3,135	684	3,819
Moloka'i	7,345	672	8,017
Total	154,924	47,619	202,543

Table 1-2 shows where the growth is expected to occur. The percent of population change between 2010 and 2015 is detailed for the Community Plan Areas with growth in the West Maui and Kīhei-Mākena plan areas forecast with over 30% increases. Population decreases are indicated for the Wailuku-Kahului and the Makawao-Pukalani-Kula plan areas. As shown in Table 1-2, population growth between 2015 and 2020 was forecast with a 7.9 percent increase for all planning areas and a 14.8 percent increase from 2020 to 2030. The change in population was allocated to the plan areas using the forecasted countywide change in population.³⁴

Table 1-2: Maui Island Area Population 2000 to 2030
 (Source: Maui Island Plan, Island of Maui General Plan 2030)

Community Plan Area	2010	2015	2020	2030	Percent Change		
					2010 to 2015	2015 to 2020	2020 to 2030
West Maui	22,156	29,103	31,410	36,058	31.4%	7.9%	14.8%
Kīhei-Mākena	27,244	37,850	40,850	46,896	38.9%	7.9%	14.8%
Wailuku-Kahului	54,433	52,343	56,492	64,853	-3.8%	7.9%	14.8%
Makawao-Pukalani-Kula	25,198	23,919	25,815	29,635	-5.1%	7.9%	14.8%
Pā'ia-Ha'ikū	13,122	11,332	12,230	14,040	-13.6%	7.9%	14.8%
Hāna	2,291	2,541	2,743	3,149	10.9%	7.9%	14.8%
Total	144,444	157,088	169,540	194,631	8.8%	7.9%	14.8%

The above projections are consistent with the annual growth rate Maui County has experienced since 1990 as shown in Table 1-3. For the purposes of the MSRTP, growth in the West Maui and Kīhei-Mākena plan areas is of particular interest since fixed route public transit serving both areas is currently experiencing passenger overloads.

Table 1-3: Annual Population Growth Rate
 (Source: Hawai'i State Department of Business, Economic Development and Tourism)

Years	State Total	Maui County	City and County of Honolulu	Hawai'i County	Kaua'i County
1990-2000	0.9	2.4	0.4	2.1	1.3
2000-2010	1.2	1.9	0.9	2.2	1.4
2010-2013	1.0	1.1	0.9	1.0	1.1

This plan presents a number of illustrative maps using 2012 census data subsets for the County of Maui. These figures present demographic data at census "Block Group" levels for Maui Island as a separate figure and Lana'i and Moloka'i islands shown together. Figure 1-1 shows the approximate population distribution for Maui Island in 2010 using one dot to display the location of each group of fifty (50) people from Census Block data tables.

Figure 1-1: Resident Population Distribution for Maui Island in 2010

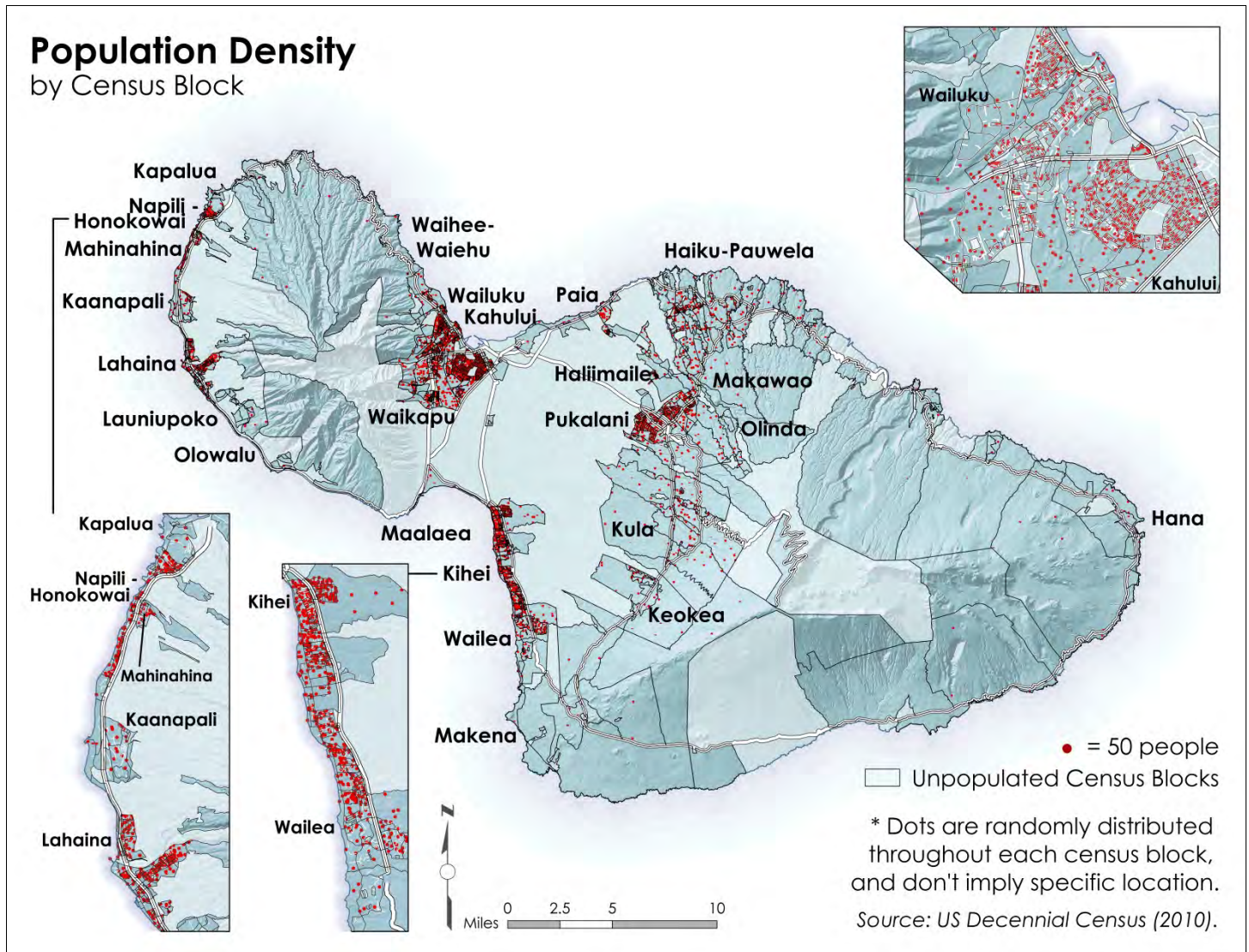
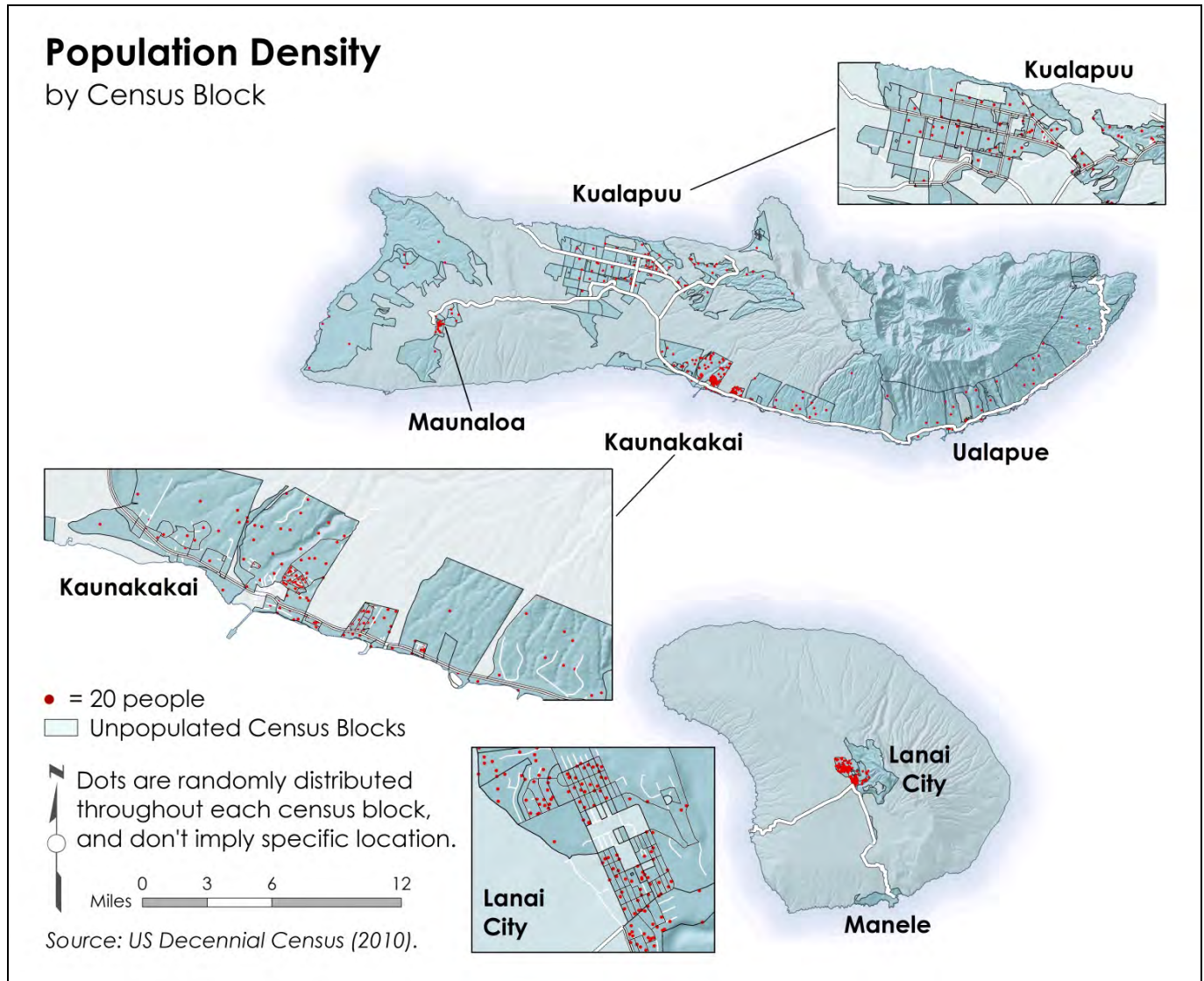


Figure 1-1 shows that the vast majority of Maui Island is unpopulated. Population is concentrated in four main areas on the island: Kahului/Wailuku area, West Maui, Kīhei-Wailea and Pā‘ia-Ha‘ikū-Upcountry.

Population concentrations are located along coastal communities with a few exceptions. The continual growth in the Kahului/Wailuku area is spreading growth away from the coast. This is true to a lesser degree in the West Maui and Kīhei-Wailea areas. Perhaps the most revealing characteristic depicted in Figure 1-1 is the number of people who reside in the Upcountry area, a potential indicator of an underserved transit market.

Figure 1-2 presents the 2010 resident population distribution for Lana'i and Moloka'i Islands. Each dot represents twenty (20) people in Figure 1-2 due to the small population of both islands.

Figure 1-2: Resident Population Distribution for Lana'i and Moloka'i Islands in 2010



Recognition is given to the public transportation desires of Lana'i and Moloka'i Islands but comparing Figures 1-1 and 1-2 provides a distinctive contrast in the population densities of each island.

Table 1-4 presents the United States, Hawai'i State and County of Maui resident population by age group for 2013. Kalawao County (estimated at 90 persons) is included in Maui County's numbers. The age distribution for Maui County is similar to the statewide totals. Comparing Maui County to nationwide totals shows Maui has a slightly lower percentage of the under 18 years of age category (22.5%) versus 23.3% for the nation. The 18 to 64 years of age category is almost identical to the national numbers of 62.6% versus 62.8% for the County.

Maui County has a higher percent of residents aged 65 years and older with 14.7% of the population versus the nation which has 14.1% in the upper age levels. This percent is less than the 15.6% of the statewide population aged 65 years and older. The *Maui County General Plan 2030 for Maui Island* noted that Maui Island's population is aging with the median age increasing from 34.1 to 36.2 years between 1990 and 2000.³⁵ This trend is expected to continue.

Table 1-4: Resident Population by Age for 2013
 (Source: 2013 U.S. Census Annual Estimates of the Population and
 Hawai'i State Department of Business, Economic Development and Tourism)

AGE GROUP	RESIDENT POPULATION					
	UNITED STATES		STATE OF HAWAI'I		MAUI COUNTY	
	Total	Percent	Total	Percent	Total	Percent
Under 5	19,868,088	6.3%	90,770	6.5%	9,981	6.2%
5 to 13	37,073,596	11.7%	152,125	10.8%	18,211	11.4%
14 to 17	16,644,188	5.3%	64,371	4.6%	7,889	4.9%
18 to 24	31,457,653	10.0%	137,027	9.8%	12,148	7.6%
25 to 44	83,297,277	26.3%	380,477	27.1%	42,568	26.6%
45 to 64	83,083,963	26.3%	359,727	25.6%	45,913	28.6%
Total Persons	316,128,839	100.0%	1,404,054	100.0%	160,292	100%
65 years and over	44,704,074	14.1%	219,557	15.6%	23,582	14.7%
85 years and over	6,040,789	1.9%	35,288	2.5%	3,162	2.0%
Under 18 years	73,585,872	23.3%	307,266	21.9%	36,081	22.5%
18 to 64 years	197,838,893	62.6%	877,231	62.5%	100,629	62.8%
65 years and over	44,704,074	14.1%	219,557	15.6%	23,582	14.7%

Figures 1-3 and 1-4 show the distribution of the population for Maui Island and Lana'i and Moloka'i Islands for those age 65 and older as a percent of the population by Census Block. There are a number of concentrations of residents age 65 and older on Maui Island. The darker red areas including the Wailea and areas of Kahului show population concentrations greater than 40% aged 65 and over. These areas are currently served by fixed route transit. Other areas are more remote such as those between Ha'ikū and Hāna which rely upon MEO services.

Figure 1-3: Population Age 65 and Older for Maui Island in 2010

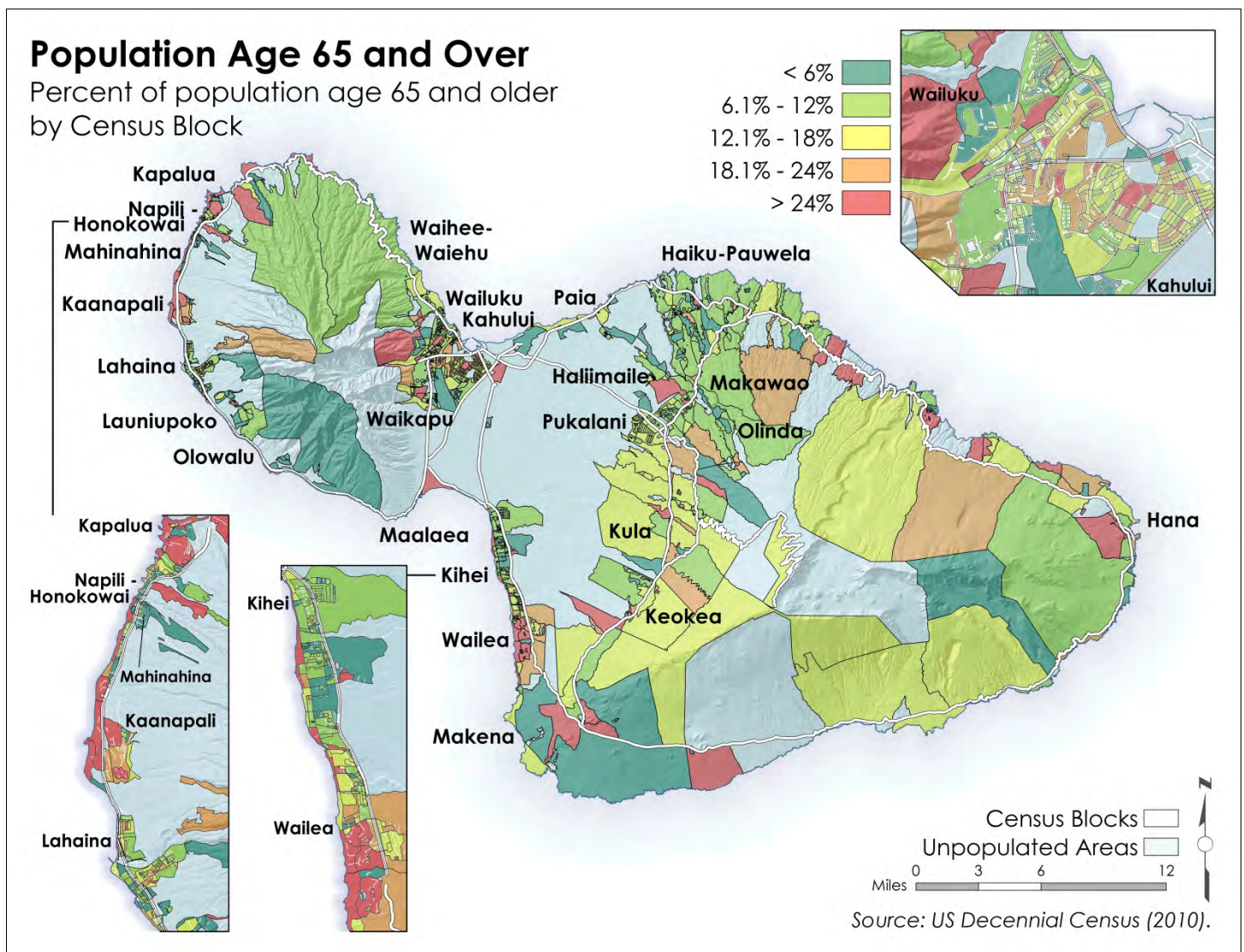


Figure 1-4: Population Age 65 and Older for Lana'i and Moloka'i Islands in 2010

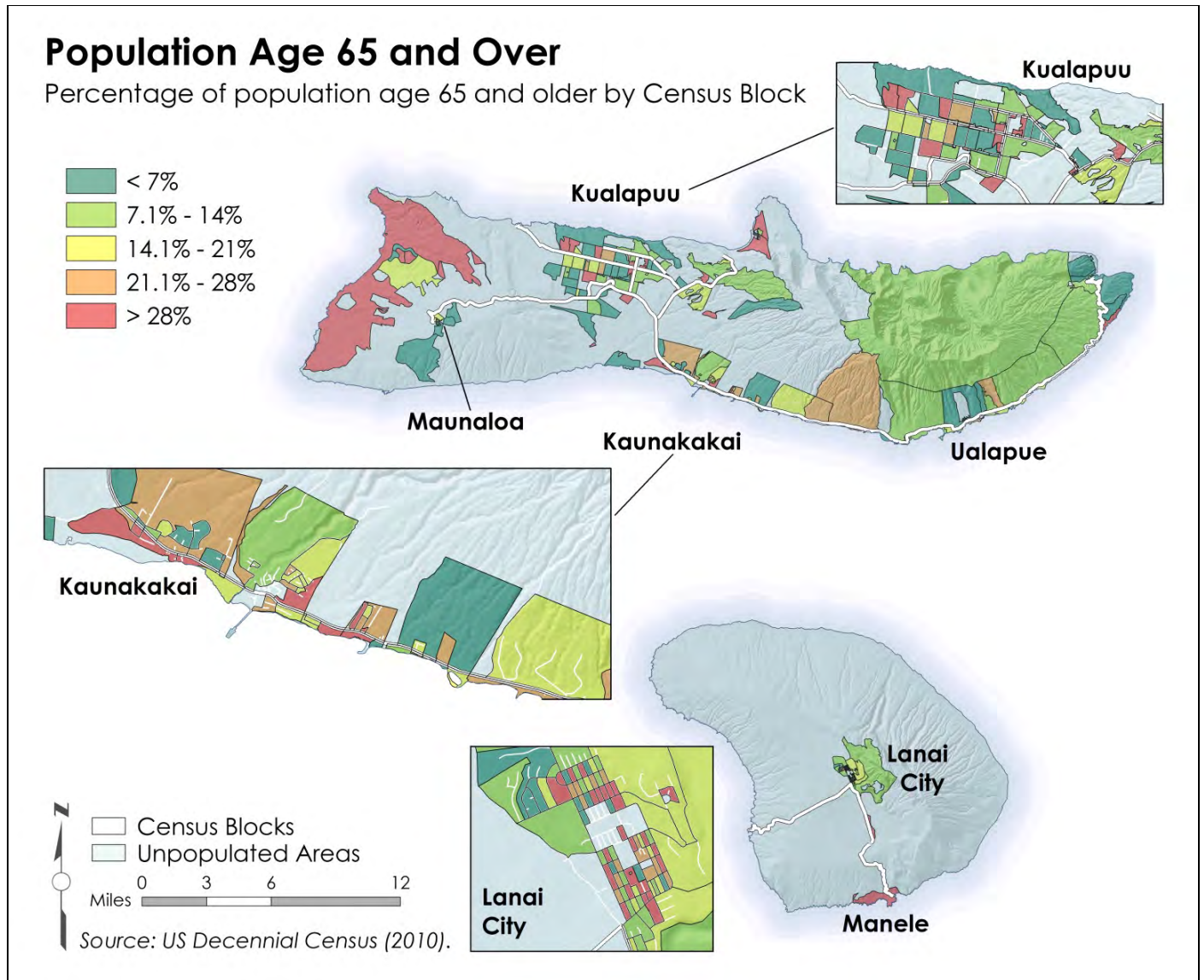


Figure 1-4 shows that there are several areas of population concentration where over 28% are aged 65 and older on Lana'i and Moloka'i Islands.

Similar to older residents, younger age groups are viewed as having a greater need for public transportation. Figures 1-5 and 1-6 show the concentration of residents aged 20 and younger for the islands.

Figure 1-5: Population Age 20 and Under for Maui Island in 2010

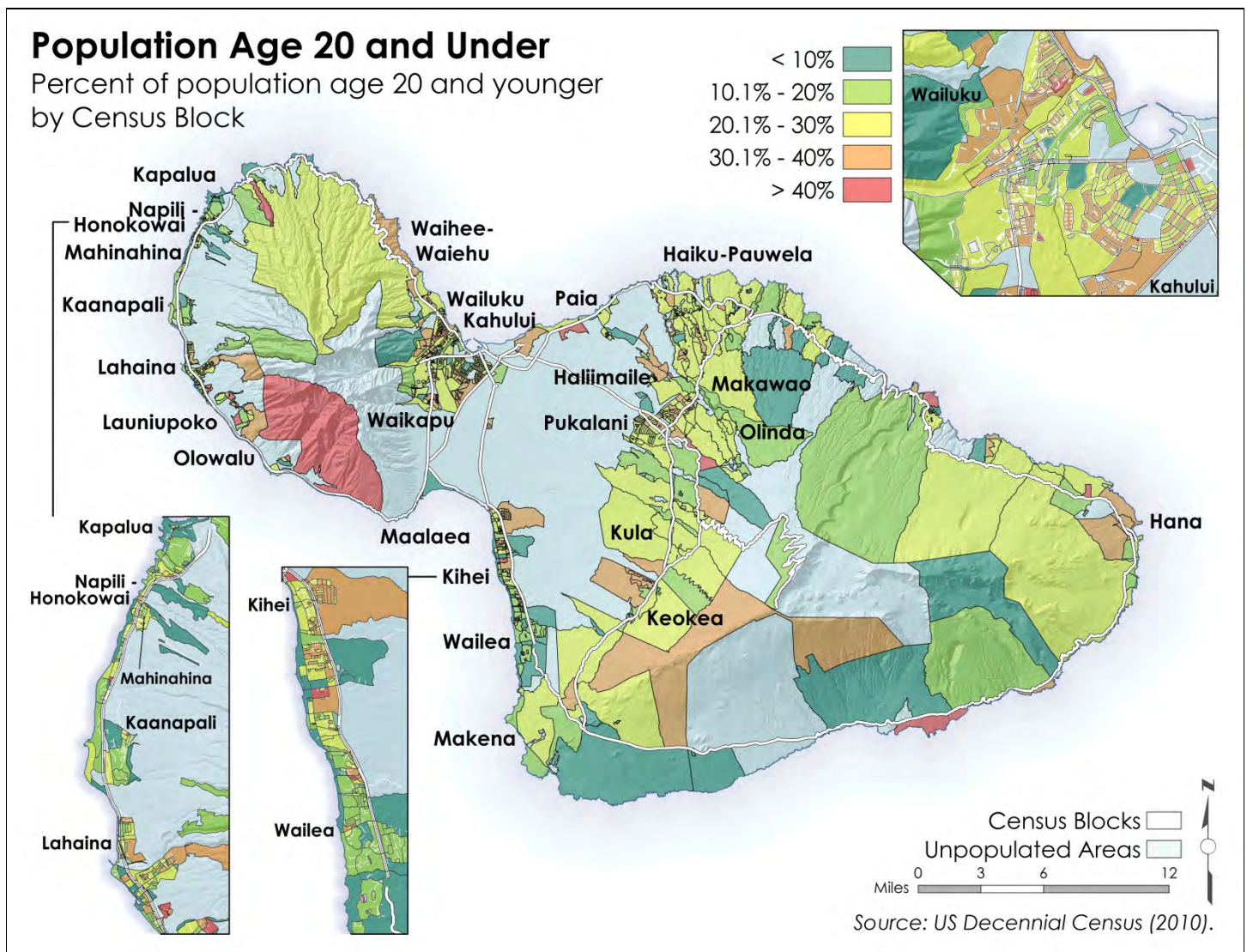
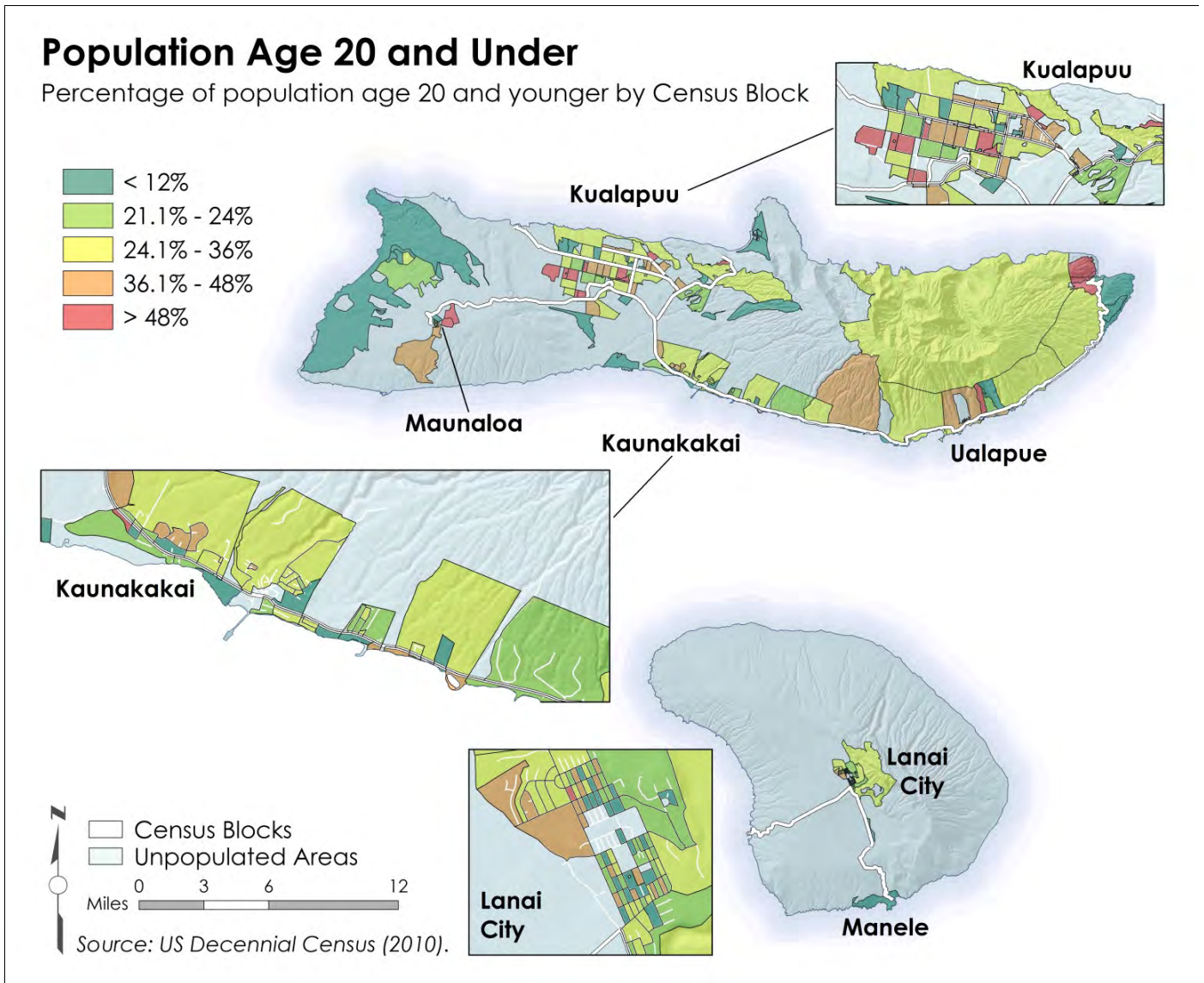


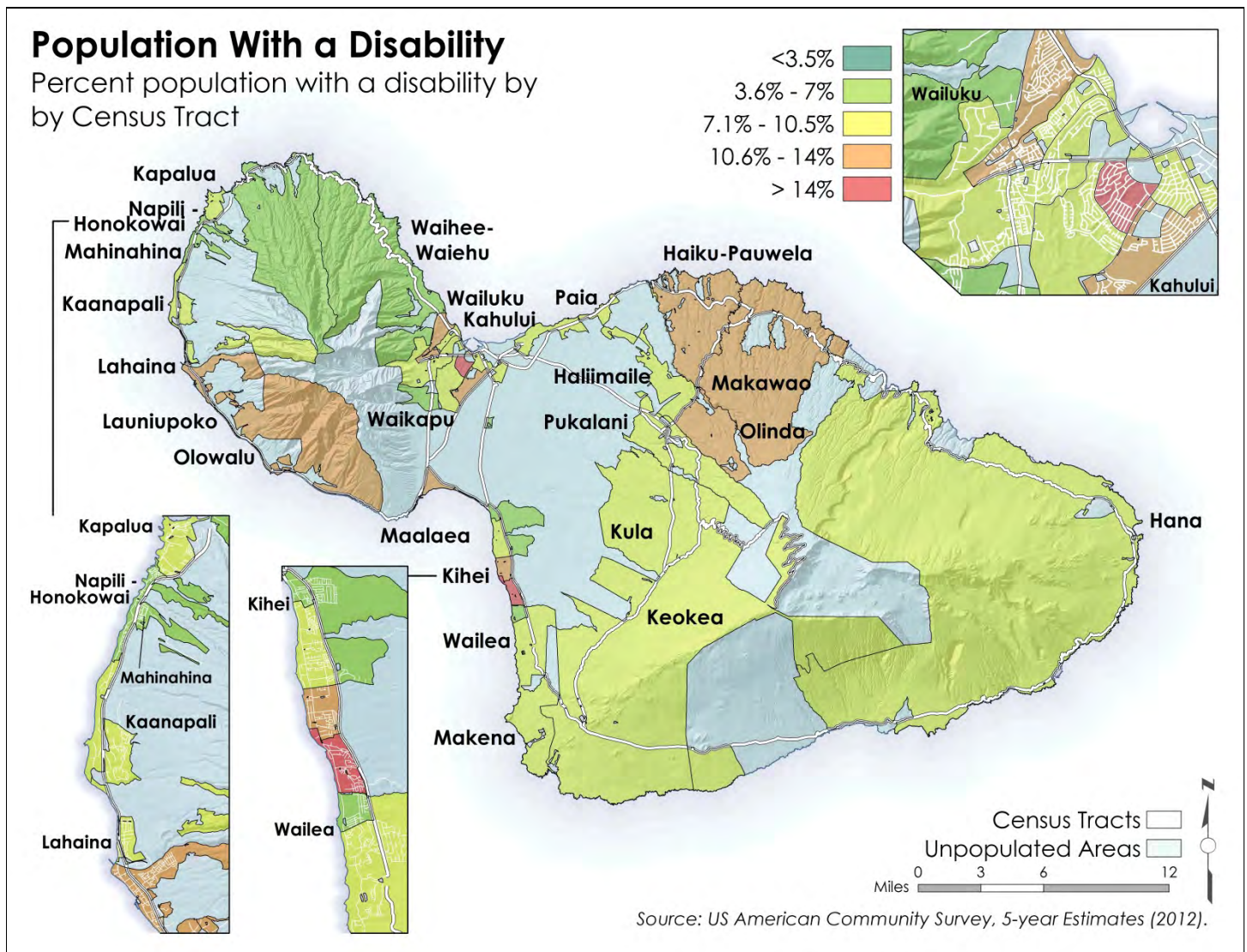
Figure 1-6: Population Age 20 and Under for Lana'i and Moloka'i Islands in 2010



The dispersion of younger residents on Maui Island creates transportation provision difficulties for after school programs and jobs. MEO has noted that their after school programs on Maui Island are increasingly full with numerous requests for additional services. The highest concentration of younger residents on Lana'i and Moloka'i Islands is in Kualapuu on Moloka'i.

Figure 1-7 shows the highest concentrations of population with a disability on Maui Island are located in Kahului and Kīhei. These areas, noted in the darker red, have over 14% of the population identified as having a disability. Both of these areas are near service providers.

Figure 1-7: Population with a Disability on Maui Island in 2012
 (US American Community Survey, 5-year estimates, 2012)



All of the Census tracts on Moloka'i except one had between 12.1 and 16% of the population identified as having a disability. All of the Census tracts on Lana'i had between 4.1 and 8% of the population identified as having a disability.

Income is a significant determinant of public transportation need. Areas of economic disadvantage were determined by mapping households living below the poverty line shown in Figure 1-8 for Maui Island and Figure 1-9 for Lana'i and Moloka'i Islands and households receiving public assistance shown in Figures 1-10 and 1-11. The areas shown in darker red indicate over 20 percent of the population is below the poverty line. Most of the census block groups on Moloka'i Island have 15.1 or more of the population below the poverty line.

Figure 1-8: Household Poverty on Maui Island
(US American Community Survey, 5-year estimates, 2012)

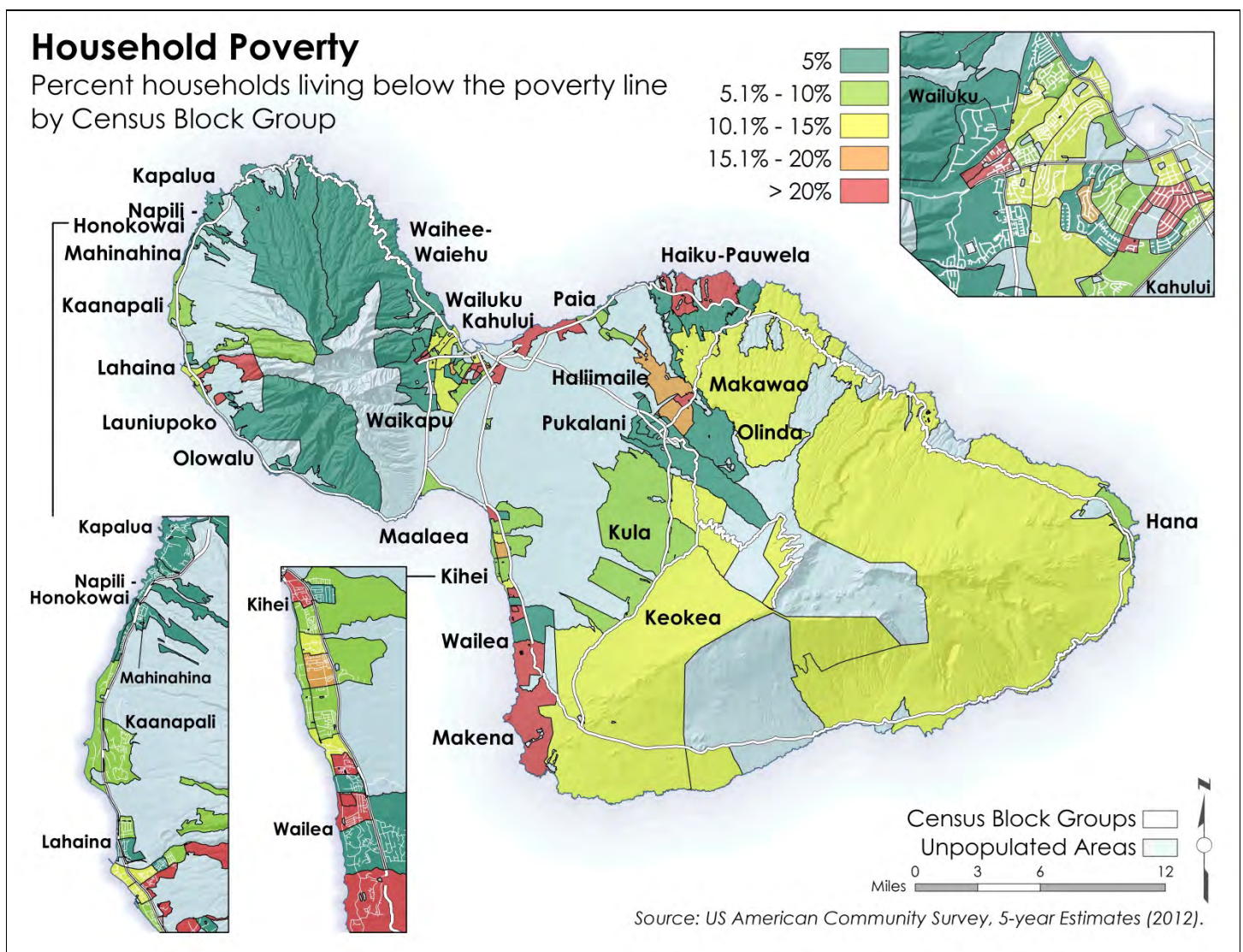


Figure 1-9: Household Poverty on Lana'i and Moloka'i Islands
(US American Community Survey, 5-year estimates, 2012)

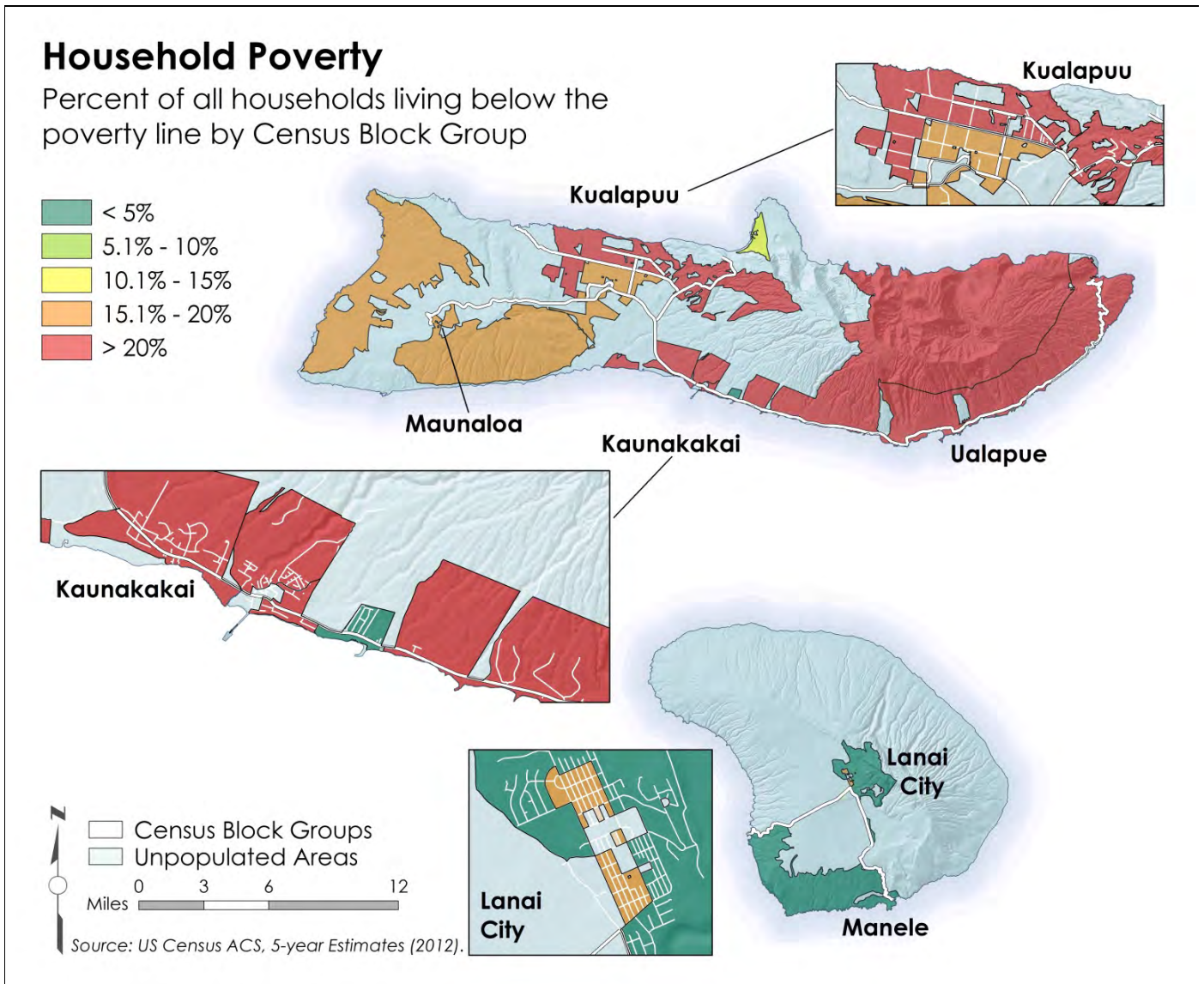


Figure 1-10 shows that Kahului and Ha'ikū-Pauwela on Maui Island have a high concentration of households receiving public assistance. There are pockets of other areas with more than eight (8) percent of the population receiving public assistance such as in Lahaina and Kīhei. East and southeast Moloka'i had the highest incidences of household receiving public assistance, shown in Figure 1-11.

Figure 1-10: Households Receiving Public Assistance on Maui Island
(US American Community Survey, 5-year estimates, 2012)

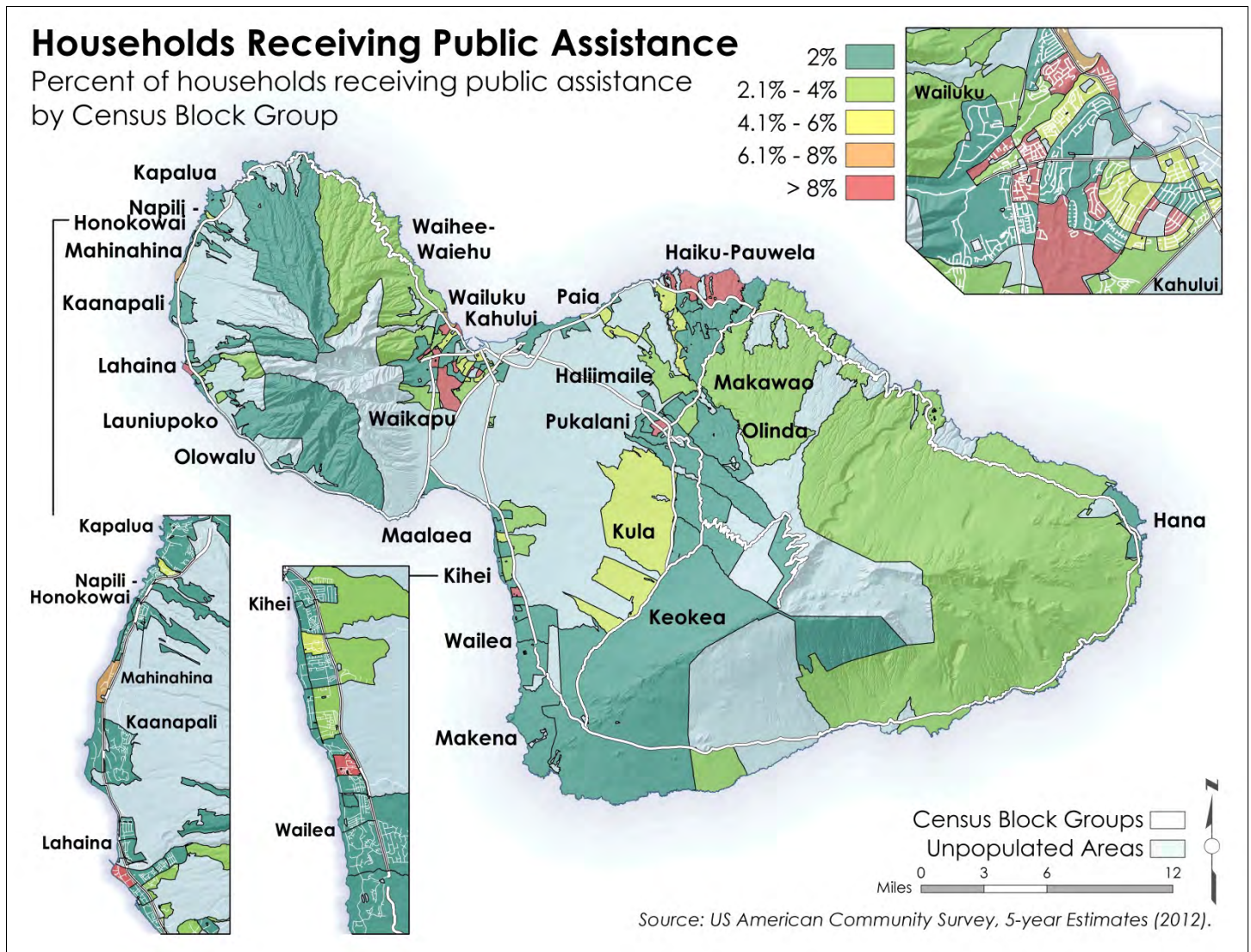
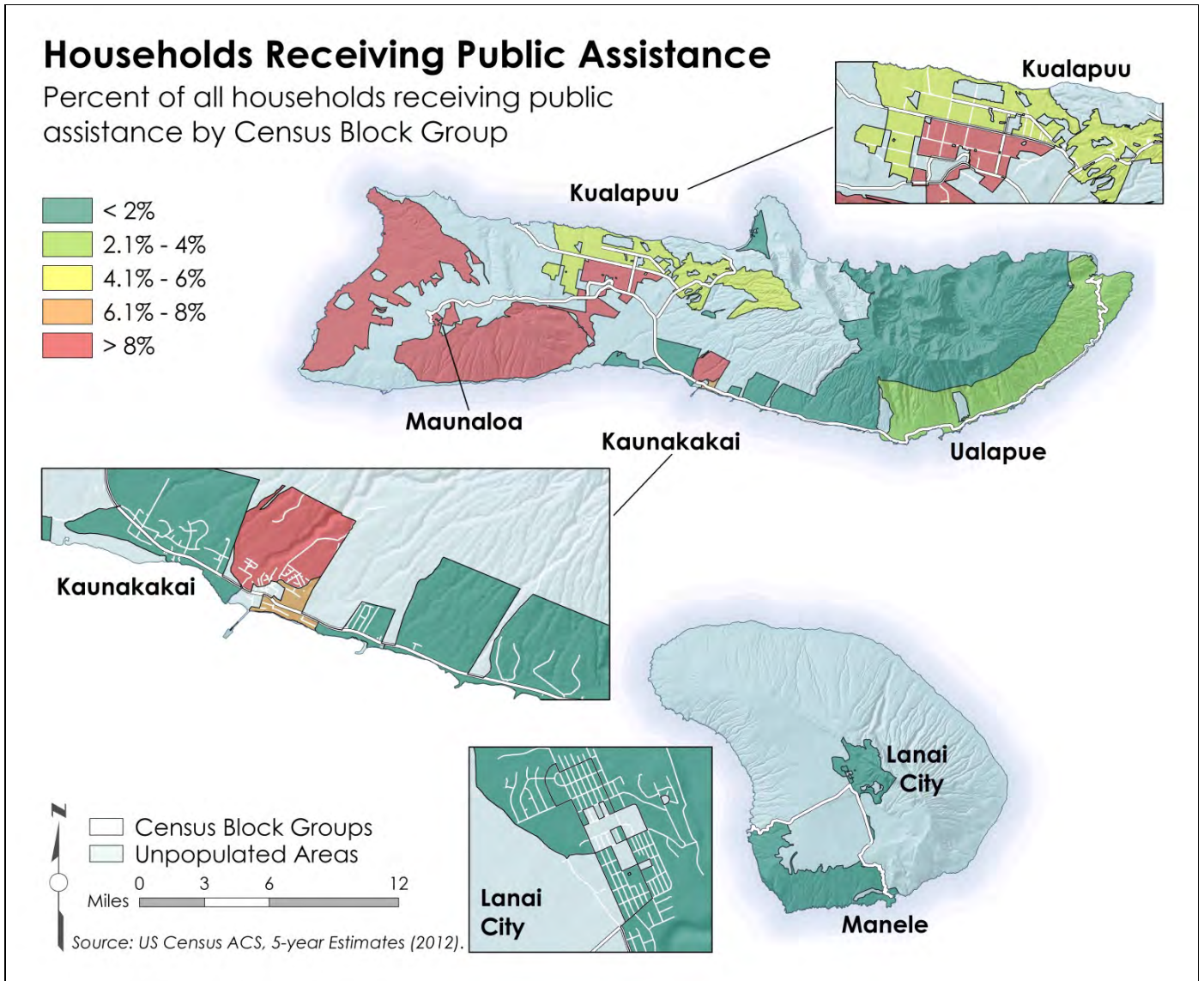


Figure 1-11: Households Receiving Public Assistance on Lana'i and Moloka'i Islands
 (US American Community Survey, 5-year estimates, 2012)



Labor force unemployment rates shown in Figures 1-12 and 1-13 are related to poverty statistics and public assistance presented in Figures 1-8 through 1-11. Figure 1-12 shows that most of the same areas with high concentrations of households on public assistance and living below the poverty line on Maui Island have the highest concentrations of unemployed people for those workers aged 16 and older.

Figure 1-12: Unemployed People in the Workforce on Maui Island
(US American Community Survey, 5-year estimates, 2012)

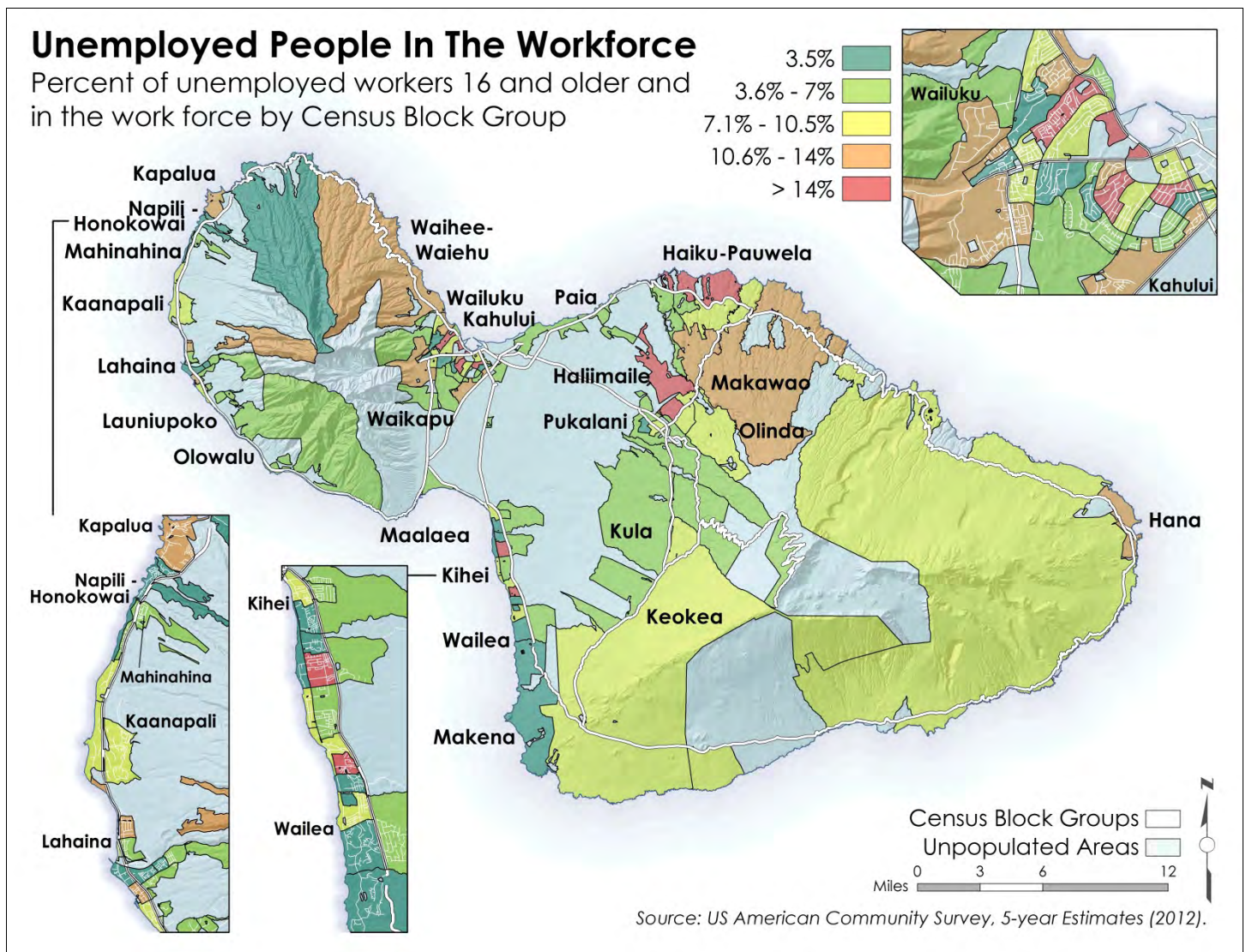


Figure 1-13 shows that almost all of Moloka'i Island has over 12 percent of the workers aged 16 and older identified as unemployed. Sections of Lana'i City have between 12.1 and 16 percent of the workforce identified as unemployed.

Figure 1-13: Unemployed People in the Workforce on Lana'i and Moloka'i Islands
(US American Community Survey, 5-year estimates, 2012)



There are many who choose not to own a vehicle or cannot afford to own a vehicle as shown in Figures 1-14 and 1-15. The areas on Maui Island with over 10 percent of the households having no vehicle are able to enjoy higher levels of public transportation such as in Kahului and along other bus corridors.

Figure 1-14: Households with no Vehicle on Maui Island
(US American Community Survey, 5-year estimates, 2012)

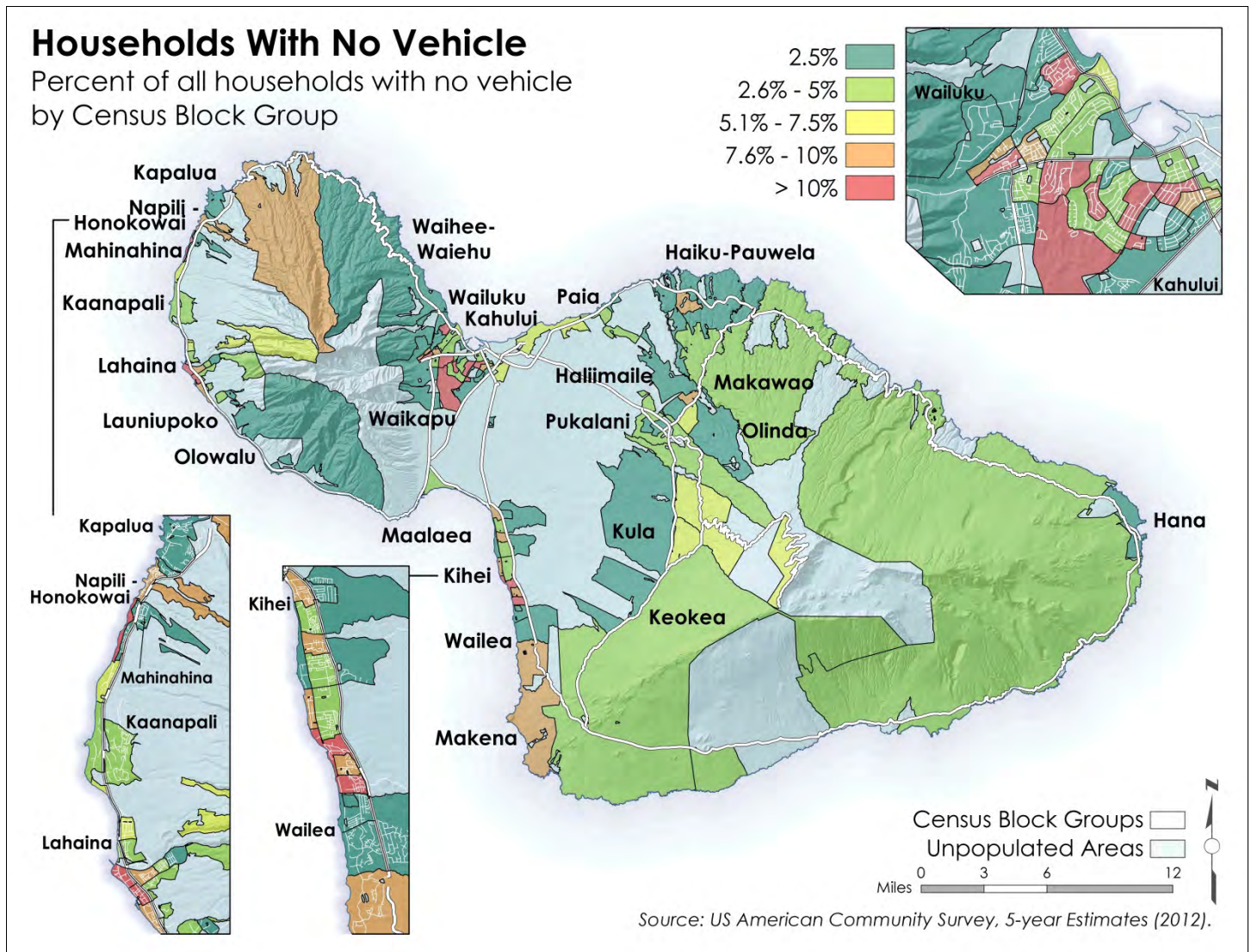


Figure 1-15 shows the same areas in Lana'i City having a higher incidence of households with no vehicles as also having a higher poverty rate. Less areas on Moloka'i Island have a higher percentage of no vehicle households than would be expected given the other poverty and public assistance statistics. This may show that transportation options are few for residents.

Figure 1-15: Households with no Vehicle on Lana'i and Moloka'i Islands
(US American Community Survey, 5-year estimates, 2012)

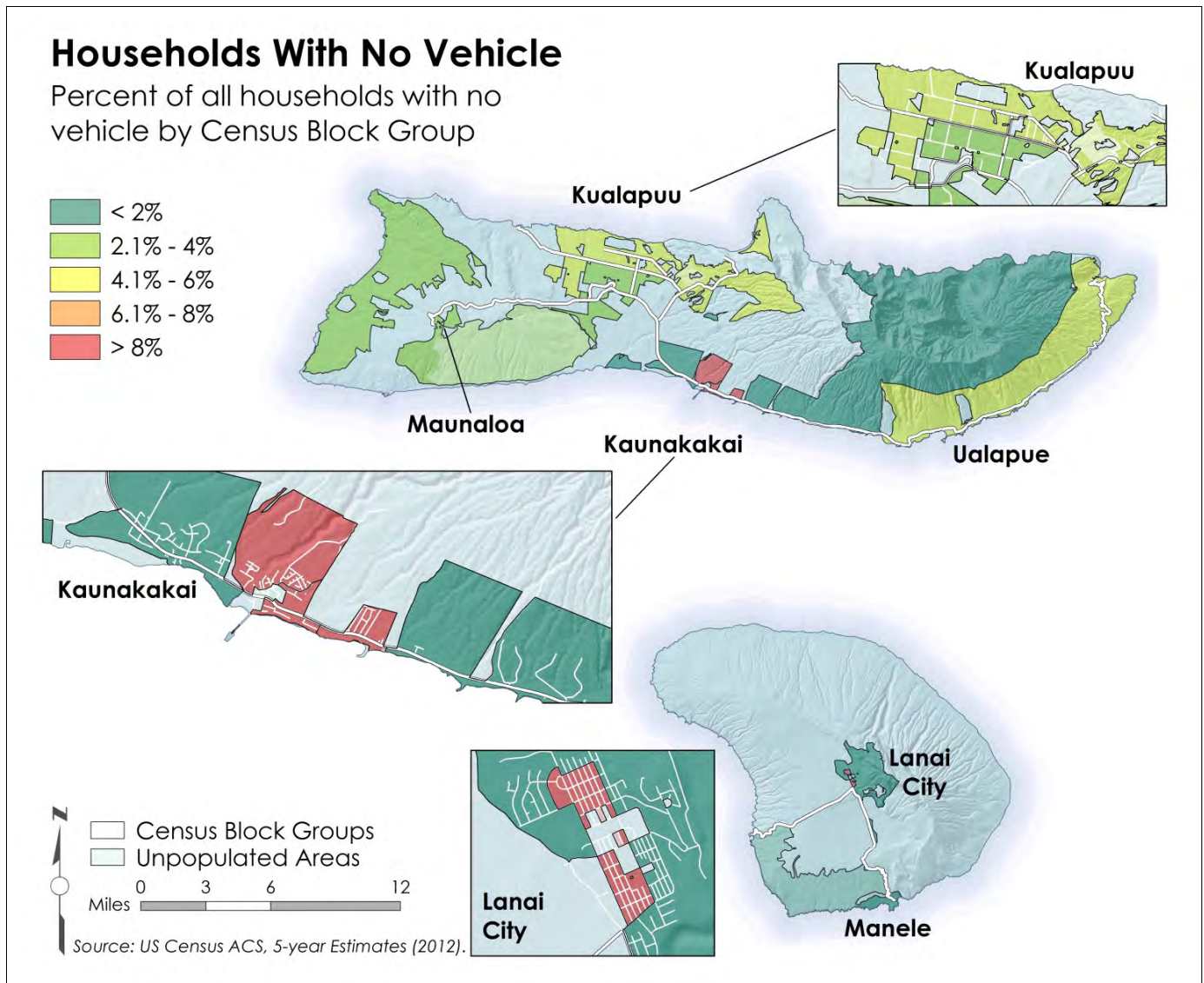
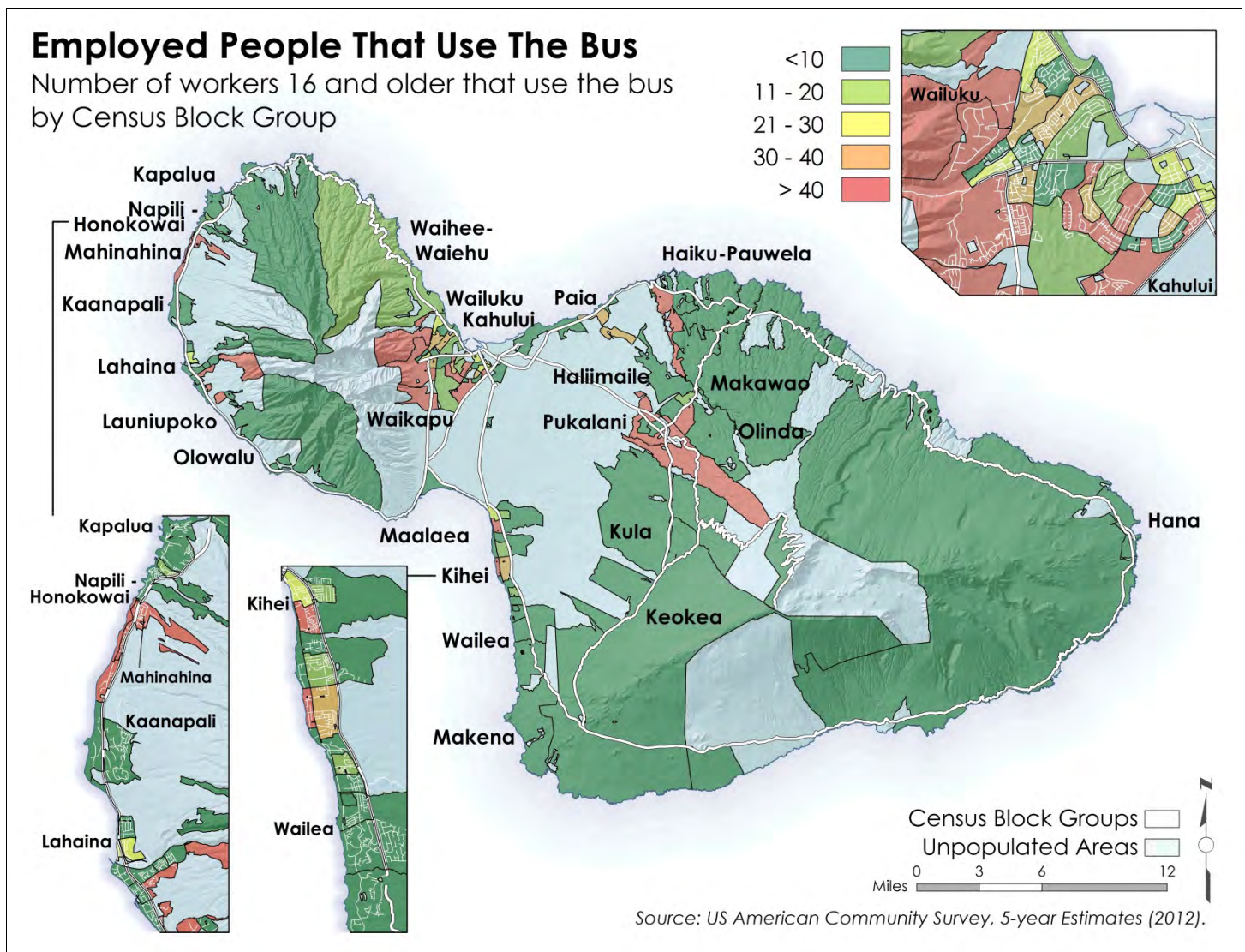


Figure 1-16 shows that a large segment of employed people in Wailuku and Kahului use the bus to get to work. Over 40 workers aged 16 and over in each of the darker red areas rely upon the bus to access their job. The expansion of Maui Bus' fixed route service into the Upcountry area appears to be successful given the number of workers using the bus. These areas are also served by Maui's daily commuter bus service providing limited stop service to the major employment areas in West Maui and Kīhei.

Figure 1-16: Employed People using Maui Bus to get to Work
(US American Community Survey, 5-year estimates, 2012)



1.2.2 Employment

Maui County comprises an area of 1,159.2 square miles. There is a moderate climate variation throughout the county from desert in Kaho’olawe to alpine atop Mt. Haleakala with the highest elevation at Red Hill, 10,023 feet. The geographic features found within the County of Maui have a profound influence on the distribution of population and employment as presented in this chapter.

Urban areas of Maui Island include industrial parks and major shopping centers as well as resort areas, schools, hospitals and other major traffic and trip generators. Visitor lodging on Maui Island is concentrated in West Maui and along the Kīhei-Wailea coastline where over 90% of the 18,135 visitor accommodations are located.³⁶ The high concentrations of visitor lodging in these two areas correspond to employment opportunities and shopping areas providing concentrations of trip generators.

Table 1-5 presents private nonfarm establishments for the years 2005 and 2012 by size of employment. In 2012 the total paid number of employees was 62,030 at 4,343 establishments. The total number of establishments has grown by 14 percent over the seven year period from 2005 to 2012. Over 54 percent of the establishments employ one to four people. This preponderance of smaller businesses in the county does not lend itself to public transportation unless those businesses are grouped in industrial parks or shopping centers.

Table 1-5: Business Establishments by Employment Size in Maui County
 (Source: U.S. Census Bureau, 2005 County Business Patterns and 2012 County Business Patterns)

Employment Size	2005 Number of Establishments	2012 Number of Establishments
1 to 4 persons	2,256	2,362
5 to 9 persons	681	903
10 to 19 persons	425	537
20 to 49 persons	278	335
50 to 99 persons	89	125
100 to 249 persons	41	50
250 to 499 persons	18	20
500 to 999 persons	9	7
1,000 or more persons	3	4
Total	3,800	4,343

Table 1-6 identifies the top 25 business establishments by employment size in Maui County. All are located on Maui Island. Employment for Walmart is estimated from the 2013 Book of Lists as Walmart did not participate in the 2014 survey conducted by the Pacific Business News. In addition to the major employers identified in Table 6 are public major trip generators including Maui Memorial Medical Center with approximately 1,400 employees; Federal, State and County Government concentrated in Wailuku and Kahului; and, the University of Hawai’i Maui College with approximately 4,000 students and 400 faculty and staff located in Kahului.

Table 1-6: Business Establishments by Employment Size in Maui County
 (Source: Pacific Business News, 2014 Book of Lists)
 Page 1 of 2

Name	Address	Employees	Book of Lists Rank
Grand Wailea	3850 Wailea Alanui, Wailea, HI 96753	1,460	1
Four Seasons Resort Maui at Wailea	3900 Wailea Alanui, Wailea, HI 96753	850	2
Hawaiian Commercial & Sugar Co. (Alexander & Baldwin Inc.)	3957 Hansen Road, Pu'unēnē, HI 96784	826	3
Maui Land & Pineapple Co., Inc.	200 Village Road, Lahaina, HI 96761	800**	NA
The Ritz-Carlton, Kapalua	1 Ritz-Carlton Drive, Kapalua, HI 96761	750	4
Hyatt Regency Maui Resort & Spa	200 Nohea Kai Drive, Lahaina, HI 96761	700	5
Four Seasons Resort Lanai at Manele Bay	One Manele Bay Road, Lanai, HI 96763	685	6
The Westin Maui Resort & Spa	2365 Ka'anapali Parkway, Lahaina, HI 96761	645	7
The Fairmont Kea Lani, Maui	4100 Wailea Alanui, Wailea, HI 96753	620	8
Hale Makua Health Services	472 Kaulana St., Kahului, HI 96732	454	9
Mākena Beach & Golf Resort	5400 Mākena Alanui, Mākena, HI 96753	450	10
Kaiser Foundation Health Plan & Hospitals	55 Maui Lani Pkwy, Wailuku, HI 96793 910 Wainee Street, Lahaina, HI 96761 1279 South Kīhei Road #120, Kīhei, HI 96753	405	11
Walmart*	101 Pakaula St. Kahului, HI 96713	400	12
The Westin Ka'anapali Ocean Resort Villas	6 Kai Ala Drive, Lahaina, HI 96761	390	12
Sheraton Maui Resort & Spa	2605 Ka'anapali Parkway, Lahaina, HI 96761	374	13
Maui Electric Co. Ltd.	210 W. Kamehameha Ave., Kahului, HI 96733	366	14
Safeway Inc.	170 East Kamehameha Avenue, Kahului, HI 96732 and 4 other locations	364	15

Table 1-6: Business Establishments by Employment Size in Maui County

(Source: Pacific Business News, 2014 Book of Lists)

Page 2 of 2

Name	Address	Employees	Book of Lists Rank
Royal Lahaina Resort	2780 Kekaa Drive, Lahaina, HI 96761	356	16
Monsanto Hawaii	2111 Pi'ilani Highway, Kihei, HI 96753	344	17
Old Lahaina Luau/Aloha Mixed Plate	1287 Front St., Lahaina, HI 96761	340	18
Kamehameha Schools–Maui	270 Aapueo Parkway, Pukalani, HI 96768	288	19
Roberts Hawaii Inc.	711 Kaonawai Place, Kahului, HI 96732	282	20
Securitas Security Services USA Inc.	888 N. Nimitz Hwy., Ste. 105, Honolulu, HI 96817	254	21
Ka'anapali Beach Hotel	2525 Ka'anapali Parkway, Lahaina, HI 96761	253	22
Maui Economic Opportunity Inc.	99 Mahalani St., Wailuku, HI 96793	250	23
Classic Resorts	180 Dickenson St., Ste. 201, Lahaina, HI 96761	180	24
Maui Family YMCA	250 Kanaloa Ave., Kahului, HI 96732	180	25

* Estimated based on 2013 Book of Lists. Walmart did not participate in the 2014 Book of Lists.

** Added to list based on County of Maui Comprehensive Annual Financial Report for FY Ended June 30, 2011. Kapalua resort employment is included in total number shown.

The employers identified in Table 1-6 are shown in Figure 1-17. All of the major employers identified on Maui Island are served by Maui Bus and MEO services and correlate with the numbers of employed people indicating they use Maui Bus to travel to their job.

In guiding Maui Bus services for the next five to ten years, the SRTP should incorporate expected population and economic growth. The *Maui County General Plan 2030 Maui Island Plan* summarized the expected economic factors for Maui Island as:

- Wage and salary jobs are expected to increase by about 1.1 percent annually.
- Per capita income will increase very little (in constant dollars).
- Visitor counts will increase by about 1 percent annually.

- Because of high occupancy rates, construction of new units is expected to resume, and the supply of visitor units is expected to grow at 1 percent annually.
- The past rate of growth in resident population, housing and jobs is higher than the rate of visitor growth. This indicates that Maui's economy has diversified and is less driven by tourism than in the past.³⁷

Figure 1-17: Largest Employers on Maui Island
(Source: Pacific Business News, 2014 Book of Lists)

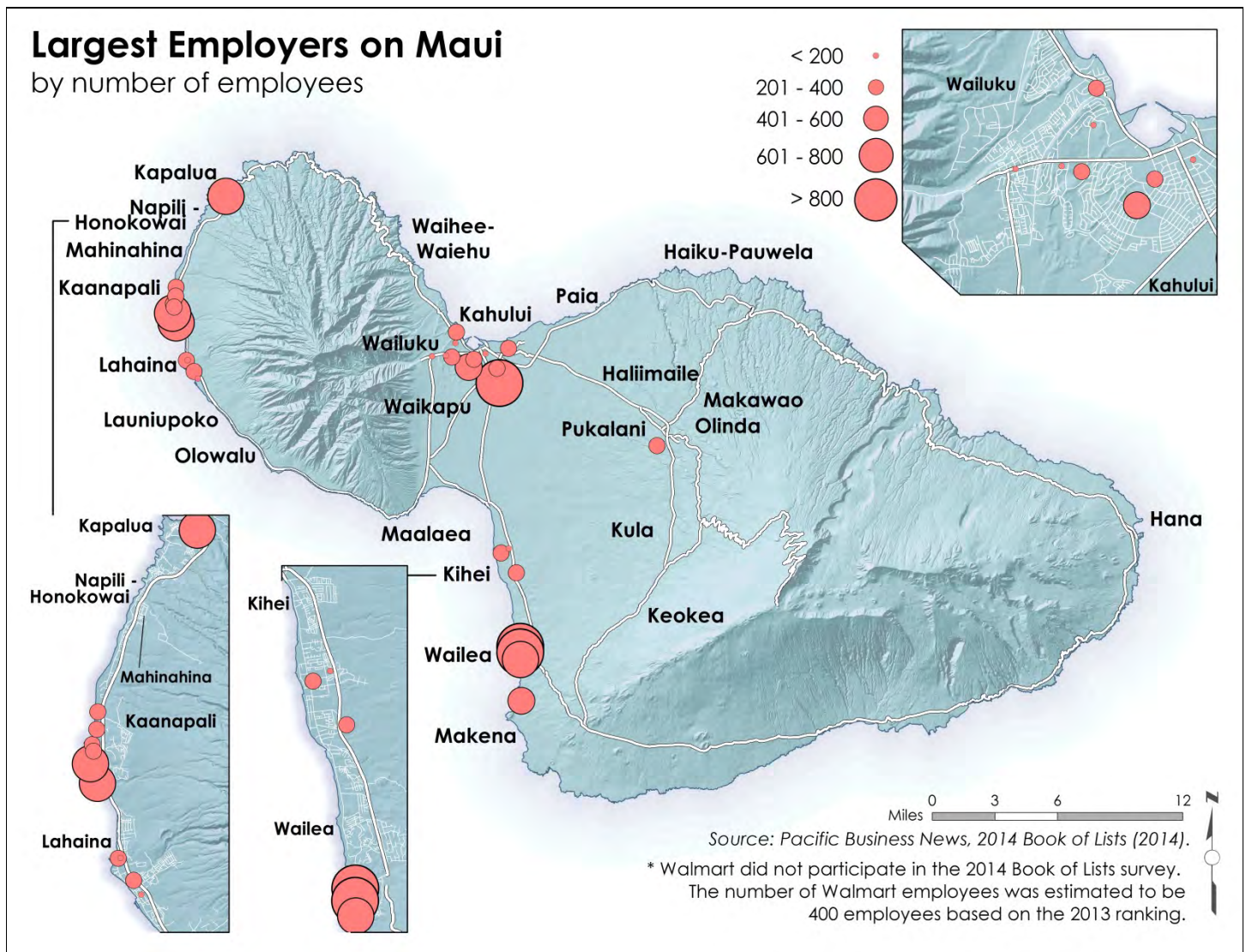


Table 1-7 identifies the largest shopping centers on Maui Island. The shopping center name, address, area size in terms of square feet and number of tenants is provided.

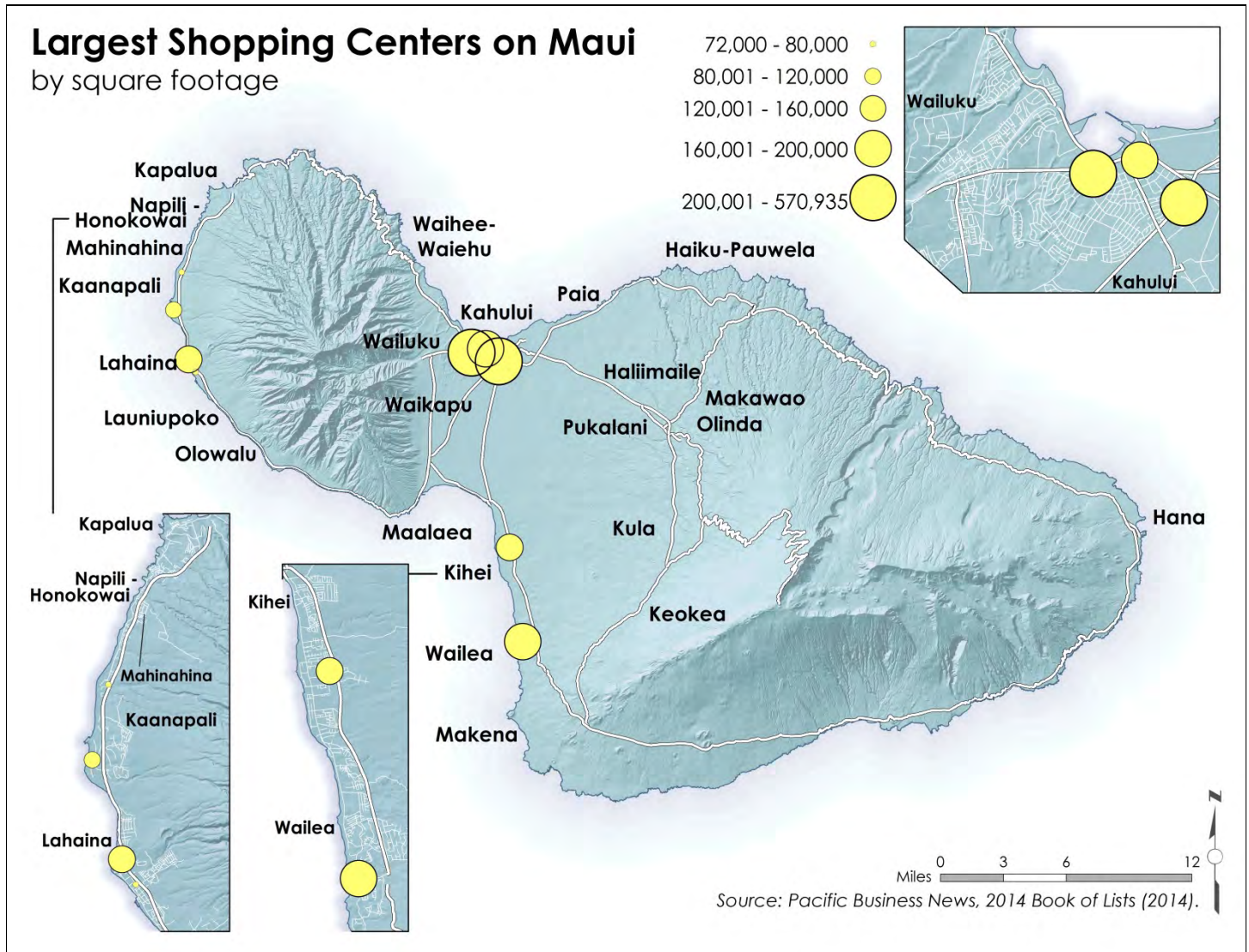
Table 1-7: Largest Shopping Centers
 (Source: Pacific Business News, 2014 Book of Lists)

Name	Address	Area (sq. ft.)	Number of Tenants
Queen Ka'ahumanu Center	275 W. Ka'ahumanu Ave., Kahului, HI 96732	570,935	110
Maui Marketplace	270 Dairy Road, Kahului, HI 96732	505,000	90
Maui Mall	70 E. Ka'ahumanu Ave., Kahului, HI 96732	185,141	32
The Shops at Wailea	3750 Wailea Alanui Drive, Wailea, HI 96753	161,626	68
Pi'ilani Village Shopping Center	225 Pi'ikea Ave., Kīhei, HI 96753	140,769	30
Lahaina Cannery Mall	1221 Honoapiilani Hwy., Lahaina, HI 96761	130,599	40
Whalers Village Fine Shops & Restaurants	2435 Ka'anapali Parkway, Lahaina, HI 96761	106,000	90
Old Lahaina Center	845 Wainee St., Lahaina, HI 96761	80,000	25
Honokowai Marketplace	3350 Lower Honoapiilani Hwy. Lahaina, HI 96716	72,000	25

Figure 1-18 graphically shows the major centers identified by square footage. All of the shopping centers are served by Maui Bus and MEO services. Maui Bus has done an excellent job in serving the major employment centers on Maui Island.

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Figure 1-18: Largest Shopping Centers on Maui Island
 (Source: Pacific Business News, 2014 Book of Lists)



1.3. LEGAL AND REGULATORY REQUIREMENTS AND POLICIES

This section outlines the requirements and policies governing the operation of public transportation for the County of Maui. It provides an overview of County, State and Federal legal and regulatory requirements and policies. Governing laws and regulations normally impose explicit specifications regarding the eligible use of funds granted or appropriated for public transportation purposes. Consequently, it is essential to be knowledgeable about such legal parameters to assure data is obtained verifying compliance, demonstrating conformance or illustrating successful achievement of legislative intent. This is particularly important with Central Maui being designated as a Census Urbanized Area (UZA) and the recent formation of a new Metropolitan Planning Organization (MPO).

1.3.1 County Charter, Requirements and Policies

The Charter of the County of Maui is the fundamental source of local law in the county. In November 2002, the voters of Maui County adopted a Charter amendment establishing the Department of Transportation. The Mayor was given the power to hire and fire the Director.

The Director is “responsible for the planning and implementation of all modes of transportation in Maui County, including those in the air and those on water and land . . . for planning and developing an efficient program to facilitate the rapid, safe, and economical movement of people and goods” and for coordinating “Maui County’s transportation programs with other county departments and with agencies of the state and federal government.”³⁸ In December 2002, the Maui County Council passed an ordinance, which was signed by the Mayor, establishing the Department of Transportation.³⁹

The Charter requires the Director of the Department of Planning to “recommend revisions of the general plan at least every ten (10) years to guide the development of the county.”⁴⁰ These recommendations include objectives related to transportation.⁴¹

The Charter also establishes community citizen advisory committees to review and recommend revisions to the community plans for their areas.⁴² Upon adoption by the County Council these community plans become part of the General Plan.⁴³ These community plans often make recommendations regarding transportation issues.

General and Community Plan Provisions

Maui County’s most recent General Plan was adopted on March 24, 2010.⁴⁴ The General Plan’s Countywide Policy Plan lists five transportation objectives:⁴⁵

1. Provide an effective, affordable, and convenient ground-transportation system that is environmentally sustainable;
2. Reduce the reliance on the automobile and fossil fuels by encouraging walking,
3. Improve opportunities for affordable, efficient, safe, and reliable air transportation;

4. Improve opportunities for affordable, efficient, safe, and reliable ocean transportation; and
5. Improve and expand the planning and management of transportation systems.

Five of the nine current community plans call for one form or another of public or semi-public transportation.⁴⁶ The Hana plan requests “a quasi-public shuttle service.” The Kīhei -Mākena plan seeks the development of a “well-planned road and public transportation system.” The Makawao-Pukalani-Kula plan supports the “establishment of a limited service public transportation system to key destinations within the Upcountry area” and the Wailuku-Kahului plan supports “private efforts to expand public transit service.” The latest update to the Lāna‘i Community Plan, dated August 2014, envisions “a multi-modal land transportation system that: consists of streets, roads and highways that accommodate multiple users including freight, trucks, cars, transit, bicycles, pedestrians, and other non-motorized vehicles.”

Taxicabs

The Maui County Director of Finance has the authority to issue permits to operate a taxicab. Revocations of permits are in the courts’ jurisdiction.⁴⁷

Fuel and Weight Taxes

Pursuant to HRS § 243-5, Maui County raised its gasoline and diesel tax from 13 to 16 cents per gallon effective July 1, 2003.⁴⁸ However, the rates for biodiesel, ethanol and methanol were left unchanged. These rates had been lowered in 2002 to zero (for biodiesel) and \$0.038 and \$0.029 for ethanol and methanol respectively.⁴⁹ The rates for alternative fuels remain in effect.⁵⁰

The proceeds from the county fuel tax are deposited in the Highway Fund and can be used for a variety of transportation-related purposes including the construction and maintenance of roads, costs connected to mass transit, and the construction and maintenance of bikeways.⁵¹

The Motor Vehicle Weight Tax in Maui County is currently set at \$0.0275 per pound for passenger vehicles and trucks and noncommercial vehicles not exceeding 6,500 pounds and at \$0.04 per pound for “vehicles designated for carrying property or for purposes other than the carriage of passengers.” The minimum tax for any motor vehicle is \$12.00.⁵² The proceeds from this tax are also deposited in the Highway Fund pursuant to HRS § 249-18.

Impact Fees

Maui County Code describes impact fees for various areas on Maui by chapter.⁵³ The first two Chapters (14.62, and 14.68), adopted in 1988 and 1989, imposed impact fees on “new land development activities” for West Maui, and Kīhei/Mākena (respectively). In 2007, four additional Chapters (14.70, 14.74, 14.76, and 14.78) were adopted. These Chapters established the regulatory framework for impact fees in Hāna, Makawao-Pukalani-Kula, Wailuku-Kahului, Pā‘ia-Ha‘ikū.

The impacts fees establish special funds to finance traffic and road improvements needed to address increased traffic from new developments. Monies from these Roadway Improvement Funds can be utilized for “improving traffic circulation patterns to accommodate mass transit use.”⁵⁴ Although the ordinances have set the regulatory scheme for the assessment and collection of traffic impact fees, the actual fee structure is yet to be established.⁵⁵

County of Maui Resolution No. 2012-34 Complete Streets

The Council of the County of Maui resolved in 2012 to incorporate complete streets principals into all relevant County actions. These principals, many of which are consistent with the goals of the Countywide Policy Plan, include enhancing public transit service.

1.3.2 State Legislation

Hawai'i state legislation governing mass transit is contained in Chapter 51 of the Hawai'i Revised Statutes (HRS).⁵⁶

51-1 Grant of powers

§51-1 Grant of powers. Every county of this State may acquire, condemn, purchase, lease, construct, extend, own, maintain, and operate mass transit systems, including, without being limited to, motor buses, street railroads, fixed rail facilities such as monorails or subways, whether surface, subsurface, or elevated, taxis, and other forms of transportation for hire for passengers and their personal baggage.

Every county shall have power to provide mass transportation service, whether directly, jointly, or under contract with private parties, without the county or private parties being subject to the jurisdiction and control of the public utilities commission in any manner.

The terms "mass transit" and "mass transportation" mean transportation by bus, or rail or other conveyance, either publicly or privately owned, which provides to the public general or special service (but not including school buses or charter or sightseeing service) on a regular and continuing basis. [L 1967, c 300, §1; HRS §51-1; am L 1973, c 166, §1]⁵⁷

51-2 Provision relating to purchase

§51-2 Provision relating to purchase. Any franchise heretofore granted by the legislature authorizing the transportation of persons or property, or both, by motor vehicle limited to one county or a portion of a county is amended as follows with respect to the procedure for the purchase of the property of the company holding the franchise (hereinafter called the "company"):

(1) The legislative body of the county may, by ordinance, authorize or provide for the purchase of the property of the company. No authorization by referendum nor any legislative act authorizing a referendum shall be required, and all references to a referendum or legislative act are deleted from the franchise.

(2) Notice by the county to the company of the county's intention to acquire the property of the company shall not be required, and all references to the notice are hereby deleted from the franchise. [L 1967, c 300, §2; HRS §51-2]

51-3 Effect of amendment

§51-3 Effect of amendment. The amendments provided in section 51-2 shall not be construed to amend or affect any other provision of the franchise referred to in section 51-2. [L 1967, c 300, §3; HRS §51-3]

51-4 Financing the acquisition, construction of mass transportation systems

§51-4 Financing the acquisition and construction of mass transportation systems. Any mass transportation system owned or operated or to be acquired by a county is a public improvement of the county within the meaning and purview of chapter 47, and an undertaking of the county within the meaning and purview of chapter 49. Any county may issue its general obligation bonds or notes pursuant to chapter 47, or its revenue bonds or notes pursuant to chapter 47 or 49, or both general obligation and revenue bonds or notes in order to pay the costs to the county of acquiring, constructing, reconstructing, improving, bettering, extending, equipping, or furnishing a mass transportation system or systems in the county. [L 1967, c 300, §4; HRS §51-4]

HRS Chapter 271 (Motor Carrier Law) gives the PUC the primary regulatory role over motor carriers. However, many public transit operators are exempted or excluded from PUC oversight. The most sweeping exclusions concern government-run operations. Public utilities “owned and operated by the State, or any county, or other political subdivision” are excluded from the application of Chapter 269.⁵⁸

HRS Chapter 51 (Mass Transit) specifically excludes PUC oversight of county owned or operated “mass transportation services.”⁵⁹ HRS Section 51-1 also excludes private parties in joint ventures with a county or working under contract to a county to provide mass transportation from PUC oversight.

Furthermore, HRS Chapter 46 provides that: “The policy of the State is to require that counties regulate privately-owned public passenger vehicle service.”⁶⁰ Every county is empowered to regulate: (1) Entry into the business of providing public passenger vehicle service; (2) The rates charged for the provision of public passenger service; and, (3) The establishment of stands to be employed by one or a limited number of providers of public passenger vehicle service.

Some of the other exemptions from PUC review under HRS Chapters 269 and/or 271 (Motor Carrier Law) include “persons operating the type of passenger carrying motor vehicles known as ‘sampan buses’ within the radius of twenty miles from the city of Hilo...” and jitney services defined as “public transportation services utilizing motor vehicles that have seating accommodations for six to twenty-five passengers, operate along specific routes during defined service hours, and levy a flat fare schedule.”⁶¹

1.3.3 Federal Legislation

On August 10, 2005, President Bush signed the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) into law (P.L. 109-59). The previous long term authorization, TEA-21, expired on September 30, 2003. A history of significant transportation legislation is included in Appendix A.

SAFETEA-LU built on many of the strengths of rural transit's favorable treatment in TEA-21 and ISTEA. Some of the desirable aspects of the rural transit program were brought into other elements of federal transit investment. An increased share of the total federal transit program will be invested in rural areas under this new legislation. More Federal discretionary funds were available including \$4,000,000 appropriated in FY 2006 for Hawaii's Rural Bus Program.⁶²

The core program for rural public transportation remains the FTA Section 5311 formula grant program. Section 5311 funds grew from the FY2005 \$250.9 million steadily upwards to approximately \$535 million in FY2009. All current features of this program are retained, plus some new ones. The apportionment of Section 5311 funds became more complex under SAFETEA-LU. Most of the funds were continued to be allocated to states based on their population in non-urbanized areas. Twenty percent of each year's Section 5311 authorization was allocated to states based on their non-urbanized land area. Some funds were added to each state's Section 5311 allocation based on their 15-year population forecasts, under the new Sec.5340(c) category.

A new transit program under SAFETEA-LU was Section 5317, the New Freedom Program. This program involved formula-based grants to states and urbanized areas for the purpose of providing transportation services for persons with disabilities. These are funds provided above and beyond the baseline requirements of the ADA with particular emphasis on linking disabled persons to employment. The New Freedom Program was apportioned using a formula based on the disabled population in each state. Each year, 20% of New Freedom Program funds were allocated to states based on their rural population of persons with disabilities. States are to fund rural New Freedom Program projects based on statewide competitive solicitations. Funds may be awarded for capital projects (80% federal share) or operating projects (50% federal share).

On July 6, 2012 President Obama signed the Moving Ahead for Progress in the 21st Century Act (MAP-21). MAP-21 provided two years of funding through September 30, 2014 for FY 2013 and FY 2014. MAP-21 provided formula fund increases for urban and rural transit and senior and people with disabilities transportation. Other programs such as the Job Access and Reverse Commute Program and the New Freedom Program were consolidated. Overall transit funding increased with MAP-21; however, capital funds for buses and bus facilities saw small decreases in funding. Funding continued through December 2015 under a series of continuing resolutions.

On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act into law. This legislation was the reconciliation bill formed by the conference committee charged with negotiating the differences between the House-passed Surface Transportation Reauthorization and Reform (STRR) Act and the Senate-passed Developing a Reliable and Innovative Vision for the Economy (DRIVE) Act. The committee report passed by a House vote of 359 – 65. Later that day, the bill was brought to the Senate, where it passed that night by a vote of 83 – 16. This bill is the first long-term surface transportation authorization in ten years, since the passage of SAFETEA-LU in 2005. This timely and strong bipartisan vote allows the MSRTP to assume continued Federal support for future capital investments.

MDOT receives funds from a number of programs. Table 1-8 shows the funding sources for the current fiscal year and the previous five years. As shown in the table, funding is not consistent from year to year. Table 2-8 shows that the MDOT will receive funding from five grants for FY 2015:

Urbanized Area Formula Program 5307 – 5307 funds are available to urbanized areas and state governors for transit capital and operating assistance and for transportation related planning. An urbanized area is defined as an incorporated area with a population of 50,000 or more that is designed as such by the Census (see next section). This is a new funding program for MDOT having received funds first in FY 2014.

FTA Section 5339 Funds – Section 5339 funds are capital funds to be used only to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. The “Rural” formula funds are distributed through the HDOT. The “Small Urban” section is a new program under MAP-21 for small urban areas with populations 50,000 to 199,999.

FTA Section 5311 Non-urbanized Area Formula Program – These funds are available to support public transportation in rural areas with populations less than 50,000. Funds may be used for capital, operation and administrative expenses for public transportation projects that meet the needs of rural communities.

Rural Transit Assistance Program (RTAP) 5311 (b)(3) – RTAP funds support transit activities for training, technical assistance, research and related support services in nonurbanized areas.

Urbanized Area and Metropolitan Planning Organization

Maui was one of 36 new Census Urbanized Area (UZA) designations identified from the 2010 Census. A UZA is a dense population core and areas connected to that core with a total population of 50,000 or more. The centralized Kahului area was designated as a UZA. With this designation a Metropolitan Planning Organization (MPO) is established to provide a continuous planning process with a major function of monitoring transportation system performance, forecasting future needs and prioritizing transportation investment options to address those needs using performance indicators and targets. The importance of establishing an MPO is that FTA and FHWA funding for projects and services in UZAs require a designated MPO planning process to be eligible to receive funding.

Table 1-8: County of Maui Department of Transportation Grant Awards
 (Source: Maui Council Adopted Budgets FY 2011-2015)

Grant	Required County Match	FY2010 Adopted	FY2011 Adopted	FY 2012 Adopted	FY2013 Adopted	FY 2014 Adopted	FY2015 Adopted
Statewide Transportation Planning Program 5305 e	Yes - 50%	\$0	\$0	\$0	\$0	\$170,000	\$0
Urbanized Area Formula Program 5307	Yes - 50%	\$0	\$0	\$0	\$0	\$1,100,000	\$1,100,000
FTA Section Rural/5339 Formula Funds Program	Yes - 20%	\$0	\$0	\$2,000,000	\$2,000,000	\$600,000	\$600,000
FTA Section Small Urban/5339 Formula Funds Program	Yes - 20%	\$0	\$0	\$0	\$0	\$0	\$400,000
FTA Section 5309 State of Good Repair Program	Yes - 20%	\$8,000,000	\$8,000,000	\$0	\$3,200,000	\$1,800,000	\$0
FTA Section 5311 Non-urbanized Area Formula Program	Yes - 50%	\$1,500,000	\$1,500,000	\$600,000	\$1,700,000	\$1,200,000	\$500,000
FTA Section 5311 Rural Transit Assistance (RTAP) Program	No	\$250,000	\$250,000	\$20,000	\$20,000	\$20,000	\$20,000
FTA Section 5316 Job Access and Reverse Commute (JARC) Program	Yes - 50%	\$0	\$0	\$0	\$100,000	\$0	\$0
FTA Section 5317 New Freedom Program	Yes - 50%	\$0	\$0	\$0	\$100,000	\$30,000	\$0
FTA Veterans Transportation and Community Living Initiative (VTCLI) Program	Yes - 20%	\$0	\$0	\$0	\$233,129	\$0	\$0
FTA Livability Initiative Grant Program	Yes - 20%	\$0	\$0	\$0	\$1,000,000	\$1,000,000	\$0
TOTAL		\$9,750,000	\$9,750,000	\$2,620,000	\$8,353,129	\$5,920,000	\$2,620,000

The proposed rule dated June 2, 2014 for USDOT FHWA 23 CFR Part 450 and FTA 49 CFR Part 613; Statewide and Non-Metropolitan Transportation Planning; Metropolitan Transportation Planning; Notice of Proposed Rulemaking (NPRM) will require states, MPOs and providers of public transportation to establish and coordinate performance-driven, outcome-based planning approaches. Investment priorities are to be linked to the achievement of performance targets in key areas such as safety, infrastructure condition, congestion, system reliability, emissions, and freight movement.

Chapter 1 Endnotes:

- ¹ The County of Maui *Short Range Transit Plan Final Report* (SRTP); prepared for the County of Maui, Department of Transportation; Urbitran Associates, Inc.; January 2005.
- ² SRTP, Chapter 5, pages 48-50, A. Service Administration.
- ³ SRTP, Chapter 5, pages 51-52, B. Organizational Structure.
- ⁴ SRTP, Chapter 5, pages 53-66, C. Fixed Route Service Plan.
- ⁵ SRTP, Chapter 5, pages 67-75, D. Complementary Paratransit Program.
- ⁶ SRTP, Chapter 5, pages 88, Table 5-9, Capital Expenditures
- ⁷ SRTP, Chapter 5, pages 88, Table 5-9, Capital Expenditures
- ⁸ SRTP, Executive Summary, page xiv.
- ⁹ *Public Transportation Plan for the Island of Maui* (PTPIM); prepared for the County of Maui, Department of Planning; Kaku Associates, Inc.; November, 2003; pages 6-69.
- ¹⁰ Code of Federal Regulations, Title 49, Volume 1, revised October 1, 2003.
- ¹¹ Mayor's Transportation Action Committee: Report and Recommendations, April 24, 2001, pages 13- 14.
- ¹² Central and West Maui Task Force, Strategies to Link Central and West Maui, February 2000, page ii.
- ¹³ Federal-Aid Highways 2035 Transportation Plan for the District of Maui, State of Hawai'i Department of Transportation Highways Division, page 1-2.
- ¹⁴ Joint County/State Maui Interim Transportation Plan (Maui ITP) Executive Summary; State of Hawai'i Department of Transportation, Statewide Transportation Planning Office in cooperation with the County of Maui, Department of Public Works & Waste Management, State of Hawai'i, Department of Transportation, U.S. Department of Transportation, Federal Highways Administration; January 2002.
- ¹⁵ Maui ITP, page ES-6 to ES-8.
- ¹⁶ Maui Long-Range Land Transportation Plan (MLRLTP); prepared for the State Department of Transportation in cooperation with the County of Maui's Departments of Public Works and Planning; Kaku Associates, Inc. in association with Munekiyo & Arakawa, Inc.; February, 1997; page 2.
- ¹⁷ MLRLTP; page 98.
- ¹⁸ Kihei Traffic Master Plan; State Department of Transportation in cooperation with the County of Maui's Departments of Public Works and Planning; Kaku Associates, Inc.; 1996, page 1.
- ¹⁹ Moloka'i Long-Range Land Transportation Plan ; State Department of Transportation in cooperation with the County of Maui's Departments of Public Works and Planning; The Traffic Management Consultant in association with Chris Hart & Partners; February 1997.
- ²⁰ Moloka'i LRLTP, page 6.
- ²¹ Moloka'i LRLTP, pages 50-52.
- ²² Source: Hawai'i State Department of Transportation, Highway Division records and The State of Hawai'i Data Book 2013.
- ²³ Kā'anapali 2020, Community News Bulletin, June 2003.
- ²⁴ West Maui Plan To Reduce Traffic Includes a Bridge, Honolulu Star-Bulletin, February 29, 2004.
- ²⁵ Second Phase of Lahaina Bypass Complete, Wendy Osher,
- ²⁶ Lingle Releases Funds For Highway Study, Brian Perry, Maui News, February 3, 2006; and, Coastal Park Deal Includes Subdivision, Ilima Loomis, Maui News, September 5, 2004.
- ²⁷ Governor Lingle Releases \$2.5 Million To Widen Honoapi'ilani Highway On Maui; Press Release, February 2, 2006.
- ²⁸ Proposed Revision #14 of the 2011-2014 Statewide Transportation Improvement Program, 2013.
- ²⁹ Wednesday Blessing Ceremony Scheduled For Paia Mini-Bypass, News Release, July 18, 2006.
- ³⁰ Maui CPP, page 65.
- ³¹ County of Maui, Maui Island Plan: General Plan 2030, 2012.0
- ³² County of Maui, Maui Island Plan: General Plan 2030, 2012; page 6-26 to 6-32.
- ³³ Maui Island Plan General Plan 2030, page 1-2, adopted by Ordinance No. 4004, December 28, 2012.
- ³⁴ The forecast was based on projections developed by the State of Hawai'i Department of Business, Economic Development & Tourism (DBEDT). The forecast allocates expected countywide change to local areas. Maui County General Plan 2030, Maui Island Plan, page 1-2.
- ³⁵ Maui Island Plan General Plan 2030, page 1-3, adopted by Ordinance No. 4004, December 28, 2012.
- ³⁶ 2013 Visitor Plant Inventory, Hawai'i Tourism Authority.
- ³⁷ Maui County General Plan 2030, Maui Island Plan, page 1-3.

³⁸ County of Maui, Charter § 8-14.3(2) to (3) (2003).

³⁹ County of Maui, Code § 2.12.065 (2004).

⁴⁰ County of Maui, Charter § 8-8.3(3) (2003).

⁴¹ *Id.* § 8-8.5(2).

⁴² *Id.* § 8-8.5(4).

⁴³ County of Maui, Code § 2.80A.010 (2004).

⁴⁴ County of Maui, Ord. 3732 (2010)

⁴⁵ County of Maui, 2030 General Plan, Countywide Policy Plan (2010), at 66-69.

⁴⁶ Hana Community Plan, at 23 (1994); Kihei -Mākena Community Plan, at 30 (1998); Makawao-Pukalani-Kula Community Plan, at 34 (1996); Wailuku-Kahului Community Plan, at 34 (2002), Lānaʻi Community Plan Update (2014) at 7-17.

⁴⁷ County of Maui, Code § 5.16.020 and § 5.16.030 (2004).

⁴⁸ County of Maui, Resolution 03-65 (2003).

⁴⁹ County of Maui, Ord. 3044 (2002).

⁵⁰ County of Maui, Ord. 3192, at 58 of 116 [pdf file] (2004).

⁵¹ *See* HRS §§ 243-6, -18 (2004).

⁵² Motor Vehicle Weight Tax (Chapter 249 and County Ordinances), Tax Foundation of Hawaiʻi (2014).

⁵³ County of Maui, Ords. 3183, 3192 (2004). *See* Harry Eagar, *Race for West Maui Council Seat: Views on 'Quality of Life' Differ*, Maui News, Sept. 10, 2004, at 3, 5 (website); *Mayor's Transportation Action Committee: Report and Recommendations*, Apr. 24, 2001, at 13, 16.

⁵⁴ County of Maui, Code § 14.62.080 (1988), § 14.68.080 (1989), § 14.70.080 (2007), § 14.74.080 (2007), § 14.76.080 (2007), § 14.78.080 (2007).

⁵⁵ County of Maui, Committee Report No. 11-63 (2011)

⁵⁶ During the 1990 Session, the State of Hawaiʻi Legislature passed Acts 183 and 184 which provided a financing mechanism to assist with the capital costs involved with developing a fixed guideway system on Oahu and mass transportation projects in other counties. Act 183 established the State Transit Capital Development Fund. Act 184 authorized a 0.5% general excise and use tax surcharge for up to ten years. The ten-year time frame has since lapsed. Legislation passed during the 2005 Session authorized a 0.5% general excise and use tax surcharge with different requirements and policy implications.

⁵⁷ HRS [L 1967, c 300, §1; HRS §51-1; am L 1973, c 166, §1]

⁵⁸ HRS § 271-2 (2004) and HRS § 269-31 (2004). Note that HRS Chapter 271 (Motor Carrier Law) does not have this same exclusion. HRS § 271-3 excludes only foreign or interstate commerce and the list of exemptions contained in HRS § 271-5 makes no mention of an exclusion for government owned or operated motor carriers.

⁵⁹ HRS § 51-1 (2004).

⁶⁰ HRS § 46-16.5 (2004).

⁶¹ HRS § 271-5(10) and HRS § 271-5(18) (2004). However, if a county does not regulate a jitney service, HRS § 46-16.5(7) gives the PUC jurisdiction to do so, but apparently under Chapter 269 not Chapter 271.

⁶² U.S. Senator Dan Inouye, November 21, 2005 press release. These funds will be used by Hawaiʻi, Maui, and Kauaʻi Counties to purchase buses to expand routes and increase the frequency of service. The funds may also be used to provide passenger shelters, transit benches, and upgrades to comply with the requirements of the Americans with Disabilities Act.



Maui Short Range Transit Plan

Chapter 2

CURRENT FIXED ROUTE SYSTEM



BUS STOP
177-8434

DANIEL ISLANDER



2701

2. CURRENT FIXED ROUTE SYSTEM

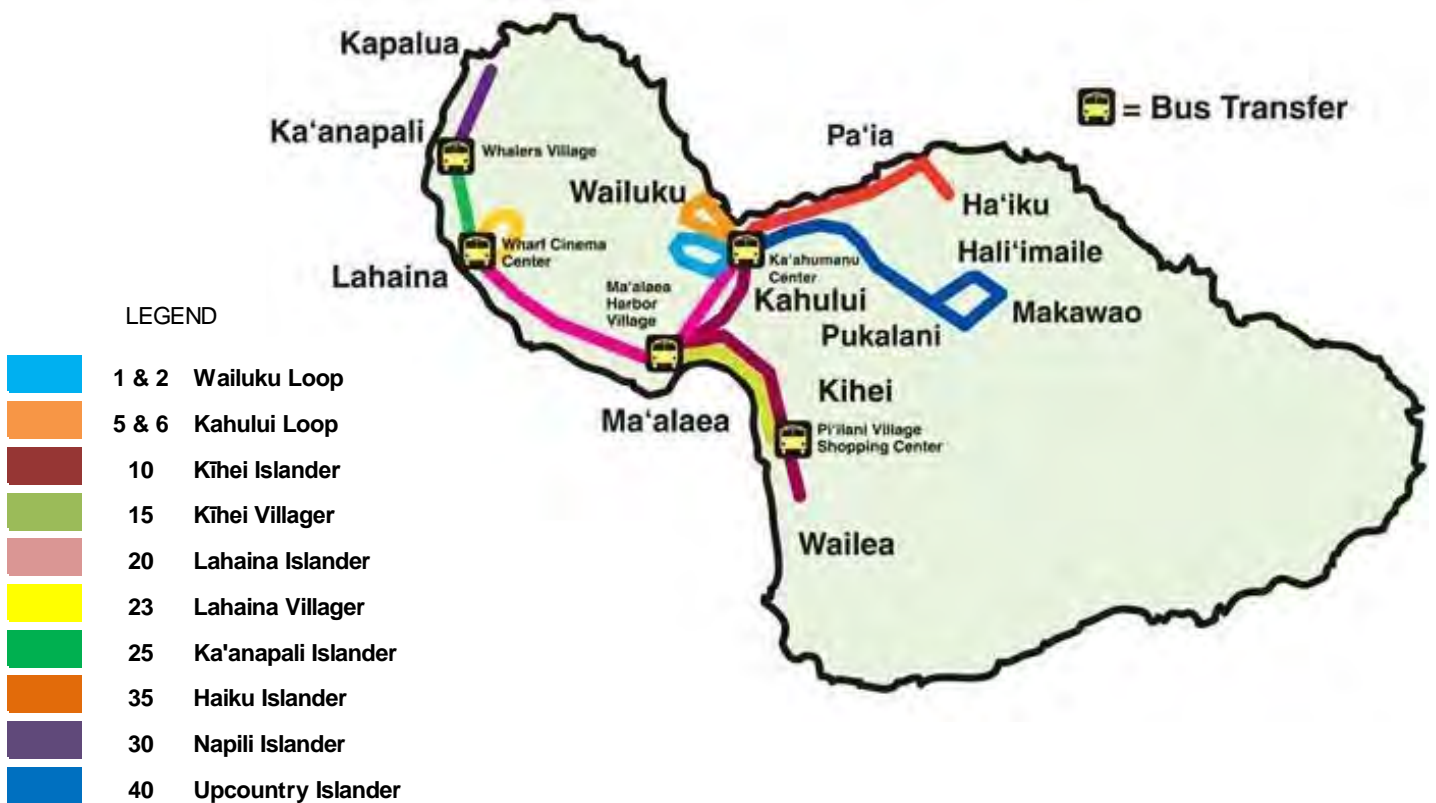
This chapter focuses on the fixed route system. MDOT provides public transportation service for county residents and visitors through regularly scheduled fixed route service on the island of Maui. Fixed route and commuter route services are contracted with Roberts Hawai'i.

Complementary paratransit demand-response service for eligible people with disabilities under the Americans with Disabilities Act (ADA) is provided on the island of Maui. Human service transportation is provided on the Islands of Maui, Lāna'i and Moloka'i. ADA paratransit and human services are contracted with Maui Economic Opportunity, Inc. (MEO). The ADA paratransit system is discussed in the Financial and Capital Plans.

2.1 MAUI BUS ROUTES

Maui Bus currently operates four categories of routes: four commuter routes and thirteen fixed routes called Central Maui, Islander and Villager. Figure 2-1 presents the thirteen fixed routes.

Figure 2-1: Maui Bus Central, Islander and Villager Routes



- **Central Maui Routes:** The four Central Maui fixed routes serve Wailuku and Kahului residential and business areas and connect at Queen Ka’ahumanu Center (QKC). These are loop routes with 60-minute service. They operate with one bus on each route. The routes have frequent deviations into shopping centers.

- Route 1: Wailuku Loop
- Route 2: Wailuku Loop Reverse
- Route 5: Kahului Loop
- Route 6: Kahului Loop Reverse



- **Islander Routes:** Six fixed routes provide service to and between Central Maui and other major communities including Lahaina, Kīhei, Upcountry (Pukalani, Makawao and Hali’imaile), Haiku, Ka’anapali and Napili. Four Islander routes connect with other routes in Kahului at QKC.

- Route 10: Kīhei Islander
- Route 20: Lahaina Islander
- Route 25: Ka’anapali Islander
- Route 30: Napili Islander
- Route 35: Haiku Islander
- Route 40: Upcountry Islander



Two of the routes continue service up the coast from Lahaina. These routes typically have limited stops within Central Maui with several transitioning to local service with multiple bus stops once they reach the outlying community. The Upcountry and Haiku routes provide 90-minute service; the remaining four routes offer 60-minute service.

- **Villager Routes:** Three Villager routes provide internal circulation within the Lahaina, Kīhei and Kula communities linking residential with shopping and other activity centers such as the Lahaina Civic Center stop shown to the right.

- Route 15: Kīhei Villager
- Route 23: Lahaina Villager
- Route 39: Kula Villager

Villager routes provide connections to Islander routes with 60-minute service.



- Commuter Routes:** Four routes provide peak morning and afternoon service to major employment destinations. Three of the routes serve the War Memorial Stadium which is used as a park-and-ride lot and passenger drop-off location for the commuter routes. The fourth route connects Kihei directly with Kapalua without traveling to Central Maui. The Commuter Routes are shown in Figure 2-2.

Figure 2-2: Maui Bus Commuter Routes



2.1.1 Fixed-Route Bus Fleet

The fixed-routes provide the same scheduled service on weekdays, Saturdays and Sundays. Supporting these services are 35 buses, about 187 bus stops, 24 passenger shelters (an additional 36 are planned) and about 15 benches. MDOT acquired eleven new vehicles in fiscal year 2014 – the ten Eldorado National coaches that seat 32 people listed in Table 2-1 and one vehicle for the paratransit fleet. The acquisition of the ten new buses gave Maui Bus an average fleet age of 4.8 years for FY 2014. Nationally in FY 2012, the average fleet age for all bus systems was 7.5 years.

Table 2-1: Maui Bus Vehicle Inventory

Year	Quantity	Make	Model	Seating Capacity	Lift or Ramp	Number of Tie-downs
2004	1	Alexander Dennis	Enviro 500	81	Ramp	2
2007	6	Eldorado National	AXESS	41	Ramp	2
2008	7	Eldorado National	EZ-RIDER II	37	Ramp	4
2010	5	Eldorado National	EZ-RIDER II	37	Ramp	4
2011	1	Eldorado National	Aero-Elite	25	Lift	2
2013	1	Chevrolet	Arboc	17	Ramp	4
2014	10	Eldorado National	AXESS	32	Ramp	2
2015	4	Eldorado National	Aero-Elite	25	Lift	2

Source: County of Maui, Department of Transportation 4/01/2016

Table 2-1 lists all 38 vehicles Maui Bus has available for its fixed-route operations. All of the buses have bicycle racks that can accommodate two bikes. The 2004 Alexander Dennis vehicle is a double-deck vehicle slated to operate on the frequently overcrowded Kīhei Islander Route 10. The operator has reported this vehicle is frequently unavailable for service due to mechanical issues. Several of MDOT's routes including the Kīhei Islander, Lahaina Islander and Ka'anapali Islander, would benefit from higher-capacity vehicles in the fleet due to overcrowding. The fixed route fleet is maintained by Roberts Hawai'i at its facility by the airport on Kaonawai Place. The paratransit fleet is maintained by MEO.

2.1.2 Transit Centers and Transfer Points

Maui Bus provides convenient transferring between buses at one major transit center, centrally located in Kahului and five secondary transfer points. These major bus stops usually have passenger amenities including benches, shelters and trash receptacles and are located in shopping and entertainment activity centers. These facilities are described in the following pages.

▪ Queen Ka'ahumanu Center (QKC)

Maui Bus' major off-street transit center is located on the backside of Queen Ka'ahumanu Center by the parking garage and adjacent to a mall entrance. Eight of Maui Bus' thirteen routes originate at this transit center with up to five buses serving the center at one time. Amenities include system information, on-site customer service representative, benches and shelter; lighting, restrooms and other features are provided at this major shopping mall. MDOT contracts with the mall to provide security at the transit center.

Routes: 1, 2, 5, 6, 10, 20, 35 and 40
Average Daily Passenger Boardings: 1,450
 (boarding statistics provided by MDOT)



▪ **Wharf Cinema Center (WCC)**

This transfer point is an on-street location in Lahaina adjacent to the Wharf Cinema Center which has shopping, dining and entertainment offerings. This location accommodates two buses and provides timed connections between the Lahaina and Ka’anapali Islander routes. Amenities include benches, shelter, lighting, restrooms, security and other features provided by WCC.

Routes: 20, 23 and 25
Average Daily Passenger Boardings: 670



▪ **Whalers Village**

This transfer point is an off-street location in Ka’anapali adjacent to Whalers Village which provides shopping and dining. This location accommodates two buses and provides timed connections between Ka’anapali and Napili Islander routes.

Amenities include benches, shelter, lighting, restrooms, security and other features provided by the mall.

Routes: 25 and 30
Average Daily Passenger Boardings: 650



■ ***Pi'ilani Village Shopping Center***

Off-street location within the shopping center's parking lot. This location is served by two routes but they are not timed connected. Amenities include benches and lighting. Restrooms and other features are available at individual stores.

Routes: 10 and 15
Average Daily Passenger Boardings: 120



■ ***Kulamalu Town Center***

The transfer function between the Kula Villager and Upcountry Islander routes was relocated to the Kulamalu Town Center from Pukalani in February 2015. This is a new on-street bus stop serving these two routes. Restrooms and other features are available at individual stores. The picture at right is from the Pukalani stop.

Routes: 39 and 40
Average Daily Passenger Boardings: new
 (Pukalani averaged 90 boardings a day)



■ ***Ma'alaea Harbor***

Ma'alaea Harbor is an on-street location adjacent to restaurants and shopping. This location accommodates two buses and provides timed connections between Kīhei Villager and Lahaina Islander on the latter's inbound trip to Kahului. Amenities include benches, shelter, lighting, restrooms, and other features provided by the shopping and harbor area. Egress out of the Harbor area is relatively straight forward for buses heading toward Kahului and Kīhei. However, the Lahaina bound bus must circle back to Hauoli Street to access a left turn onto Honoapiilani Highway. This out of direction travel adds several minutes to the Lahaina Islander run time. The picture at right is the Ma'alaea Harbor on-street bus stop.



Routes: 15 and 20
Average Daily Passenger Boardings: 190

2.1.3 Park-and-Ride Lots

MDOT’s commuter routes serve two Park-and-Ride (P&R) lots: The War Memorial and Kūihelani Highway. A third P&R lot at the intersection of Honoapiilani Highway and North Kīhei Road is not served but is identified in this section because proposals are included in this report to serve the location in the future.



▪ **War Memorial Stadium**

The War Memorial Stadium located in Kahului is the main stop for three of four commuter routes. A total of six morning and six afternoon bus trips serve the Stadium with about half of the people parking and riding and half being dropped off. Occasionally, a bicycle will be chained to a tree by the stop area. Routes 1 and 2, Wailuku Loop and Reverse, serve nearby bus stops on Kanaloa Avenue.



There are no amenities at the Stadium for passengers. The first trip occurs in total darkness with no nearby lighting. There are no passenger shelters; when it rains intending passengers either wait in their cars or, if a bus arrives early, passengers are able to board.

The Commuter operation is not alone in using the Stadium parking lot. Private schools have a major pick up and drop off operation at the Stadium. At least eleven school buses enter the lot to pick up students. There is a shuttle van taking park-and-riders to the medical complex and state buildings. This shuttle operates all day and is supplemented in the peak periods with a second van.

- ***Kūihelani Highway***

One commuter route serves both the War Memorial Stadium and the Kūihelani Highway Park-and-Ride shown to the right. This route provides one trip in the morning and one in the afternoon. The Kūihelani Highway park-and-ride offers 49 spaces and provides no amenities. There is no nearby local bus service. The closest bus stop is about one-half mile away.



- ***Honoapiilani Highway***

Another park-and-ride lot with 63 spaces is located at the intersection of Honoapiilani Highway and North Kīhei Road as shown below. Route 15, Kīhei Villager, and Route 20, Lahaina Villager, pass by this lot because no bus stop is provided. Providing bus stops would not be advisable because there are no pedestrian crosswalks at the busy intersection. The routes would need to pull into the lot which is not designed for bus access and passenger waiting and loading.



2.1.4 Fixed Route Characteristics

Table 2-2 presents the Maui Bus characteristics by route and route classification. The table identifies the route; span of service; revenue miles per trip and accompany miles per hour operating speed; cycle time which is the time the bus takes to complete a round trip included recovery or layover time; headways by time period; number of trips; number of required vehicles to operate the route; revenue hours and miles; and, performance indicators including passenger boardings, passenger per revenue hour and passengers per revenue mile. The table is presented on the following four pages. Table 2-2 shows that Maui Bus does not reduce service on Saturdays and Sundays, a common practice among other transit systems.

Daily boardings average 6,500 passengers. Maui Bus is reporting about 26.2 passengers per revenue hour for the fixed route system. Commuter routes are averaging 23.9 passengers per revenue hour. Maui Bus compares well to the National average as reported under the National Transit Database (NTD) program of the Federal Transit Administration (FTA). Nationally, the rate of unlinked passenger trips per vehicle revenue hour is 34.8 for all reporting systems.¹ Unlinked passenger trips include all passenger boardings even if a passenger boards more than one bus to reach their destination.

The National average includes the larger systems such as those in New York, Chicago and Los Angeles. A more comparable group of “peers” will be presented in the Financial Plan. However, Maui Bus and MDOT can be satisfied that in FY 2012 the cost per passenger trip on the fixed route system including the commuter routes was \$2.47. This compares very favorably to \$3.60 for the nation for fixed route bus and \$8.10 for commuter bus.

2.2 FARES

The current fare structure is shown in Table 2-3. Fares are set by the Maui County Council. Current fares became effective July 1, 2013. Maui Bus does not provide free transfers to complete a one-way trip. Passengers must pay for each boarding, which makes the \$4.00 daily pass or the monthly pass options price competitive. Fare strategies will be explored in the Financial Plan.

Table 2-3: Maui Bus Fare Structure

Fare Type	Cost
Cash Fare	\$2.00, includes fixed route, commuter and ADA paratransit
Daily Pass	\$4.00, fixed route and ADA paratransit
Monthly Passes:	
General	\$45.00, fixed route, commuter and ADA paratransit
Student (valid school ID)	\$30.00, fixed route and ADA paratransit
Senior (55 years & older)	\$25.00, fixed route service only
Person with Disability	\$30.00, fixed route service only
Senior ADA Paratransit Pass (55 years & older)	\$30.00, ADA paratransit only

Table 2-2: Maui Bus Route Characteristics (1 of 4)

Current Maui Bus Routes		Span of Service		Revenue Miles	Miles Per Hour	Cycle Time	Headways					
Number	Description	Begin	End				AM Peak	Mid-Day	PM Peak	Eve	Sat	Sun
Central Routes:												
1	Wailuku Loop	6:30 AM	9:30 PM	13.9	13.9	60	60	60	60	60	60	60
2	Wailuku Loop Reverse	7:00 AM	10:00 PM	14.1	14.1	60	60	60	60	60	60	60
5	Kahului Loop	6:30 AM	9:08 PM	10.3	10.3	60	60	60	60	60	60	60
6	Kahului Loop Reverse	7:00 AM	10:00 PM	10.3	10.3	60	60	60	60	60	60	60
Islander Routes:												
10	Kihei Islander	5:30 AM	9:30 PM	34.3	17.2	120	60	60	60	60	60	60
20	Lahaina Islander	5:30 AM	9:30 PM	46.8	23.4	120	60	60	60	60	60	60
25	Ka'anapali Islander	6:00 AM	9:30 PM	9.8	9.8	60	60	60	30	60	60	60
30	Napili Islander	5:30 AM	9:00 PM	15.5	15.5	60	60	60	60	60	60	60
35	Haiku Islander	5:30 AM	9:40 PM	33.2	22.1	90	90	90	90	90	90	90
40	Upcountry Islander	6:00 AM	10:11 PM	31.8	21.2	90	90	90	90	90	90	90
Villager Routes:												
15	Kihei Villager	5:30 AM	8:55 PM	18.2	18.2	60	60	60	60	60	60	60
23	Lahaina Villager	8:00 AM	11:00 PM	10.9	10.9	60	60	60	60	60	60	60
39	Kula Villager	7:00 AM	9:00 PM	16.1	16.1	60	60	60	60	60	60	60
Commuter Routes:												
80	Haiku-Wailea	1 trip in AM peak and 1 trip in PM				195						
81	Kihei-Kapalua	1 trip in AM peak and 1 trip in PM				180						
82	Makawao-Kapalua	1 trip in AM peak and 1 trip in PM				240						
83	Wailuku-Kapalua	4 trips in AM peak and 4 trips in PM				180						

Note: Commuter Routes are numbered for convenience.

Table 2-2: Maui Bus Route Characteristics (2 of 4)

Current Maui Bus Routes		Daily Round Trips							Required Vehicles			
Number	Description	AM Peak	Mid-Day	PM Peak	Eve	Total	Sat	Sun	AM Peak	Mid-Day	PM Peak	Eve
Central Routes:												
1	Wailuku Loop	3	6	3	3	15	15	15	1	1	1	1
2	Wailuku Loop Reverse	2	6	3	4	15	15	15	1	1	1	1
5	Kahului Loop	3	6	3	3	15	15	15	1	1	1	1
6	Kahului Loop Reverse	2	6	3	4	15	15	15	1	1	1	1
Islander Routes:												
10	Kihei Islander	4	6	3	2	15	15	15	2	2	2	2
20	Lahaina Islander	4	6	3	2	15	15	15	2	2	2	2
25	Ka'anapali Islander	3.5	5.5	6.5	3	18.5	18.5	18.5	1	1	2	1
30	Napili Islander	3.5	6	3	3	15.5	15.5	15.5	1	1	1	1
35	Haiku Islander	3	4	2	2	11	11	11	1	1	1	1
40	Upcountry Islander	2	4	2	3	11	11	11	1	1	1	1
Villager Routes:												
15	Kihei Villager	3.5	6	3	3	15.5	15.5	15.5	1	1	1	1
23	Lahaina Villager	1	5	3	5	14	14	14	1	1	1	1
39	Kula Villager	2	6	3	3	14	14	14	1	1	1	1
<i>Subtotal</i>		36.5	72.5	40.5	40	189.5	189.5	189.5	15	15	16	15
Commuter Routes:												
80	Haiku-Wailea	0.5	0	0.5	0	1	1	1	1	0	1	0
81	Kihei-Kapalua	0.5	0	0.5	0	1	1	1	1	0	1	0
82	Makawao-Kapalua	0.5	0	0.5	0	1	1	1	1	0	1	0
83	Wailuku-Kapalua	2	0	1.75	0	3.75	3.75	3.75	4	0	4	0
<i>Subtotal</i>		3.5	0	3.25	0	6.75	6.75	6.75	7	0	7	0
Totals		40	72.5	43.75	40	196.3	196.3	196.3	22	15	23	15

Table 2-2: Maui Bus Route Characteristics (3 of 4)

Current Maui Bus Routes		Revenue Hours				Revenue Miles			
Number	Description	Weekday	Saturday	Sunday	Annual Total	Weekday	Saturday	Sunday	Annual Total
Central Routes:									
1	Wailuku Loop	15	15	15	5,460.0	208.5	208.5	208.5	75,894.0
2	Wailuku Loop Reverse	15	15	15	5,460.0	211.5	211.5	211.5	76,986.0
5	Kahului Loop	15	15	15	5,460.0	154.5	154.5	154.5	56,238.0
6	Kahului Loop Reverse	15	15	15	5,460.0	154.5	154.5	154.5	56,238.0
Islander Routes:									
10	Kihei Islander	30	30	30	10,920.0	514.5	514.5	514.5	187,278.0
20	Lahaina Islander	30	30	30	10,920.0	702	702	702	255,528.0
25	Ka'anapali Islander	18.5	18.5	18.5	6,734.0	181.3	181.3	181.3	65,993.2
30	Napili Islander	15.5	15.5	15.5	5,642.0	240.25	240.25	240.25	87,451.0
35	Haiku Islander	16.5	16.5	16.5	6,006.0	365.2	365.2	365.2	132,932.8
40	Upcountry Islander	16.5	16.5	16.5	6,006.0	349.8	349.8	349.8	127,327.2
Villager Routes:									
15	Kihei Villager	15.5	15.5	15.5	5,642.0	282.1	282.1	282.1	102,684.4
23	Lahaina Villager	14	14	14	5,096.0	152.6	152.6	152.6	55,546.4
39	Kula Villager	14	14	14	5,096.0	225.4	225.4	225.4	82,045.6
<i>Subtotal</i>		230.5	230.5	230.5	83,902.0	3742.15	3742.15	3742.15	1,362,142.6
Commuter Routes:									
80	Haiku-Wailea	3.25	3.25	3.25	1,183.0	na	na	na	na
81	Kihei-Kapalua	3	3	3	1,092.0	na	na	na	na
82	Makawao-Kapalua	4	4	4	1,456.0	na	na	na	na
83	Wailuku-Kapalua	11.25	11.25	11.25	4,095.0	na	na	na	na
<i>Subtotal</i>		21.5	21.5	21.5	7,826.0	na	na	na	na
Totals		252	252	252	91,728.0	na	na	na	na

Table 2-2: Maui Bus Route Characteristics (4 of 4)

Current Maui Bus Routes		FY2014			
Number	Description	Average Daily Boardings	Annual Boardings	Passengers Per Rev Hr	Passengers Per Rev Mile
Central Routes:					
1	Wailuku Loop	398	145,402	26.6	1.9
2	Wailuku Loop Reverse	362	132,281	24.2	1.7
5	Kahului Loop	347	126,774	23.2	2.3
6	Kahului Loop Reverse	260	94,780	17.4	1.7
Islander Routes:					
10	Kihei Islander	967	352,795	32.3	1.9
20	Lahaina Islander	937	342,019	31.3	1.3
25	Ka'anapali Islander	968	353,295	52.5	5.4
30	Napili Islander	645	235,495	41.7	2.7
35	Haiku Islander	276	100,573	16.7	0.8
40	Upcountry Islander	334	121,866	20.3	1.0
Villager Routes:					
15	Kihei Villager	224	81,823	14.5	0.8
23	Lahaina Villager	249	90,886	17.8	1.6
39	Kula Villager	47	17,068	3.3	0.2
<i>Subtotal</i>		6,014	2,195,057	26.2	1.6
Commuter Routes:					
80	Haiku-Wailea	39	14,209	12.0	na
81	Kihei-Kapalua	28	10,038	9.2	na
82	Makawao-Kapalua	102	37,210	25.6	na
83	Wailuku-Kapalua	344	125,449	30.6	na
<i>Subtotal</i>		512	186,906	23.9	na
Totals		6,526	2,381,963	26.0	na

2.3 RIDERSHIP

Maui Bus ridership obtained from the past six MDOT annual reports is presented in Figures 2-3 and 2-4. Figure 2-3 shows fixed route passenger boardings for the past six fiscal years.

Figure 2-3: Maui Bus Fixed Route Unlinked Passenger Boardings

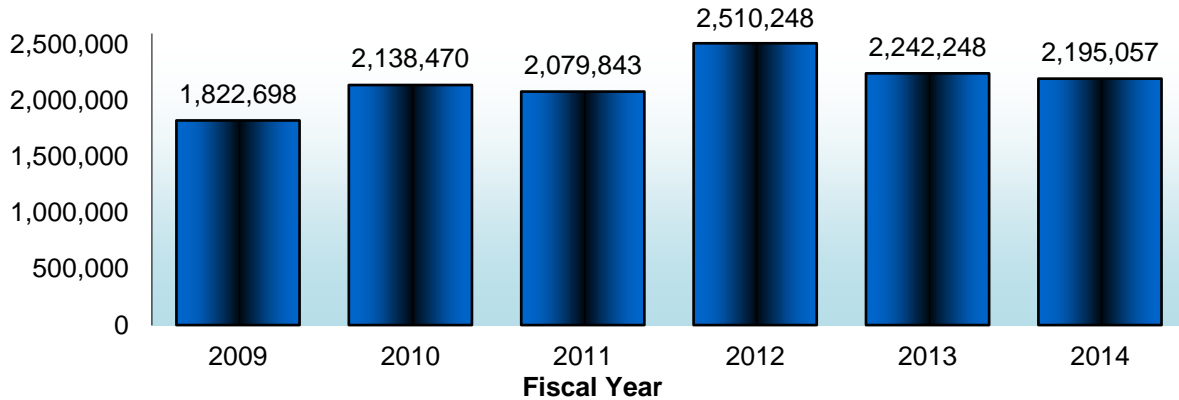


Figure 2-4 adds ADA paratransit and commuter bus passenger boardings to those totals presented in Figure 2-3. Boardings have been fairly consistent between FY2010 and FY2014 with a blip in FY2012. Passenger boardings in FY2012 may correlate to higher fuel prices that were experienced that year and increased Maui Bus exposure to residents and visitors. FY2012 was at the height of the higher gas prices. Maui Bus instituted a fare increase the next year which can be seen in the decrease in boardings. Although this decrease in passenger boardings is less than what would be expected with the doubling of the cash fare that was implemented.

Figure 2-4: Maui Bus Unlinked Passenger Boardings For All Operations



Chapter 2 Endnotes:

¹ National Transit Database (NTD), 2012 Reporting Year, Transit Profiles, 2012 Report Year Summary, U.S. Department of Transportation, Federal Transit Administration.



Maui Short Range Transit Plan

Chapter 3

● RIDERSHIP ANALYSIS

QUEEN
KAHUMANU
CENTER

GROUPS

maui

PH. 821.9125 FAX. 821.9125



3. RIDERSHIP ANALYSIS

This chapter provides the results from ridership demand analysis tasks conducted on the fixed route system and other communication program elements. These elements include the on-board fixed route passenger survey; ridecheck data analysis; a “Tell Us Where You Want To Go!” Program; and, review of MEO’s One-Call/One Click Transportation Resource Center User Survey.

3.1 PASSENGER SURVEY

An on-board, self-administered passenger survey was conducted on weekday fixed-route transit services operated by Maui Bus. The purpose of the survey was to obtain data regarding transit rider characteristics and details of transit trip making behavior including fare payment method and frequency of use. The survey provided an opportunity for customers to offer suggestions for service improvement and to rate service characteristics.

3.1.1 *Survey Design and Methodology*

The passenger survey distributed survey forms to passengers boarding selected weekday trips. The survey was conducted over a three day period in late September and early October of 2014 concurrently with the collection of passenger boarding and alighting activity and other data.

All passengers boarding the bus were offered a survey form. Pens were provided. Passengers who had already completed a survey were asked to participate again so specific information on each trip segment would be collected. Surveyors interviewed passengers requiring assistance in completing the survey.

Survey kits were prepared for each surveyor assignment. These kits included survey control forms, pens, survey forms and instructions. All of the listed items were placed in packets with identifying route, run and times of the assignment. Each survey kit was assigned a predetermined number of survey forms based on estimated rider demand. Returned surveys were placed into the corresponding envelope for each trip. Surveyors wore yellow reflective vests and name tags.

Surveyor training sessions were held prior to the survey. Instructions and examples of the ridecheck form were distributed and thoroughly explained. Each training session stressed sensitivity to passengers, accuracy requirements on ridecheck forms, courtesy to passengers and drivers and the desire to include all of Maui Bus’ customers in the survey effort.

Twenty-two surveyor assignments were identified to cover morning and afternoon-to-evening trips to get a broad spectrum of passenger trip characteristics. Table 3-1 shows the assignments for each route, the start and end locations and the times of each assignment. The number of round trips and total hours are shown.

Table 3-1: Maui Bus Passenger Survey Surveyor Assignments

Assignment	Route	Location		Time				
		Depart From	End At	Report	Leave	Arrive	Trips	Hours
1	1	QKC	QKC	6:15 AM	6:30 AM	10:30 AM	4	4
2	2	QKC	QKC	2:45 PM	3:00 PM	7:00 PM	4	4
3	5	QKC	QKC	6:15 AM	6:30 AM	10:30 AM	4	4
4	6	QKC	QKC	2:45 PM	3:00 PM	7:00 PM	4	4
5	10	QKC	QKC	6:15 AM	6:30 AM	10:30 AM	2	4
6	10	QKC	QKC	2:15 AM	2:30 PM	6:30 PM	2	4
7	20	QKC	QKC	6:15 AM	6:30 AM	10:30 AM	2	4
8	20	QKC	QKC	2:15 AM	2:30 PM	6:30 PM	2	4
9	35	QKC	QKC	5:15 AM	5:30 AM	10:00 AM	3	4.5
11	35	QKC	QKC	2:15 AM	2:30 PM	7:00 PM	3	4.5
12	40	QKC	QKC	5:45 AM	6:00 AM	10:30 AM	3	4.5
13	40	QKC	QKC	2:45 PM	3:00 PM	7:30 PM	3	4.5
14	15	MHV	MHV	6:45 AM	7:05 AM	10:55 AM	4	4
15	15	MHV	MHV	1:45 PM	2:05 PM	6:55 PM	5	5
16	23	WCC	WCC	7:45 AM	8:00 AM	11:00 AM	3	3
17	23	WCC	WCC	2:45 PM	3:00 PM	8:00 PM	5	5
18	25	WCC	WCC	7:15 AM	7:30 AM	9:30 AM	2	2
19	25	WCC	WCC	2:45 PM	3:00 PM	5:00 PM	2	2
20	25	WCC	WCC	5:15 PM	5:30 PM	8:30 PM	3	3
21	30	WV	WV	6:45 AM	7:00 AM	11:00 AM	4	4
22	30	WV	WV	1:45 PM	2:00 PM	6:00 PM	4	4
Total							68	82

Legend: QKC = Queen Ka'ahumanu Center
 MHV = Ma'alaea Harbor Village
 WCC = Wharf Cinema Center
 WV = Whalers Village

The survey sample included 68 round trips and 82 hours of service on the routes listed. Maui Bus drivers distributed surveys to passengers on Route 39, Kula Villager and the four Commuter Routes. Three thousand survey forms were printed and five hundred pens imprinted with Maui Bus were provided for the effort. Altogether, 1,227 usable surveys were returned and processed. The blank questionnaire is shown in Figure 3-1. Appendix B provides the data for each question on the survey. Appendix C contains passenger comments.

The survey asked specific questions of passengers. These included trip characteristics such as route traveled, mode of transportation to and from the bus stop, fare payment method, transferring activity and trip purpose at both the origin and destination. Passenger characteristics were collected including the number of years riding the bus in Maui, number of days per week riding the bus and socio-economic data including age, gender and household income.¹

Table 3-2 shows by route the response rate achieved for both the sampled passengers and overall. All routes were included in the survey, but not all passengers on those routes were surveyed. Table 3-2 shows that 2,558 passengers boarded the buses that had surveyors on board conducting the survey. Of those, 1,039 usable surveys were returned achieving a response rate of 40.6 percent. Average daily ridership on those same routes is 5,788 resulting in an 18 percent response of all daily riders. Adding the response from the “Driver Distributed Routes,” the survey achieved a response rate of 20 percent of the daily riders.

Table 3-2: Passenger Survey Response Rate

Route	Passenger Boardings	Returned Surveys	Response Rate	Average Daily Ridership	Percent of Daily Ridership
Surveyor Distributed Routes:					
1&2 Wailuku Loops	242	88	36.4%	776	11.3%
5&6 Kahului Loops	182	101	55.5%	573	17.6%
10 Kihei Islander	316	211	66.8%	930	22.7%
15 Kihei Villager	99	53	53.5%	223	23.8%
20 Lahaina Islander	322	131	40.7%	895	14.6%
23 Lahaina Villager	142	69	48.6%	243	28.4%
25 Ka'anapali Islander	427	93	21.8%	917	10.1%
30 Napili Islander	390	73	18.7%	605	12.1%
35 Haiku Islander	191	104	54.5%	280	37.1%
40 Upcountry Islander	247	116	47.0%	346	33.5%
Subtotal	2,558	1,039	40.6%	5,788	18.0%
Driver Distributed Routes:					
39 Kula Villager	45	12	26.7%	45	26.7%
Haiku-Wailea Commuter	37	10	26.7%	37	26.7%
Makawao-Kapalua Commuter	98	15	15.2%	98	15.2%
Kihei-Kapalua Commuter	33	16	47.8%	33	47.8%
Wailuku-Kapalua Commuter	358	135	37.7%	358	37.7%
Subtotal	571	188	32.9%	571	32.9%
TOTAL	3,129	1,277	40.8%	6,359	20.0%

Figure 3-1: Maui Bus Passenger Survey Form
(front side, page 1 of 2)

Maui Bus Passenger Survey

Your survey will be used to help improve your service. Please help us by answering all of the following questions.

1 What bus route were you on when you received this survey?

<u> 1 </u> #1 or #2-Wailuku Loop	<u> 5 </u> #20-Lahaina Islander	<u> 9 </u> #35-Haiku Islander	<u> 12 </u> Haiku-Wailea Commuter
<u> 2 </u> #5 or #6-Kahului Loop	<u> 6 </u> #23-Lahaina Villager	<u> 10 </u> #39-Kula Villager	<u> 13 </u> Kihei-Kapalua Commuter
<u> 3 </u> #10-Kihei Islander	<u> 7 </u> #25-Ka'anapali Islander	<u> 11 </u> #40-Upcountry Islander	<u> 14 </u> Makawao-Kapalua Commuter
<u> 4 </u> #15-Kihei Villager	<u> 8 </u> #30-Napili Islander		<u> 15 </u> Wailuku-Kapalua Commuter

<p>COMING FROM?</p> <p>2 Where did you get on this bus? (Please specify nearest intersection or location)</p> <p>_____</p> <p>_____</p> <p>3 How did you get to this bus? (Please check one)</p> <p>Walked: <u> 1 </u> Blocks? (please fill in number of blocks)</p> <p>Wheelchair: <u> 2 </u> Please fill in number of blocks.</p> <p><u> 3 </u> Another bus <u> 4 </u> Drove vehicle and parked</p> <p><u> 5 </u> Vehicle passenger/was dropped off</p> <p><u> 6 </u> Bicycle-about how far? <u> </u> miles</p> <p><u> 7 </u> Other: _____</p> <p>4 Did you take another bus to get here? Did you transfer?</p> <p><u> 1 </u> No</p> <p><u> 2 </u> Yes, I was on route: _____</p> <p style="padding-left: 20px;">and I waited <u> </u> minutes between buses</p> <p>5 When you got on this bus, where were you coming from? (please check one)</p> <table style="width: 100%; border: none;"> <tr> <td><u> 1 </u> Your Home</td> <td><u> 8 </u> Hotel room</td> </tr> <tr> <td><u> 2 </u> Your Workplace</td> <td><u> 9 </u> Shopping</td> </tr> <tr> <td><u> 3 </u> School (grades K-12)</td> <td><u> 10 </u> College</td> </tr> <tr> <td><u> 4 </u> College (students only)</td> <td><u> 11 </u> Airport (air passenger)</td> </tr> <tr> <td><u> 5 </u> Medical / Dental visit</td> <td></td> </tr> <tr> <td><u> 6 </u> Social / Recreation / Sightseeing / Visiting Friends</td> <td></td> </tr> <tr> <td><u> 7 </u> Personal Business (bank, post office)</td> <td></td> </tr> </table>	<u> 1 </u> Your Home	<u> 8 </u> Hotel room	<u> 2 </u> Your Workplace	<u> 9 </u> Shopping	<u> 3 </u> School (grades K-12)	<u> 10 </u> College	<u> 4 </u> College (students only)	<u> 11 </u> Airport (air passenger)	<u> 5 </u> Medical / Dental visit		<u> 6 </u> Social / Recreation / Sightseeing / Visiting Friends		<u> 7 </u> Personal Business (bank, post office)		<p>GOING TO?</p> <p>6 Where will you get off this bus? (Please specify nearest intersection or location)</p> <p>_____</p> <p>_____</p> <p>7 Will you take another bus to get to where you are going?</p> <p><u> 1 </u> No <u> 2 </u> Yes: To Route: _____</p> <p>8 Where are you going to now? (please check one)</p> <table style="width: 100%; border: none;"> <tr> <td><u> 1 </u> Your Home</td> <td><u> 8 </u> Hotel room</td> </tr> <tr> <td><u> 2 </u> Your Workplace</td> <td><u> 9 </u> Shopping</td> </tr> <tr> <td><u> 3 </u> School (grades K-12)</td> <td><u> 10 </u> College</td> </tr> <tr> <td><u> 4 </u> College (students only)</td> <td><u> 11 </u> Airport (air passenger)</td> </tr> <tr> <td><u> 5 </u> Medical / Dental visit</td> <td></td> </tr> <tr> <td><u> 6 </u> Social / Recreation / Sightseeing / Visiting Friends</td> <td></td> </tr> <tr> <td><u> 7 </u> Personal Business (bank, post office)</td> <td></td> </tr> </table> <p>9 How will you get to your destination after you get off this bus? (Please check one)</p> <p>Walk: <u> 1 </u> Blocks? (please fill in number of blocks)</p> <p>Wheelchair: <u> 2 </u> Please fill in number of blocks.</p> <p><u> 3 </u> Another bus <u> 4 </u> Drive vehicle</p> <p><u> 5 </u> Vehicle passenger/be picked up by someone</p> <p><u> 6 </u> Bicycle-about how far? <u> </u> miles</p> <p><u> 7 </u> Other: _____</p>	<u> 1 </u> Your Home	<u> 8 </u> Hotel room	<u> 2 </u> Your Workplace	<u> 9 </u> Shopping	<u> 3 </u> School (grades K-12)	<u> 10 </u> College	<u> 4 </u> College (students only)	<u> 11 </u> Airport (air passenger)	<u> 5 </u> Medical / Dental visit		<u> 6 </u> Social / Recreation / Sightseeing / Visiting Friends		<u> 7 </u> Personal Business (bank, post office)	
<u> 1 </u> Your Home	<u> 8 </u> Hotel room																												
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<u> 5 </u> Medical / Dental visit																													
<u> 6 </u> Social / Recreation / Sightseeing / Visiting Friends																													
<u> 7 </u> Personal Business (bank, post office)																													

10 How did you pay your fare? (Please check one)

<u> 1 </u> \$2.00 Cash	<u> 4 </u> Student Monthly Pass \$30.00
<u> 2 </u> Daily Pass (\$4.00)	<u> 5 </u> Senior Monthly Pass \$25.00 for fixed route only
<u> 3 </u> Adult Monthly Pass \$45.00	<u> 6 </u> Persons with Disabilities Monthly Pass \$30 for fixed route only

11 How many buses will you board today including all trips? Buses

12 How long have you been riding MAUI BUS? Years. Enter number of years or check one of the following:

 1 This is my first trip 2 Less than one week 3 Less than one year

PLEASE CONTINUE ON THE OTHER SIDE

Figure 3-1: Maui Bus Passenger Survey Form
(back side, page 2 of 2)

13 How often do you use MAUI BUS? 1 10 or more times a week 2 5 to 9 times a week 3 3 to 4 times a week
4 1 to 2 times a week 5 This is my first trip or day using MAUI BUS

14 How do you get information about Maui Bus routes?
1 Internet 2 Phone 3 Brochure 4 System Representative 5 Other: _____

15 Would you use a phone or internet app to get information about Maui Bus routes? 1 Yes 2 No

16 Are you a licensed driver and able to drive? 1 Yes 2 No

17 If bus service had not been available today, how would you have made this trip?
1 Drive 2 Ride with someone 3 Walk 4 Bicycle 5 Taxi 6 Would not make this trip 7 Other: _____

18 Are you a student? 1 No 2 Yes-K thru 12th grade 3 Yes-College/technical school or program

19 Do you have a disability that limits your mobility? 1 Yes 2 No

20 Are you: 1 Female 2 Male

21 Are you a Veteran? 1 Yes 2 No

22 Are you a visitor or tourist to Maui? 1 Yes 2 No If Yes, how long are you staying on Maui? _____ Days

23 What is your age? _____ Years old

24 Including YOU, how many people live in your household? _____ People

25 How many vehicles in Working condition are available to your household? _____ Vehicles

26 Are you: (check the one response that BEST describes you)
1 Employed full-time (at least 35 hours per week) 3 Not currently employed but NOT SEEKING work 5 Retired
2 Not currently employed but SEEKING work 4 Employed part-time (less than 35 hours per week)

27 Please rate MAUI BUS on each of the following:

	Excellent	Good	Fair	Poor
Cleanliness	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Comfort	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Convenience	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Appearance	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Driver courtesy	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Safety	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Schedule readability	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Service frequency	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Area served	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Transfer Connections	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Weekend service	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Evening service	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
On-Time performance	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Overall service quality	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Ease of getting information	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>

28 How can we improve service? _____

29 Which of the following categories best describes your TOTAL ANNUAL HOUSEHOLD INCOME?
1 Less than \$10,000 4 \$20,000 to \$24,999 7 \$35,000 to \$49,999 10 \$100,000 to \$149,999
2 \$10,000 to \$14,999 5 \$25,000 to \$29,999 8 \$50,000 to \$74,999 11 \$150,000 or above
3 \$15,000 to \$19,999 6 \$30,000 to \$34,999 9 \$75,000 to \$99,999 12 Don't know

MAHALO!

Given the nature of a self-administered survey, not all questions may be answered by the rider. However, valuable information can be obtained from these partial surveys and they have been retained in the sample. Therefore, the sample size for each question and cross-tabulation will vary. In some cases, percentages may not add to 100 percent due to rounding.

3.1.2 Highlights of Transit Customer Characteristics

A summary of who rides Maui Bus is highlighted in Figure 3-2. It is striking to observe that 28.9% of the respondents indicated they have been riding for one year or less, an indication the system is successfully attracting new customers. Many riders (19.4%) could drive if the service was not available, but still a very large percent (80.6%) can be classified as dependent upon transit.

Figure 3-2: Featured Passenger Characteristics: Who Rides Maui Bus

The following statistics describe who is riding the Maui Bus fixed route system:

- **28.9%** have been riding for one year or less (342 passengers).
- **19.4%** would drive if bus service were not available (226 passengers);
- **80.6%** could be classified as depending upon transit (941 passengers), although 32.1% could ride with someone if the bus were not available.
- **64.9%** ride five or more times a week; 36.2% ride ten or more times a week.
- **75.5%** of Maui Bus ridership is employed either full or part-time.
- **20.0%** of the riders indicated they are students.
- **4.7%** are under the age of 18; 21.3% are between the ages of 18 and 24 and 27.7% are 55 years or older.
- **55.0%** of the riders were female.
- **8.1%** stated they are visitors or tourists.
- **21.5%** indicated their yearly household income was less than \$15,000 or less.
- **85.6%** of the riders rated Maui Bus overall service quality as excellent or good.

About two-thirds of all riders (64.9%) use Maui Bus five or more times a week. About three-quarters (75.5%) of the riders are employed either full or part-time. A significant share of the riders (20.0%) is composed of students, but only 4.7% are under the age of 18.

Figure 3-3 highlights why riders use Maui Bus. Most (53.6%) use it to go to work. Most (57.5%) walk relatively short distances of one block or less. Most (79.8%) riders use some form of pass to pay for their trip. Figure 3-4 compares the trip purpose for all versus home-based trips.

Figure 3-3: Featured Trip Characteristics: Why Riders Use Maui Bus

The following statistics describe why riders use the Maui Bus fixed route system:

- **TRIP PURPOSE – Riders use Maui Bus to go to work.** Work trips accounted for 53.6% of all trip purposes. 14.1% of the trips had a social or recreational purpose. Shopping trips accounted for 10.3% and 8.5% were for personal business trips.
- **TRIP CONVENIENCE – Riders walk to get to and from Maui Bus.** Almost 52% of all passengers stated they walked to access the bus; 59% indicated they would walk after getting off the bus to reach their destination. Of those walking to the bus, 57.5% stated they walked one block or less. This increases to 66% for those who walked one block or less to their destination after departing from the bus.
- **TRIP COST – Riders use passes to pay for Maui Bus.** Most passengers used one of five types of passes to pay for their trip. Monthly passes were used by 52.7% of those responding to the survey. Another 27.2% purchased the \$4.00 daily pass. 20.2% of the passengers surveyed stated they paid the \$2.00 cash fare.

Figure 3-4: Featured Trip Characteristics: Where Riders Are Traveling

The following statistics describe why riders use the Maui Bus fixed route system:

- **TRIP ORIGIN – Riders use Maui Bus to go from home and back.** Overall, approximately 80% of the responses had “home” as either their origin or destination. Twenty percent of the responses begin and end their trip at a location that is not considered “home.” These trips would include work to school, shopping to personal business, school to shopping, and hotel to airport, etc. The purpose for all trips and for home-based trips (home at either end of the trip) include:

ALL TRIPS (n=1,147)	HOME-BASED TRIPS (n=914)
⇒ 53.6% work	⇒ 62.5% work
⇒ 14.1% social/recreation	⇒ 9.7% social/recreation
⇒ 10.3% shopping	⇒ 8.3% shopping
⇒ 8.5% personal business	⇒ 7.2% personal business
⇒ 6.1% college student	⇒ 7.0% college student
⇒ 3.7% medical/dental	⇒ 3.0% medical/dental
⇒ 1.8% school (K-12)	⇒ 1.6% school (K-12)
⇒ 1.8% airport (air passenger)	⇒ 0.7% airport (air passenger)

3.1.3 Detailed Summary of Transit Customer Characteristics

A summary of the results from the on-board passenger survey is presented on the following pages. Characteristics of respondents include the age, gender of the rider and characteristics of the rider's household such as income. These questions were included to determine if each type of transit target market is being adequately served.

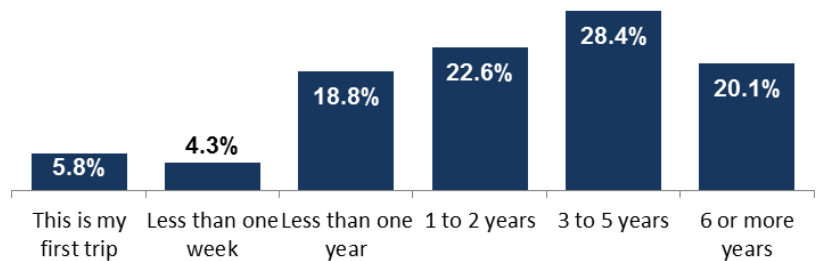
Some questions were asked specifically to determine whether the passenger is a transit 'dependent' or a 'choice' rider. A transit 'dependent' rider is one who has few if any travel options. A transit 'choice' rider does have travel options such as driving a vehicle. To examine these different markets questions are asked such as "Are you a licensed driver and able to drive?" and "If bus service had not been available today, how would you have made this trip?" The thirteen fixed routes and four commuter routes were classified into four groups for comparison purposes: 1) Loop Routes (1, 2, 5 and 6); 2) Islander Routes (10, 20, 25, 30, 35 and 40); 3) Villager Routes (15, 23 and 39); and, 4) Commuter Routes.

While 28.9 percent of the passengers are new to the system (have been riding for less than one year), 20.1 percent have been riding transit in Maui for six or more years as shown in Figure 3-5 to the right.

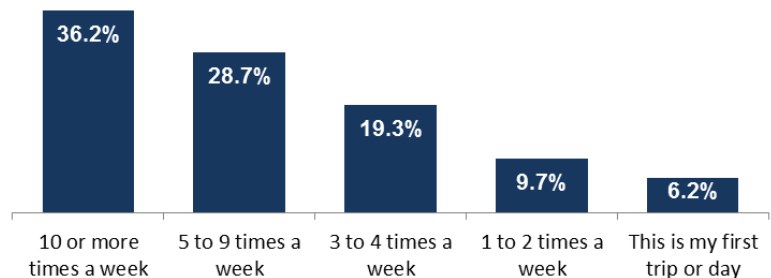
The 5.8 percent of the respondents indicating this was their first trip on Maui Bus correlates with the tourism industry and its impact on the system. The weekly cruise ship arrival occurred during one of the days of the survey. Cruise ship passengers predominantly ride the Islander Routes (61% of the passengers identifying as tourists were on an Islander Route).

Figure 3-6 conveys just how much passengers rely on Maui Bus. Altogether, almost 65 percent (759 passengers) ride the bus five or more times a week, 33 percent (226 passengers) ride three to four times a week and 9.7 percent (113 passengers) indicated they ride 1 to 2 times a week.

**Figure 3-5: Passengers Use of Maui Bus
How Long Have You Been Riding Maui Bus?**

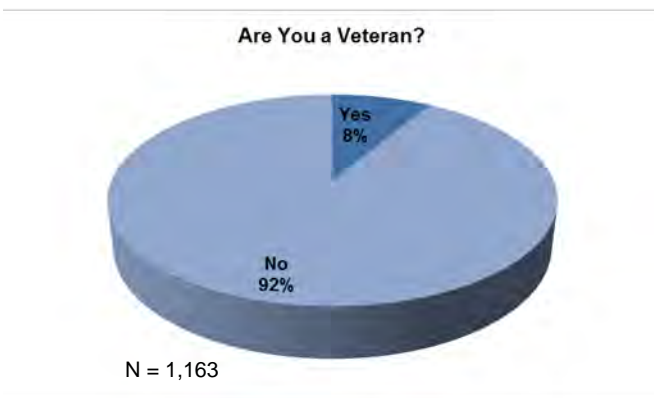
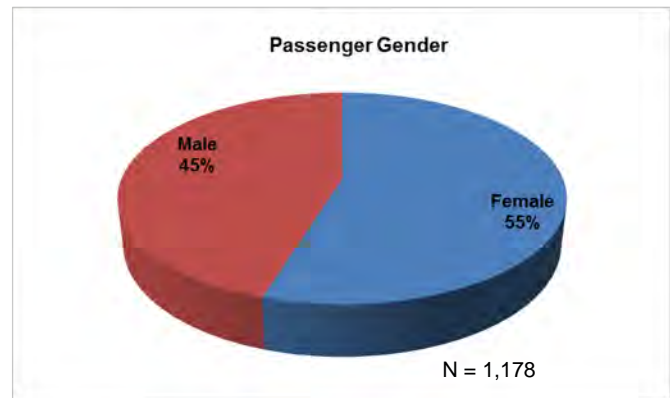
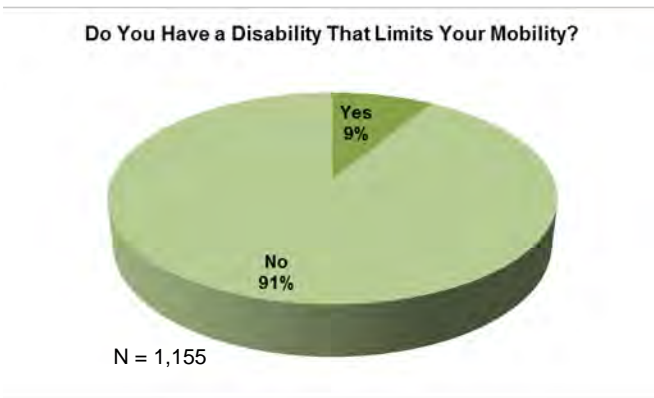
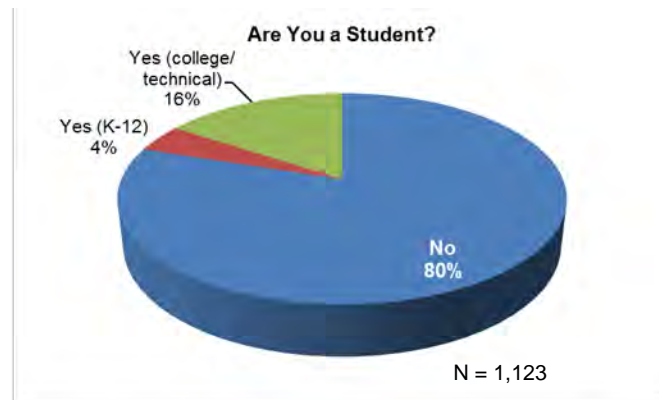


**Figure 3-6: Passengers Use of Maui Bus
How Often Do You Use Maui Bus?**



Selected passenger characteristics are graphically portrayed in Figure 3-7. Sixteen percent of the passengers are students attending college or a technical school or program. Only four percent of the passengers indicated they were in K-through-12th grades.

Figure 3-7: Passenger Characteristics



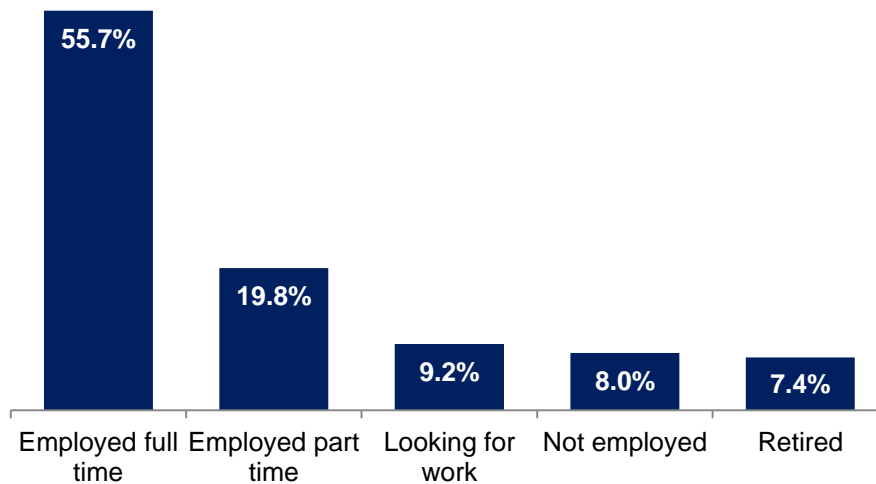
Females make up 55 percent of Maui Bus riders. The gender gap in public transportation has lessened over the past thirty years.² A recent Honolulu TheBus passenger survey conducted in 2012 found 53.3 percent of its passengers are female.

Nine percent of Maui Bus passengers indicated they have a disability that limits their mobility. Veterans comprise eight percent of the passengers.

Eight percent indicated they were a visitor or tourist. In comparison, TheBus in Honolulu had 6.3% of the passengers identify themselves as a visitor or tourist. The higher percentage in Maui could be attributed to impact of the weekly cruise ship which was in port for one of the days. The majority of the visitors indicated they would be on Maui for five days or less (54.2%).

Over 75 percent of the passengers indicated they were employed. This includes 55.7 percent full-time and 19.8 percent part-time employees. Just over nine percent of the passengers stated they were not currently employed but were looking for work. Eight percent stated they were not employed and not looking for work and 7.4 percent of the passengers stated were retired. Percentages in Figure 3-8 are based on 1,128 responding passengers.

Figure 3-8: Employment Status

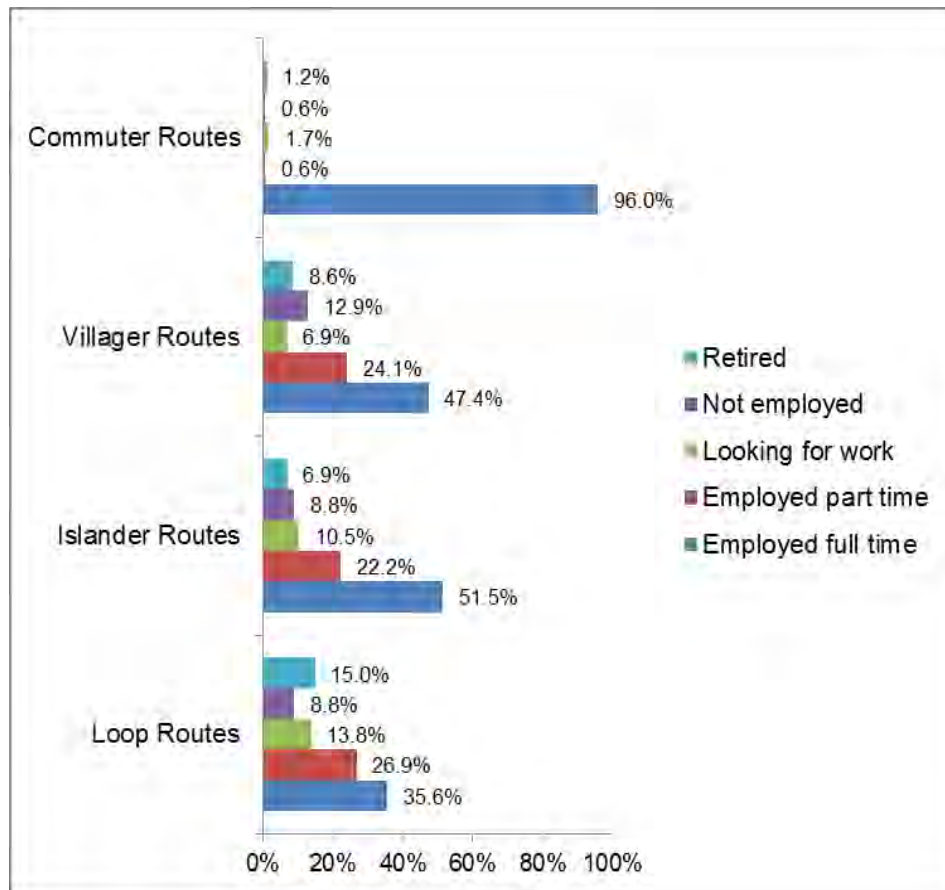


Appendix C contains a listing of all hand written passenger comments. Many of these comments are coming from passengers who are employed full time, are traveling to or from work and ride Maui Bus almost daily. Special attention was given to these comments in the development of service improvements. When eight riders on Route 10 all say “extend night service for night workers” this warrants attention.

Comments such as “Later pm buses” or “Run later...” are seen on other routes such as the Routes 15 and 30. Workers on the commuter buses offered many specific comments about routing and schedules. All of these comments are being given thoughtful consideration in identifying possible service improvements.

Figure 3-9 shows passenger employment status by route classification. Not surprising, 96 percent of the passengers on the commuter routes (173 passengers) stated they were employed full-time. Passengers on the loop routes (160 passengers) had the lowest level of passengers being employed with 62.5 percent indicating they were employed.

Figure 3-9: Employment Status by Route Classification



Almost 74 percent of the passengers on the islander routes (679 passengers) stated they were employed (51.5% full and 22.2% part-time). The employment status of passengers on the villager routes is similar to the islander routes with 47.4 percent employed full-time and 24.1 percent employed part-time (based on 116 passenger responses). Loop routes had the highest percentage of passengers indicating they are retired (15%) and people looking for work (13.8%).

College students and those going to technical school programs comprise approximately 16 percent of the passengers. Of these students 35 percent indicated they are employed full-time and 28 percent are employed part-time.

The vast majority (80.6 percent) of the passengers depend upon transit. Only 19.4 percent, or 226 out of 1,167 responding, indicated they would be able to drive if bus service had not been available. Getting a ride with someone else had the highest response with 32.1 percent stating that was how they would make their trip. Others indicated they would be walking, using a bicycle or taking a taxi. Almost 18 percent (207 people) stated they would not make the trip if Maui Bus were not available.

Although less than 20 percent of the passengers stated they would drive, 52.4 percent of the passengers indicated they were a licensed driver. The lack of a driving option may be due to the almost 60 percent of passengers living in a household with one or no vehicles (31.1% one vehicle and 27.4% no vehicles).

The age distribution of Maui Bus passengers is presented in Figure 3-10. Based on 1,145 responses, 21.3 percent of the passengers stated they are between the ages of 18 and 24. The 55 to 64 age category had the second highest level of Maui Bus use at 19.4 percent. The three age categories between these two ranged from 13.8 percent for those 25 to 34 to 17.7 percent for the 45 to 54 age category. Passengers aged 65 and older were almost double those who indicated they were under 18 years of age (8.3% for those 65 and older and 4.7% for those 18 years and younger). These two categories combined represent classic transit dependent indicators, but the Maui Bus 13.0% is low when compared to other systems. Honolulu’s TheBus has 18.0% of its ridership in one of these two categories. This may be an indication that more market penetration into the under 18 and 65 or older age categories might be achievable with service improvements targeting these individuals.

Figure 3-10: Passenger Age

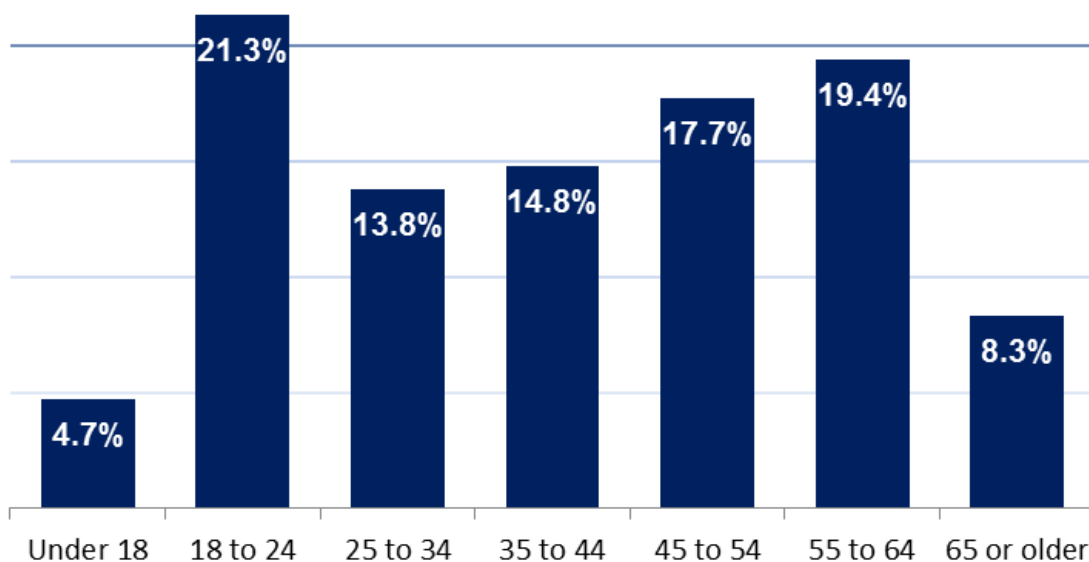


Table 3-3 shows how often passengers in the respective age groupings use Maui Bus. The highlighted cells in the table show that passengers within three age categories use Maui Bus ten or more times a week. Over 40 percent of the passengers in the youngest and two oldest age categories use the bus ten or more times a week.

Table 3-3: Passenger Age by How Many Days per Week Ride Maui Bus

WHAT IS YOUR AGE?	HOW OFTEN DO YOU USE MAUI BUS?											
	First Trip or Day Riding		1 to 2 Times a Week		3 to 4 Times a Week		5 to 9 Times a Week		10 or More Times a Week		Total	
	#	%	#	%	#	%			#	%	#	%
Under 18 years	0	0.0%	4	7.4%	12	22.2%	16	29.6%	22	40.7%	54	100%
18 to 24 years	13	5.3%	26	10.7%	70	28.7%	49	20.1%	86	35.2%	244	100%
25 to 34 years	13	8.3%	17	10.9%	26	16.7%	57	36.5%	43	27.6%	156	100%
35 to 44 years	22	13.3%	12	7.3%	38	23.0%	45	27.3%	48	29.1%	165	100%
45 to 54 years	10	5.0%	26	13.1%	30	15.1%	61	30.7%	72	36.2%	199	100%
55 to 64 years	11	5.1%	16	7.5%	31	14.5%	60	28.0%	96	44.9%	214	100%
65 and older	3	3.2%	8	8.5%	7	7.4%	34	36.2%	42	44.7%	94	100%
TOTAL	72	6.4%	109	9.7%	214	19.0%	322	28.6%	409	36.3%	1,126	100%

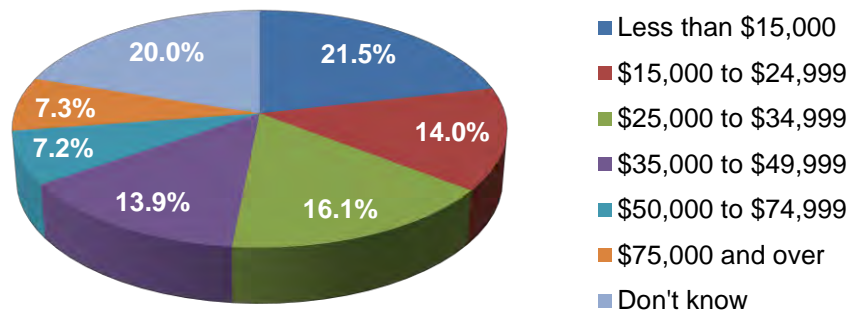
Of the three age groupings highlighted in the table, only the 55 to 64 year category had a significant portion of overall bus ridership. Even though the sample size for the less than 18 year old category is relatively small, it appears that these passengers will use transit frequently if it meets their travel needs.

The on board survey results will be used to test whether better service connections and coordinated schedules to middle and high schools might result in increased Maui Bus ridership for the under 18 years of age group.

Likewise, the on board survey results will be used in combination with other public outreach activities such as the Maui Bus “Tell Us Where You Want To Go” program (see section 3) being conducted as part of the Maui Short Range Transit Plan Update, to identify what better bus route connections might be offered to attract increased Maui Bus ridership for the 65 and older age group.

Household income is a typical indicator of transit propensity. Figure 11 depicts a fairly even distribution of household income reported by passengers for the first four income categories. The two highest income categories of \$50,000 to \$74,999 and \$75,000 or more were roughly half of the lower categories. Overall, 20 percent of the passengers stated they did not know their household income.

Figure 3-11: Passenger Household Income



The distribution of the above household income ranges poses an interesting comparison to what might be observed on other systems. Only 7.3% of Maui Bus riders reported household incomes over \$75,000 per year; whereas, 17.1% of Honolulu’s riders reported incomes over \$75,000. All other reported Maui Bus rider household income ranges compared closely with those reported for The Bus.

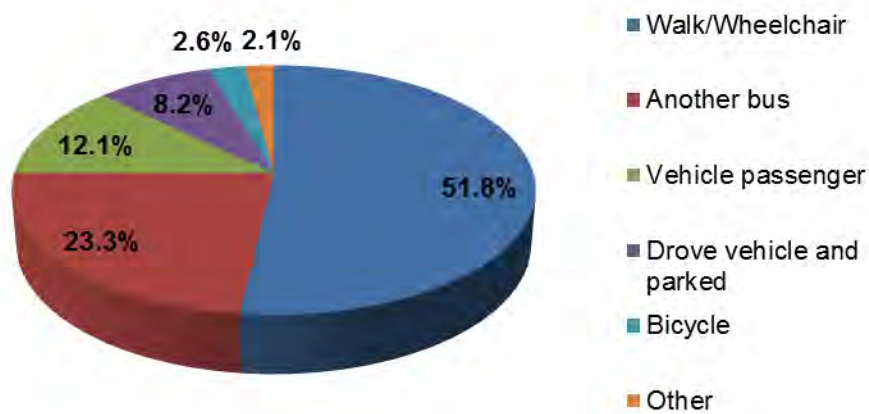
This disparity in not capturing the potential high income household transit market is an indication the quality and convenience of overall bus route service may not be sufficiently adequate. The service improvement plan will offer service revisions designed to better attract this apparently underserved constituency.

3.1.4 Transit Trip Characteristics

This section presents the dynamics of the Maui Bus transit trip. Characteristics such as access mode, transfer activity, trip purpose and fare payment are discussed.

Survey participants were asked how they accessed the bus they were riding. Almost 52 percent stated they walked to get to the bus (see Figure 12). Another 23.3 percent accessed via another bus. Altogether, 12.1 percent stated they were a vehicle passenger and dropped off at the bus stop. Of those that were dropped off, 53 percent (78 of the 147 passengers being driven to their bus stop) were on one of the four commuter routes.

Figure 3-12: Access Mode

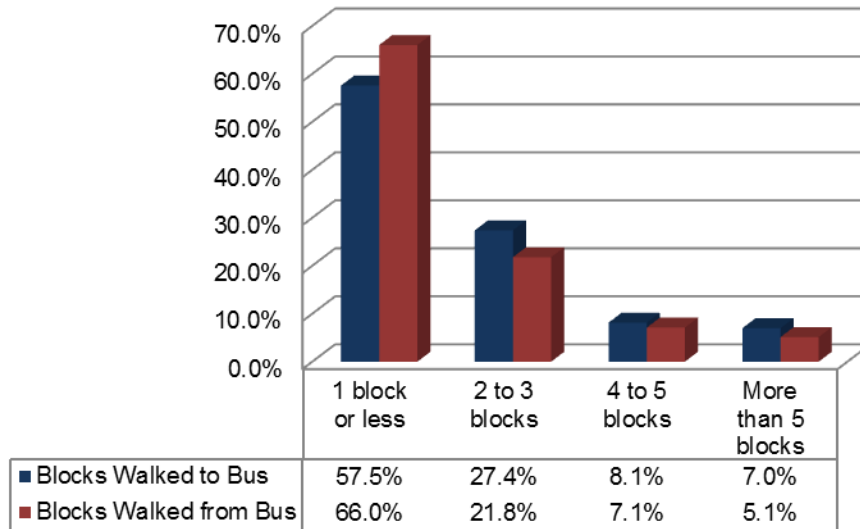


A total of 99 people (8.2%) indicated they drove and parked their car to access the bus. Commuter route passengers comprised 80 percent of this group (79 people). After leaving the bus, 87 percent of the passengers stated they would either walk (59%) or take another bus (28%) to reach their destination. The “other” category shown in Figure 3-12 was described as including scooter, skateboard and taxi on the survey form.

For those who walked to get to their bus, 57.5 percent walked one block or less. After leaving the bus, 66 percent stated they would walk one block or less (see Figure 13). Figure 13 shows the number of blocks walk to access the bus and the number of blocks walked to reach their destination for those who walked.

Few passengers indicated they used a bicycle to access the bus. In all, 29 passengers stated that was their mode of access. Of the 29 passengers, 21 stated they bicycled less than three miles to reach the bus stop.

Figure 3-13: Blocks Walked



Maui Bus customers were asked about transferring activity in four locations on the survey questionnaire; twice each under the “Coming From?” and “Going To?” sections. This duplication of questioning provides a check on the actual transferring activity of the passenger’s current one-way trip.

As shown in Figure 3-14, the percentage of passengers indicating they had transferred (23%) to the bus they were on is similar to the percentage of passengers who stated they would transfer (28%) to another bus to complete their trip. This data will be analyzed for each route in the development of the service improvement plan to see if some passengers are being forced to make a transfer that may not be necessary.

Figure 3-14: Transfer Activity

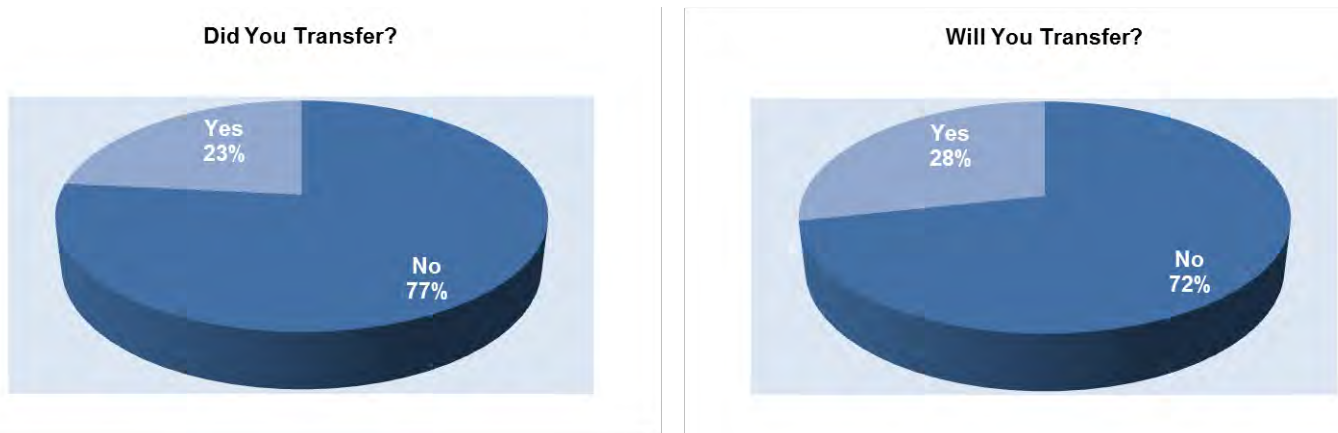


Table 34 shows that almost 60 percent of the passengers did not transfer and would not transfer to complete their trip. Conversely, 40 percent of the passengers do need to transfer to get to their destination with nine percent transferring at least twice.

Table 3-4: Crosstabulation – Did You Transfer? by Will You Transfer?

Did You Transfer?	Will You Transfer?					
	No		Yes		Total	
	Number	Percent	Number	Percent	Number	Percent
No	670	59.7%	212	18.9%	882	78.5%
Yes	140	12.5%	101	9.0%	241	21.5%
Total	810	72.1%	313	27.9%	1,123	100.0%

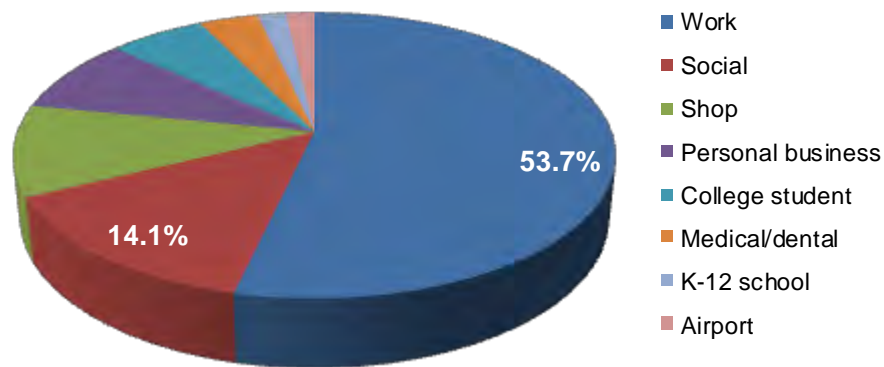
The need to transfer twice is consistent with the current route design especially along the Ka’anapali and Napili Coast. Passengers from Wailuku intending to travel to destinations along the Napili Coast will ride the Lahaina Islander, transferring to the Ka’anapali Islander and transferring to the Napili Islander.

Of those who responded to: "Did you just transfer from another bus?" 31.3 percent indicated the wait between buses was five minutes or less (from a total of 160 responses). Forty-five percent stated they waited thirty or more minutes for their connecting bus. It is desirable to have transfer connections be made with a ten minute maximum wait and less than five minutes is preferable.

Wait Times Between Buses:	Frequency	Percent
• 5 minutes or less	50	31.3%
• 6 to 14 minutes	27	16.9%
• 15 to 29 minutes	11	6.9%
• 30 or more minutes	72	45.0%
Totals	160	100.0%

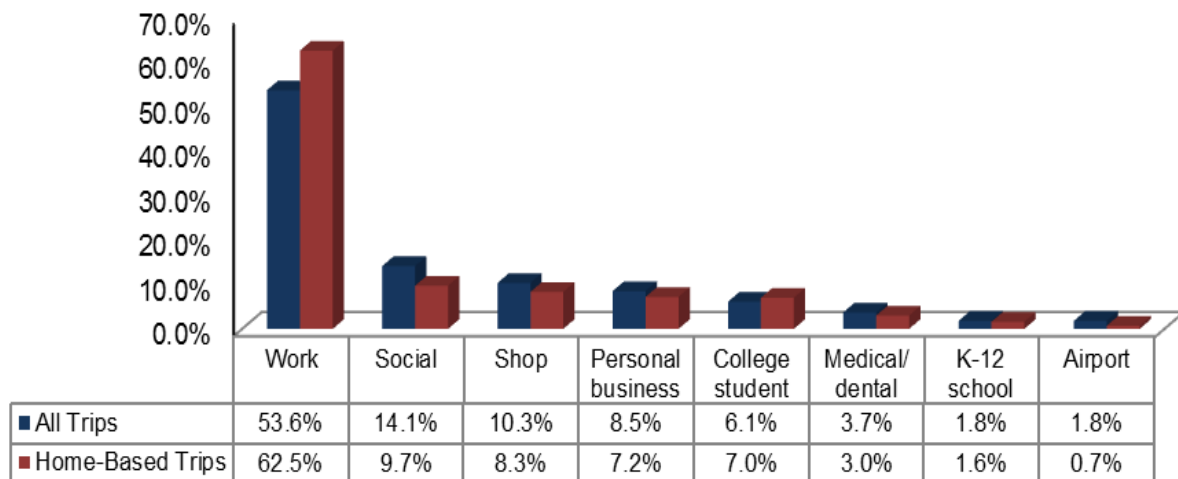
Almost 54 percent of all passengers indicated they used Maui Bus to go to work as shown in Figure 3-15. Social trips comprised 14.1 percent of all trip making. The social category included recreation, sightseeing and visiting friends on the survey form. Personal business trips include banking and going to the post office. The airport category was defined on the survey form as for air passengers, to distinguish these trips from work trips.

Figure 3-15: Trip Purpose



The trip purpose for all trips is based upon a survey response of 1,147 passengers. When trip purpose was defined as home-based (i.e., home-work, work-home) the survey sample is 914 passenger responses. This indicates that Maui Bus is supporting multiple trip purposes with approximately 20 percent of the passengers being on a trip that did not have “home” at the origin or destination. These trips might include school to work, shopping to personal business, etc. The comparison between all trips and home-based trips is shown in Figure 3-16.

Figure 3-16: Trip Purpose – All Trips versus “Home-Based Trips”



The major trip purpose by age group is presented in Figure 3-17. Work is listed as the major trip purpose for all age categories except for the youngest (under 18).

Figure 3-17: Major Trip Purpose by Passenger Age

<i>Under 18 Age Group</i> N=52	* 31.5% K-12 school trips * 27.8% work trips
<i>18 to 24 Age Group</i> N=227	* 47.9 work trips * 18.6 college trips
<i>25 to 34 Age Group</i> N=153	* 50.6% work trips * 14.3% social trips
<i>35 to 44 Age Group</i> N=149	* 62.3% work trips * 11.6% shopping trips
<i>45 to 54 Age Group</i> N=189	* 59.9% work trips * 14.3% social trips
<i>55 to 64 Age Group</i> N=196	* 59.2% work trips * 13.9% shopping trips * 12.9% social trips
<i>65 and older Age Group</i> N=82	* 42.9% work trips * 20.8% social trips * 19.5% shopping trips

Even the under 18 age group had 27.8 percent of their trips listed as being for work. School was 31.5 percent. The largest age category represented in the survey was for the 18 to 24 year old group with 21.3 percent of all survey respondents. Of this group, almost 50 percent were on a work trip and 18.6 percent indicated they were going to or from college.

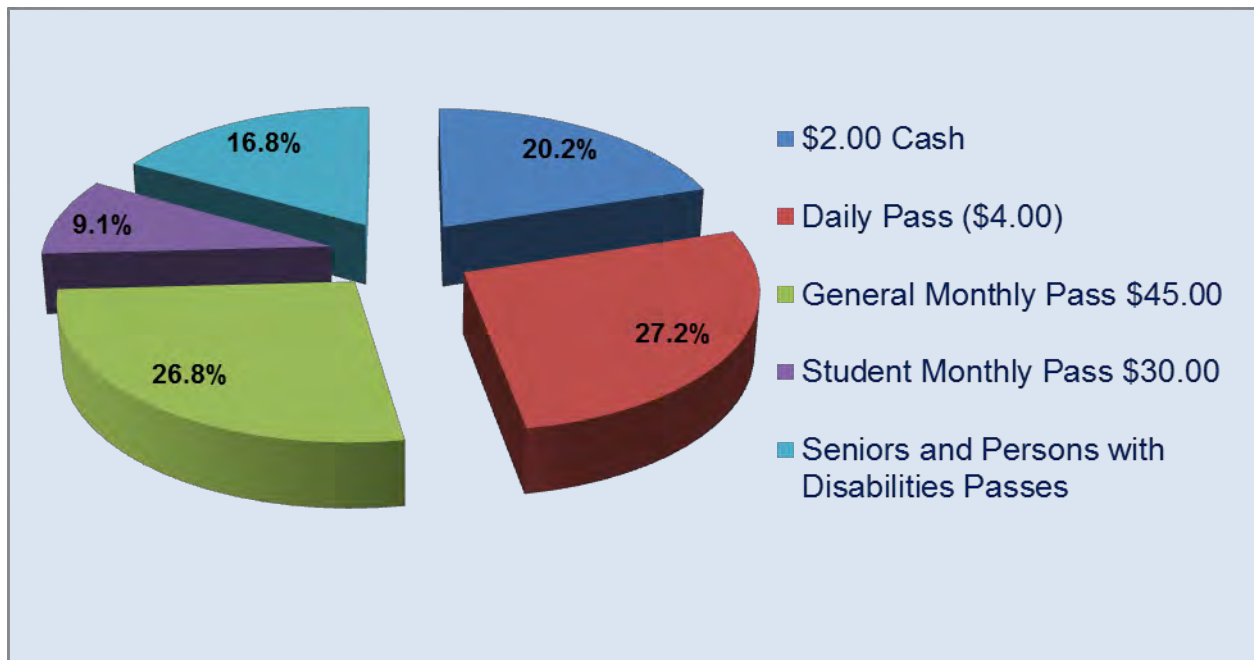
Up to age 55, there is a clear definition between the top two trip purposes and other trip types. The age groups of “55 to 64” and “65 and older” showed work as the top trip, but there was no clear definition between the next two trip types; shopping and social trips.

Fare options on Maui Bus are straight forward. There is one cash fare of \$2.00 per ride, a \$4.00 day pass and four monthly pass options that can be used on the fixed route system. The monthly pass options are a general monthly pass for \$45.00, a student monthly pass for \$30.00, a senior \$25.00 monthly pass and a \$30.00 monthly pass for persons with disabilities. Both the senior and persons with disabilities passes are for fixed route service only. The general and student monthly passes can be used on both fixed route and Americans with Disabilities Act (ADA) paratransit service. The general monthly pass also includes the commuter routes.

Seniors and persons with disabilities have additional fare options for ADA service. The \$2.00 cash fare can purchase a ride on the fixed routes, commuter routes and the ADA paratransit service. The unlimited ride day pass can be used on both the fixed route and ADA paratransit service.

Figure 3-18 shows that passengers have found the day pass to be a bargain with 27.2 percent of all passengers using that method to pay their fare. The general monthly pass is used by 26.8 percent of the passengers and 20.2 percent use the cash fare.

Figure 3-18: Fare Payment



Only four people reported using the persons with disabilities pass option. The 0.3 percent for this pass option was included with the seniors pass option results.

Maui Bus does not offer a transfer for passengers needing more than one bus to complete their one-way trip.

Figure 3-19 shows that 37.7 percent of the passengers will board three or more buses on the day of the survey. The figure shows almost 12 percent indicated they would take three buses the day they responded to the survey. These responses came primarily from the Islander routes which generally exhibit more transferring activity and from Route 1: Wailuku Loop. This is another indicator of possible excessive transfer activity.

Figure 3-19: Number of Buses Boarded

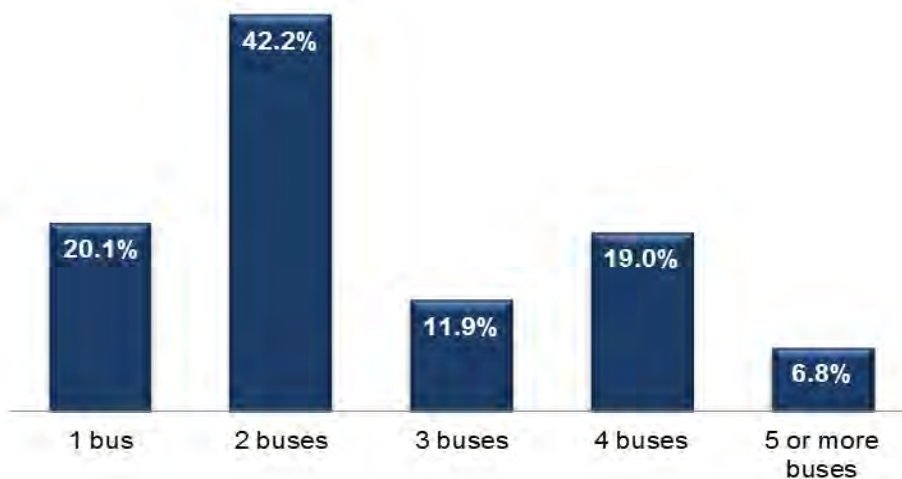
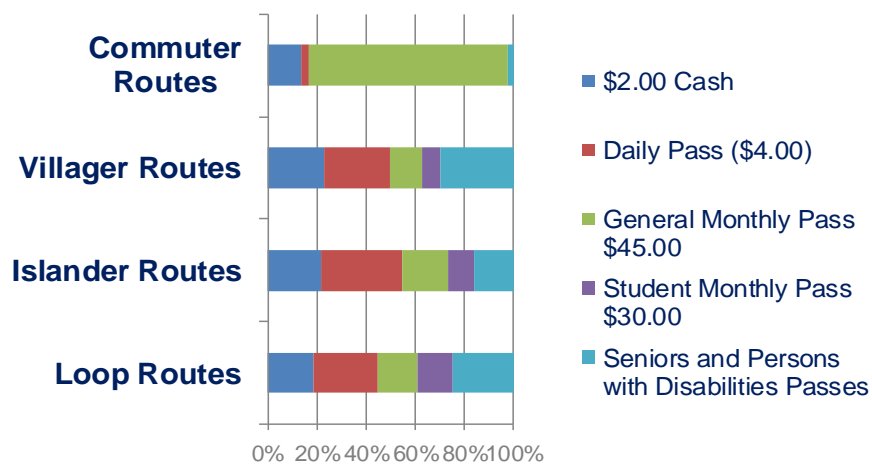


Figure 3-20 presents fare payment by route classification. Over 80 percent of commuter route passengers pay their fare with an adult monthly pass. Fifty-five percent of the island route passengers and 50 percent of the villager route passengers paid with either a day pass or cash fare. An additional 29 percent of villager route passengers used a senior or persons with disabilities monthly pass.

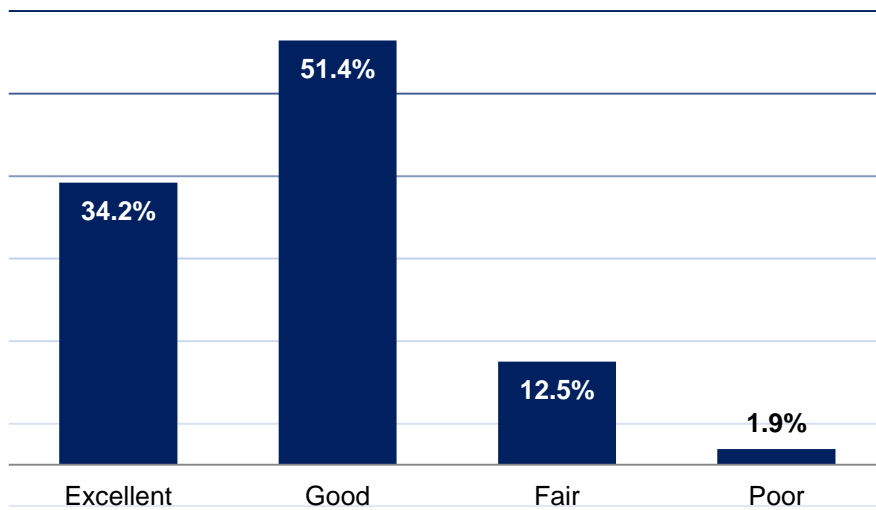
Figure 3-20: Fare Payment by Route Classification



3.1.5 Customer Satisfaction and Ratings

The survey provided passengers with an opportunity to evaluate current services and provide their thoughts on what improvements in transit services and facilities they would like to see implemented. The vast majority of Maui Bus’ customers are satisfied with the service they are receiving. Based on 1,110 responses, Figure 21 shows that over 85 percent of the passengers rated overall service quality as “excellent” or “good.”

Figure 3-21: Rating of Overall Service Quality

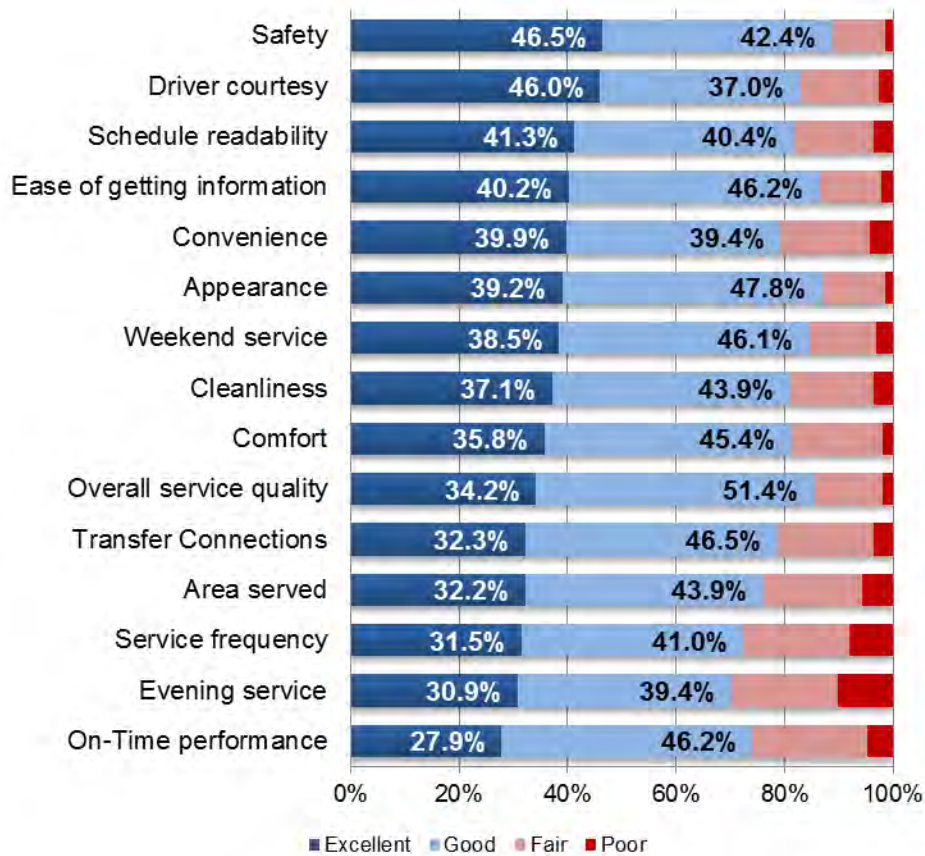


Passengers were asked to rate Maui Bus on fifteen service characteristics. Passengers were provided with columns to check either Excellent, Good, Fair or Poor for each service characteristic. As shown in Figure 3-22, safety and driver courtesy received the highest percent of passengers rating “excellent.” The figure rank orders the service characteristics by the excellent rating in descending order. Percentages are provided for the excellent and good ratings.

The service characteristic with the highest percent responding “poor” was evening service with 10.1 percent. Passengers submitted many comments requesting later service. Comments stated restaurant employees get off work later in the evening (10 PM) and that later service was needed.

Service frequency received the second highest poor rating from 8 percent of the passengers. On-time performance was especially critical for the commuter bus passengers. Three characteristics received a fair rating from about 20 percent of the passengers. In addition to on-time performance (21.2% fair), these included service frequency (19.6%) and evening service (19.6%).

Figure 3-22: Ratings of Maui Bus Service Characteristics



Approximately 700 comments were made on 442 surveys. Additional comments were given directly to the surveyors and noted on the ridecheck forms (see next section). Table 3-5 provides a sample of the comments, suggestions and requests. All of these comments are contained in the Appendix C to this report.

The overriding theme of passenger comments was the need for more service including more buses, more seats, more frequency, later service, expanded service and specific requests such as from the upcountry passengers wanting to bypass the airport for a faster trip into Kahului. “Need more bike racks on buses, left behind” -- “Be on time as much as possible.”--“BE ON TIME!”--“More routes.”--“More timely buses.”--“More frequent times.”—“Bigger buses.” These are a small sampling of the comments.

Passengers would like maps and schedules at bus stops. They would like to be able to easily identify the route the bus is serving. Some passengers were pleased with service on some routes but noted those that needed more frequent service or longer service hours. Others provided suggestions for new routing and services such as a reverse route for Upcountry.

Table 3-5: Sample Page of Passenger Comments
 (see Appendix C for the complete list)

From Route	Comment
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	have Anthony (rt 10) train all drivers
10	Have one more bus leave Kihei @ 9:30 PM
10	larger buses, run later
10	later buses and run every half hour
10	later routes more frequent service
10	later service from QKC to Lahaina
10	make extension to big beach
	make more accessible stops. Schedule better around cruise ships to keep buses for school kids who live far away
10	more buses
10	more buses more routes
10	more buses, run every 30 minutes
10	more frequent buses and more routes. Takes 3.5 hours to get from s. Kihei to Paia
10	more frequent buses and run later
10	more frequent service
10	more seats
10	more seats and more room for bikes. Seats are dirty
10	more stops, more benches
10	natural gas powered bus. Decorate bus exteriors with local art
10	need change station for money
10	need more stops, buses need to run later. The seats are disgusting
10	Need to bug bomb and clean bus
10	on time every time
10	phone app with bus info
	post schedules at the bus stop. Have more buses that go to Walmart without having to take bus from Kihei
10	provide shade at stops
10	put stop on this route near dairy road
10	run bigger buses into Kihei
10	run bus every half hour instead of hour
10	run buses every half hour. Have back up for when a bus breaks down
10	run later in the evening. Clean the windows and seats
10	run more often
10	run more than one bus every hour
10	Serve Kahului Elementary
10	service time extended to midnight
	Some of us are overnight workers in Wailea, Pick up and drop off later than 8:30 PM would be nice.
10	steam clean the seats. Make later routes
15	Cheaper fares
15	Cleaner bus
15	Continue the good work

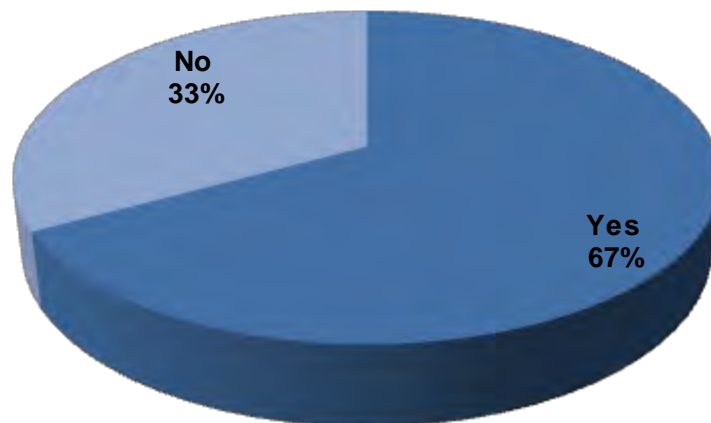
Passengers highlighted the need for more passenger shelters citing heat, sun and rain. Requests were made for specific stops such as “Need a stop at Andaz” an example of one comment that has since been addressed – Maui Bus has implemented a stop at Andaz for commuter bus service. Explicit comments were received from the commuter route passengers concerning full buses and passengers not being able to be accommodated (no standees allowed resulting in passengers being stranded). When this happens, passengers must find another transportation mode to travel to work or back to the park-and-ride. These passengers face the temptation of never using the bus again due to its unreliability.

Passengers suggested adding additional service on cruise or “boat” days to accommodate tourists and regular passengers. Some concerns regarded other passenger’s behavior and grooming. It is recommended Maui Bus use these comments and respond to as many as possible. Those responses should be incorporated into a customer relations campaign such as a “We’re Listening” program as part of the “Tell Us Where You Want To Go” program.

These “We’re Listening” messages can also be expanded into a wider general public advertising schedule. In addition to the new commuter bus stop at Andaz, another example is the implementation of a phone or internet application providing real time information. Passengers commented on the need for more information and specifically mentioned “apps” which MDOT implemented in November 2015. Passengers are now able to track their bus using the TransLoc Rider app. This app can be accessed via internet (<http://mauibus.transloc.com>) and phone devices. Information for text messaging access to real-time tracking can be obtained at <http://mauibus.transloc.com/info/mobile>.

Two-thirds of the passengers indicated they would use a phone or internet “app” to get information about Maui Bus routes as shown in Figure 3-23. Passengers indicated they got information on the system from a number of sources including brochures (30.9%); the internet (24.7%); friends, family and the workplace (19.1%); phone (12.1%) and system representatives (6.7%). Many of the commuter bus passengers mentioned human resources at the hotels gave them information. Maui Bus launched an app in November 2015 called the TransLoc Rider, about a year after the survey was conducted.³

Figure 3-23: Passengers Indicating They Would Use Information “App”



3.2 Ridecheck Analysis

The technical process of accounting for where each rider got on a specific bus trip (or ‘boarded’) and got off of that bus (‘alighted’) is referred to as a ridecheck. Forms are developed for each route to conduct this accounting of ridership. Ridechecks establish a valuable database for route analysis.

The Maui Bus ridecheck forms were developed to record boarding and alighting information, schedule adherence (the difference between scheduled and actual bus arrival and departure times), wheelchair ramp and retention device operations and bicycle rack deployment. An example is provided in Figure 3-24. The ridecheck form identified all major and intermediate bus stops. Surveyors recorded the number of passengers getting on, off and the total number of passengers on-board the buses at each stop that had passenger activity.

Bus departure times were recorded at selected major stops and the arrival time was entered at the last stop of each trip. Surveyors entered both the arrival and departure times in those cases where a bus dwelled at a bus stop or major transfer location. For example, wheelchair ramp deployment and retention device securement operations can take a few minutes; this was noted on the form. Bicycle loading and unloading was noted. Any traffic congestion, accidents or other incidents that impacted operations were noted on the form. The review of running time performance is used in the development of the service improvement plan.

Displays of average daily passenger activity at each bus stop on each route were developed from the ridecheck. Maui Bus maintains excellent passenger boarding counts by stop for each route. This data has been maintained since the system began. The ridecheck provides the alighting information for a clear picture of total stop activity. Maps were developed to portray the boarding and alighting activity.

Figure 3-25 presents the boarding and alighting activity for passengers on the Wailuku Loop Routes 1 and 2. Figures 3-26 through 3-33 present the boarding and alighting activity for the other routes (excluding the commuter routes and the Kula Villager). Most of the routes have this data shown directionally; one map for outbound and a second map showing inbound stops.

Route 10 Kihei Islander shows the southbound direction in the upper map and northbound direction in the lower map. Generally, routes serve different stops in each direction. One map was developed for the Lahaina Villager as it operates in a one-way loop without a reverse service option. The boarding and alighting activity for the Ka'anapali Islander is shown in a single map as the four bus stops the route serves are the same in both directions. Presenting the boarding and alighting information in this format quickly shows which portions of a route are well utilized and which segments have little passenger activity. As shown in Figure 3-25, the northern neighborhoods of the Wailuku Loops are poorly utilized even though they are provided with 30-minute service. This information has been used in developing the service improvement plan proposals.

PASSENGER ACTIVITY AT BUS STOPS

Figures 3-25 through 3-33 present the data for the passenger activity at bus stops. The red line depicts route alignment. Each bus stop is identified with a circle showing the number of passengers boarding (shown in the green portion of the circle) and the number of passengers alighting at each stop (shown in the blue portion of the circle). The circles are sized by overall passenger activity for an average day. The bigger the circle, the more passenger activity the stop experiences.

Figure 3-24: Example Ridecheck Form

Route: <u>1</u>		DATE: _____		Surveyor Name: _____			
Name: <u>Wailuku Loop</u>				Bus Capacity: _____		# of seats	
				Bus Number: _____			
BUS STOP		ARRIVAL TIME	DEPART TIME	PASSENGERS			Wheelchair/ Bicycle on/off
LOCATION	#			On	Off	On-Board	
Queen Ka'ahumanu Center	1079						
Maui Memorial Hospital	1161						
Maui Lani Parkway	1109						
Kamole Street / Kehalani Subdivision	1127						
Ka Hale A Ke Ola	1111						
State Office Building at High St.	1112						
Malama I Ke Ola Health Clinic	1114						
Wailuku Post Office	1121						
Kahekili Terrace	1117						
Piihana Terrace	1118						
Makaala Dr./ Makamua St.	1113						
Makaala Dr. / Alihilani St.	1122						
Makaala Dr./ Kilihau St.	1124						
Makaala Dr./ Hale Mahaolu	1167						
Waiehu Heights / Aukai St.	1138						
Waiehu Heights/ Wailupe Dr.	1126						
Hawaiian Homes	1130						
Eha St./ Sack n Save	1165						
Wailuku Community Center	1133						
N. Wakea Ave./ Kanaloa Ave.	1104						
Lihi St./ Kanaloa Ave.	1139						
Kanaloa Ave./ Little League Field	1164						
Queen Ka'ahumanu Center	1079						

Figure 3-26: Passenger Activity at Bus Stops on Kahului Loops

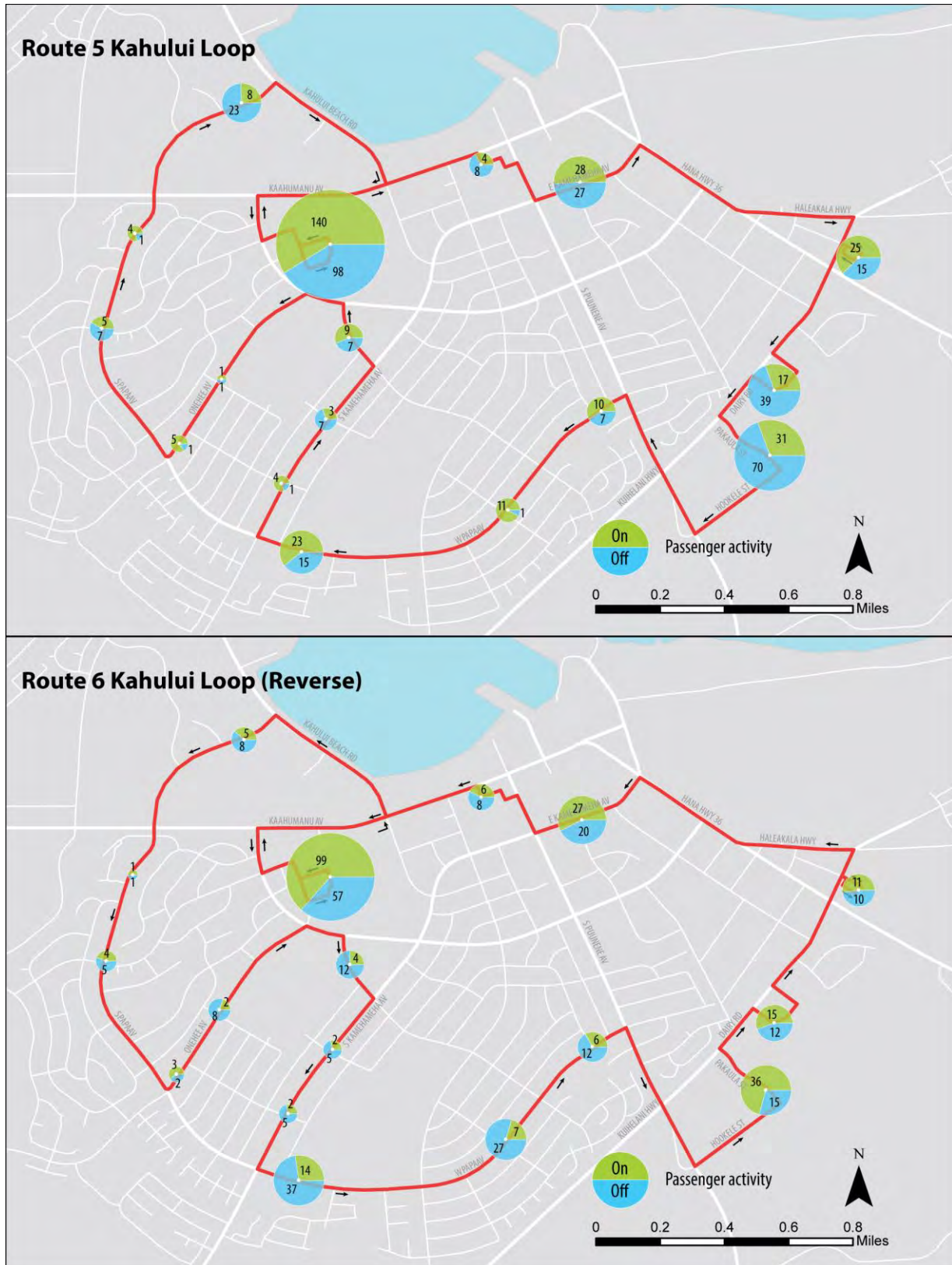


Figure 3-27: Passenger Activity at Bus Stops on Kihei Islander

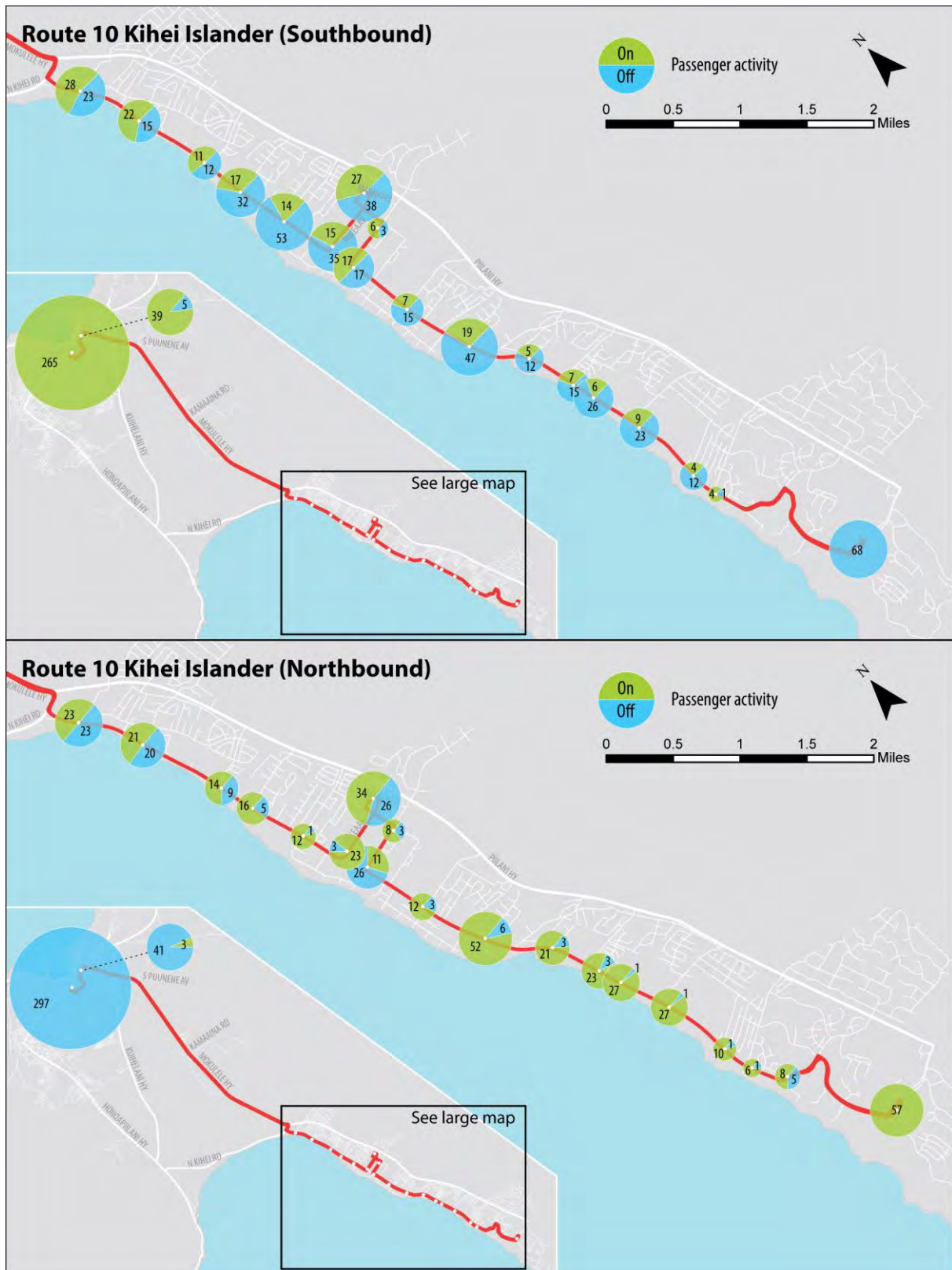


Figure 3-28: Passenger Activity at Bus Stops on Kihei Villager



Figure 3-29: Passenger Activity at Bus Stops on Lahaina Islander

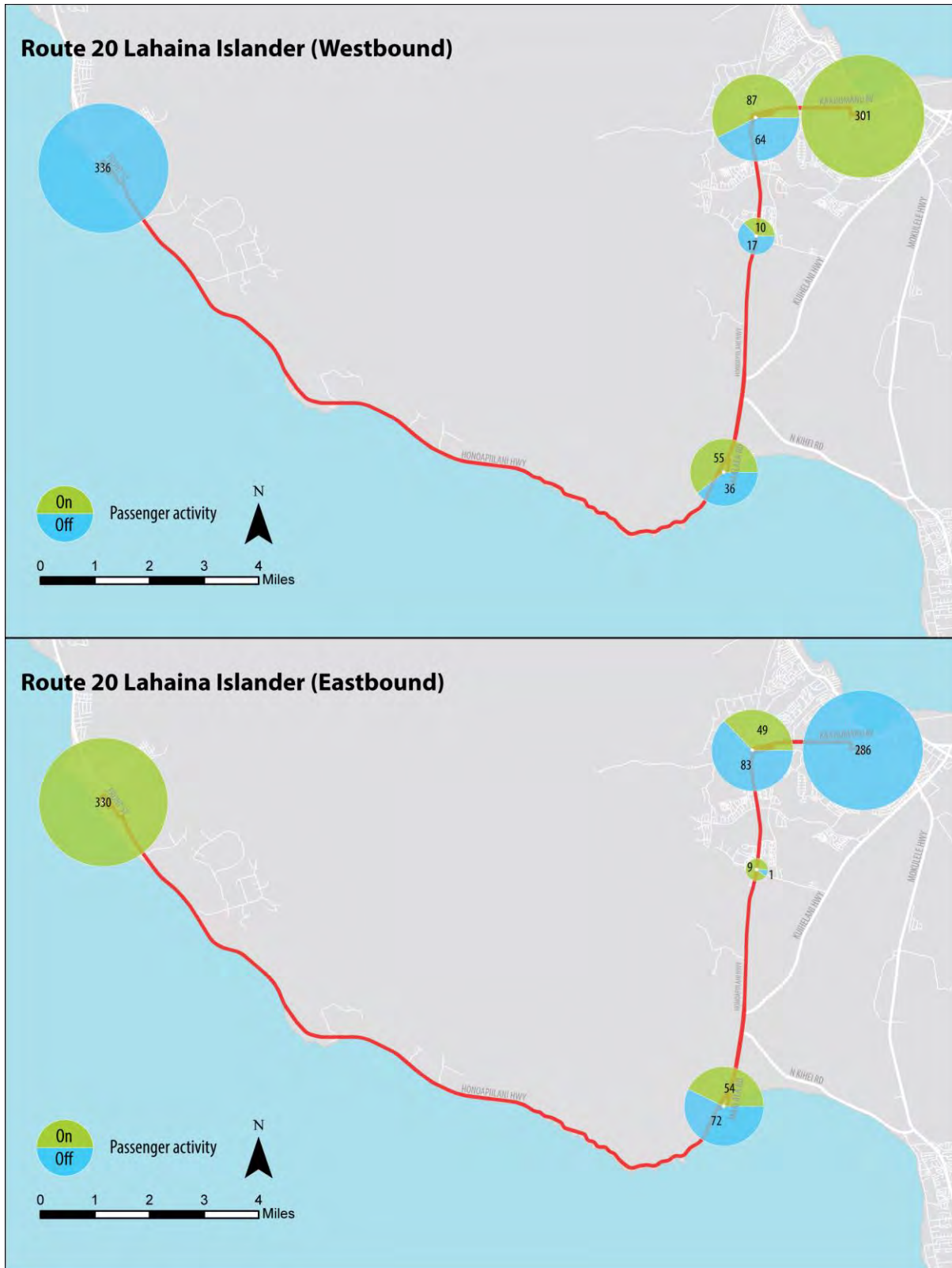


Figure 3-30: Passenger Activity at Bus Stops on Lahaina Villager and Ka'anapali Islander

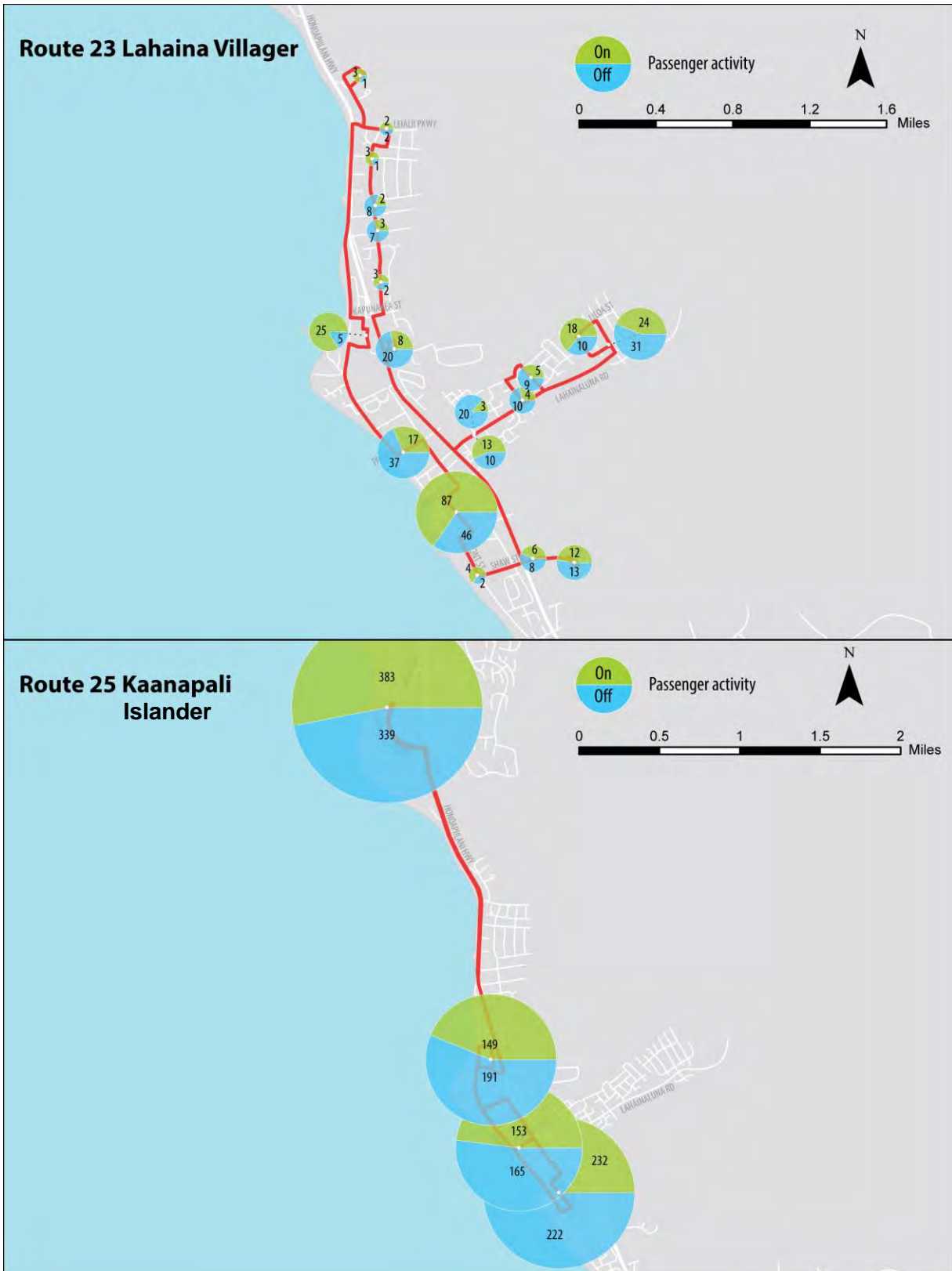


Figure 3-31: Passenger Activity at Bus Stops on Napili Islander



Figure 3-32: Passenger Activity at Bus Stops on Haiku Islander

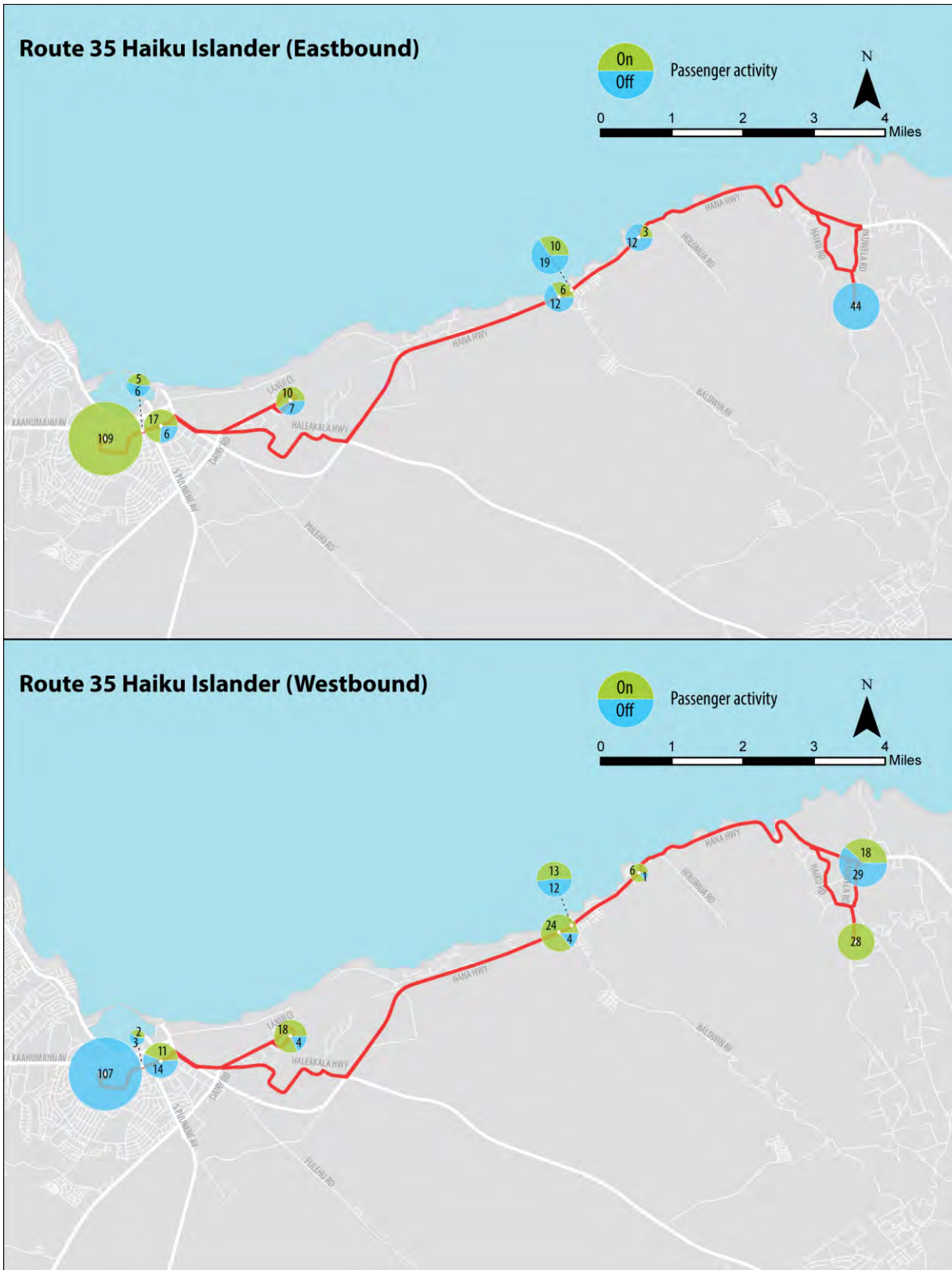
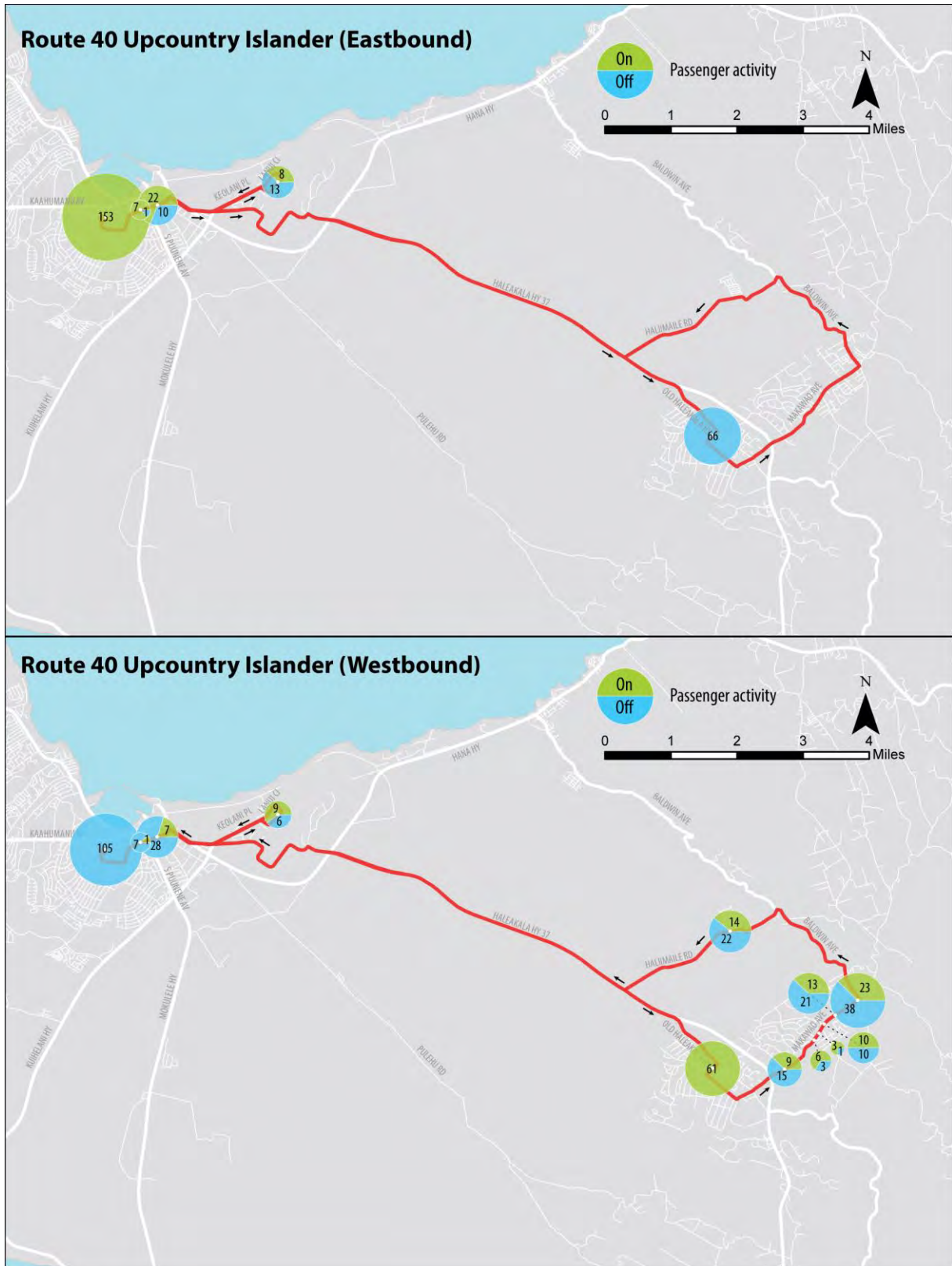


Figure 3-33: Passenger Activity at Bus Stops on Upcountry Islander



3.3 “Tell Us Where You Want To Go!” Program

The “Tell Us Where You Want To Go!” brochure is part of an overall campaign to inform the public about Maui Bus and to engage their participation. The brochure was developed for the current MSRTP process and can be easily modified to provide information and gather feedback on future efforts.

Another purpose the “Tell Us Where You Want To Go!” brochure is to prepare an annual Maui Bus update to be distributed at public meetings or hearings with a theme of “How Are We Doing?” or “We’re Listening” to let the public know that Maui Bus is implementing improvements based on public input.

The brochure is a legal-sized, two-sided page that has four panels on each side. The document is folded into a brochure format for ease of distribution. As shown in Figure 3-34, the front page has a description panel describing the MSRTP process, two mailing panels (one to mail to residents and one for a return mail option) and a “catchy” identification panel with Maui Bus’ logo for identification.

Figure 3-34: Tell Us Where You Want To Go! Brochure (front side, page 1 of 2)

what

IS THIS ALL ABOUT?

The County of Maui Short Range Transit Plan was prepared in 2004. It needs to be updated. We want you to help us do that. We need to know if you have used Maui Bus. If so, how are we doing? If not, why not? What do we need to do to better serve you?

how

WILL THIS AFFECT YOU?

The County of Maui Department of Transportation has assembled a team to prepare the new plan. We are working with them to ask for your opinions about transportation. We need your feedback on how you use the system or how you would if it was improved to meet your needs. This “Power of Suggestion” brochure is one way we are gathering that information.

voice

YOUR OPINIONS

This “Power of Suggestion” brochure is your opportunity to participate. Voice your opinions on what you like about what we do. The routes, the buses, the shelters, the fares or anything about Maui Bus. So,

don’t hold back — tell us what’s on your mind. Just fill out the survey and drop it in the mailbox. That’s all. It’s just that simple.

We are just getting started so there will be other opportunities to participate. Please keep an eye and / or ear out for announcements about future public meetings.

Mahalo for your interest.



TELL US WHERE YOU WANT TO GO Department
County of Maui
Department of Transportation
2745 Kaohu Street
David Trask Building, Suite 102
Wailuku, Hawaii 96793

Tell us where
you want
to go!



PLACE
STAMP
HERE



maui bus

What should we
do to improve
bus service?

County of Maui
Department of Transportation
2745 Kaohu Street
David Trask Building, Suite 102
Wailuku, Hawaii 96793

Figure 3-34: *Tell Us Where You Want To Go!* Brochure
(back side, page 2 of 2)

<p>1 How do you normally get around? <input type="checkbox"/> bus <input type="checkbox"/> carpool/vanpool <input type="checkbox"/> private auto <input type="checkbox"/> bicycle <input type="checkbox"/> walk <input type="checkbox"/> other: _____</p>	<p>7 Do you know how to use Maui Bus? <input type="checkbox"/> Yes, just my route <input type="checkbox"/> Yes, just a few routes <input type="checkbox"/> Yes, the entire system <input type="checkbox"/> No</p>	<p>9 How do you get information about transportation services? <input type="checkbox"/> Internet <input type="checkbox"/> Phone <input type="checkbox"/> Brochure <input type="checkbox"/> System Representative <input type="checkbox"/> Other: _____</p>	<p>12 What improvements are critical for Maui Bus to make in the next few years? _____ _____ _____ _____ _____</p>
<p>2 Have you used Maui Bus regular or paratransit services? <input type="checkbox"/> Yes, regular bus services <input type="checkbox"/> Yes, paratransit services <input type="checkbox"/> Yes, both <input type="checkbox"/> No</p>	<p>8 Please rate each of the following potential service improvements in importance using the following scale: 1 Very important 2 Important 3 Somewhat important 4 Somewhat not important 5 Not important</p>	<p>10 Maui Bus' top priorities should be: (please number 1 is top priority, number 6 is lowest priority) 1 _____ Getting people to work 2 _____ Providing mobility for people without automobiles 3 _____ Providing mobility for students and young people 4 _____ Getting people out of cars 5 _____ Providing mobility for people with disabilities 6 _____ Other, please specify: _____</p>	<p>13 Please provide us with the following information if you want to receive notices about public meetings: Name: _____ Address: _____ _____ _____ E-Mail: _____</p>
<p>3 How many blocks do you live from the nearest bus stop? <input type="checkbox"/> 1 block or less <input type="checkbox"/> 2 to 3 blocks <input type="checkbox"/> 4 to 7 blocks <input type="checkbox"/> No stop available (within 1/2 miles) <input type="checkbox"/> Do not know</p>	<p>_____ Provide more routes and geographic coverage _____ Provide more direct service _____ Have information on the bus system more readily available _____ Make bus schedules and maps easier to understand _____ Provide more frequent service _____ Provide more park-and-ride lots _____ Provide earlier morning service _____ Provide later evening service _____ Make bus system structure easier to understand _____ Improve safety on the bus _____ Improve safety at bus stops _____ Provide a route closer to your home _____ Provide a route closer to your job _____ Simplify fares _____ Offer more payment options such as smart cards, using credit cards _____ Provide electronic information displays at major bus stops _____ Add schedules to all bus stops</p>	<p>11 How can Maui Bus provide you with better information about its plans and services? _____ _____ _____ _____</p>	<p>Mahalo for your participation!</p>
<p>4 Do you or any member of your household have a condition that makes it difficult to travel in and around Maui? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>5 Do you or any member of your household have difficulty seeking or keeping employment due to a lack of public transportation? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>6 Have you or any member of your household ever been stranded due to a lack of public transportation? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>			

One of the features of the brochure is a twelve question survey as shown above. The questions inquire about how the respondent normally gets around, asks if they have used Maui Bus, how close they live to a bus stop, among other introductory questions.

Respondents are asked to rate potential service improvements and to identify Maui Bus top priorities. Two questions provide an opportunity for the respondent to add their thoughts on how MDOT can inform them about services and what improvements they believe are critical for Maui Bus to implement.

A final section provides an opportunity for the respondent to provide contact information to be notified about public meetings. The *Tell Us Where You Want To Go!* brochure can be used to get the opinions of both those who do and don't take advantage of public transit.

Responses from the test run of the brochure (2014 budget meetings) provided important information that correlate to comments received from the passenger survey and added additional thoughts on public transportation needs. As noted from the passenger survey comments, Maui Bus is appreciated: "Maui Bus is doing a great job."

Adding schedules and passenger shelters at bus stops was often noted. Passenger shelters were requested for West Maui from Whalers Village to Napili Kai Beach Resort. MDOT is currently installing new bus stops or updating current bus stops in this area which lends itself to the “*We’re Listening*” talking points.

A specific request for later service for Napili was made. This is similar to the many requests received on the passenger survey. Another comment noted that on cruise days, additional buses are needed in Lahaina to accommodate everyone.

Many Maui Bus routes have bus stops that are too far apart. Several of the respondents to the brochure indicated that the closest bus stop to where they lived was further than half a mile. Adding stops for senior housing complexes was requested. Another respondent followed up with a comment to add more bus stops or allow the driver to stop the bus to accommodate a passenger. This type of service is known as a flag stop, which is discouraged due to safety and access concerns. This is the type of explanation that will be provided to public suggestions in the MSRTP.

3.4 MEO, Inc. One-Call/One-Click Transportation Resource Center User Survey

MEO contracted with Kona Management Group to conduct a survey to assist in the development of a One-Call, One-Click transportation resource center for Maui County. The survey was conducted via MEO’s website in 2014 just prior to the start of the MSRTP project.

Several comments were received on the survey. All comments are important to the MSRTP process. Therefore, all relevant anecdotal comments regarding current services received by MEO are included. The following selected comments follow similar themes to those received from the fixed route passenger survey and the “Tell Us Where You Want To Go” brochure:

- We need more bus stops and more frequent bus service.
- Need more shelters. Many stops are exposed to rain, etc.
- Can’t get an express bus to evening events in Wailuku and Kahului.
- Getting from upper Kula to Pukalani is fine, but from Pukalani to downtown takes forever due to the bus going to the airport.
- Buses don’t go on many routes that would be helpful like from Makawao to Haiku or Pukalani.
- Many times the bus is late or completely skips the route...Haiku and Paia (mostly due to bad traffic).
- The locations of bus stops don’t seem to be in very convenient places or more could be added (in front of grocery stores or doctors and workforce development).

Chapter 3 Endnotes:

¹ The survey instrument did not ask the respondent about length of residency in Maui or whether the respondent owned or rented their residence. However, over 71% of the respondents stated they had been riding Maui Bus for over one year with 28.4% having been riding for 3 to 5 years and 20% riding for 6 or more years. According to the American Community Survey (ACS) 2010-2014 Five-Year Estimates (part of the United States Census program), 61% of Maui County residents are in owner-occupied housing and 39% are in rental-occupied housing.

² The American Public Transit Association, *Americans in Transit a Profile of Public Transit Passengers* (December 1992) stated about 60 percent of transit riders are female. The American Public Transportation Association published *A Profile of Public Transportation Passenger Demographics and Travel Characteristics* in May 2007 which found females accounted for 55 percent of transit riders.

³ TransLoc Rider provides real-time information on the location of each bus. It provides a map view of each route with the location of the buses noted and it provides a text view providing passengers with the approximate wait in minutes for the bus arrival at bus stops along the route. For more information go to: <http://maibus.transloc.com/>.

Maui Short Range Transit Plan



Chapter 4 SERVICE ANALYSIS & RECOMMENDED IMPROVEMENTS



TO WARRIOR

2705

License plate

4. SERVICE ANALYSIS AND RECOMMENDED IMPROVEMENTS

This chapter provides the guidelines used to develop service improvements being considered for incorporation into the Maui SRTP. Major categories include service coverage, route structure and route operations. These guidelines are used in the analyses of the current system and applied to develop the service improvements presented by major geographic area.

4.1 SERVICE DESIGN GUIDELINES

Fixed route network configuration is a very important factor to how potential riders perceive the system. If it appears too complicated or takes too long to get to desired destinations with too many diversions, they may never use transit. However, some diversions are necessary to provide cost-efficient operations that offer as much coverage to as many service area residents as possible.

When the fixed routes and paratransit services are assembled into a complete network, they should convey an integrated public transportation service that operates effectively as a system. Maui Bus is to be commended for placing an emphasis on maintaining the best possible timed-pulse operation so that the individual routes work well together as a network. The guidelines presented in the following paragraphs build upon this success by articulating the basis for route modifications. They have also been used to assure a continuation of reasonable route design practices:

The following sections offer classic industry design guidelines currently used by many transit systems to evaluate existing services and make warranted changes with some necessary customization to account for the geographic, cultural, visitor and other attributes within the Maui Bus service coverage area.

4.1.1 *Service Coverage*

Service Coverage measures the extent to which the defined geographic area is being served. Service coverage is commonly measured by the percentage of the population that resides within ¼ mile walking distance of a bus stop. It is generally accepted that a user will walk a ¼ mile to reach a bus stop to use the service. This measure is also known as service area population in the National Transit Database (NTD).

Examples of service coverage threshold standards include:

- **Service Thresholds** -- An area is considered “well-served” if a stop is no more than ¼ mile from the passenger’s origin point and a minimum of 30 minutes of service frequency is provided. An area is considered “served” if a stop is no more than ½ mile from the passenger’s origin point and minimum of 60 minutes service frequency is provided (Southeastern Pennsylvania Transportation Authority).¹

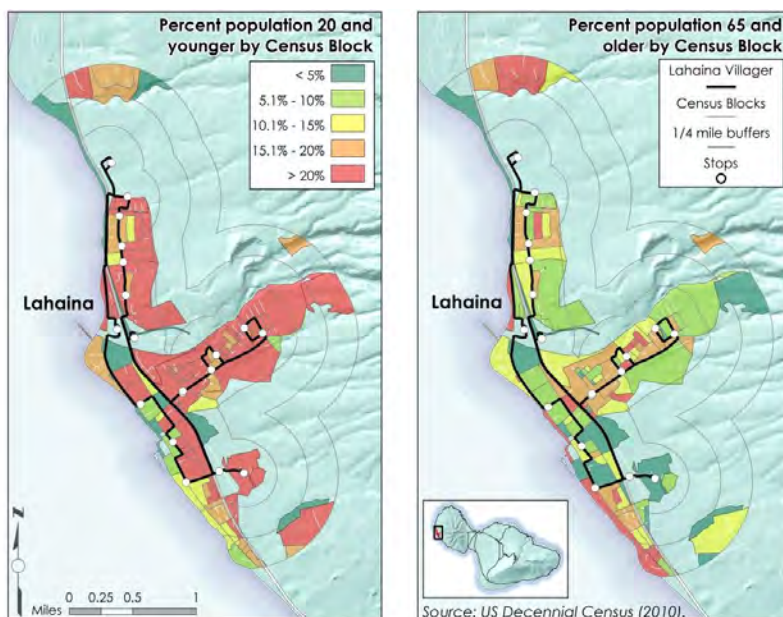
- **Coverage By Service Type** -- The population should be considered as “served” when it is within ¼ mile walking distance from a bus stop for local service and ½ mile from express or rapid service (Milwaukee County Transit System).²
- **Service Coverage** --A location is considered “served” if transit service operates within ¼ mile of the location (San Antonio, Texas).³

Recommended standards for Maui Bus to implement are as follows:

- **An area is considered “well-served” if a stop is no more than ¼ mile from the passenger’s origin point and a minimum of 30 minutes of service frequency is provided.**
- **An area is considered “served” if a stop is no more than ½ mile from the passenger’s origin point and a minimum of 60 minutes service frequency is provided.**
- **An area is considered “connected” if a stop is no more than ½ mile from the passenger’s origin point and service frequency is more than 60 minutes.**

Appendix D includes maps used in this analysis that show for each route the total population aged 65 and older and 20 and younger within ¼ mile, ½ mile and ¾ mile of the route (black line). These age groups have a higher tendency to be transit dependent. Tables accompany each map provide the total population within the buffer zones along with the subset population groups. Current bus stops are depicted along the route as white circles showing how far potential passengers must go to access a stop. Figure 4-1 presents an example for Route 23: Lahaina Villager.

Figure 4-1: Lahaina Villager Service Population



An analysis was conducted to determine Transit Supportive Areas (TSAs)⁴ and how current routes serve those TSAs. Three maps for each geographical area (Central Maui, Kīhei, Lahaina and Upcountry) are presented in Appendix E.

One map for each area shows the overlay of residential density in terms of households per acre and their relationship to existing bus stops. Another map depicts employment density in terms of employees per acre.

A third map evaluates the relationship of the first two maps for each area in terms of their combined residential and employment densities as Transit Supportive Areas. An example of the TSA for Kīhei is presented below in Figure 4-2. Much of Kīhei is considered a “TSA not served by public transit” as shown by the pink areas in Figure 4-2. Existing routes are shown with a blue line and current bus stops are plotted on the map. Areas mauka and makai of Pi’ilani Highway in North Kīhei are not currently served by transit but exhibit the demographic characteristics that would support service. Determining areas supportive of transit is calculated by household and employment density.

Figure 4-2: Transit Supportive Areas – Kīhei



Care was taken in analyzing the results because some areas such as in Wailea have substantial employment from the hotels, but the density numbers can be so diluted by major areas of open space such as the golf courses that the TSA threshold is not attained. In such cases visual confirmation occurred to develop some of the recommended services. Other recommendations are based upon the service design guidelines, field reconnaissance, rider comments and driver input.

4.1.2 Route Structure

Route structure for the Maui Bus fixed route system was evaluated in the context of three route features: route alignment, route length and route interlining. The following service design guidelines are based upon a review of industry best practices concluding with recommended standards for Maui Bus.

4.1.2.1 Route Alignment

Route alignment is determined based upon satisfying service directness design guidelines. Service directness refers to the degree to which a route deviates from the shortest path between the start and end points of the route. Service directness has an inverse relationship to service coverage, a route that deviates provides greater coverage at the expense of directness, while a more direct route provides less coverage to the benefit of those already served who have a subsequent destination.

Transit agencies often provide standards for service directness so routes operate to maximize average speed and minimize travel time for the majority of passengers being served. Agencies approach service directness standards using several different methods. One method is to set a standard based on the ratio of transit route distance to highway route distance. Examples include:

- **Route Alignment Ratio** -- Transit routes will have no more than a ratio of 1.5 of the transit fixed route length divided by the highway route.⁵
- **Route Distance Percent Limit** -- Transit route distances should not exceed auto travel distances for the same trip by more than 20 to 40 percent.⁶
- **Route Distance Mileage** -- Transit routes should not be more than 50 percent longer in route mileage distance than a comparable route by car (Madison Metro).⁷

Another method used for service directness is to limit the time spent for deviations to some relationship to the main service being provided. When considering a deviation, the gain in convenience for those passengers who are boarding or alighting during the deviation must be balanced against the additional travel time for the other passengers not using the services provided by the deviation, but who are forced to endure the additional time needed to serve others.

- **Route Deviation Limits** -- Route deviations will not exceed eight minutes roundtrip and will only be permitted if the market potential is 10 passengers per roundtrip or greater (Massachusetts Bay Transit Authority).⁸
- **Route Deviation Time Limit** -- Route deviations will be limited to five minutes of additional travel time for a one-way bus trip (Transit Cooperative Research Program).⁹
- **Route Deviation Time Limit** -- Route deviations from a direct path from end-to-end of the route shall account for no more than $\frac{1}{4}$ of the end-to-end travel time of the route (Denver RTD).¹⁰

- **Route Deviation Added Time** -- Route deviations should not have more than three additional minutes of additional travel time for all through passengers (Denver RTD).¹¹
- **Percent of Passengers Deviated** --Route deviation passengers served should be no less than 25 percent of the passengers affected by the deviation (York, PA).¹²

Recommended standards for Maui Bus to implement are as follows:

- **Transit routes will have a 1.5 or less ratio of the transit fixed route length divided by the highway route length.**
- **Route deviations will not exceed eight minutes roundtrip and will only be permitted if the market potential is 10 passengers per roundtrip or greater.**

4.1.2.2 Transfers and Extensions

Another measure of service directness is the number of transfers required for a passenger to reach their final destination. The more transfers required in a system, the longer an individual's total travel time. Transit systems reduce overall travel time by coordinating bus schedules to reduce wait times at key transfer locations (also known as timed transfers).

Timed transfers are not a substitute for direct service when the majority of the on board passengers between two routes have common destinations. A route should be extended when the majority of those on board desire to continue along the same path.

Examples of standards for coordinating schedules and setting transfer rates include:

- **Transfer Times** -- Transfers between buses should be as convenient as possible and efforts should be made to reduce patron travel time. Circulator service should be scheduled to arrive no more than 10 minutes after the arrival of express buses (San Antonio, Texas).¹³
- **Maximum Number of Transfers** -- No more than 25 percent of transit customers should require more than one vehicle to complete their trip (Boston, Massachusetts).¹⁴
- **Percent Not Transferring** -- Direct local service must be made to 70 percent of riders and express service to 80 percent (Federal Transit Administration).¹⁵

Recommended standards for Maui Bus to implement are as follows:

- **Transfers between buses should be as convenient as possible and efforts should be made to reduce overall patron travel time.**

- ***No more than 25 percent of transit customers should require more than one vehicle to complete their entire transit trip.***
- ***Direct local service should be made to 70 percent of non-commuter bus riders.***

4.1.2.3 Interlining

A popular practice transit agencies use to reduce the amount of transfer activity is called interlining. Interlining is considered when two separate routes have a common transfer location and that specific pair of routes are creating a large number of forced transfers. Interlined buses operate on both routes, allowing passengers to remain onboard. Route frequencies and hours of service should be nearly identical and combined run times should not exceed four hours for two routes to be potential candidates for interlining. A typical standard would be that if the transfer rate is 20 percent or higher between two routes, then they are potential candidates for interlining.

Recommended standards for Maui Bus to implement are as follows:

- ***Transit routes will be interlined if the transit activity between the two routes exceeds 20%.***

4.1.2.4 Route Configuration Options

The most effective route design guidelines use loops, branches and turnbacks to balance the length of the route and the elapsed time required to serve that length with other transit service objectives. These route configuration options are most often described as follows and recommended for Maui Bus:

- ***Loops*** -- may be included at the ends of a route. They should be anchored by a time point at the beginning of the loop. The total elapsed time to complete the loop should not exceed five minutes. One of the main concerns of the current route structure is the large, one-way loop orientation of some routes that force out-of-direction travel.
- ***Branches*** -- may be included at the ends of a route. They should be anchored by a time point at the common juncture of the two branches. Only one branch should be served on each trip, typically resulting in service headways equal to half of the trunk headway.
- ***Turnbacks*** -- should be used when possible to increase service frequency on trunk portions of routes where the majority of the route's boardings occur on less than half of the route's alignment. The location of the turnback should also be a time point.
- ***Cycle times*** -- should be in clock headway intervals such as sixty minute increments including recovery time to allow for interlining and pulse scheduling at transfer points. This has been a governing feature of the Maui Bus system which will be preserved in the future.

4.1.2.5 Bus Stop Spacing

Bus stop spacing presents a quandary for transit operators: maximizing access to intending passengers versus travel time impacting on-time performance. Customer satisfaction with bus stop spacing is tricky – many want bus stops as close as possible to their origin or destination; while others want a faster trip without excessive stopping.

A number of studies have found the optimal spacing to be four to five bus stops per mile¹⁶. This is with the proviso that spacing should be flexible in areas with higher numbers of seniors and persons with disabilities and in areas serving tourists or geographic and roadway considerations. Even with these considerations, bus stops should be placed further than 660 feet apart.

The recommended standard for Maui Bus is as follows:

- ***Bus stop spacing should be 4 to 5 stops per mile.***

4.1.3 Route Operations

Route operations for the Maui Bus fixed route system was evaluated in the context of three route features: route span of service, route frequency and route scheduling. The following service design guidelines are based upon a review of industry best practices concluding with recommended standards for Maui Bus.

4.1.3.1 Span of Service

Span of Service is the number of hours and days when service operates. The span of service will usually vary by route depending on service type, the day of the week and route performance. Generally, high-performing routes will have longer service spans, and weekday spans of service are longer than for weekends.

- ***Service Span*** -- When considering changes in a route's service start or finish time, an earlier or later trip should be considered if the first or last trip of the existing service is performing better than 50 percent of the system average in passengers per revenue hour (West Palm Beach, Florida).¹⁷

Recommended standards for Maui Bus to implement are as follows:

- ***Transit trips may be added if the first or last trip on the route exceeds 50% of the passenger per hour system average.***

4.1.3.2 Service Frequency

Service frequency refers to how often buses arrive at a particular stop. Headways refer to the interval in minutes between two successive bus departures. The terms are often used interchangeably. There are two different aspects to consider when setting headways for transit: headway based on policy and headways based on demand.

- ***Policy-Based Headways*** -- The minimum base period policy headways for regularly scheduled weekday service should be sixty minutes. The minimum peak period policy headway for regularly scheduled weekday service in the future is thirty minutes. The minimum evening or Saturday policy headway is sixty minutes.
- ***Demand-Based Headways*** -- Demand-based headways are established to provide a sufficient number of trips to accommodate the maximum passenger volume within the loading standards. Overcrowding of buses on a route is an indicator that either larger vehicles need to be used or a demand-based headway should be instituted to increase the overall capacity of the route.

The 30-minute peak service is the minimum level at which urban transit provides an adequate level of basic mobility in a dense urban area. Service levels longer than 30 minutes are generally unacceptable from the perspective of the passenger and are not enough to develop a solid, consistent, base of ridership. Base, evening and weekend service should not exceed 60 minute headways.

Recommended standards for Maui Bus to implement are as follows:

- ***The minimum peak period policy headway for regularly scheduled weekday service in the future is 30 minutes.***
- ***The minimum base period policy headways for regularly scheduled weekday service should be 60 minutes.***
- ***The minimum evening or weekend policy headway is 60 minutes.***

4.1.3.3 Scheduling

Clock-face headways refer to setting headways to intervals that divide evenly by 60. For example, 12 or 15-minute schedules are used, but 13 or 17 minutes are not used. Clock-face headways help passengers better predict bus arrival times at stops and eliminate the need for complex schedules, thus allowing passengers to be less dependent on timetables. A typical example includes:

- ***Clock-Face Headways*** -- Time table headways at major transfer points shall be set at easy-to-remember clock increments such as five, ten, fifteen, twenty, thirty, forty or forty-five minute intervals after the hour. Clock headways should be used at all times.

Recommended standards for Maui Bus to implement are as follows:

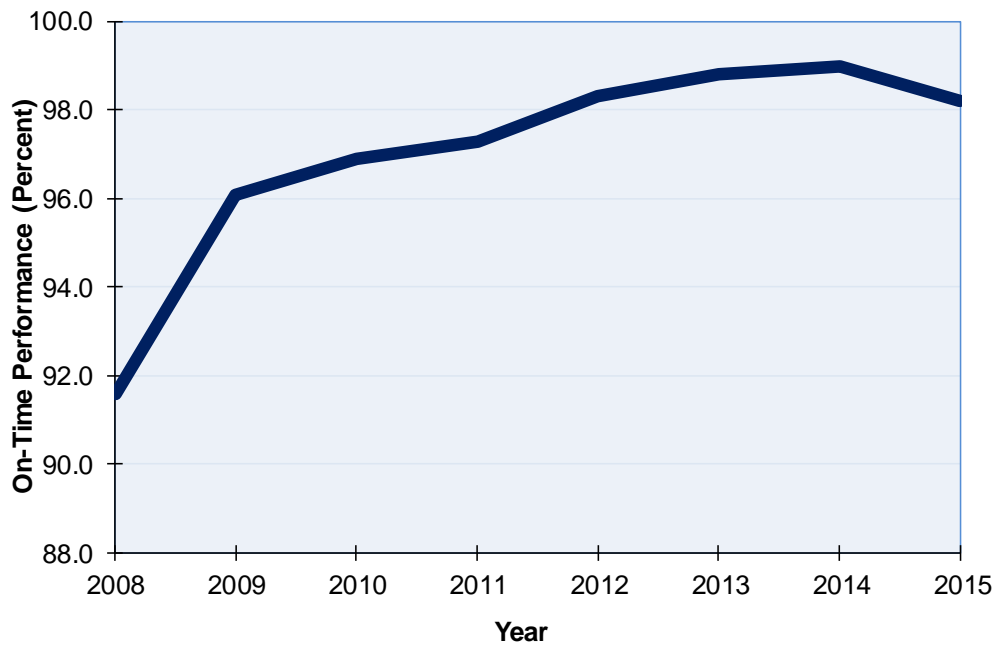
- ***Clock headways should be used at all times.***

4.1.3.4 On-Time Performance

Maui DOT has been monitoring on-time performance of each bus route since the inception of Maui Bus. On-time performance is defined by generally accepted industry standards as operating between zero and five minutes late (0-5 minutes) for each bus trip. Some systems provide more leeway in the definition while others have a tighter description.

On-time performance is recorded at the departure timepoint, such as Queen Ka’ahumanu Center, and intermediate timepoints along the routes’ trip. The intermediate timepoints are noted on the public time table. The last timepoint is usually not included in on-time performance. The goal for all systems is to never leave a timepoint early as passengers could be left behind and have long waits for the next bus. As shown in Figure 4-3, on-time performance has improved to an enviable level of above 98 percent. An on-time performance rate of at least 95 percent for each route should be the Maui Bus goal. Remedial efforts should be considered for those routes consistently performing below the 95 percent standard.

Figure 4-3: Maui Bus Systemwide on Time Performance from 2008 to 2015



- **On Time Performance** -- The on-time performance rate for each route shall be 95 percent or better. Remedial efforts should be considered for those routes consistently performing below the 95 percent standard.

Recommended standards for Maui Bus to implement are as follows:

- **Operating between zero and five minutes late (0-5 minutes) for each bus trip.**

4.1.3.5 Summary of Service Design Guidelines

Table 4-1 provides a summary of the Service Design Guidelines presented in the previous sections. The table identifies three major categories as presented in the previous pages: Service Coverage, Route Structure and Route Operations. Route structure has six subcategories: route alignment, transfers and extensions, interlining, route configuration options and bus stop spacing. Route operations has four subcategories: span of service, service frequency, scheduling and on-time performance.

There are sometimes tradeoffs among or between design guidelines and the practical need to provide the best service possible to the most number of people. Therefore there are situations where strict adherence to the design guideline may not be in the best interest of the transit operation or the customers being served. Oftentimes the best way of allowing a variance from the design guideline is to establish the service as a demonstration or pilot project such as the Kula Villager route. When this is done it is important to establish performance measures and to monitor the ability of the demonstration project to achieve the expectations that were established.

Table 4-1: Summary of Recommended Service Design Guidelines

Category	Design Guideline
Service Coverage	<p>An area is considered “well-served” if a stop is no more than ¼ mile from the passenger’s origin point and a minimum of 30 minutes of service frequency is provided.</p> <p>An area is considered “served” if a stop is no more than ½ mile from the passenger’s origin point and a minimum of 60 minutes service frequency is provided.</p> <p>An area is considered “connected” if a stop is no more than ½ mile from the passenger’s origin point and service frequency is more than 60 minutes.</p>
Route Structure: <i>Route Alignment</i>	<p>Transit routes will have a 1.5 or less ratio of the transit fixed route length divided by the highway route length.</p> <p>Route deviations will not exceed eight minutes roundtrip and will only be permitted if the market potential is 10 passengers per roundtrip or greater.</p>
Route Structure: <i>Transfers and Extensions</i>	<p>Transfers between buses should be as convenient as possible and efforts should be made to reduce overall patron travel time.</p> <p>No more than 25 percent of transit customers should require more than one vehicle to complete their entire transit trip.</p> <p>Direct local service should be made to 70 percent of non-commuter bus riders.</p>

Table 4-1: Summary of Recommended Service Design Guidelines (continued)

Category	Design Guideline
Route Structure: <i>Interlining</i>	Transit routes will be interlined if the transit activity between the two routes exceeds 20%.
Route Structure: <i>Route Configuration Options</i>	<p><i>Loops</i> -- may be included at the ends of a route. They should be anchored by a time point at the beginning of the loop. The total elapsed time to complete the loop should not exceed five minutes</p> <p><i>Branches</i> -- may be included at the ends of a route. They should be anchored by a time point at the common juncture of the two branches. Only one branch should be served on each trip, typically resulting in service headways equal to half of the trunk headway.</p> <p><i>Turnbacks</i> -- should be used when possible to increase service frequency on trunk portions of routes where the majority of the route's boardings occur on less than half of the route's alignment. The location of the turnback should also be a time point.</p> <p><i>Cycle times</i> -- should be in clock headway intervals such as thirty or sixty minute increments including recovery time to allow for interlining and pulse scheduling at transfer points.</p>
Route Structure: <i>Bus Stop Spacing</i>	Bus stop spacing should be 4 to 5 stops per mile.
Route Operations: <i>Span of Service</i>	Transit trips may be added if the first or last trip on the route exceeds 50% of the passenger per hour system average.
Route Operations: <i>Service Frequency</i>	<p>The minimum peak period policy headway for regularly scheduled weekday service in the future is 30 minutes.</p> <p>The minimum base period policy headways for regularly scheduled weekday service should be 60 minutes.</p> <p>The minimum evening or weekend policy headway is 60 minutes.</p>
Route Operations: <i>Scheduling</i>	Clock headways should be used at all times.
Route Operations: <i>On-Time Performance</i>	Operating between zero and five minutes late (0-5 minutes) for each bus trip.

4.2 ROUTE ANALYSES AND PROPOSALS

The previous sections describe the current system and provide a description of service standards used to develop bus routes that meet the needs of Maui Bus’s current and potential passengers and MDOT’s objective to expand the Maui Bus system. The following discussion and service proposals are presented by geographic area.

4.2.1 Developing Service Proposals

MDOT developed the current set of transit routes through an evolutionary process. Initial routes gave considerable attention to transit dependent individuals, especially those using complementary paratransit demand-response service for eligible people with disabilities under the Americans with Disabilities Act (ADA) on the island of Maui or ADA paratransit and human services contracted with Maui Economic Opportunity, Inc. (MEO).

The existing Kahului and Wailuku loop routes emphasized serving the established urban area and existing MEO clients who needed connections to social service, retail and community based establishments with minimal walking distances from the bus. The loop routes have worked well to achieve this purpose.

Other fixed routes were introduced at different times to gradually increase service. These routes have also worked well to connect Kahului and Wailuku to Ka’anapali, Lahaina, Kīhei and Upcountry areas.

Today, Maui Bus operates thirteen fixed routes, four commuter routes and complimentary paratransit service. These individual parts of the total system can work together better to serve everyone who wants to use the system. To do so requires a consistent approach to providing the transit service people desire.

Service proposals are presented by area in the next several pages. Proposals were developed for Central Maui, Kīhei, Lahaina to Napili and Upcountry so each of these areas work well as a system within their service communities while also connecting to the heart of the system in Central Maui. The Commuter routes are discussed at this end of this section.

Table 4-2 identifies all current Maui Bus routes and whether a change is proposed for the route. These include changes to route structure and operations. The proposals are explained in more detail on the following pages.



Table 4-2: Summary of Service Proposals for Existing Routes

EXISTING ROUTE	CHANGE PROPOSED	SERVICE COVERAGE	FEATURES OF ROUTE PROPOSALS				
			ROUTE STRUCTURE			ROUTE OPERATIONS	
			Realign	Extend	Interline	Frequency	Span of Service
Central Maui Routes:							
1: Wailuku Loop	NC	NC	NC	NC	NC	NC	NC
2: Wailuku Loop Reverse	NC	NC	NC	NC	NC	NC	NC
5: Kahului Loop	NC	NC	NC	NC	NC	NC	NC
6: Kahului Loop Reverse	NC	NC	NC	NC	NC	NC	NC
Kīhei Routes:							
10: Kīhei Islander	Yes	NC	Minor	NC	NC	Improve	Improve
15: Kīhei Villager	Yes	Major	Major	Major	NC	NC	Improve
Lahaina to Napili Routes:							
20: Lahaina Islander	Yes	NC	NC	NC	NC	Improve	Improve
23: Lahaina Villager	Yes	Minor	Minor	NC	Yes	NC	Improve
25: Ka'anapali Islander	Yes	NC	NC	NC	Yes	Improve	Improve
30: Napili Islander	Yes	NC	NC	NC	Yes	Improve	Improve
Upcountry Routes:							
35: Haiku Islander	Yes	Minor	Minor	NC	NC	Improve	Improve
39: Kula Villager	Yes	Major	NC	Major	NC	Major	Improve
40: Upcountry Islander	Yes	Minor	Minor	NC	NC	NC	NC
Commuter Routes:*							
80: Haiku-Wailea	No	NC	NC	NC	NC	NC	NC
81: Kīhei-Kapalua	No	NC	NC	NC	NC	NC	NC
82: Makawao-Kapalua	No	NC	NC	NC	NC	NC	NC
83: Wailuku-Kapalua	No	NC	NC	NC	NC	NC	NC

* Commuter Route numbers were assigned for convenience.

NC = no change

4.2.2 Central Maui Routes

The Central Maui routes serve the heart of the system, connecting residential areas with major retail, business, government, schools and medical activity centers. They consist of the Wailuku and Kahului loops and their reverse counterparts. Routes 1 and 2 are the Wailuku Loop and Wailuku Reverse. Routes 1 and 2 are loop routes with the same alignment; Route 1 clockwise and Route 2 counterclockwise.

Being loop routes, many passengers travel out of direction to reach their destination. For example, Routes 1 and 2 connect the State Office Building with QKC. However, a trip that takes 10 minutes on Route 20 (Lahaina Islander) takes 17 and 22 minutes on Routes 1 and 2. Savvy passengers have figured this out – new passengers may not realize the difference in travel time. Utilizing Route 20 to make this connection takes capacity from the bus for those passengers wanting to travel to Lahaina; Route 20 is frequently operating at capacity.

Routes 1 and 2 serve the War Memorial Stadium but this is described as the Little League Field on the route map and the Wailuku Loop routes do not start service in time to provide a feeder service to the commuter routes with the last commuter bus departure at 6:30 AM and the first Wailuku Loop departure at 6:30 AM from QKC. The next 14 stops from the Little League Field predominantly serve residential areas, most with very poor ridership. However, the route passes many retail and business destinations with no stops offered. This is particularly true along E Main Street/Kahului Beach Road.

Within Wailuku the routing makes many turns and consumes substantial amount of time to serve the Wailuku Post Office stop. To turn around, the route continues from the Post Office along a commercial area, but does not provide a stop to serve that area. The bus serves a newer residential area using the same pattern for both Routes 1 and 2 along Kamole Street providing this neighborhood with 30 minute service while producing little ridership.

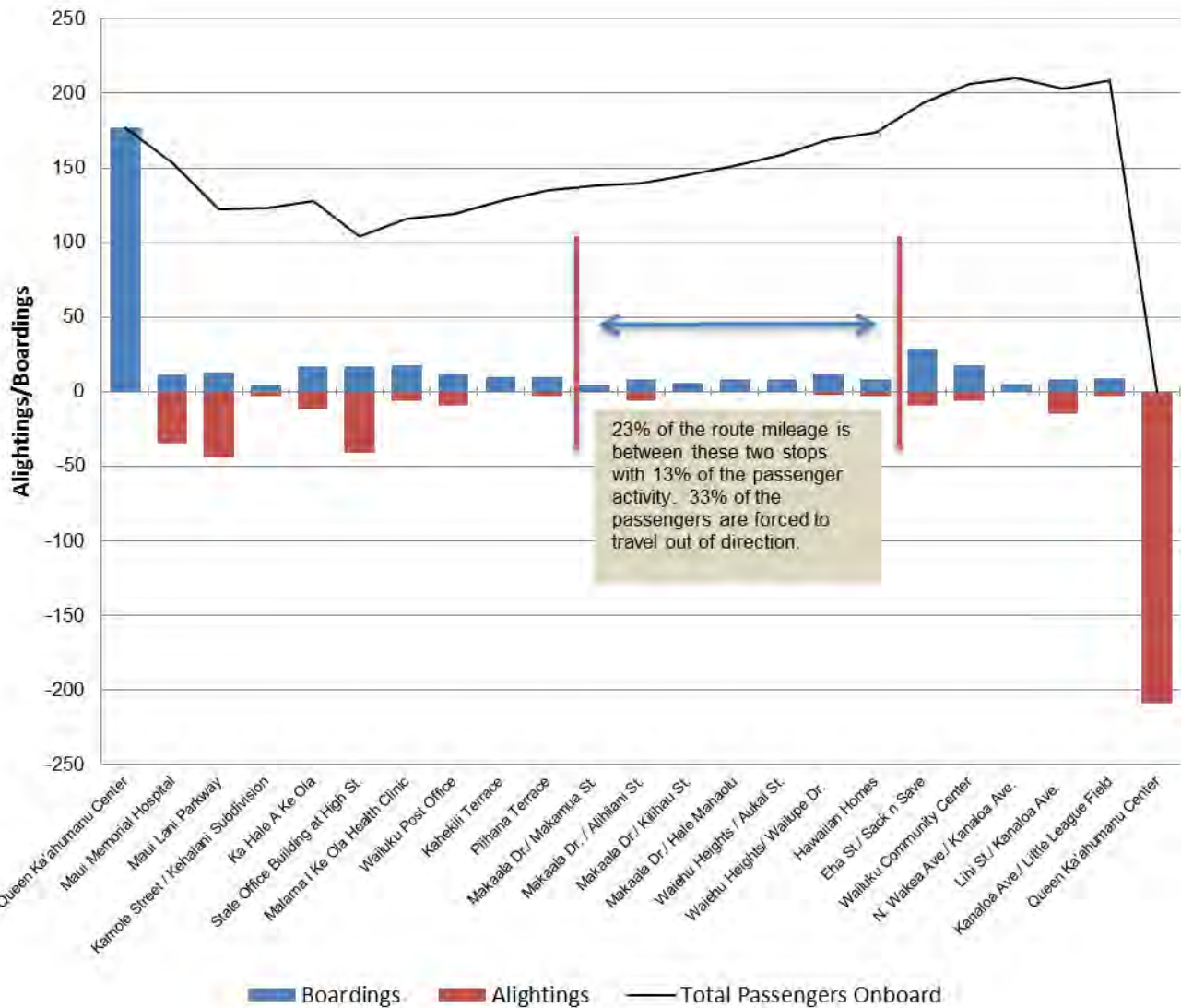
The large diversion into the neighborhood with Kamole Street is used as a turnaround to serve the Ka Hale A Ke Ola residential area which produces a substantial amount of ridership. However, the left turn from Kaupo Street to busy Waiale Road to access the Ka Hale A Ke Ola bus stop is at an unsignalized intersection with many traffic conflicts and the route stops short of serving a new retail/shopping district being developed at the intersection of Waiale Road and Maui Lani Parkway.



Unsignalized Left Turn Delay from Kaupo Street to Waiale Road

Figures 4-4 and 4-5 present daily passenger activity by stop for Routes 1 and 2. As shown in the charts, passenger boardings are shown with the blue bars and passenger alightings are shown with the red bars. These bars are stacked to show both boardings and alightings for each stop along the route alignment. The black line above the bars shows the total passengers onboard the bus after each stop.

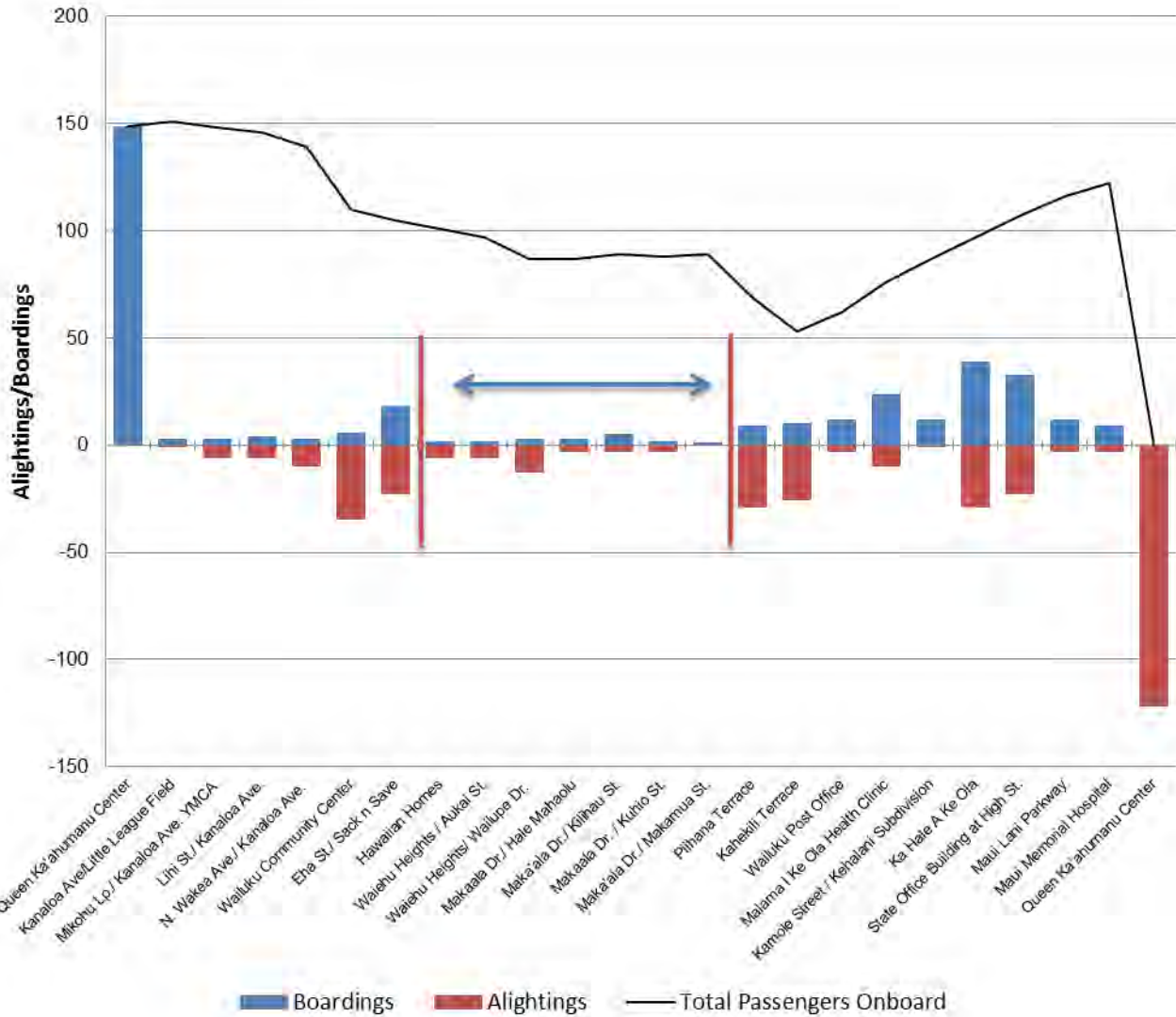
Figure 4-4: Route 1 Wailuku Loop – Daily Passenger Activity by Bus Stop



As shown in Figure 4-4, about 180 people board Route 1 at QKC; with major alightings occurring at the hospital complex and at the High Street stop serving the State Building. The figure shows that after the “downtown” stops, 33 percent of the passengers are forced to travel out of direction to serve neighborhoods that do not generate much ridership (only 13 percent of the route activity occur along this stretch of the alignment that is almost one-quarter of the entire route).

Figure 4-5 shows the same low activity occurring along this same part of the alignment for Route 2 as shown for Route 1. For the Wailuku Loop Reverse, only five percent of the entire route’s passenger boardings occur in this section of the alignment.

Figure 4-5: Route 2 Wailuku Loop Reverse – Daily Passenger Activity by Bus Stop



Routes 5 and 6 serve the Kahului part of Central Maui. These two routes appear to be serving two functions; half retail activity centers and half residential. However, it does not appear that many of the boardings between the retail centers and the residential areas are from people traveling between the two portions of the routes. Route 5 starts with the residential portion of the alignment, so passengers boarding at QKC travel through 44% of the route before getting to their destinations on the retail portion of the route. This is portrayed in Figure 4-6.

Figure 4-6: Route 5 Kahului Loop – Daily Passenger Activity by Bus Stop

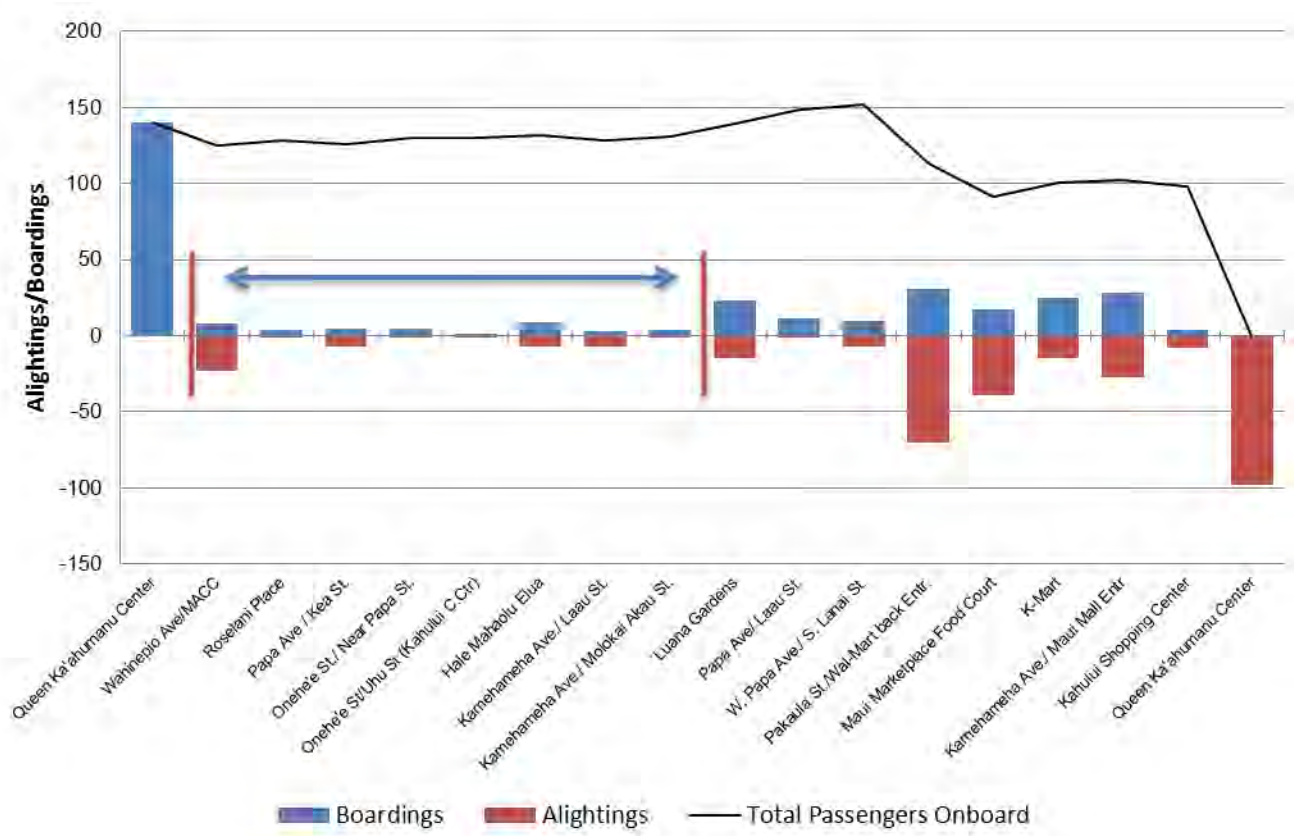


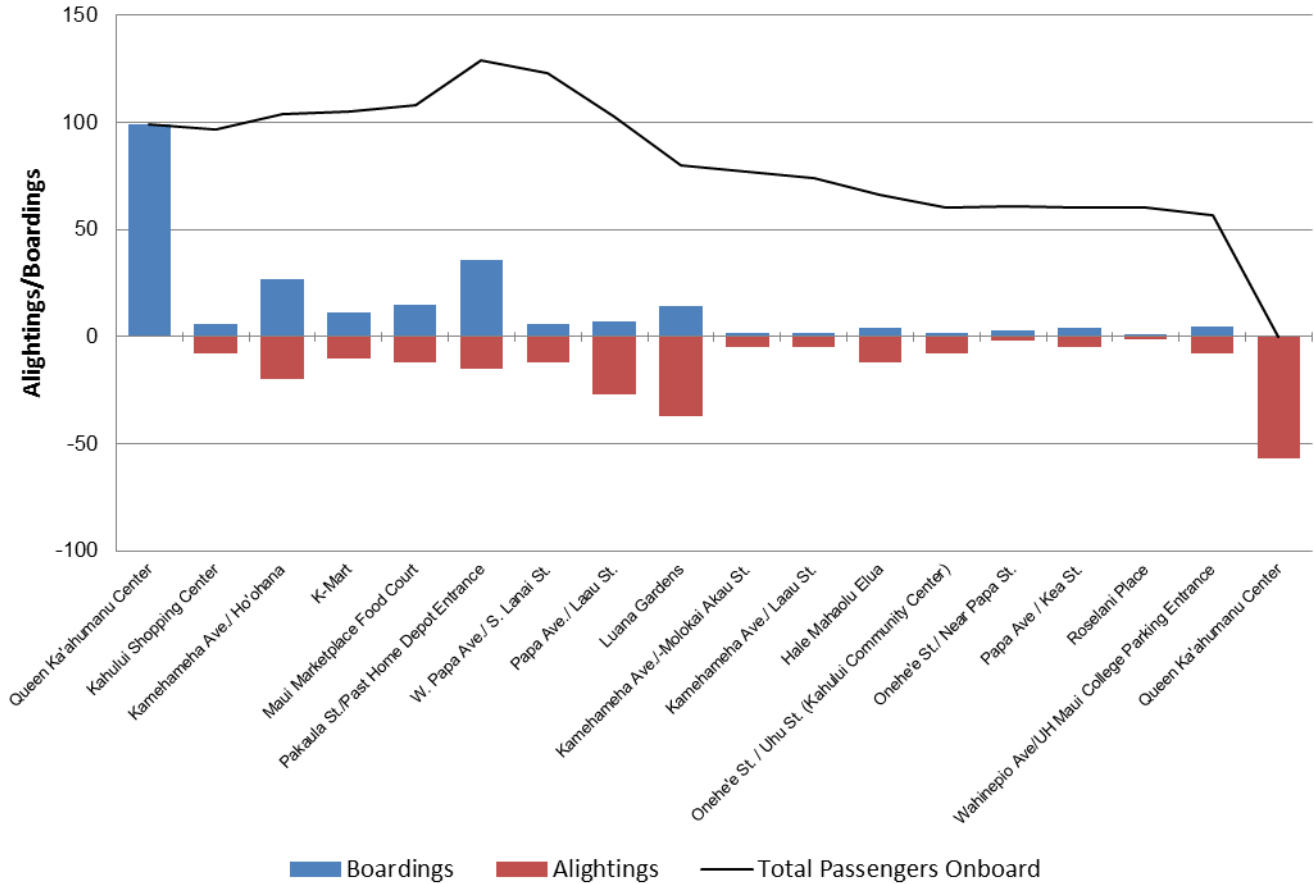
Figure 4-7 depicts Route 6 Kahului Loop Reverse activity. Major destinations are served differently using two approaches. The Kahului Shopping Center, K-Mart and the Maui Marketplace are served by driving into the shopping centers’ parking lots and traversing through them. Maui Mall and Walmart/Home Depot are served by stops located on the roadway.

All of the retail stops have passenger activity. However, to reach the Walmart/Home Depot stop takes 24 minutes from QKC due to the amount of time spent traversing through other shopping center parking lots. The K-Mart parking lot stop took at least 3 minutes and involved 9 turning movements. Normal transit design guidelines would suggest a single turning movement with a bus stop located on the street. The connection to Wal-Mart/Home Depot can be made with much less time with a more direct orientation between major trip generators.



Noticeably absent from the Central Maui routes is a connection to the airport. The airport is currently served by Routes 35 and 40: the Haiku and Upcountry Islanders. Since these two routes are on 90-minute headways, service to the airport is not convenient for intending passengers. Two trips from QKC are 30-minutes apart; the following trip is scheduled in 60 minutes.

Figure 4-7: Route 6 Kahului Loop Reverse – Daily Passenger Activity by Bus Stop

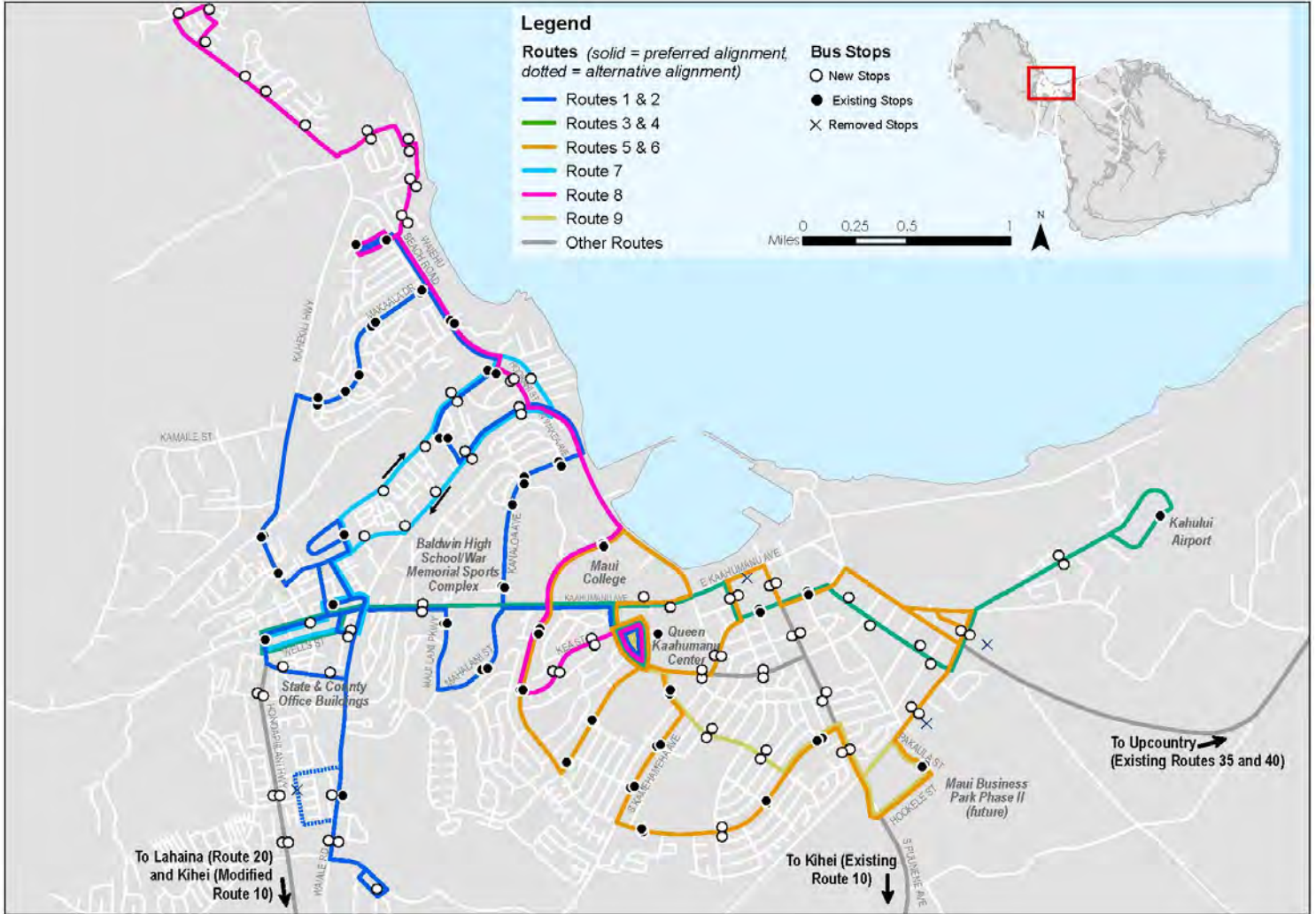


4.2.2.1 Central Maui Recommendations

As the core and heart of Maui public transportation, Wailuku and Kahului should be served with direct connections between activity centers and residential areas with convenient transferring opportunities. The four current routes have been retained in the near term but will be modified as passengers become accustomed to the new routes. The current and proposed routes are shown with colors in the map and identified route numbers. Current Routes 1 and 2 are shown as dark blue; while current Routes 5 and 6 are shown as orange. Routes 3 and 4 shown in Figure 4-8 are the backbone or spine of the system providing 30 minute service to the airport and country and state buildings areas.

Figure 4-8 shows the new route alignments and how the routes would connect at QKC except for Route 7. Current bus stops are shown as black circles; new bus stops are shown as white circles. Current bus stops that are suggested for deletion are shown with an "x." In some cases these are stops that are currently located within shopping center parking lots that have been replaced with on-street bus stops. Individual routes are described in the following paragraphs.

Figure 4-8: Central Maui Proposed System



All Central Maui routes serve the transit center located at the Queen Kaahumanu Center except for Route 7.

Google Earth image date 4/25/2013 from 3000-feet.



- **Wailuku Loop Routes 1 and 2:** A number of new bus stops are identified for current Routes 1 and 2 and one stop is recommended for deletion shown in Figure 4-9. The current bus stop in the Kehalani Subdivision on Kamole Street is recommended to be replaced with a bus stop on Waiale Road across from the current Ka Hale A Ke Ola bus stop. This will allow the route to serve the new retail/shopping district being developed at the intersection of Waiale Road and Maui Lani Parkway. Passengers currently using the bus stop on Kamole Street will be able to access Maui Bus from new bus stops on Honoapi'ilani Highway at Kehalani Makai Parkway in addition to the stops on Waiale Road.

New bus stops are proposed along Kaohu Street and on Waiale Road by Wells Street to provide access to the system for intending passengers. New bus stops are proposed on Eha Street and Lower Main Street to serve residential and business areas. Operating characteristics will remain the same as currently operated with two exceptions. One exception is the diversion to Waiehu Heights would cease with the implementation of the new Route 8.

The second exception is the diversion to the Post Office on Imi Kala Street would also cease with the implementation of new Route 7. With the deletion of these two diversions, Routes 1 and 2 would then be able to provide service into new residential and business areas along Waiale Road south of Maui Lani Parkway.

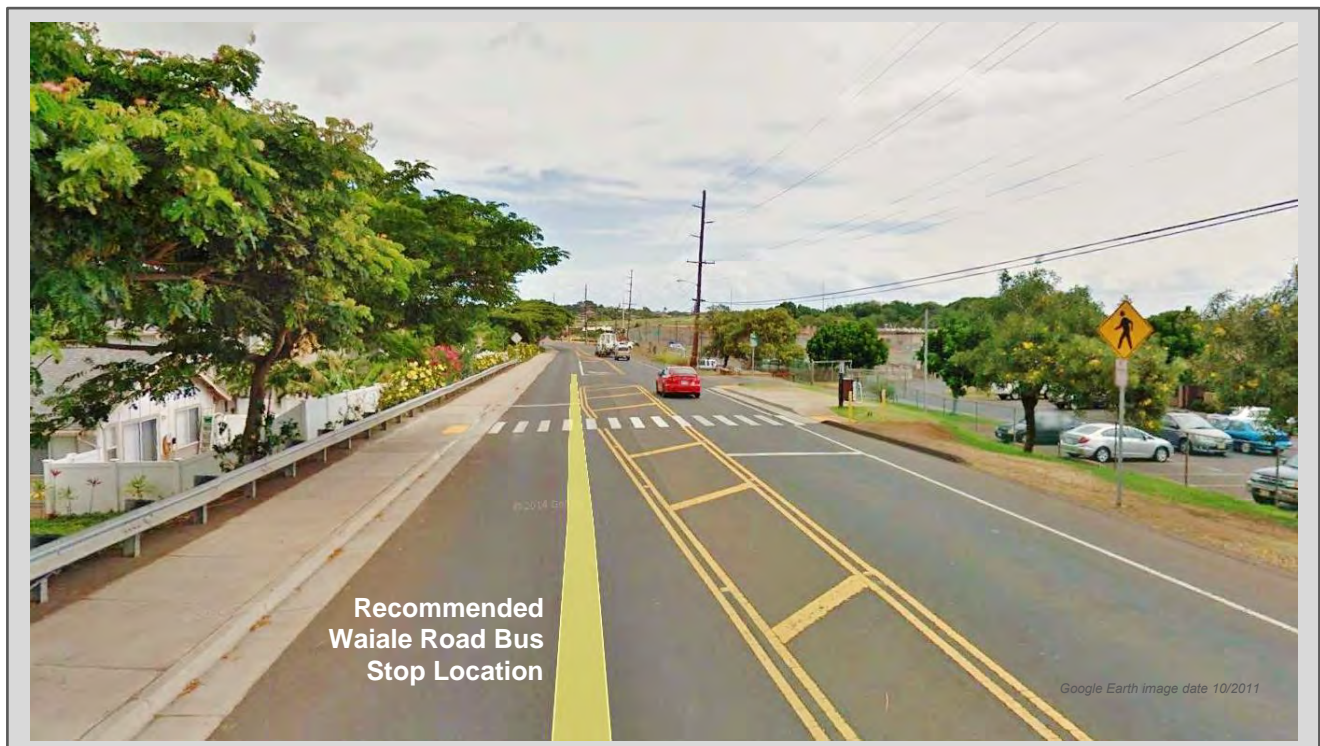


Figure 4-9: Wailuku Loop Routes 1 and 2



- **Kahului Loop Routes 5 and 6:** A number of new bus stops are identified for current loop Routes 5 and 6 and three stops are recommended for deletion. Currently, Routes 5 and 6 divert into three shopping centers: Kahului Shopping Center, Maui Marketplace and K-Mart. All three stops are recommended to be replaced with on-street bus stops to avoid conflicts with vehicles and pedestrians within parking lots and to improve on-time performance. New stops on Ka'ahumanu are recommended to serve Maui College and QKC and new stops on Pu'unēnē and Lono Avenue will serve the Kahului Shopping Center.

Other new stops, shown in Figure 4-10, will service residential areas and new stops on Dairy Road will serve Maui Marketplace and K-Mart/Costco. Operating characteristics will remain the same as currently operated with the exception that the route segment to Wahinepio Avenue would cease with the implementation of the new Route 8. The service time saved would be able to be redeployed into currently unserved areas in Kahului.

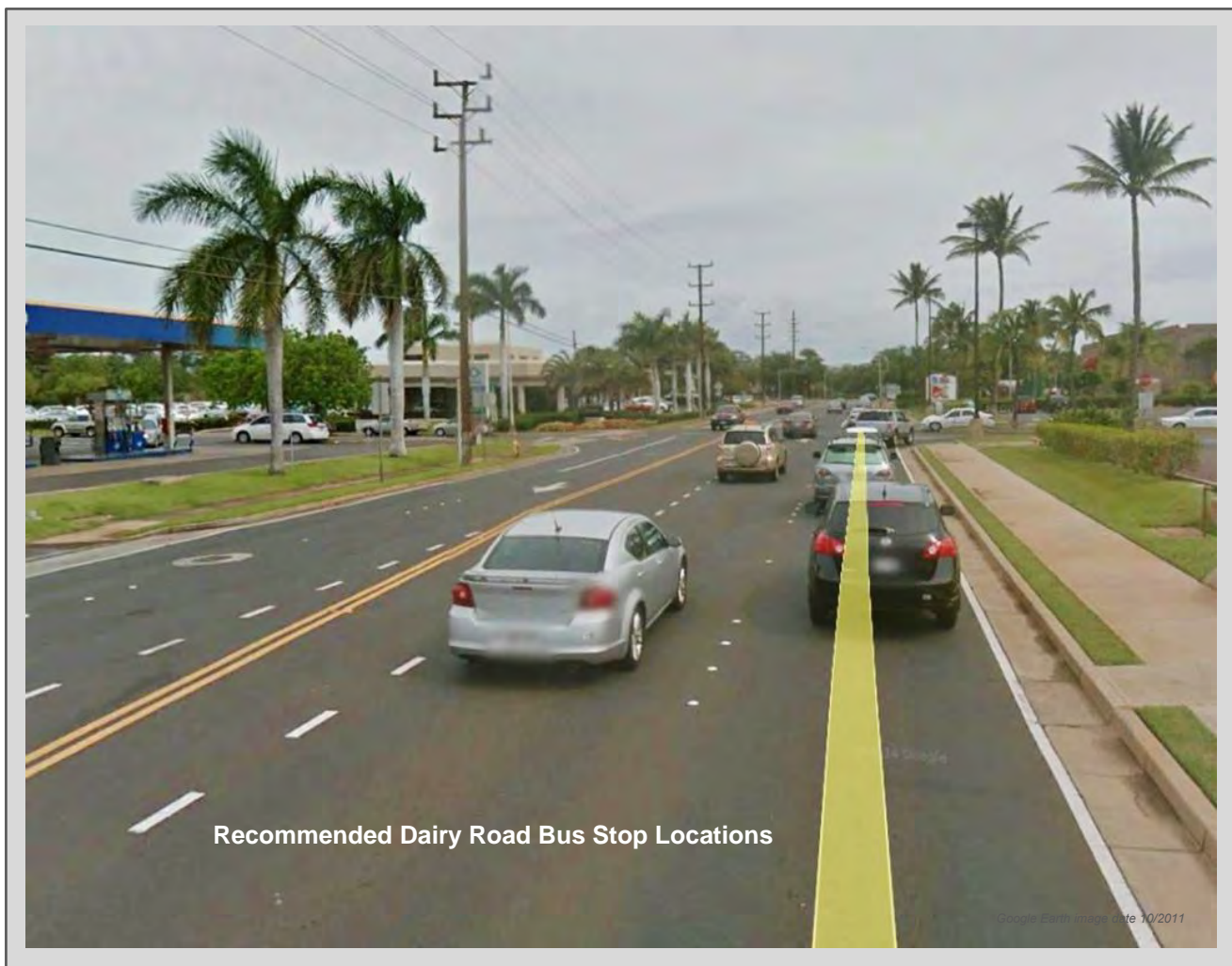


Figure 4-10: Kahului Loop Routes 5 and 6



- Wailuku State and County Buildings Route 3:** This new route travels in both directions between QKC and Main Street via W. Ka’ahumanu Avenue (shown in Figure 4-11). The route would turn left onto Kinipopo Street and right onto Wells Street (the same as the Lahaina Islander) to serve the State Office Building and right onto Main Street serving a new bus stop located just before Central Avenue. New bus stops are added on W. Ka’ahumanu Avenue to serve Baldwin High School and new development by Maui Lani Parkway. Characteristics include:

Span of Service: 6:30 AM to 10:00 PM
Headways: 30-minute AM, mid-day and PM Peak, 60-minute evening
Number of Trips: 29
Number of Vehicles: .5 (shares a bus)

- Airport Route 4:** Together with Route 3, Airport Route 4 provides the east-west spine of the transit system shown in Figure 4-11. Two-directional service between QKC and the Airport will be provided by this new route. New stops on E. Ka’ahumanu Avenue will serve Maui College to avoid out of direction travel. The route would turn onto Lono Avenue to W. Kamehameha Avenue to serve the Kahului Shopping Center, Salvation Army and the back entrance to Maui Mall. The route continues to Alamaha Street with new bus stops added to serve the large number of businesses along this street. The route continues to Dairy Road serving K-Mart and Costco and the Airport. Characteristics include:

Span of Service: 6:00 AM to 10:00 PM
Headways: 30-minute AM, mid-day and PM Peak, 60-minute evening
Number of Trips: 29
Number of Vehicles: 1

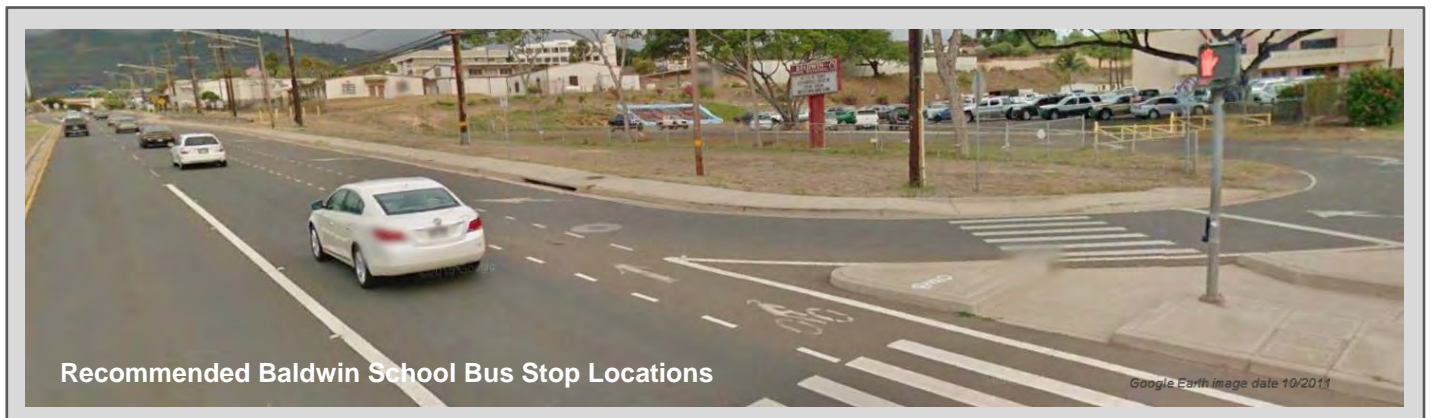
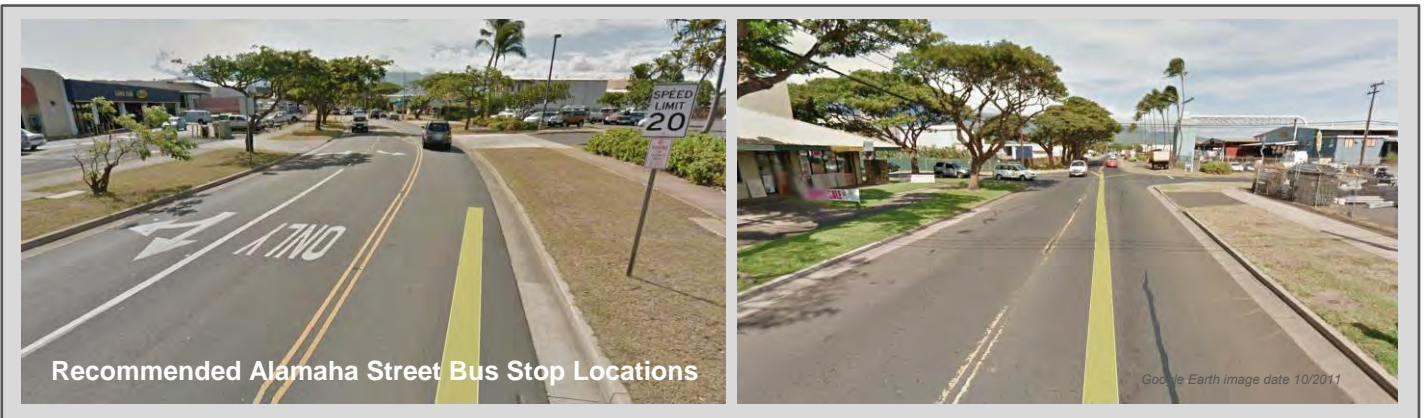
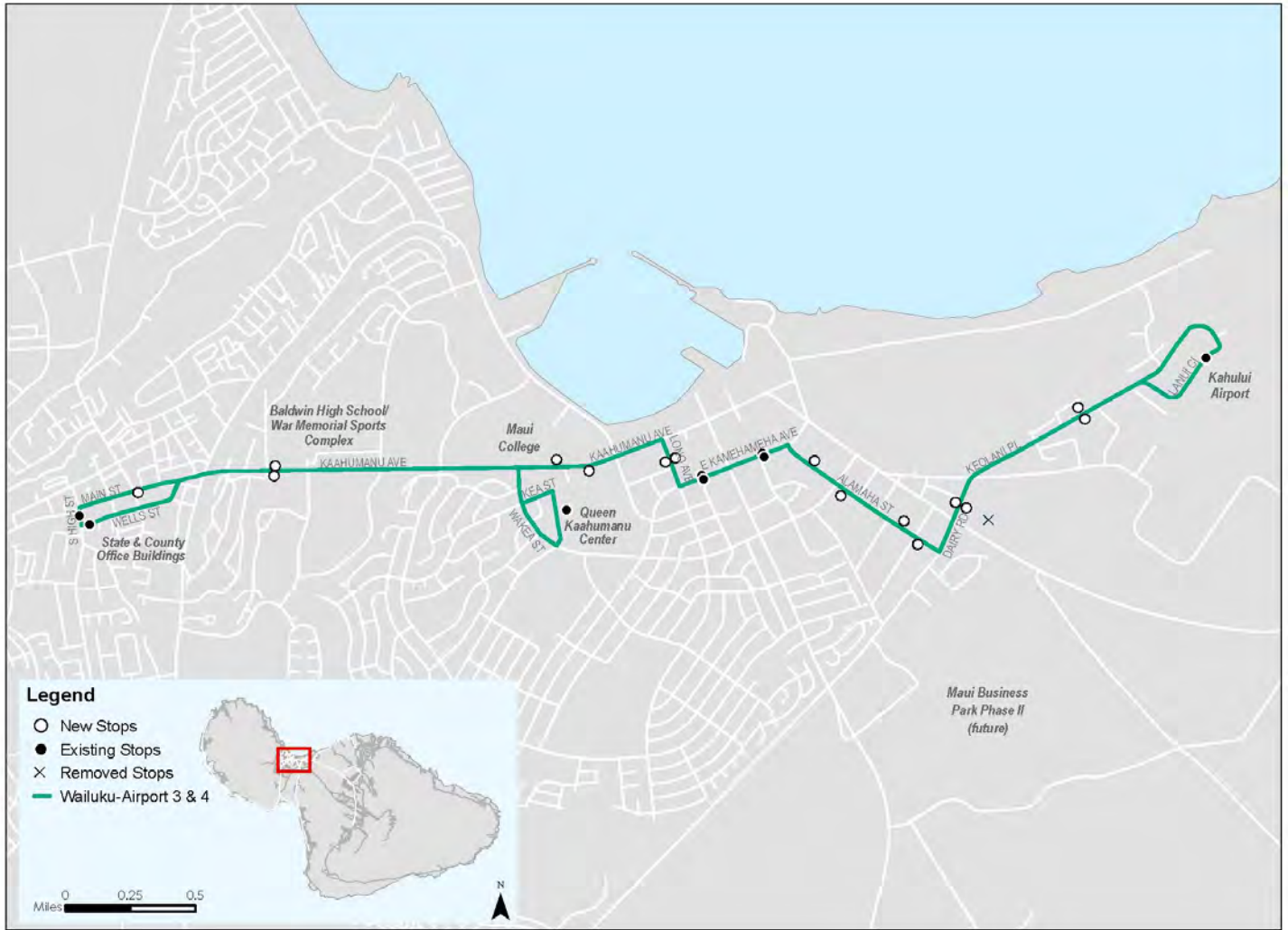


Figure 4-11: Wailuku-Airport Routes 3 and 4



- Wailuku Central Route 7:** This new route, shown in Figure 4-12, connects downtown Wailuku and the County and State buildings with residential and business areas currently not served by transit. The route provides connections with the new Waihee Villager Route 8 and current Wailuku Loop Routes 1 and 2 by Hookahi Street for passengers to reach their destinations with more direct service and without having to travel to QKC to transfer.

Route 7 provides connections with the Lahaina Islander and Route 3 on Wells Street at the County and State buildings bus stop. From Main Street, the route turns onto Central and Nani Street serving the health clinic. The route continues to Kaniela Street and Imi Kala Street to serve the post office, continuing on Eha Street providing service to this large residential area.

Connections with the new Route 8 and the Wailuku Loop Routes occur at the Eha Street and Hookahi Street (across from the Sack 'n Save) bus stop. New bus stops are offered on lower Main and Mill Streets providing access to transit for the residential, business and industrial areas along these two streets. Characteristics include:

<i>Span of Service:</i>	6:30 AM to 8:00 PM
<i>Headways:</i>	30-minute AM, mid-day and PM Peak, 60-minute evening
<i>Number of Trips:</i>	27
<i>Number of Vehicles:</i>	1

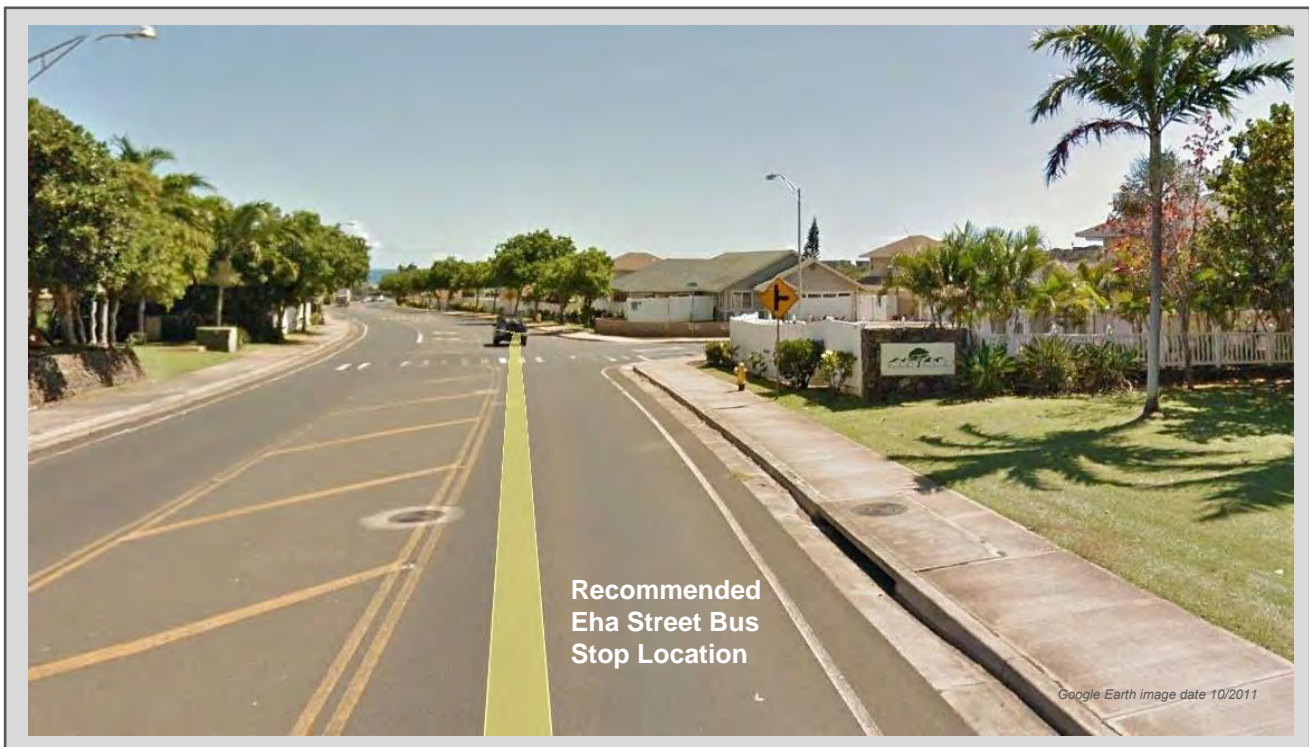
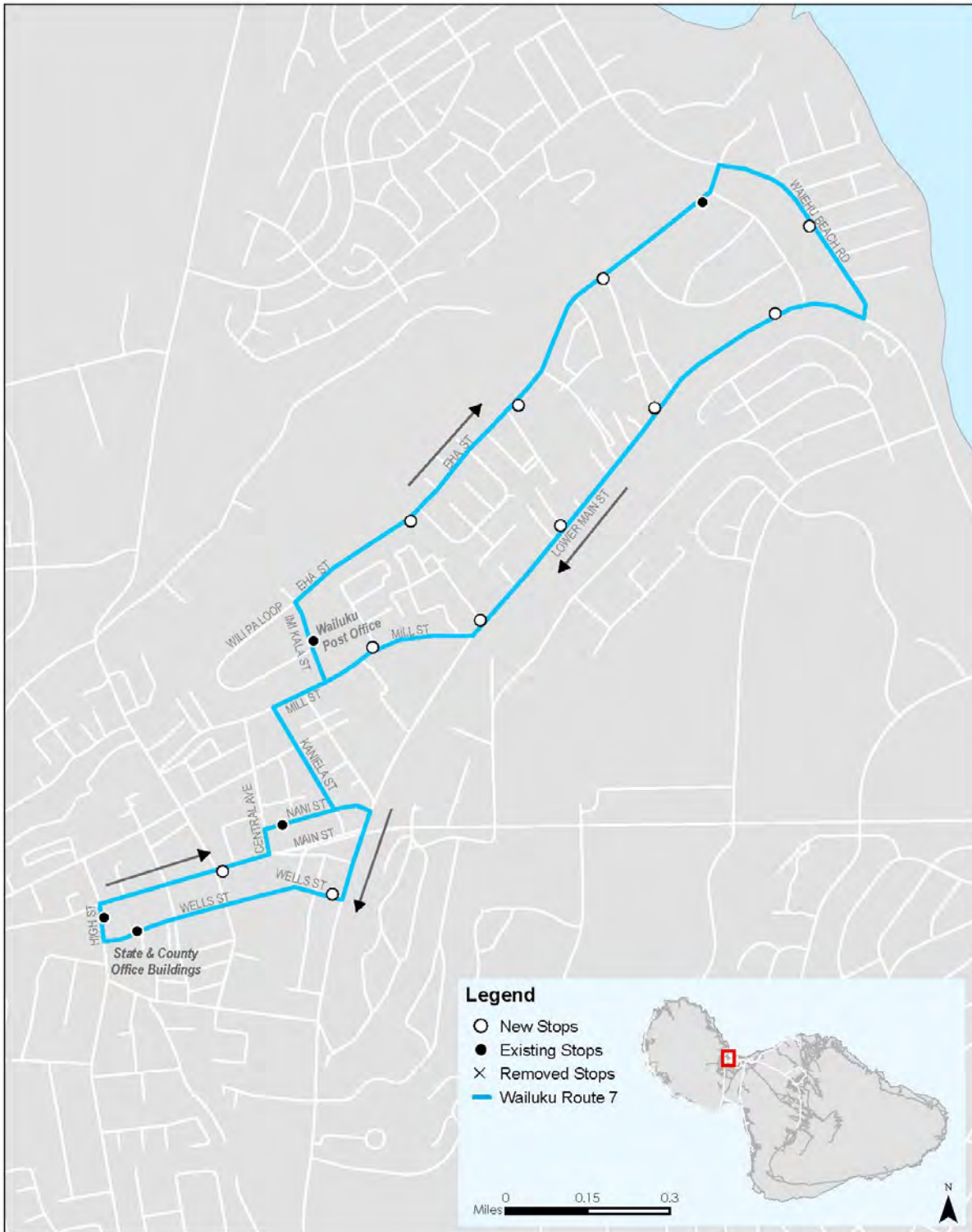


Figure 4-12: Wailuku Central Route 7



- Waihee Villager Route 8:** This new route provides two-directional service between the Waihee community and QKC as shown in Figure 4-13. The Waihee terminus is bounded by Omilu Street, Limu Eleele Place, Halewaiu and Kahekili Highway. Bus stops along Kahekili Highway are shown as being provided in the outbound direction only for pedestrian safety. This route will provide the transit service for Waiehu Heights and Maui College providing more direct service for these destinations to QKC and allowing the Wailuku and Kahului Loop Routes to provide service to other areas. This route provides new service along Kea Street. Characteristics include:

<i>Span of Service:</i>	6:00 AM to 8:00 PM
<i>Headways:</i>	60-minute AM, mid-day, PM Peak and evening
<i>Number of Trips:</i>	14
<i>Number of Vehicles:</i>	1



Figure 4-13: Waihee Villager Route 8



- Kahului-Maui Business Park Route 9:** This route shown in Figure 4-14 provides a direct connection from QKC to Walmart/Home Depot along Hina Avenue providing new service to residents along the avenue. This route is designed to be extended to the Maui Business Park (Phase II) and other development sites along Hookele Street as businesses are opened. Characteristics include:

<i>Span of Service:</i>	6:30 AM to 10:00 PM
<i>Headways:</i>	30-minute AM, mid-day and PM Peak, 60-minute evening
<i>Number of Trips:</i>	26
<i>Number of Vehicles:</i>	.5 (shares a bus)



Figure 4-14: Kahului-Maui Business Park Route 9



- Other Routes:** Figure 4-8 shows the path the Islander routes connecting Central Maui with other communities provide service within Wailuku and Kahului. These routes are shown in dark gray. The Kīhei Islander travels along Pu'unēnē Avenue. However there are currently no bus stops along the avenue, so there is effectively no service. Passengers from Kīhei must travel to QKC to transfer to another route to access Home Depot or Walmart, for example. Eight new bus stops (four in each direction) are proposed to provide service to residents and businesses along the corridor which will allow passengers access to these destinations without having to transfer.

The realignment of the Upcountry and Haiku Islander routes to serve along Hookele Street, gives the opportunity to provide new service along W. Wakea Avenue (shown in dark gray in Figure 4-8). New bus stops along W. Wakea Avenue will provide access to transit for residents along this corridor.

The Lahaina Islander route will serve six new bus stops (three in each direction) on Honoapi'ilani Highway between Wells Street and Waikapu. The first set of stops will be near Malako and Kahookele Streets, the second set at Kehalani Parkway and the third at Maui Lani Parkway. These stops will provide new service to residential and business/retail areas along the highway.

4.2.3 Kīhei Routes

Two routes serve Kīhei; Route 10: Kīhei Islander which connects Kīhei with Kahului and other routes at QKC and Route 15: Kīhei Villager which connects Ma'ālaea Harbor with Kīhei. Both routes serve the same alignment from S. Kīhei Road and Uwapo to the Pi'ilani Village Shopping Center. Ma'ālaea Harbor, which is a transfer point with the Lahaina Islander, is the only unique stop served by the Kīhei Villager route.



The Kīhei Islander route is the third most productive route in the Maui Bus system with over 32 passengers per revenue vehicle hour. Sixty-minute service is provided, requiring two vehicles to operate the two-hour roundtrip. The route is frequently overloaded when operated with the 41-passenger vehicles as shown to the left. The single double-deck vehicle that was acquired to operate on the Kīhei Islander route is seldom available for service and is not a reliable option.

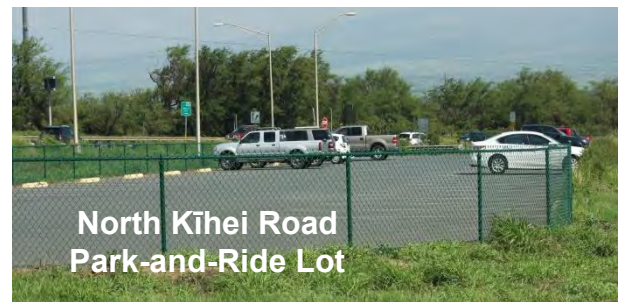
Kīhei continues to grow with more development in the planning stage. Transit services need to expand service coverage and be designed to extend into new development areas. These new development plans include a new high school and low income housing mauka of Pi'ilani Highway in north Kīhei, new residential and commercial space near the Pi'ilani Shopping Center and continuing development in south Kīhei.

There are two options to add additional capacity to deal with overcrowding as noted in the design guidelines: 1) add additional service or 2) operate higher capacity vehicles. Adding an additional bus to the schedule would provide 40-minute service with the current alignment, adding to the operating costs of the system. While this is the long-term objective, it may be necessary to phase additional service into the system. In the interim, reliable higher-capacity vehicles are needed.



The Kīhei Villager route has two functions: connect to Ma‘alaea Harbor (and the Lahaina Islander) and provide close to 30-minute service along S. Kīhei Road between Uwapo and Pi‘ilani Village Shopping Center (when added to the Kīhei Islander service). This route is operated with one bus providing 60-minute service. The current route is scheduled to operate in 50-minutes (with a generous 10-minute layover), but actually takes closer to 35-minutes to complete the roundtrip.

The first half of the route from Ma‘alaea Harbor has no stops even though the route passes by the Park and Ride lot at the intersection of Honoapi‘ilani Highway and North Kīhei Road shown to the right.



Another possible stop that is not served is the Kealia National Wildlife Refuge walkway. These two potential stops would require pedestrian safety improvements for the outbound trip to Ma‘alaea Harbor along N. Kīhei Road.



A series of five bus stops serves a stretch of South Kīhei Road in both directions from Uwapo Road to Piieka Avenue. The bus stop spacing guidelines discussed earlier should be applied to this stretch because the bus stops are too far apart considering the residential density of the corridor being served and the unserved neighborhoods mauka of Pi‘ilani Highway between Uwapo and Ohukai Roads.

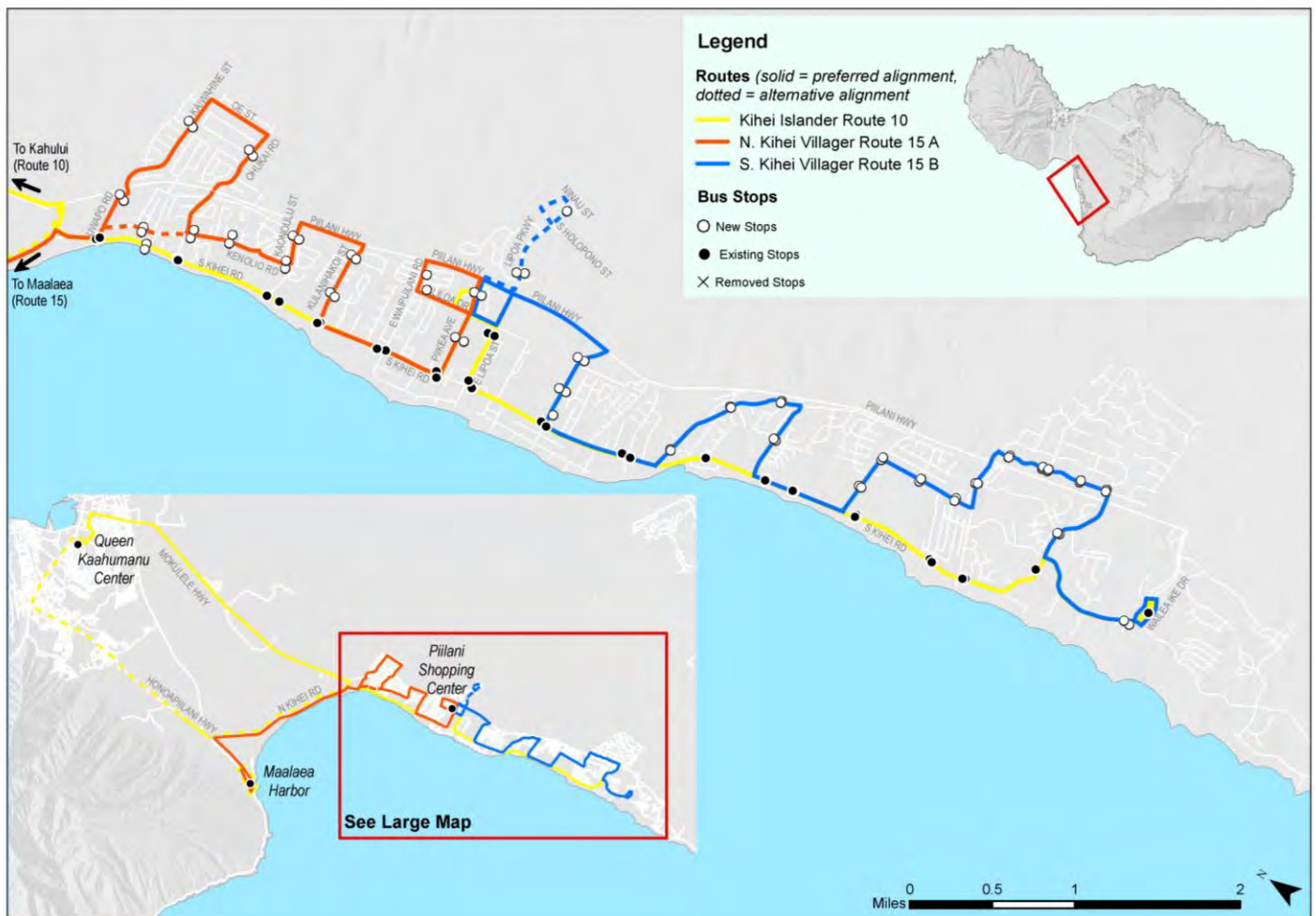
The South Kīhei Road corridor is attractive for the intending transit user with a direct and well defined route alignment and recently installed high quality shelters at many stops. The route turns into the Pi‘ilani Village Shopping Center. The route does not have a timed-transfer with the Kīhei Islander but both routes do enter the shopping center parking lot.



4.2.3.1 Kīhei Recommendations

Figure 4-15 shows the Kīhei routes have been designed to operate as a system. Service is expanded to serve more neighborhoods. The basic structure of the Kīhei Islander route is maintained. The map shows that the bus stop at Pi'ilani Village Shopping Center is recommended to be on-street, eliminating the movement through the shopping center and providing additional room for transferring activity between routes..

Figure 4-15: Kīhei Proposed System



Numerous comments were received from the passenger survey remarking that the last stop at Wailea Ike Drive was too far to reach employment areas. The next closest stop to the Wailea Ike Drive is well over one mile away.

- ***Kīhei Islander:*** The Kīhei Islander will operate along its current alignment with only minor changes. These changes include:

 - New bus stops on both sides of Pi‘ikea Street. These new stops will be provided by the developer of the adjacent property makai of Liloa Drive.
 - New bus stops added to Pi‘ikea Street mauka of Liloa Drive to serve the Pi‘ilani Shopping Center. These stops need to accommodate two buses at a time. This will require a minor route alignment change. The route would continue on Pi‘ikea Street to right onto Pi‘ilani Highway to right onto E. Lipoa Street to continue its alignment.
 - New bus stops should be added on S. Kīhei Road at Leilani Road which is midpoint between current stops located one-half mile apart at Uwapo Road and Ohukai Road.
 - The later evening alignment from Central Maui would be changed to serve Ma‘alaea Harbor before traveling to Kīhei. This is shown in the yellow dashed line in Figure 4-15. This later evening routing will provide the needed service for workers and provide a connection from Lahaina and beyond.
 - In Central Maui new stops are added along S. Pu‘unēnē Avenue near Hololea Street and E. Kauai Street.

Characteristics include:

<i>Span of Service:</i>	5:30 AM to 11:00 PM
<i>Headways:</i>	60-minute AM Peak, mid-day, PM Peak; and evening; 90-minute later evening
<i>Number of Trips:</i>	17
<i>Number of Vehicles:</i>	2
<i>Express Services</i>	6 trips operated with 1 additional vehicle – 3 trips in the AM peak period and 3 trips in the PM peak period will provide additional capacity.

The Kīhei Villager is shown as two shuttle routes: North Kīhei and South Kīhei both connecting along Pi‘ikea Avenue by the Pi‘ilani Shopping Center.

- North Kīhei Villager Route 15A:** The North Kīhei Villager will operate from Ma‘alaea Harbor as the current Kīhei Villager does today. The route will serve the residential area mauka of Pi‘ilani Highway (shown in the solid red line in Figure 4-16). A new housing development is planned in this area near the corner of Hale Kai Street and Kaiwahine Street. The route would turn right onto Ohukai Road and left onto Kenolio Road. From Kenolio Road the route turns left onto Kaonoulu Street to Pi‘ilani Highway where the route turns right onto Kulanihakoī Street to S. Kīhei Road, then continues onto Pi‘ikea Street. The route returns to Ma‘alaea Harbor via Liloa, to return to Pi‘ikea Street serving the Pi‘ilani Shopping Center from an on-street bus stop.

An alternate alignment (dashed red line) is shown for the North Kīhei Villager. This alignment would have the route travel along Kenolio Road instead of traveling to the residential area mauka of Pi‘ilani Highway. This could be an interim alignment prior to providing the full service change if it is determined the full change would take longer than one year to implement. Upon implementing the full service change to mauka of Pi‘ilani Highway, the Kīhei Islander could provide the service along Kenolio if demand is warranted. Characteristics are for the alignment shown with the solid red line and include:

<i>Span of Service:</i>	5:30 AM to 9:00 PM
<i>Headways:</i>	60-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	16
<i>Number of Vehicles:</i>	1

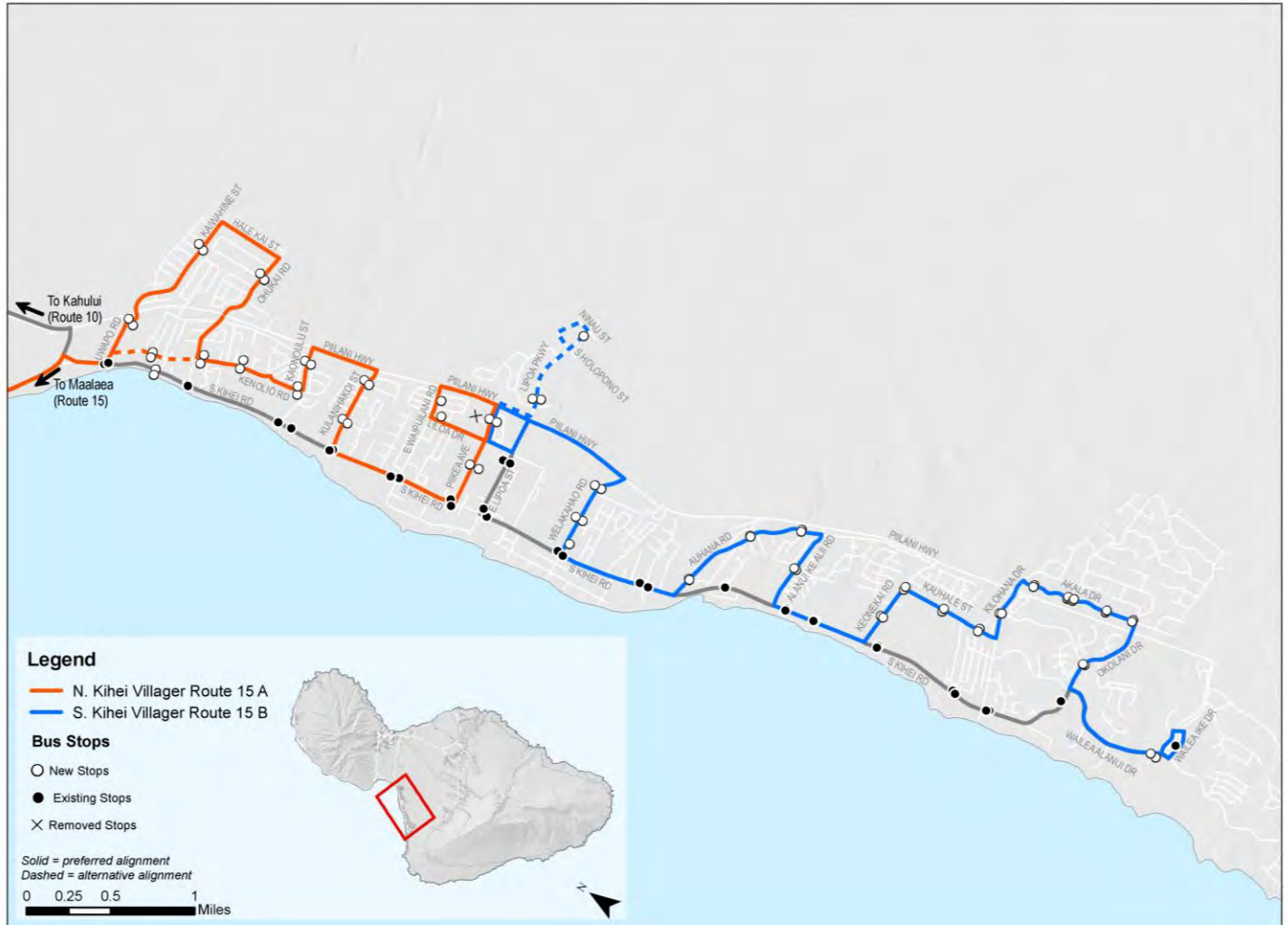
- South Kīhei Villager Route 15B:** The South Kīhei Villager is designed to connect with the North Kīhei Villager and the Islander along Pi‘ikea Street. Initially, the route would turn around via E. Lipoa Street, Liloa Drive and Pi‘ikea Street. When demand warrants, the South Kīhei Villager will continue on Pi‘ikea to Pi‘ilani Highway to Lipoa to serve the Industrial Park. This segment is shown in the dashed line on the map.

This new route provides new service to residential areas along East and West Welakahao Road, Auhana, Alanui Kealii, Kauhale and Akala Drive. The route would terminate at the current end point of the Kīhei Islander at Wailea Iki Drive. This route will require 37 new bus stops along the main alignment and three bus stops along its extension. Initially, these stops would be minimal: route sign and schedule. As service develops shelters will be added.

The addition of the South Kīhei Villager will allow the Kīhei Islander to provide additional express services to the Pi‘ilani shopping center allowing continuing passengers to transfer to the Villager routes. The express services would terminate at the Pi‘ilani Shopping Center. Passengers desiring to continue their trip further south would transfer to the South Kīhei Villager. Three additional morning and three afternoon peak period trips would be added to provide additional passenger capacity. Characteristics include:

<i>Span of Service:</i>	5:30 AM to 9:00 PM
<i>Headways:</i>	60-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	16
<i>Number of Vehicles:</i>	1

Figure 4-16: Kīhei Villager Routes 15A and 15B

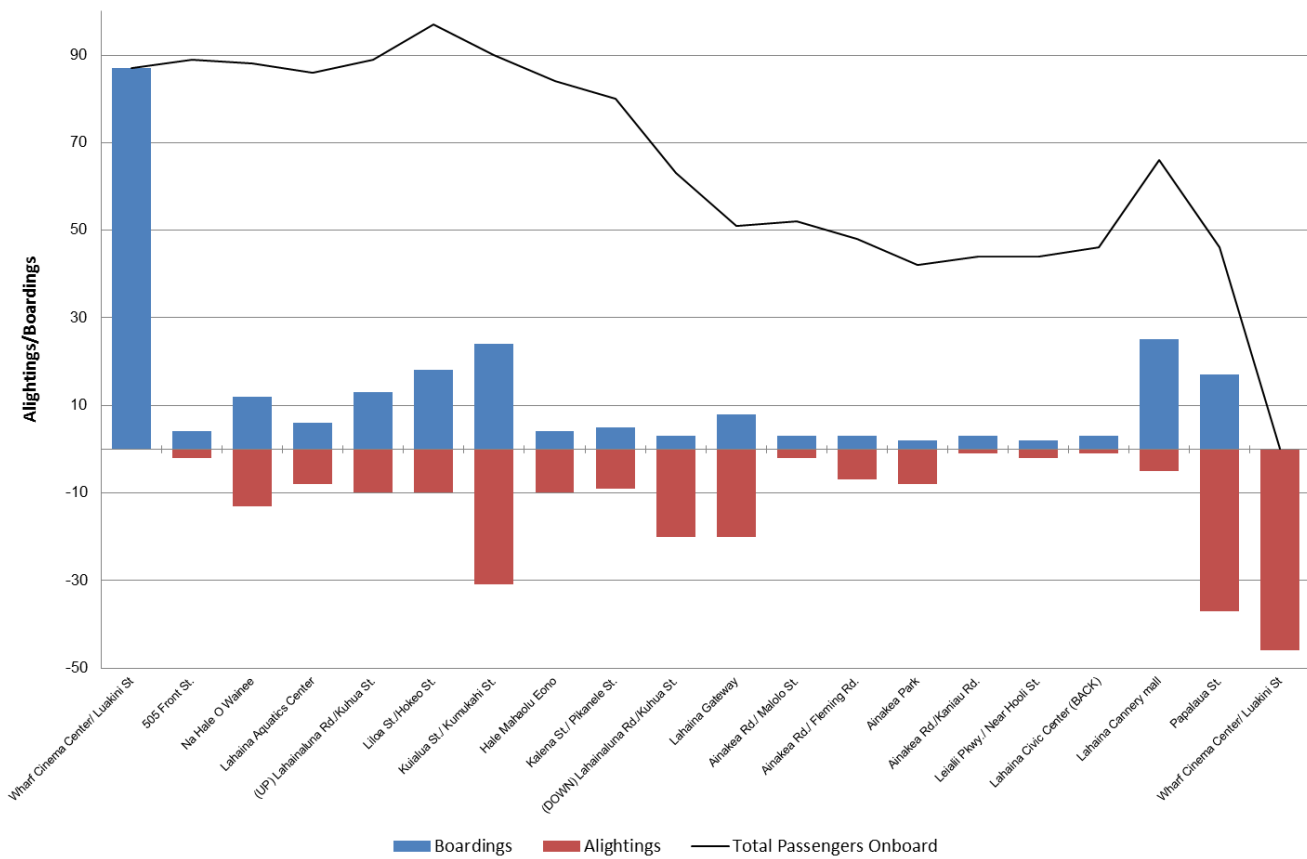


4.2.4 Lahaina, Ka’anapali and Napili Routes

Four bus routes currently serve Lahaina, Ka’anapali and Napili. The three Islander routes have excellent performance, with Ka’anapali Islander the best performing route in the system with 52.5 passengers per revenue vehicle hour. This high ridership is partly due to the doubling of service in the afternoons when the 60 minute headway is reduced to 30 minutes. The Napili and Lahaina Islander routes provide 60 minute service. The Lahaina and Ka’anapali Islander routes are frequently overloaded. The Lahaina Islander route has been so crowded that upwards of 15 to 20 people have been left behind at Wharf Cinema Center where those customers need to wait another 60 minutes for the next bus or find another way back to Kahului. This occurs regularly during “cruise” days.

The fourth route is the Lahaina Villager. This route provides 60 minute service on a one-way loop alignment serving three neighborhoods, retail, the Aquatics Center, Civic Center and Wharf Cinema Center. Because the route is a long one-way loop, those passengers using the bus must travel out of direction for either their originating or returning trip. Figure 4-17 shows that those boarding along Lahainaluna Road, for example, must ride to the Civic Center and back if their destination is near the Wharf Cinema Center. Comments received on the passenger survey noted the out-of-direction travel.

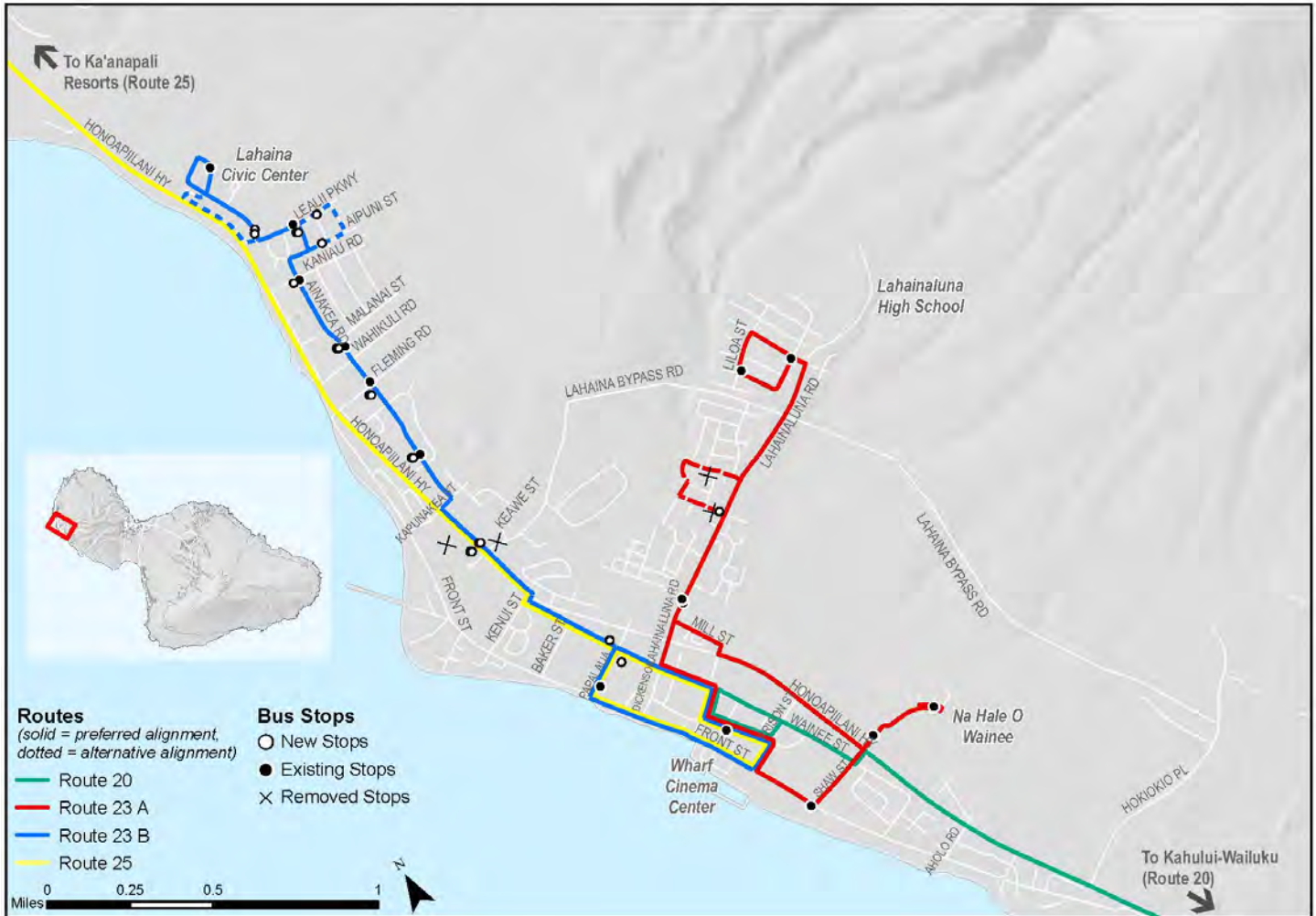
Figure 4-17: Route 23 Lahaina Villager – Daily Passenger Activity by Bus Stop



4.2.4.1 Lahaina, Ka’anapali and Napili Recommendations

- Lahaina Villager:** Figure 4-18 shows the proposed route changes for the Lahaina Villager. The route would operate with two independent segments but is interlined at the Wharf Cinema Center so that customers are not forced to transfer. As shown in the figure, Route 23A is the first segment of the current route. From the Wharf Cinema Center, the alignment travels to the Aquatic Center and Na Hale O Wainee housing. The route proceeds to serve the neighborhoods along Lahainaluna Road, returning to Wharf Cinema Center.

Figure 4-18: Lahaina Proposed System



The map shows one dashed segments along the 23A alignment. One is the current diversion along Kelawea, Pikanele and Kalena Streets which is proposed for deletion. This section of the route has insufficient ridership to justify the diversion. Service would be replaced with a new bus stop on Lahainaluna Road to serve Hale Mahaolu Eono. Route 23A would operate once per hour.

Route 23B is the second portion of the current Lahaina Villager. The route would operate to the Civic Center from the Wharf Cinema Center along Ainakea Road. New two-way service along Ainakea Road would provide a more convenient alignment for intending passengers and offers an opportunity to increase ridership along this section of the route. New bus stops are shown on Honoapiilani Highway to replace routing within the parking lots of Lahaina Gateway and Cannery Mall. Sufficient space is available to provide bus pullouts along the Highway. Route 23B would operate once per hour.

Characteristics for Lahaina Villager 23A and 23B include:

<i>Span of Service:</i>	23A - 7:00 AM to 11:00 PM 23B – 7:30 AM to 10:30 PM
<i>Headways:</i>	60-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	23A – 16 trips 23B – 15 trips
<i>Number of Vehicles:</i>	1 vehicle to operate both routes

Lahaina, Ka’anapali and Napili Islanders: While operated separately, these three routes are interconnected by having timed-transfers at two locations. The Lahaina and Ka’anapali Islanders are timed-connected at the Wharf Cinema Center and the Ka’anapali and Napili Islanders are timed-connected at Whalers Village. A delay on one route frequently causes delays on the others.

Two factors other than traffic contribute to the delays: 1) the time consumed to unload and load the same passengers from one vehicle to the other and 2) the time consumed by traffic along Lower Honoapi’ilani Road. The time consumed to unload and reload passengers occurs mostly between the Ka’anapali and Napili Islander routes where up to 75 percent of the passengers are going from one bus to the other. Figure 4-19 describes the Whalers Village transfer point and Figure 4-20 provides a sequencing of the typical interchange occurring at this location.

Lower Honoapi’ilani Road is narrow and twisting with some rough sections requiring low speeds. The Napili Islander is a very popular route with passenger activity at almost every stop along its alignment. Ideally, the Napili Islander would not divert to the Napili Plaza twice during each roundtrip. However, passenger activity at this stop is high enough to warrant the diversion. In 2013 MDOT surveyed Napili Islander passengers regarding extending the route to Kapalua and adding 30 minutes to the running time or truncating the route at Napili Plaza to maintain a 60-minute headway. Responses were negative.

The Ka’anapali and Napili Islander routes should be interlined; two buses would operate a two-hour roundtrip from the Wharf Cinema Center. This combined service named West Maui Islander Route 28 is extended to a new turnaround in Kapalua. Interlining the two routes saves time at Whalers Village since passengers would be able to stay on the bus and not transfer. Outbound and inbound buses would not wait for a time-connection at Whalers Village. The interlining would not occur on the afternoon peak period vehicle added to the Ka’anapali Islander route. That bus would operate independently. Driver changes could occur at the Wharf Cinema Center instead of Whalers Village.

Comments from the on-board passenger survey and those received on the Napili Islander Questionnaire included many requesting later departures in the evening. Many comments were from workers at the restaurants and hotels. Two additional evening trips can be added by keeping the 9:00 PM departure from Whalers Village to Wharf Cinema Center in service to QKC – from Whalers Village the route would become a Lahaina Islander route stopping at all bus stops and arriving at QKC at 10:30 PM. Additionally, one more departure from Whalers Village to Napili would occur at 9:00 PM; returning to Whalers Village at 10:00 PM and continuing in service as a Lahaina Islander arriving at QKC at 11:30 PM.

Figure 4-19: Whalers Village Transfer Point

WHALERS VILLAGE TRANSFER POINT



Whalers Village is an open air shopping center on the Kaanapali Coast. There are 12 separate buildings housing over 90 shops and restaurants. Whalers Village includes museum quality exhibits featuring the history and biology of whales and whaling.



The porte cochere at the main entrance of Whalers Village offers a transportation drop off and pick up area used by Maui Bus, resort shuttles, taxis and private vehicles.



Once an hour the transportation drop off and pick up area is full of Maui Bus passengers transferring between routes 25 and 30.

Figure 4-20A: Typical Forced Transfer Activity at Whalers Village

WHALERS VILLAGE TRANSFER ACTIVITY



12:52 PM – 14 minutes before Route 25 departs.

Black Chevrolet van is in transportation loading zone while 16 people wait for the arrival of their transportation.



12:53 PM – 13 minutes before Route 25 departs.

Maui Bus Route 30, the Napili Islander, arrives. Black Chevrolet van blocks position needed for bus.



12:54 PM – 12 minutes before Route 25 departs.

Black Chevrolet van departs area needed by Route 30 bus. Couple in red circle joins those waiting plus about 20 passengers who are being unloaded from the Route 30 bus. Couple wants to board Route 30.



12:55 PM – 11 minutes before Route 25 departs.

Route 30 arriving driver talks with new relief driver outside of closed bus while couple in red circle and other people wait to board.

Figure 4-20b: Typical Forced Transfer Activity at Whalers Village

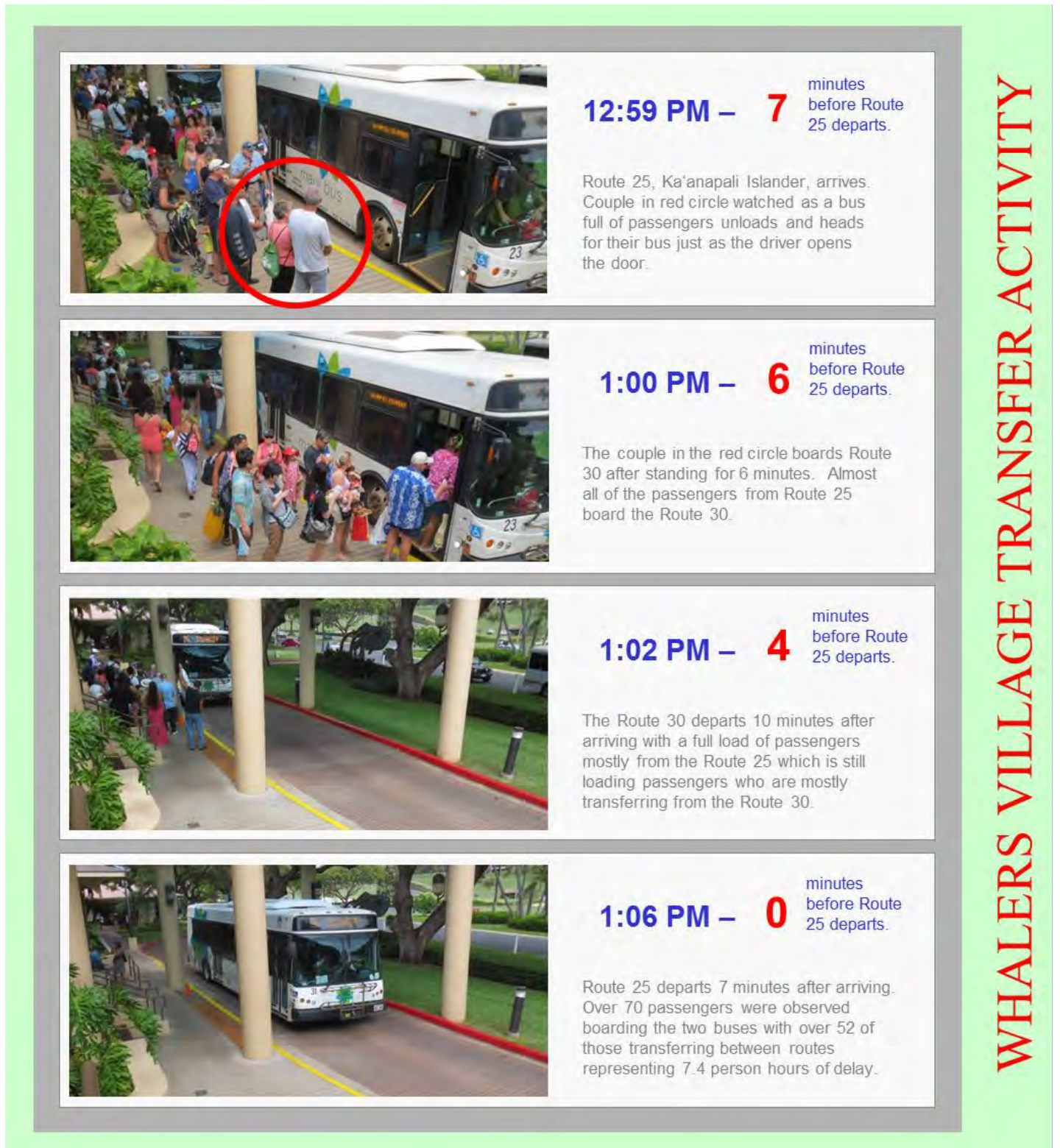


Table 4-3: Napili Islander Additional Trips

Depart Whalers Village	Depart Wharf Cinema Center	Arrive QKC
9:00 PM	9:30 PM	10:30 PM
10:00 PM	10:30 PM	11:30 PM

The Lahaina Islander Route should be operated with higher capacity buses or additional trips particularly in the afternoon and on “cruise ship” days need to be scheduled. Higher capacity vehicles are identified in the Capital and Financial Plan.

4.2.5 Haiku and Upcountry Routes

Both the Haiku Islander and the Upcountry Islander operate from the Queen Ka’ahumanu Center. Both routes serve the Salvation Army, Maui Mall and the airport on alternating schedules; although service to the airport is not on a consistent schedule as discussed in the Central Maui section. After serving the airport the routes diverge, with Route 35, Haiku Islander, serving two stops in Pā’ia Town, one stop on the outskirts of Pā’ia Town at the Kuau Mart and two stops in Haiku. Productivity on this route is low with 16.7 passengers per revenue vehicle mile. However, this is an important route for residents in Haiku and Pā’ia Town who are making connections to Central Maui. Currently, the route is scheduled with 90-minute service.

Route 40, Upcountry Islander, currently travels from the airport upcountry to Makawao. The route connects with Route 39, Kula Villager, at a new transfer point in Kulamalu Town Center after serving the Pukalani Shopping Center. Route 40 is operated with the larger 35 seat vehicle while Route 39 is operated with a smaller capacity vehicle.

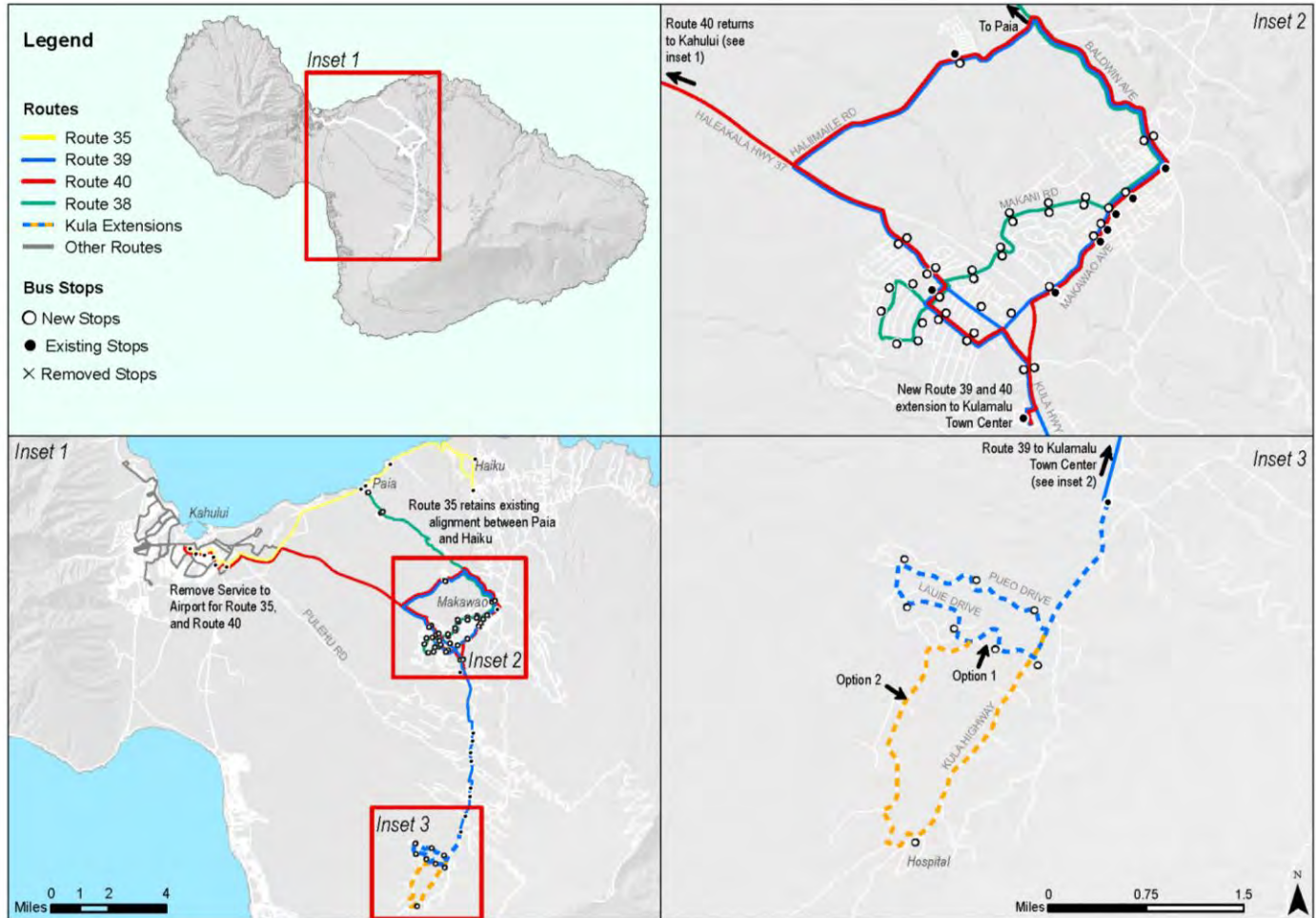
There is about two miles between Route 40’s stop across from the Pukalani Shopping Center and its next stop at Kulamalu Town Center even though most of that distance is residential. From Kulamalu Town Center, the route provides service along Makawao Avenue, then there are no stops until Hali’imaile. Following the stop in Hali’imaile, the route returns non-stop to the airport and back to Queen Ka’ahumanu Center. The route operates as a large one-way loop so residents cannot use the route for two-way internal circulation. The Upcountry Islander provides 90-minute service.

The Route 39, Kula Villager, provides two-way service between the terminus on Pukalani Street and Kula terminating at Rice Park. This route has the poorest performance out of all of the routes with about 3.3 passengers per revenue hour but it provides important transportation options to this otherwise fairly isolated area. The Kula Villager provides 60-minute service.

4.2.5.1 Haiku and Upcountry Recommendations

Figure 4-21 presents the Haiku and Upcountry proposed system. It shows that both Islander routes are realigned to provide a more direct connection into Kahului, bypassing the airport.

Figure 4-21: Haiku and Upcountry Proposed System



Airport service would be on a consistent 30-minute schedule provided by a new route. Both Islander routes would serve Walmart and Home Depot and new stops along South Pu‘unēnē Avenue and West Wakea Avenue. Figure 4-21 presents a potential new route directly connecting Pā‘ia Town with Makawao.

- Haiku Islander Route 35:** The alignment change shown in Figure 4-22 bypasses the airport and serves new development along Ho'okele Street via the new intersection with Hāna Highway. This change saves 15 minutes per roundtrip. The travel time savings can add two more daily trips to the Haiku Islander schedule but would not provide timed-connections at QKC. Characteristics include:

<i>Span of Service:</i>	5:30 AM to 10:00 PM
<i>Headways:</i>	75-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	13
<i>Number of Vehicles:</i>	1

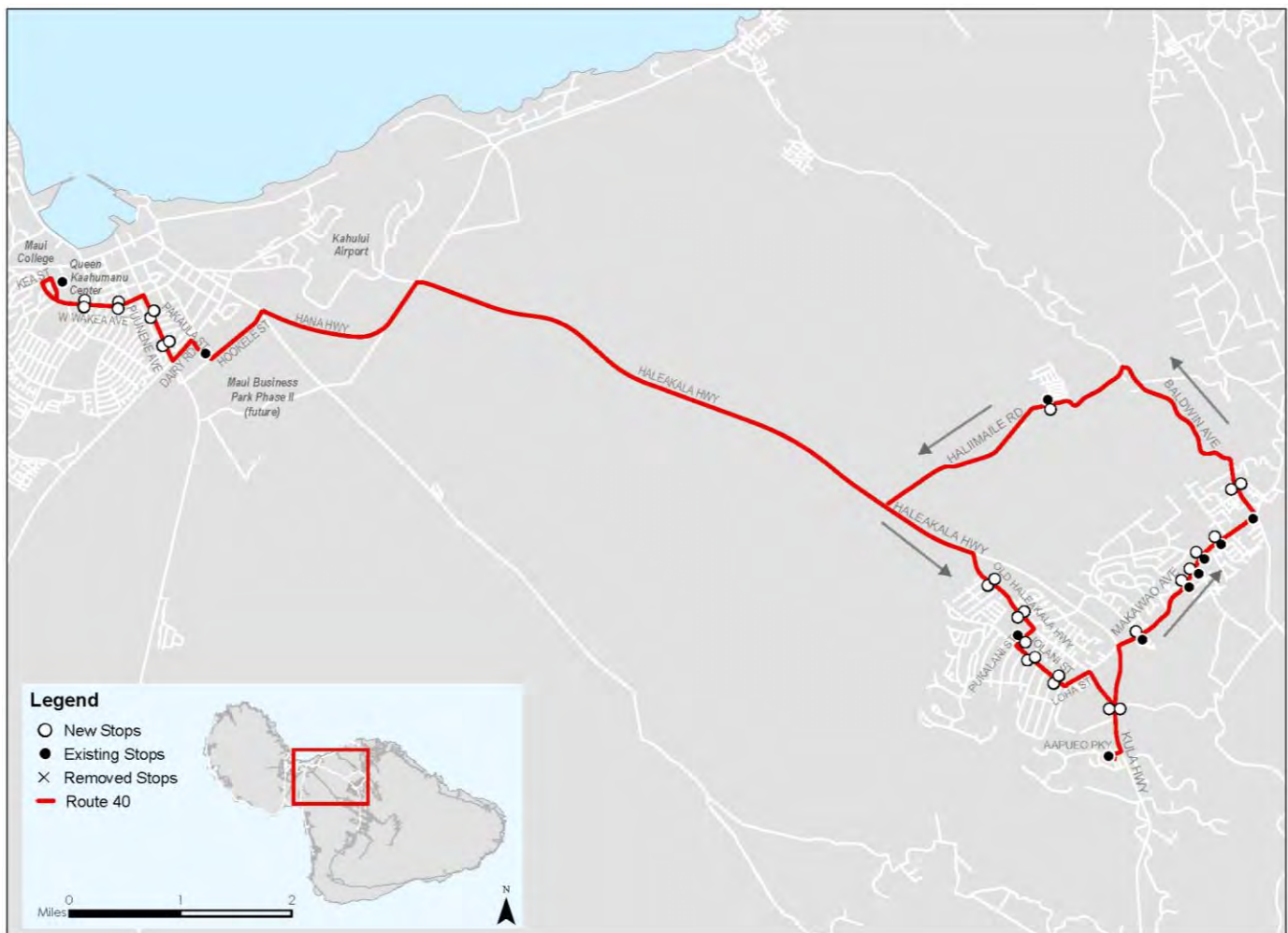
Figure 4-22: Haiku Islander Route 35



- Upcountry Islander Route 40:** MDOT extended this route in February 2015 to Kulamalu Town Center, which is the new transfer point between the Upcountry Islander and Kula Villager Routes (see Figure 4-23). Three alignment options were analyzed for the Upcountry Islander. Two of them were intended to provide two-directional service along Makawao Avenue using the Upcountry Islander. One alternative had the route turn back at Ukiu Road by the elementary school. This road gets very congested in the mornings and potential conflicts with children and vehicles would occur during the morning and afternoon periods while school is in session. Another alternative would turn the bus around at the Maui Veterans Cemetery. Both of these options would add too much time to the alignment to maintain the 90-minute service. Instead, the reverse loop is recommended to be provided by Route 39, Kula Villager, with the Upcountry Islander continuing the one-way service. Characteristics include:

<i>Span of Service:</i>	6:00 AM to 10:11 PM
<i>Headways:</i>	90-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	11
<i>Number of Vehicles:</i>	1

Figure 4-23: Upcountry Islander Route 40



- Pā'ia Town-Makawao Villager Route 38:** Figure 4-24 presents a new route and connection between these two towns. This route would be phased into service in later years as other priorities take precedence. Requests for this service have been received and initial implementation may provide limited trips. The new Pā'ia route would continue from Baldwin Avenue to Makawao Avenue and turning right onto Makani Road to provide new service to this area. The route would continue to the Pukalani Shopping Center and provide new service to the neighborhood west of the shopping center.

A transit hub is recommended in Pā'ia Town to provide connections with the Haiku Islander. The route would be operated with the same lower capacity vehicle currently operated on the Kula Villager. This route could be interlined with the Kula Villager when fully implemented, thus providing more frequent service for Kula, Hali'imaile, Pā'ia Town and Makawao. Characteristics for a fully implemented Route 38 include:

<i>Span of Service:</i>	8:00 AM to 9:30 PM
<i>Headways:</i>	90-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	10
<i>Number of Vehicles:</i>	1

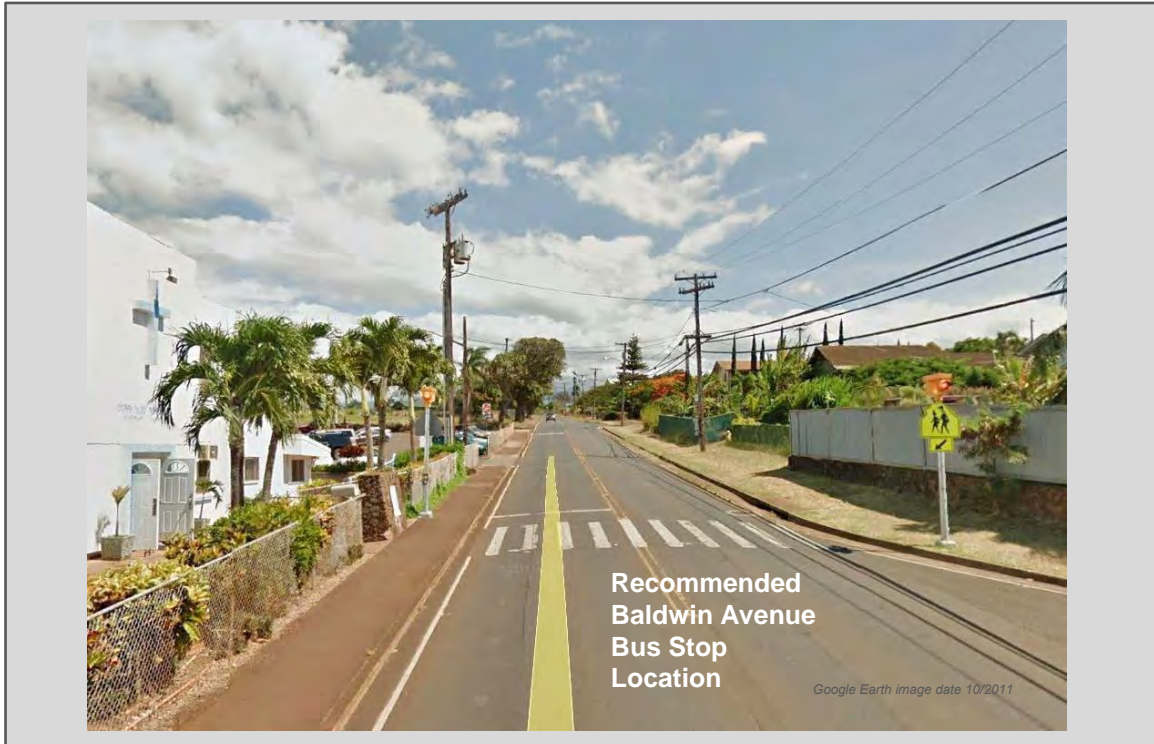
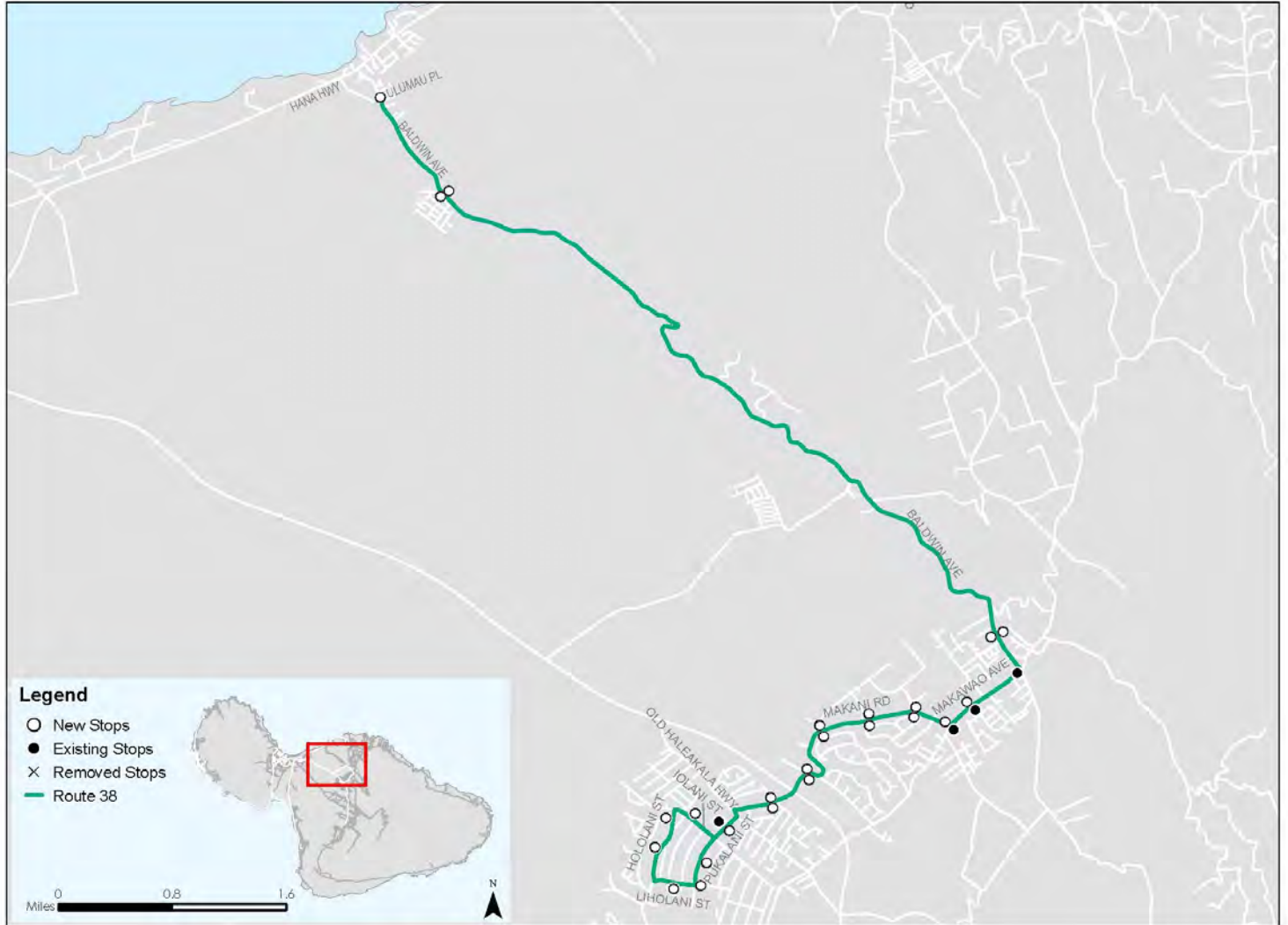


Figure 4-24: Pā'ia Town-Makawao Villager Route 39



- Kula Villager Route 39:** The Kula Villager is the only route where a decrease in service frequency would occur. This is off-set with new service providing the reverse loop to Hali'imaile and along Makawao Road as shown in Figure 4-25. The reverse loop service has been requested from riders for many years, was requested by passengers during the survey and was a major point of discussion and requests during the public meeting held in Pukalani. Currently, passengers from Hali'imaile and Makawao wanting to travel to Pukalani must travel all the way to QKC in Kahului before traveling back to Upcountry to reach their desired destination.

Working in tandem with Route 40, two-direction service would be offered allowing local circulation within the larger upcountry community. The new service requires new bus stops be installed. The new schedule would start at 6:10 AM at Rice Park (or earlier if the route serves Hawaiian Homelands), providing an inbound trip for Kula residents to connect to the inbound Upcountry route at Kulamalu. The route would continue to Pukalani via Iolani Street. New bus stops would be required to serve the shopping center.

The route would continue via Old Haleakalā Highway to Haleakalā Highway and Hali'imaile Road to provide the two-directional service. Providing this service with the same bus adds 30 minutes to the running time. Productivity on the Kula Villager will eventually rise with this new service and bus stops may be requested to serve King Kekaulike High School.

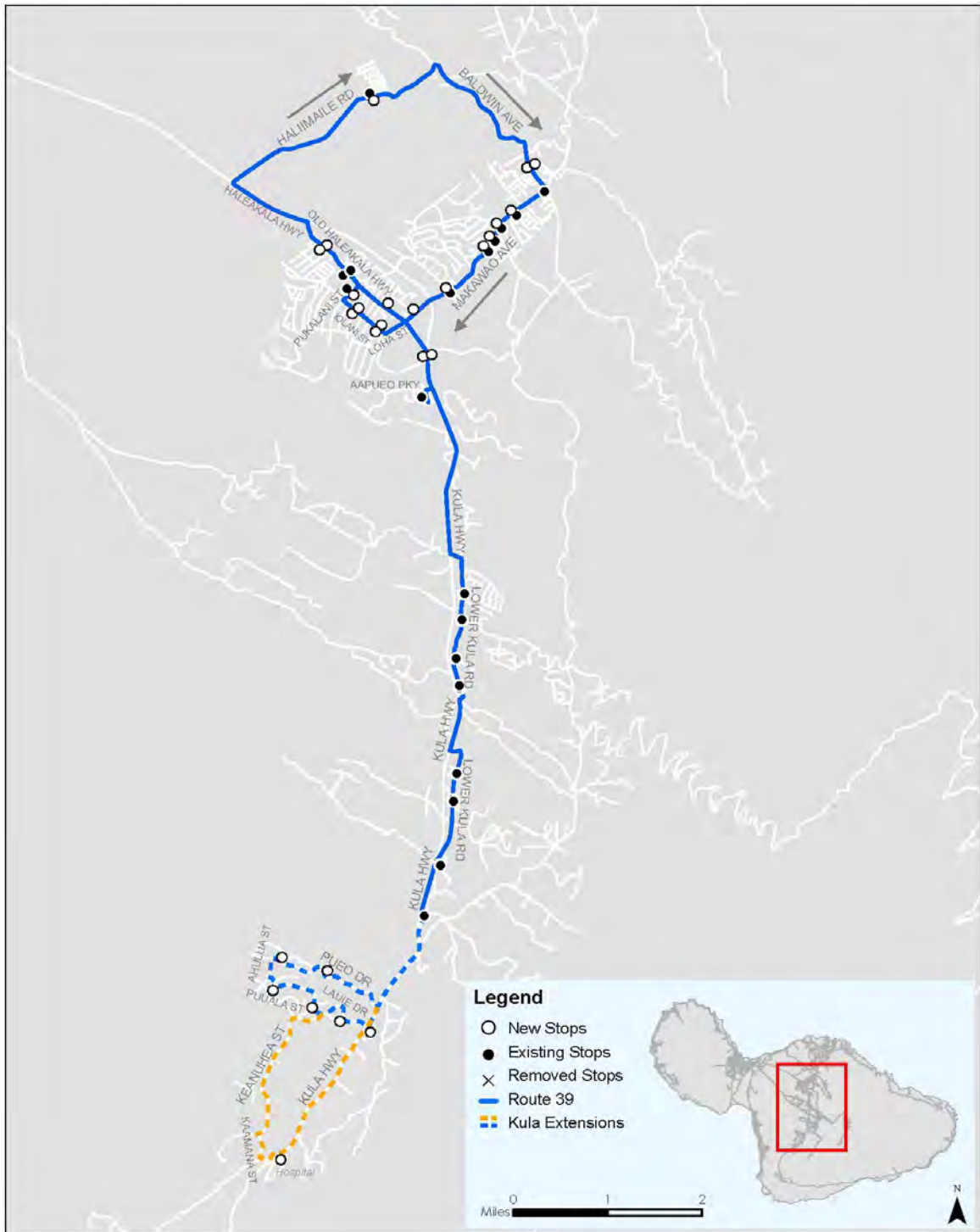
Two alternate alignments are shown to serve Hawaiian Home Lands in Kula. Serving that community would require an additional bus or alternating service could occur with the extended Makawao service. Kula Villager would serve new bus stops on the Iolani Street reverse loop, on Old Haleakalā Highway and at the High School on Kula Highway. Prior to returning to Kulamalu Town Center following service to Makawao, Route 39 would provide the missing link to Pukalani Shopping Center for Makawao residents. Characteristics include:

<i>Span of Service:</i>	6:10 AM to 10:00 PM
<i>Headways:</i>	90-minute AM Peak, mid-day, PM Peak and evening
<i>Number of Trips:</i>	11
<i>Number of Vehicles:</i>	1

4.2.6 Commuter Routes

The commuter routes serving War Memorial Stadium are full. The commuter routes use larger buses that have 56 seats. It is recommended that MDOT work with the larger resorts to assist with funding additional commuter route trips. The War Memorial Stadium is centrally located in Kahului with easy access and extensive parking capacity. However, a few times a year the Stadium parking lot is not available and commuters use a dirt lot at Kahului Harbor located off of Kahului Beach Road. This arrangement has been working well for many years and no service adjustments are included in the plan.

Figure 4-25: Kula Villager Route 39



Chapter 4 Endnotes:

¹ Source: *Suburban Transit Division Service Standards and Process*, SEPTA, 2004.

² Source: *Milwaukee County TDP 2005-2009*.

³ Source: *Line Service Design Standards*, VIA Metropolitan Transit, 2000.

⁴ Source: *Transit Capacity and Quality of Service Manual Third Edition*; Transit Cooperative Research Program Report 165: 2013; page 5-82. Each traffic analysis zone (TAZ) is evaluated to determine if it meets the criteria to be “transit supportive.” The manual defines such an area as one that either has a household density of 3 households or more per acre or a job density of 4 jobs or more per acre. Household density is calculated by dividing the households in the TAZ by its area in terms of acres. Job density is calculated in the same manner. This results in some anomalies where the TAZ may include large areas of open space that are included in the acreage total (for example golf courses) such as can be seen in Figure 4-2 for the end of the Route 10 where the calculation results in the designation of the resort areas as being non-TSA but field observations and transit passenger comments have indicated a significant need for this area to be served and to have service extended.

⁵ Source: FTA Introduction to Transit Workshop

⁶ TCRP Synthesis 10 - *Bus Route Evaluation Standards*

⁷ *Service Evaluation & Performance Measurement Program* – Madison Metro 2000

⁸ *Service Policy for Surface Public Transportation* – Massachusetts Bay Transportation Authority

⁹ TCRP Synthesis 10 – *Bus Route Evaluation Standards*

¹⁰ *Service Standards* – Denver RTD

¹¹ *Service Standards* – Denver RTD

¹² York Region Transit – *Transit Service Guidelines 2006*

¹³ *Line Service Design Standards* – VIA Metropolitan Transit 2000

¹⁴ *Service Policy for Surface Public Transportation* – Massachusetts Bay Transportation Authority 1975

¹⁵ FTA Introduction to Transit Workshop 1997

¹⁶ *Development of Guidelines for the Design and Placement of Transit Stops for WMATA*, December 2009

¹⁷ *Palm Tran Service Guidelines 1999*

Maui Short Range Transit Plan



Chapter 5 FINANCIAL PLAN



5. INTRODUCTION

This chapter, Financial Plan, provides an overview of the current financial setting, analyzes the fare structure, the impact of the fare structure on capital and financial programs, future capital needs and formulates a financial plan to address these needs.

5.1 CURRENT FINANCIAL SETTING

MDOT provides public transportation service for county residents and visitors through regularly scheduled fixed route service on the island of Maui. Fixed route and commuter route services are contracted with Roberts Hawai'i.¹ Complementary paratransit demand-response service for eligible people with disabilities under the Americans with Disabilities Act (ADA) is provided on the island of Maui. Human service transportation is provided on the Islands of Maui, Lâna'i and Moloka'i. This section offers a report on how these operations have been traditionally supported and how the public has responded to those investments. In fiscal year 2015 the combined cost of providing fixed route, commuter and complementary paratransit demand-response services on the island of Maui was \$9,885,500.

5.1.1 Capital Investments

Maui DOT added sixteen new vehicles to the fleet during the past year (2014). This included four buses with a capacity for twenty-five passengers with two wheelchair positions and one low-floor bus with a capacity for seventeen passengers with four wheelchair positions assigned to the fixed route fleet. Funding for the purchase of the sixteen vehicles was done through Federal grants requiring an 80% federal and 20% county matching funds. Ten vehicles were retired from the fleet due to their age and being beyond their useful life. The total Maui Bus fixed route vehicle fleet is included in Table 5-1.

Table 5-1: Maui Bus Fixed Route Vehicle Fleet Inventory

(Source: MDOT Annual Agency Fleet Table)

Year	Quantity	Make	Model	Seating Capacity	Lift or Ramp	Number of Tie-downs
2004	1	Alexander Dennis	Enviro 500	81	Ramp	2
2007	6	EIDorado National	AXESS	41	Ramp	2
2008	7	EIDorado National	EZ-RIDER II	37	Ramp	4
2010	5	EIDorado National	EZ-RIDER II	37	Ramp	4
2011	1	EIDorado National	Aero-Elite	25	Lift	2
2013	1	Chevrolet	Arboc	17	Ramp	4
2014	10	EIDorado National	AXESS	32	Ramp	2
2015	4	EIDorado National	Aero-Elite	25	Lift	2
Total:	35					

Eleven buses accommodating eight passengers with four wheelchair positions were added to the paratransit fleet. The existing paratransit fleet is now composed of thirty vehicles listed in Table 5-2.

Table 5-2: Maui Bus ADA Paratransit Program Vehicle Fleet Inventory
 (Source: MDOT Annual Agency Fleet Table)

Year	Quantity	Make	Model	Seating Capacity	Lift or Ramp	Number of Tie-downs
2012	10	EIDorado National	Aerolite	8	Lift	4
2012	3	Dodge	Grand Caravan	6	Ramp	2
2012	1	VPG	MV-1	5	Ramp	2
2015	11	EIDorado National	Aerolite	8	Lift	4
2016	5	EIDorado National	Aerolite	8	Lift	4
Total:		30				
Note: The five 2016 EIDorado vehicles are on order with a delivery date expected January 2016.						

The bus stop and passenger shelter capital improvement program provides safe, comfortable and convenient facilities for the safety of those in the community who use public transportation. Nine bus stop locations were designed during 2015 for the Wailuku, Ma’alaea, Kīhei and Upcountry areas. Seven bus stop passenger shelters were installed in the West Maui area.

5.1.2. Operating Budget and Capital Expenditures

Table 5-3 provides a historical overview of the number of passengers served, the operating budget needed to serve those passengers, the capital investment required to improve the system and the number of buses added each year since the operation began in August 2002. The Maui Bus program accommodated over 2.4 million passengers in Fiscal Year 2015, a 1.8% decrease in passenger boardings from Fiscal Year 2014 to Fiscal Year 2015. When the last Maui Short Range Transit Plan was completed in 2005 only 154,616 passengers were recorded. Now that operations have consistently served over 2.4 million passengers over the past four years it is timely to see what needs to be done to improve the system over the next five years or longer.

Table 5-3: Maui Bus Historical Data By Fiscal Year

(Source: MDOT Fiscal Year Annual Report)

Fiscal Year	Number of Served Passengers	Operations Budget	Capital Improvement Program	Number of Added Buses
2003	101,508	\$350,000	\$0	7
2004	117,490	\$545,000	\$0	7
2005	154,616	\$792,135	\$0	9
2006	301,000	\$1,172,219	\$0	4
2007	864,788	\$3,958,975	\$0	6
2008	1,450,615	\$4,995,700	\$100,000	7
2009	2,006,539	\$6,550,000	\$250,000	0
2010	2,320,434	\$7,377,500	\$425,000	5
2011	2,303,831	\$7,792,500	\$200,000	0
2012	2,764,358	\$8,477,500	\$200,000	14
2013	2,511,197	\$10,675,500	\$200,000	4
2014	2,448,129	\$10,675,500	\$1,000,000	11
2015	2,405,163	\$9,885,500	\$1,000,000	16

Notes: 1) FY 2003. The system began service in August 2002.
 2) FY 2003 and 2004 are estimates. MEO was not required to provide a cost breakdown.
 3) FY 2008, \$100,000 funds for CIP was from the general fund.
 4) FY 2011 includes third quarter budget amendment.
 5) FY 2013 the general fare increased to \$2.00 a ride; doubling the cash fare.

In Fiscal Year 2015 passengers paid \$2,701,403 in revenue providing 27.3% of the funding for operations. This 27.3% farebox recovery rate is considerably better than the rate for comparable systems of about 15.9%.² The cost per passenger for the Maui Bus fixed route program was \$3.16 in Fiscal Year 2015. This was slightly more than the \$3.10 cost per passenger from the previous fiscal year. The 1.9% increase is due in part to the slight reduction in ridership. The next section takes a closer look at how Maui Bus fares, operating costs, capital investments and productivity compare to comparable operations.

A summary of Fiscal Year 2015 Finances is provided in Table 5-4. The Fiscal Year 2016 budget includes \$9,885,500 for the Maui Public Transit Program and \$6,900,440 for the human service program.

Table 5-4: Maui Bus Fiscal Year 2015 Financial Overview
(Source: MDOT Fiscal Year Annual Report)

Description	Budget	Expenditures	Balance
Capital Items:			
Fleet	\$500,000	\$440,875	\$59,125
Fixed Facilities	\$1,000,000	\$1,000,000	\$0
Operations:			
Administration	\$173,493	\$169,103	\$4,390
Marketing	\$50,000	\$50,000	\$0
Fixed Route, Paratransit & Commuter	\$9,885,500	\$9,885,500	\$0
Human Service	\$6,000,400	\$6,000,400	\$0

The Maui Bus operation is supported by a number of federal programs described in Chapter 2. Table 2-8 of that chapter lists the grant awards for each year between Fiscal Year 2010 and 2015. Table 5-5 includes the estimates for Federal Transit Administration grant funds for Fiscal Year 2016.

Table 5-5: MDOT Fiscal Year 2016 Estimates Of Federal Transit Administration Grant Funds
(Source: MDOT Fiscal Year Annual Report)

Description	Estimate
Section 5303 Metropolitan and Statewide Planning Formula	\$450,000
Section 5307 Urbanized Area Formula	\$1,100,000
Section 5311 Non-Urbanized Area Formula	\$500,000
Section 5311 Rural Transit Assistance Program	\$500,000
Section 5339 Rural Area Formula	\$600,000
Section 5339 Small Urban Area Formula	\$500,000
Total	\$3,650,000

5.2 FARE STRUCTURE ANALYSIS

The current fare structure is shown in Table 5-6. Fares are set by the Maui County Council. Current fares went into effect July 1, 2012 when the general cash fare went from \$1.00 per ride to \$2.00 per ride. Fares are reaffirmed each year as part of the county budget setting process. Maui Bus does not provide free transfers to complete a one-way trip. Passengers must pay for each boarding, which makes the \$4.00 daily pass or the \$45.00 monthly pass options price competitive.



Table 5-6: Current Maui Bus Fare Structure (2016)

Fare Type	Cost
Cash Fare	\$2.00, includes fixed route, commuter and ADA paratransit
Daily Pass	\$4.00, fixed route and ADA paratransit
Monthly Passes:	
General	\$45.00, fixed route, commuter and ADA paratransit
Student (valid school ID)	\$30.00, fixed route and ADA paratransit
Senior (55 years & older)	\$25.00, fixed route service only
Person with Disability	\$30.00, fixed route service only
Senior ADA Paratransit Pass (55 years & older)	\$30.00, ADA paratransit only

The \$45.00 monthly pass is valid for fixed route, commuter and ADA paratransit services. The monthly pass is discounted for students, seniors and persons with disabilities. The student pass of \$30.00 per month requires a valid school identification card and is valid for both fixed route and ADA paratransit. The \$25.00 per month senior pass is for those who are 55 years and older and is valid for fixed route only. The \$30.00 persons with a disability monthly pass is for fixed routes only. The \$30.00 senior ADA paratransit pass is for ADA paratransit only.

Several transit fare policy investigations were conducted to determine how the Maui Bus transit fare structure compares with other transit systems. One investigation involved the *Public Transportation Fare Database*. This is a report prepared by the American Public Transportation Association through a voluntary survey of its members. The 2014 survey was compiled and released April 2015. The survey includes all public transportation modes, but only those 153 transit systems reporting data for the bus mode were included in the investigation. These 153 bus systems serve all sizes of urban areas in all parts of North America. Therefore, two other investigations were conducted.

The second investigation was to compare the Maui Bus fare structure with those from the three other public bus systems operating in Hawai'i. The third investigation was to assemble a group of comparable systems to Maui Bus primarily in terms of the population served.

5.2.1 North American Bus System Fares and Practices

In 2014 the average single trip base fare of the 153 bus systems surveyed was \$1.56. Forty-six systems or about 30% of those participating had an express trip surcharge of up to \$10.75 over their base fare. This express surcharge was primarily associated with peak-period, peak-direction, and limited-stop services comparable to the Maui Bus commuter routes. Twenty-three bus systems reported a trip distance or zone surcharge of up to \$13.50. This is also mostly associated with peak-period, peak-direction, limited-stop services over longer distances comparable to the Maui Bus commuter routes. These single trip fare surcharges are included in Table 5-7.

Table 5-7: National Fares

(Source: 2014 American Public Transportation Association survey of 153 bus systems)

Fare Type	Cost	Number of Systems	Percent of Systems Reporting	Maui Bus Comparison
Average Single Trip Base Fare	\$1.56	153	100%	\$2.00
Express Single Trip Surcharge	Up to \$10.75	46	30%	None
Single Trip Distance or Zone Surcharge	Up to \$13.50	23	15%	None
Average One Day Pass Cost	\$4.45	95	62%	\$4.00
Monthly Pass Average Cost	\$55.07	135	88%	\$45.00

Sixty-two percent of all bus systems offer a one day pass at an average cost of \$4.46. This is 11% higher than the Maui Bus one day pass whereas the average North American base bus fare is 22% lower than the Maui Bus single trip base fare indicating the one day pass may be overly discounted. Likewise, the Maui Bus monthly pass is disproportionately discounted when compared to the North American bus monthly pass average of \$55.07.

Eighty-eight percent of all bus systems offered a monthly bus pass indicating that this method of fare payment is commonly used. Most systems now have the ability to use the same fare media for various types of passes and trip based fare payment programs. There are four basic types of pass media used:

- **Non-magnetic Pass:** A single piece of paper, cardboard or some other material without a magnetic strip good for an unlimited number of trips during a specified time period that is not surrendered or altered as each trip is taken.

- **Magnetic Stored-Value Pass:** A single piece of paper, cardboard or some other material with a magnetic strip good for an unlimited number of trips during a specified time period that is altered by machine removal of some or all of the stored value as each trip is taken.
- **Magnetic Stored-Time Pass:** A single piece of paper, cardboard or some other material with a magnetic strip good for an unlimited number of trips during a specified time period that is not surrendered or altered as each trip is taken.
- **Smart Cards:** A single piece of material without a magnetic strip but with a small computer chip good for one or more trips that is usually not surrendered but altered by machine removal of some or all of the stored value as each trip is taken.

Most systems are now using some form of magnetic based stored value or time base cards as shown in Table 5-8. Many systems are using multiple types of fare media with 42% reporting they are still using non-magnetic passes.

Table 5-8: National Fare Media Examples
(Source: 2014 American Public Transportation Association survey of 153 bus systems)

Fare Media Type	Number of Systems	Percent of Systems Reporting
Non-Magnetic Passes	65	42%
Magnetic Stored-Value Cards	52	34%
Magnetic Stored-Time Cards	79	52%
Smart Cards	44	29%

Fare collection systems are continuously evolving to incorporate new technologies and methods to improve efficiency, reliability and convenience. Use of Smart Card fare media is increasing and replacing older technologies. Over the past year the percent of bus systems using smart cards increased from 25% to 29%. This trend is expected to continue. This is because of the substantial benefits of smart cards. Some of the benefits of advanced fare media systems include:

- **Customer Convenience:** People of all ages and abilities, whether frequent or occasional riders, are offered pricing that fits their personal need using fare products at a variety of prices that are easy to use. Methods of payment for smart cards include the use of devices that only need to be in close proximity to the reading device. Smart cards need not be a “card” but can be a “bracelet” such as shown to the right.



- **Service Requirements:** Smart cards can be used on any type of transit service offered in any location. Smart card technology was originally applied to just large rail systems. Those systems then partnered with connecting bus systems. Those applications were expanded to paratransit services. Honolulu is now in the process of procuring a comprehensive smart card system that will start with the bus and paratransit operations before the rail system is operational.
- **Complete Data Recording and Processing:** Transit fares comprise a significant portion of transit system funding so it is critical fare collections systems are accurate, complete and secure in accepting and processing revenue. The fare collection and validation systems provide the ridership data for transit service development and refinements.

5.2.2 Hawai'i Bus System Fares and Practices

The second investigation conducted for the fare structure analysis was to compare Maui Bus fares with those from the three other public bus systems operating in Hawai'i. Table 5-9 presents a summary of the bus system fixed route fare structure for each of the four Hawai'i systems. Table 5-10 provides the same information for the ADA paratransit systems.

In reviewing these fares it is important to understand the diversity and uniqueness of each of our island systems. The following provides some of the operational highlights of each system.

- **City and County of Honolulu:** The City and County of Honolulu has a large public transportation system involving TheBus, TheHandi-Van, supplemental taxi service providers and human service transportation providers. TheBus operates a fleet of approximately 530 buses operating over 90 routes with almost 4,000 bus stops. There are over 160 Handi-Vans supplemented by assigning some trips to local taxi companies or private transportation operators especially where the passenger resides along a narrow roadway or remote location.



TheBus Route 8 at Ala Moana Center.

TheBus has enhanced its service and fleet to include mobility device accessibility, voice enunciators and real time next bus arrival electronic signage located at all transit centers and major bus stops. Multiple smart phone applications have real time bus arrival data related to the users location, desired destination and best path by transit.

Table 5-9: Hawai'i Bus System Fixed Route Fare Structures

Fare Type	Transit System			
	Maui Bus	Honolulu TheBus	Hawai'i Hele-On	The Kaua'i Bus
Cash Fares:				
General	\$2.00	\$2.50	\$2.00	\$2.00
Youth	--	\$1.25	\$1.00	\$1.00
ADA eligible	--	\$1.00	--	--
Disability	--	\$1.00	\$1.00	\$1.00
Senior	--	\$1.00	\$1.00	\$1.00
Daily Pass	\$4.00	--	--	--
Four Day Pass	--	\$35.00	--	--
Monthly Passes:				
General	\$45.00	\$60.00	\$60.00	\$40.00
Student (valid school ID)/youth	\$30.00	\$30.00	\$45.00	--
Senior (55 years & older)	\$25.00	--	--	--
Senior (60 years & older)	--	--	\$45.00	--
Senior (65 years & older)	--	\$5.00	--	--
Person with Disability	\$30.00	\$5.00	\$45.00	--
Senior (55+) ADA Paratransit Pass	\$30.00	--	--	--
Annual Passes:				
General	--	\$660.00	--	\$400.00
Youth	--	\$330.00	--	--
Senior (65 years & older)	--	\$30.00	--	--
ADA eligible	--	\$30.00	--	--
Transfers, fixed route	no	yes	yes	no
<p>Other fares:</p> <p>1) Honolulu offers a 4-day visitor pass for \$35.00 for TheBus. UPASS passes are available for reduced rates for university and college students for participating institutions on TheBus. TheBus requires a Disability ID card for monthly and annual passes.</p> <p>2) Kaua'i offers \$.50 general public and \$0.25 senior and youth fares on their Shuttle routes. Hele-on charges \$1.00 for bicycles and pets in carrying cases.</p> <p>3) Hele-on has a shared ride taxi program.</p>				

Table 5-10: Hawai'i Bus System ADA Paratransit Fare Structure

Fare Type	Transit System			
	Maui Bus	Honolulu TheBus	Hawai'i Hele-On	The Kaua'i Bus
Cash Fares:				
General	--	--	--	--
Youth	--	--	--	--
ADA eligible	\$2.00	\$2.00	--	--
Disability	--	--	--	\$1.00
Senior	--	--	--	--
Daily Pass	\$4.00	--	--	--
Four Day Pass	--	--	--	--
Monthly Passes:				
General	\$45.00	--	--	\$40.00
Student (valid school ID)/youth	\$30.00	--	--	--
Senior (55 years & older)	--	--	--	--
Senior (60 years & older)	--	--	--	--
Senior (65 years & older)	--	--	--	--
Person with Disability	--	--	--	--
Senior (55+) ADA Paratransit Pass	\$30.00	--	--	--
Annual Passes:				
General	--	--	--	\$400.00
Youth	--	--	--	--
Senior (60 years & older)	--	--	--	--
Senior (65 years & older)	--	--	--	--
ADA eligible	--	--	--	--
Transfers, fixed route	--	--	--	--

Honolulu has been investing in new technology to introduce dynamic scheduling. New software programs and technology applications are also improving TheHandi-Van's scheduling and pick-up performance. Real time scheduling of reservations can be made during the requestor's call. The goal is to improve the accuracy of the scheduled pick-up time. This ability is made possible by using Trapeze schedule software.

- Hawai'i County:** Hawai'i's Hele-On covers over 4,028 square miles. The regular commuter bus service runs Monday through Saturday from 3:30 AM to 1:00 AM with limited service on Sundays and County observed holidays. It operates 14 bus routes with a major terminal located at Mo'oheau Park.



Hele-On Bus at the Mo'oheau Terminal.

A county shared ride taxi program is available for up to a 9-mile radius from a rider's origin within Hilo. The average out of pocket cost for senior riders is \$4 per trip.

The Hawai'i County bus system has maintained the position that the routes are commuter bus services and are not required to comply with ADA complementary paratransit service. However, the County has contracted with the Hawai'i County Economic Opportunity Council to provide a curb-to-curb paratransit service.

- Kaua'i County:** The Kaua'i Bus and paratransit services are operated by the County Transportation Agency. The fleet consists of various passenger sized vehicles that operate daily. The current ADA paratransit fare payment is based on tickets with a requirement for medical verification. People 60 years of age and older have been eligible to use the paratransit service regardless of a medically verified disability. Discussion has occurred to restrict service to only those who meet the ADA eligibility criteria. The county is currently in the process of procuring software to provide timelier paratransit service.



Table 5-9 shows that the current cash fare for Maui Bus, Hele-On and The Kaua'i Bus is the same at \$2.00 per ride. The cash fare is the fee charged to passengers per boarding. TheBus on Honolulu had a \$2.00 cash fare up to 2003. TheBus cash fare has been raised twice since; once in July 2009 to \$2.25 and again in July 2010 to \$2.50 per ride as shown in Table 5-11.

Maui Bus does not offer cash fare discounts. The other three systems all offer half fare discounts for youth. Fares for seniors and the disabled are also discounted. Maui Bus is the only Hawai'i system offering an unlimited one-day pass. O'ahu has a 4-day pass for \$35.00 for use on TheBus only. The Honolulu City Council is debating the merits of instituting a one-day pass and eliminating the 4-day pass and transfers.

All systems offer a monthly pass. TheBus and Hele-On charge \$60.00 for a monthly pass as compared to Maui's \$45 and \$40 for Kaua'i. The Kaua'i Bus does not discount their \$40.00 monthly pass for special groups such as youth, seniors or the disabled. The other three systems do offer discounts but with different approaches. TheBus offers a \$30.00 monthly pass for youth as defined for those 18 years of age or younger. Maui Bus discount is only for students with a valid ID. Hele-On's \$45.00 monthly pass is for students without any age restriction.

Table 5-11: Honolulu TheBus System Fare Structure History

FARE TYPE	EFFECTIVE DATE OF FARE STRUCTURE					
	July 1995	July 2001	July 2003	October 2003	July 2009	July 2010
Cash Fares:						
General	\$1.00	\$1.50	\$1.75	\$2.00	\$2.25	\$2.50
Youth	\$0.50	\$0.75	\$0.75	\$1.00	\$1.00	\$1.25
Senior (65 years & older)	\$0.50	\$0.75	\$0.75	\$1.00	\$1.00	\$1.25
Disabled	\$0.50	\$0.75	\$0.75	\$1.00	\$1.00	\$1.25
Daily Pass	--	--	--	--	--	--
Monthly Passes:						
General	\$25.00	\$27.00	\$30.00	\$40.00	\$50.00	\$60.00
Youth	\$12.50	\$13.50	\$13.50	\$20.00	\$25.00	\$30.00
Senior (65 years & older)	\$12.50	\$13.50	\$13.50	\$5.00	\$5.00	\$5.00
Disabled	--	--	--	\$5.00	\$5.00	\$5.00
Annual Passes:						
General	--	--	--	\$440.00	\$550.00	\$660.00
Youth	--	--	--	\$220.00	\$275.00	\$330.00
Senior (65 years & older)	\$20.00	\$25.00	\$25.00	\$30.00	\$30.00	\$30.00
Disabled	\$20.00	\$25.00	\$25.00	\$30.00	\$30.00	\$30.00
Transfers, fixed route	yes	yes	yes	yes	yes	yes

Note: Prior to October 2003 the annual pass for seniors and disabled passengers was valid for two years. Monthly Senior and Disabled fare stickers require a \$10 Senior or Disabled ID card.

Two of Hawai'i's public transportation systems offer an annual pass. The Kaua'i Bus annual pass is \$400.00 with no special discounts for youth, senior or disabled status. TheBus offers a \$660.00 annual pass with a fifty percent discount for youth and a \$30.00 annual pass for seniors who are 65 years of age or older and a \$30.00 annual pass for ADA eligible riders (for use on the fixed route system).

The ADA cash fare for Maui Bus and TheBus is the same at \$2.00 per ride. FTA allows systems to charge twice the fixed route cash fare for ADA paratransit services.³ TheBus discounts their \$2.50 cash fare to \$2.00. The Kaua'i Bus discounts their \$2.00 general cash fare to \$1.00. Maui Bus offers multiple pass options for ADA paratransit service. The Kaua'i Bus is the only other Hawaii system that offers any type of pass for ADA paratransit service. Its general monthly and annual passes can be used for ADA paratransit service but with no price discounts.

5.2.3 National Peer Group Fares and Financial Performance

The third investigation conducted to compare Maui Bus fare structure with those from other public transportation systems was to assemble a group of systems to compare with Maui Bus from throughout the United States using several factors. Twenty-four public transportation systems were considered based on potential comparability primarily using population. From this group several were eliminated due to anomalies in the available data or due to being too influenced by a major transit trip generator such as a large college or university which frequently overwhelm transit systems with riders. Thirteen locations were selected for the peer review considering the urban area population, service area population, the urban area size in square miles and the service area size in square miles. MDOT added an additional five California systems to the review based upon community characteristics such as cost of living and base cash fare.

The data used in the peer group review is from the National Transit Database (NTD). The NTD was established by Congress to be the Nation’s primary source for information and statistics on U.S. transit systems. All recipients of Federal Transit Administration (FTA) grants under the Urbanized Area Formula Program are required by statute to submit data to the NTD. Over 660 urban transit providers report to the NTD and the accuracy of those statistics has improved over the years through rigorous validation methodologies. Maui Bus submitted its required data for the first time for 2013 after passing over the 50,000 population threshold to become an officially-recognized urban area. This is the same year (2013) that was used for the data from the other systems included in the Maui Bus peer group.

The NTD database is organized by the name of the “urban area” served by the corresponding public transportation system. For Maui Bus the corresponding “urban area” name is “Wailuku, HI”. Many other transit systems included in this analysis don’t typically use their urban area name in referring to their respective system name, but the urban area name is used in this analysis for Maui Bus to be clear about the source of the reported data in the peer group tables. For example, the Rogue Valley Commuter Line and Josephine Community Transit are both transit operations reported by the Rogue Valley Transportation District for the Grants Pass urban area. The NTD database makes all of these transit operations normalize their marketing identities so that the type of data analysis being conducted for Maui Bus are possible.⁴



Table 5-12 includes the fare structure characteristics of each of the transit systems with those averages being compared to the Wailuku urban area or Maui Bus. Many of these passenger fares are very comparable. For example, the average single base cash fare is \$1.88 compared to \$2.00 for Maui Bus. Many systems charge a premium for express routes. Fifteen of the systems offer a daily pass at an average of \$4.53 per day compared to \$4.00 per day for Maui Bus. All of the systems offer a monthly pass at an average cost of \$48.37 as compared to \$45.00 for Maui Bus. For all of the discounted passes, Maui Bus is equivalent or slightly less than the peer systems.

Some of the systems offer ADA paratransit service at the same cash fare as their fixed route service. Many charge double the fixed route base fare which is the legal limit. All of the systems offer ADA eligible passengers a discount to ride the fixed route system; with three systems offering ADA passengers with ID the option of riding fixed route services at no charge.

Table 5-12: Peer Group Fare Structure Characteristics

URBAN AREA	FARE TYPE						
	Single Trip Base Fare	Daily Pass	Monthly Pass	Student/ Youth Monthly Pass	Senior Monthly Pass	ADA Fixed Route Only Monthly Pass	ADA Paratransit Monthly Pass
Bend, OR	\$3.75	\$6.25	\$100.00	\$100.00	\$100.00	\$100.00	none
Burlington, WA	\$1.00	\$2.00	\$25.00	\$12.50	\$12.50	\$12.50	none
Fairfield, CA	\$1.75	none	\$60.00	\$50.00	\$30.00	\$30.00	none
Flagstaff, AZ	\$1.25	\$2.50	\$37.00	\$18.50	\$18.50	\$18.50	none
Grants Pass, OR	\$2.00	\$6.00	\$50.00	\$25.00	\$25.00	\$25.00	none
Great Falls, MT	\$1.00	\$4.00	\$30.00	\$25.00	\$21.00	\$21.00	none
Ithaca, NY	\$2.50	\$4.00	\$60.00	\$40.00	\$30.00	\$30.00	none
Longview, WA	\$0.60	\$1.20	\$10.00	\$6.00	\$5.00	\$5.00	none
Mankato, MN	\$1.50	none	\$40.00	\$40.00	\$40.00	\$40.00	none
Orange, CA(1)	\$2.00	\$5.00	\$69.00	\$40.00	\$22.25	\$22.25	none
Pittsfield, MA	\$4.50	\$10.00	\$52.00	\$26.00	\$39.00	\$52.00	none
San Carlos, CA(2)	\$2.25	\$5.50	\$65.60	\$27.00	\$27.00	free	none
San Jose, CA(3)	\$2.00	\$6.00	\$70.00	\$45.00	\$25.00	\$25.00	none
Santa Barbara, CA	\$1.75	\$6.00	\$52.00	\$42.00	\$20.00	\$20.00	none
Sherman, TX	\$1.00	\$2.00	\$20.00	\$20.00	free	free	\$52.00
Walla Walla, WA	\$0.50	none	\$20.00	none	\$12.00	\$12.00	\$12.00
Wenatchee, WA	\$2.50	\$5.00	\$70.00	\$15.00	\$52.50	free	none
Williamsport, PA	\$2.00	\$2.50	\$40.00	none	none	none	none
AVERAGES	\$1.88	\$4.53	\$48.37	\$33.25	\$29.98	\$29.52	\$32.00
Wailuku, HI	\$2.00	\$4.00	\$45.00	\$30.00	\$25.00	\$30.00	\$30.00

(1) Orange, CA is in the Los Angeles, Long Beach, Anaheim Urban Area.
 (2) San Carlos, CA is in the San Francisco-Oakland Urban Area which includes San Mateo, CA.
 (3) San Jose, CA is the Urban Area which includes Santa Clara, CA.
 Source: 2013 American Public Transportation Association Public Transportation Fare Database and research conducted by Weslin Consulting Services, Inc.

The Federal minimum requirement for ADA complementary service boundaries is $\frac{3}{4}$ miles from the fixed route. Several systems including Santa Clara VTA (described urban area is San Jose, CA) will provide service beyond the $\frac{3}{4}$ limit but at a premium cost; \$16.00 per ride versus the base paratransit cost of \$4.00 per ride for Santa Clara VTA for service up to one mile beyond the $\frac{3}{4}$ mile boundary. Other systems will provide ADA complementary service to a specific generator (such as a community center) that is beyond the $\frac{3}{4}$ mile boundary but these services are charged a premium fare.

Table 5-13 provides transit service characteristics for the bus mode for all peer systems. Maui Bus uses 16 vehicles to provide its maximum service level compared to the group average of 78 vehicles. The averages are heavily influenced by three of the California systems. Maui Bus achieved a rate of 27.12 passenger trips per revenue vehicle hour as compared to the peer group average of 21.98 passenger trips per revenue vehicle hour.

Only Ithaca, NY and four of the California systems had more annual unlinked trips than Maui Bus. TCAT's ridership (Ithaca, NY system) levels are undoubtedly influenced by several small but prominent academic institutions including Cornell University. The California systems have very large service populations as compared to Maui Bus with OCTA in Orange, CA having a service population of over 3 million.

Table 5-14 includes the transit service characteristics for the demand response mode. The statistics reported for Maui are significantly greater than all but two of the systems. Service effectiveness statistics as measured by passenger trips per vehicle mile and passenger trips per vehicle hour show Maui Bus is operating effectively and that Maui Bus demand response ridership is higher than the peer group average.

The two systems with higher demand response annual ridership listed in Table 5-14 are for two California systems serving a much larger population. The public transportation operation in Sherman, Texas reporting for this urban area is the Texoma Area Paratransit System, Inc. (TAPS). TAPS uses 85 vehicles to cover a service area of 6,295 miles as compared to 727 square miles for Maui Bus resulting in 315,635 annual unlinked trips.

Table 5-15 includes financial characteristics of the bus mode for the peer group and Maui Bus. The peer group financial characteristic averages are influenced by the large California systems. Even with the addition of several very large systems, the peer average fare box recovery ratio is 19 percent compared to Maui Bus' fare box return of 37.1 percent. This is particularly impressive considering the service efficiency of Maui Bus's bus mode compared to its peers. In every statistic Maui Bus is more efficient. Maui Bus reported a bus mode operating expense per vehicle revenue mile of \$4.59 compared to \$7.48. Maui Bus reported a bus mode operating expense per vehicle revenue hour of \$83.66 compared to \$102.54 as reported by its peers. Maui Bus reported a bus mode operating expense per unlinked passenger trip of \$3.08 compared to \$5.56 for its peers.

Table 5-16 includes financial characteristics of the demand response mode for the peer group and Maui Bus. The peer group reported an average operating expense of \$5,911,359 with fare revenue of \$561,653, a fare box recovery ratio of 9.5 percent. Maui Bus reported fare revenues of \$55,743 and operating expense of \$8,328,930, a fare box recovery ratio of 0.7 percent. In every other statistic Maui Bus is more efficient than the peer systems.

Table 5-13: Peer Group Bus Mode Transit Service Characteristics

URBAN AREA	TRANSIT SERVICE PROVIDED BY BUS			TRANSIT SERVICE CONSUMED BY BUS	EFFECTIVENESS OF BUS MODE SERVICE	
	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Vehicles Operated in Max. Service	Annual Unlinked Trips	Passenger Trips Per Veh. Mi.	Passenger Trips Per Veh. Hr.
Bend, OR	274,559	20,776	9	417,683	1.52	20.10
Burlington, WA	845,857	55,427	15	644,968	0.76	11.64
Fairfield, CA	1,603,548	79,775	36	1,049,232	0.65	13.15
Flagstaff, AZ	700,879	57,434	15	1,842,322	2.63	32.08
Grants Pass, OR	160,445	11,340	9	150,675	0.94	13.29
Great Falls, MT	418,288	33,357	13	439,266	1.05	13.17
Ithaca, NY	1,584,964	120,708	43	4,388,699	2.77	36.36
Longview, WA	280,972	22,779	9	359,742	1.28	15.79
Mankato, MN	206,192	17,142	13	662,809	3.21	38.67
Orange, CA(1)	18,527,614	1,529,806	428	51,067,292	2.76	33.38
Pittsfield, MA	817,560	48,318	15	549,521	0.67	11.37
San Carlos, CA(2)	6,633,233	487,756	265	12,742,830	1.92	26.13
San Jose, CA(3)	14,800,825	1,228,928	371	32,745,967	2.21	26.65
Santa Barbara, CA	2,436,878	197,551	83	7,734,339	3.17	39.15
Sherman, TX	157,748	9,098	5	38,196	0.24	4.20
Walla Walla, WA	343,545	29,301	13	693,694	2.02	23.67
Wenatchee, WA	1,578,408	74,803	30	890,632	0.56	11.91
Williamsport, PA	822,866	54,253	23	1,357,932	1.65	25.03
AVERAGES	2,899,688	226,586	78	6,543,100	1.67	21.98
Wailuku, HI	1,484,917	81,505	16	2,210,425	1.49	27.12

(1) Orange, CA is in the Los Angeles, Long Beach, Anaheim Urban Area.

(2) San Carlos, CA is in the San Francisco-Oakland Urban Area which includes San Mateo, CA.

(3) San Jose, CA is the Urban Area which includes Santa Clara, CA.

Source: 2013 American Public Transportation Association Public Transportation Fare Database and research conducted by Weslin Consulting Services, Inc.

Table 5-14: Peer Group Demand Response Mode Transit Service Characteristics

URBAN AREA	TRANSIT SERVICE PROVIDED BY DEMAND RESPONSE			TRANSIT SERVICE CONSUMED BY DEMAND RESPONSE	EFFECTIVENESS OF DEMAND RESPONSE MODE SERVICE	
	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Vehicles Operated in Max. Service	Annual Unlinked Trips	Passenger Trips Per Veh. Mi.	Passenger Trips Per Veh. Hr.
Bend, OR	438,238	34,045	31	163,444	0.37	4.80
Burlington, WA	280,381	25,516	13	55,204	0.20	2.16
Fairfield, CA	193,744	11,849	7	23,174	0.12	1.96
Flagstaff, AZ	85,603	7,475	6	24,598	0.29	3.29
Grants Pass, OR	45,326	5,891	3	17,593	0.39	2.99
Great Falls, MT	145,537	11,986	6	33,130	0.23	2.76
Ithaca, NY	466,415	28,338	21	66,933	0.14	2.36
Longview, WA	180,682	20,981	14	59,381	0.33	2.83
Mankato, MN	44,956	4,487	4	9,764	0.22	2.18
Orange, CA(1)	10,928,961	676,266	388	1,558,948	0.14	2.31
Pittsfield, MA	260,448	26,848	10	22,653	0.09	0.84
San Carlos, CA(2)	2,105,135	159,285	86	252,058	0.12	1.58
San Jose, CA(3)	5,995,466	287,569	240	732,793	0.12	2.55
Santa Barbara, CA	367,404	25,003	18	51,412	0.14	2.06
Sherman, TX	2,121,289	113,214	85	315,635	0.15	2.79
Walla Walla, WA	161,379	14,007	7	45,594	0.28	3.26
Wenatchee, WA	209,144	18,315	18	56,703	0.27	3.10
Williamsport, PA	8,011	425	3	944	0.12	2.22
AVERAGES	1,335,451	81,750	53	193,887	0.21	2.56
Wailuku, HI	1,816,134	150,676	60	429,771	0.24	2.85
<p>(1) Orange, CA is in the Los Angeles, Long Beach, Anaheim Urban Area.</p> <p>(2) San Carlos, CA is in the San Francisco-Oakland Urban Area which includes San Mateo, CA.</p> <p>(3) San Jose, CA is the Urban Area which includes Santa Clara, CA.</p> <p>Source: 2013 American Public Transportation Association Public Transportation Fare Database and research conducted by Weslin Consulting Services, Inc.</p>						

Table 5-15: Peer Group Bus Mode Financial Characteristics

URBAN AREA	FINANCIAL DATA			SERVICE EFFICIENCY		
	Operating Expense	Fare Revenue	Capital Funds Expended	Operating Expense Per Veh. Revenue Mile	Operating Expense Per Veh. Revenue Hour	Operating Expense Per Unlinked Pass. Trip
Bend, OR	\$1,151,031	\$213,357	\$0	\$4.19	\$55.40	\$2.76
Burlington, WA	\$5,664,275	\$318,008	\$744,063	\$6.70	\$102.19	\$8.78
Fairfield, CA	\$8,549,418	\$2,095,877	\$6,183,892	\$5.33	\$107.17	\$8.15
Flagstaff, AZ	\$5,249,669	\$1,354,377	\$3,866,111	\$7.49	\$91.40	\$2.85
Grants Pass, OR	\$613,039	\$80,710	\$0	\$3.82	\$54.06	\$4.07
Great Falls, MT	\$2,462,995	\$239,480	\$1,531,108	\$5.89	\$73.84	\$5.61
Ithaca, NY	\$11,925,373	\$4,165,832	\$165,121	\$7.52	\$98.80	\$2.72
Longview, WA	\$2,663,089	\$123,942	\$2,910,206	\$9.48	\$116.91	\$7.40
Mankato, MN	\$1,413,259	\$93,070	\$404,614	\$6.85	\$82.44	\$2.13
Orange, CA(1)	\$191,797,211	\$47,965,725	\$7,200,502	\$10.35	\$125.37	\$3.76
Pittsfield, MA	\$4,514,735	\$762,765	\$1,676,226	\$5.52	\$93.44	\$8.22
San Carlos, CA(2)	\$100,937,586	\$18,585,794	\$9,222,983	\$15.22	\$206.94	\$7.92
San Jose, CA(3)	\$225,997,228	\$28,793,974	\$40,383,746	\$15.27	\$183.90	\$6.90
Santa Barbara, CA	\$20,799,914	\$7,907,405	\$1,731,325	\$8.54	\$105.29	\$2.69
Sherman, TX	\$323,518	\$18,543	\$891,609	\$2.05	\$35.56	\$8.47
Walla Walla, WA	\$2,680,158	\$219,008	\$119,791	\$7.80	\$91.47	\$3.86
Wenatchee, WA	\$8,343,975	\$668,616	\$707,714	\$5.29	\$111.55	\$9.37
Williamsport, PA	\$5,970,035	\$843,507	\$2,260,248	\$7.26	\$110.04	\$4.40
AVERAGES	\$33,392,028	\$6,358,332.78	\$4,444,403.28	\$7.48	\$102.54	\$5.56
Wailuku, HI	\$6,819,031	\$2,527,331	\$0	\$4.59	\$83.66	\$3.08

(1) Orange, CA is in the Los Angeles, Long Beach, Anaheim Urban Area.
(2) San Carlos, CA is in the San Francisco-Oakland Urban Area which includes San Mateo, CA.
(3) San Jose, CA is the Urban Area which includes Santa Clara, CA.
Source: 2013 American Public Transportation Association Public Transportation Fare Database and research conducted by Weslin Consulting Services, Inc.

Table 5-16: Peer Group Demand Response Financial Characteristics

URBAN AREA	FINANCIAL DATA			SERVICE EFFICIENCY		
	Operating Expense	Fare Revenue	Capital Funds Expended	Operating Expense Per Veh. Revenue Mile	Operating Expense Per Veh. Revenue Hour	Operating Expense Per Unlinked Pass. Trip
Bend, OR	\$2,412,174	\$141,501	\$212,471	\$5.50	\$70.85	\$14.76
Burlington, WA	\$2,829,929	\$7,478	\$906,072	\$10.09	\$110.91	\$51.26
Fairfield, CA	\$1,219,908	\$85,653	\$0	\$6.30	\$102.95	\$52.64
Flagstaff, AZ	\$964,839	\$67,889	\$489,117	\$11.27	\$129.08	\$39.22
Grants Pass, OR	\$285,078	\$31,626	\$0	\$6.29	\$48.39	\$16.20
Great Falls, MT	\$475,389	\$64,359	\$37,046	\$3.27	\$39.66	\$14.35
Ithaca, NY	\$1,119,741	\$74,178	\$0	\$2.40	\$39.51	\$16.73
Longview, WA	\$1,305,552	\$20,288	\$112,931	\$7.23	\$62.23	\$21.99
Mankato, MN	\$209,499	\$27,042	\$0	\$4.66	\$46.69	\$21.46
Orange, CA(1)	\$53,424,870	\$5,071,564	\$3,294,963	\$4.89	\$79.00	\$34.27
Pittsfield, MA	\$774,016	\$128,460	\$0	\$2.97	\$28.83	\$34.17
San Carlos, CA(2)	\$11,443,670	\$709,660	\$1,242,882	\$5.44	\$71.84	\$45.40
San Jose, CA(3)	\$21,954,919	\$2,989,905	\$0	\$3.66	\$76.35	\$29.96
Santa Barbara, CA	\$752,807	\$169,690	\$0	\$2.05	\$30.11	\$14.64
Sherman, TX	\$4,357,694	\$446,727	\$2,453,060	\$2.05	\$38.49	\$13.81
Walla Walla, WA	\$1,157,668	\$25,673	\$18,174	\$7.17	\$82.65	\$25.39
Wenatchee, WA	\$1,692,508	\$44,280	\$72,873	\$8.09	\$92.41	\$29.85
Williamsport, PA	\$24,194	\$3,776	\$0	\$3.02	\$56.93	\$25.63
AVERAGES	\$5,911,359	\$561,652.72	\$491,088.28	\$5.35	\$67.05	\$27.87
Wailuku, HI	\$8,328,930	\$55,743	\$0	\$4.59	\$55.28	\$19.38
<p>(1) Orange, CA is in the Los Angeles, Long Beach, Anaheim Urban Area.</p> <p>(2) San Carlos, CA is in the San Francisco-Oakland Urban Area which includes San Mateo, CA.</p> <p>(3) San Jose, CA is the Urban Area which includes Santa Clara, CA.</p> <p>Source: 2013 American Public Transportation Association Public Transportation Fare Database and research conducted by Weslin Consulting Services, Inc.</p>						

5.2.4 Maui Bus Fare Structure Adjustment Targets

The three investigations into the Maui Bus fare structure have led to the proposals identified in Table 5-17. Three target adjustments are identified. The first adjustment can be achieved in the short term, perhaps in the next year, where the pass prices are brought more in line with the cash fare of \$2.00 per trip for fixed route passengers as shown in Table 5-17A.

Table 5-17A: Maui Bus Fixed Route Proposed Fare Structure With Target Adjustments

Fixed Route Fare Type	Fare Structure Phases			
	Current	Short Term Target Adjustments	Mid-Term Target Adjustments	Longer Term Target Adjustments
Cash Fares:				
Fixed route only	\$2.00	\$2.00	\$2.50	\$3.00
Senior/Disabled/Medicare	--	\$1.00	\$1.25	\$1.50
Daily Pass				
Fixed route only	\$4.00	\$5.00	\$8.00	\$10.00
Monthly Passes:				
Fixed route, commuter & ADA paratransit	\$45.00	--	--	--
Fixed route only	--	\$50.00	\$60.00	\$70.00
Student (valid school ID)	\$30.00	\$30.00	\$40.00	\$50.00
Senior (55 years & older) fixed route only	\$25.00	--	--	--
Senior (65 years & older) fixed route only	--	\$30.00	\$40.00	\$50.00
Person with Disability (fixed route only)	\$30.00	\$30.00	\$40.00	\$50.00
Annual Pass:				
Fixed route only	--	--	--	\$770.00
Infants under two (2) years old, riding on the lap of an accompanying adult travel free.				

The “Short Term Target Adjustments” column in the table is because the \$2.00 cash fare should be matched in a fare structure for Maui Bus with a \$5.00 daily pass for fixed route only. The monthly pass would be \$50.00 for fixed route only and \$65.00 for fixed route and commuter as shown in Table 5-17B. This approach to providing monthly passes will allow Maui Bus to know how much revenue is attributable to each type of service. Table 5-17C provides the recommended ADA paratransit cash fare.

The longer-term adjustments are packaged for when it is determined that the overall fare structure should be increased. This is a policy determination but would be consistent with the Honolulu fare structure of \$2.50 to coincide with the introduction of the service and capital improvements identified in the MSRTP. The longer term adjustments could be triggered by a policy for a base fare annual percent increase, but only when a \$0.50 increment is possible.

Table 5-17B: Maui Bus Commuter Bus Fare Structure Target Adjustments

Commuter Bus Fare Type	Fare Structure Phases			
	Current	Short Term Target Adjustments	Mid-Term Target Adjustments	Longer Term Target Adjustments
Cash Fare:				
Commuter	\$2.00	\$2.00	\$3.00	\$3.00
Monthly Pass:				
Fixed route, commuter & ADA paratransit	\$45.00	--	--	--
Commuter and fixed route	--	\$65.00	\$70.00	\$80.00
Annual Pass:				
Commuter and fixed route	--	--	--	\$880.00

Table 5-17C: Maui Bus Paratransit Fare Structure Target Adjustments

ADA Paratransit Fare Type	Fare Structure Phases			
	Current	Short Term Target Adjustments	Mid-Term Target Adjustments	Longer Term Target Adjustments
Cash Fare:				
ADA eligible (paratransit only)	\$2.00	\$2.00	\$2.50	\$3.00
Daily Pass	\$4.00	--	--	--
Monthly Pass:				
Fixed route, commuter & ADA paratransit	\$45.00	--	--	--
Senior (55 years & older) paratransit only	\$30.00	--	--	--
Student (valid school ID)	\$30.00	--	--	--

The last column identifies adjustments with smart cards. This fare structure is designed to coincide with achievement of the fare collection system recommendations identified in the capital improvement program. The recommendations for a smart card based fare collection system will enable Maui Bus to have more value-oriented and cost-equity components to the overall fare structure. Those passengers who enjoy long distance services should be willing to recognize the value of those services and are reflected in the introduction of a zone based system. This zone based system would allow for charging passengers for the added cost of serving them with services that accommodate longer trips.⁵

5.3 CAPITAL IMPROVEMENT PROGRAM

The cost estimates for the Capital Improvement Program (CIP) are provided in Table 5-18. The MSRTP CIP covers the period from Fiscal Year 2017 to 2022. It extends the adopted County CIP by two years. The MSRTP CIP includes three major elements: transit facilities, passenger systems and fleet purchases.

5.3.1 Transit Facilities

The MSRTP CIP Transit Facilities section includes the existing bus stop and shelter program and the additional stops required by service expansions. The Transit Facilities section also includes transit centers, a maintenance facility and signs.

5.3.1.1 Bus Stops

Maui Bus's iconic award-winning shelters were two years in the making including planning, design and considerable public involvement. The shelters' colors represent nature and are associated with Maui providing a pleasing look for tourists and residents and a strong branding for the system. Local architect Artel, Inc. noted for their green renditioning provided the design for the shelters.

Maui Bus looked at shelters used by other agencies and wanted to provide a shelter that identified with Maui and the bus system. Most importantly, the design was such that people in wheelchairs could fit under the shelter. MDOT noticed that many shelters (out of the book) do not provide that feature. The shelters at Queen Ka'ahumanu Center are standard industry shelters with no indication they are associated with the bus system.

Bike racks, solar lighting and recycle bins are included in the design for Maui Bus shelters responding to the desires of residents. The shelters have been embraced by the community as they had major involvement in their design. The shelters have two looks depending upon the location where the shelter will be placed. They were designed with two-to-three screens allowing for driver visibility.

MDOT's goal is to review bus stop ridership statistics on a yearly basis and determine the need to improve bus stop locations. Bus stops with daily boardings of 25 or more passengers may be identified for shelters. Other stops have a range of amenities some with just the Maui Bus stop sign on a pole and others with a bench or trash can depending upon the location of the stop.



Table 5-18: Capital Improvement Program

ITEM	COST BY BUDGET YEAR						SUBTOTALS
	2017	2018	2019	2020	2021	2022	
FACILITIES							
Bus Stops							
current program	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$6,000,000
planning & design		\$200,000	\$100,000	\$40,000	\$20,000	\$20,000	\$380,000
procurement			\$100,000	\$100,000	\$100,000	\$100,000	\$400,000
land acquisition			\$50,000	\$50,000	\$50,000		\$150,000
construction				\$1,000,000	\$2,000,000	\$1,000,000	\$4,000,000
Transit Centers							
planning	\$100,000	\$500,000	\$200,000				\$800,000
design			\$200,000	\$300,000	\$400,000		\$900,000
land acquisition			\$2,000,000		\$2,000,000		\$4,000,000
construction			\$500,000	\$1,000,000	\$3,000,000	\$5,000,000	\$9,500,000
Maintenance Facility							
planning	\$100,000	\$500,000	\$200,000				\$800,000
design			\$200,000	\$300,000	\$500,000		\$1,000,000
land acquisition		\$5,000,000	\$5,000,000				\$10,000,000
construction			\$2,000,000	\$6,000,000	\$2,000,000		\$10,000,000
equipment					\$1,000,000		\$1,000,000
installation & related						\$300,000	\$300,000
Signs & Wayfinding							
planning & design	\$50,000	\$20,000			\$60,000		\$130,000
procurement		\$100,000	\$100,000		\$200,000	\$200,000	\$600,000
installation			\$100,000			\$200,000	\$300,000
PASSENGER SYSTEMS							
Fare Collection System							
planning	\$50,000	\$50,000	\$20,000				\$120,000
specifications			\$60,000				\$60,000
procurement			\$2,000,000	\$2,000,000			\$4,000,000
installation			\$100,000	\$300,000			\$400,000
Electronic Information							
planning	\$50,000	\$50,000					\$100,000
specifications		\$50,000					\$50,000
procurement			\$200,000			\$250,000	\$450,000
installation			\$100,000	\$50,000		\$50,000	\$200,000
FLEET							
Fixed Route							
specifications		\$20,000		\$25,000		\$30,000	\$75,000
procurement		\$4,200,000		\$4,000,000		\$3,000,000	\$11,200,000
ancillary equipment		\$200,000		\$400,000		\$300,000	\$900,000
Paratransit							
specifications		\$10,000	\$20,000		\$20,000	\$30,000	\$80,000
procurement		\$200,000	\$960,000		\$250,000	\$1,680,000	\$3,090,000
ancillary equipment			\$100,000			\$200,000	\$300,000
Totals	\$1,350,000	\$12,100,000	\$15,310,000	\$16,565,000	\$12,600,000	\$13,360,000	\$71,285,000

The MSRTP CIP Transit Facilities section includes the bus and shelter program under the “current program” line item. This matches the County CIP and is intended to continue the upgrade of existing stops used by current fixed routes. The MSRTP includes an expansion of these routes that will involve over 100 new bus stops. The planning, design, procurement, land acquisition and construction line items are to fund these new bus stop locations.

5.3.1.2 Transit Centers

The heart of the current system is the transfer center located at Queen Ka’ahumanu Center. This location is already over capacity to support existing services with the pulse operation. The pulse is operating effectively and is expected to be used to integrate new services with the additional services. However, this important existing transit center location cannot be expanded and is located on private property so the transit operation survives at the will of the mall. A new transit center is needed that should be able to accommodate up to 12 buses at the same time and be located as close as possible to the existing site but on land dedicated to serving as the Maui Bus transit center.

Timed connections are made at the Wharf Cinema Center where passengers wait on private property. Three buses are positioned on street at the current location where two are scheduled to make timed connections. Service improvements will require a transit center that can serve three buses at the same time to make timed connections. A new transit center is needed. It should be located as close as possible to the existing site but on land dedicated to serving as the Maui Bus transit center.

The Whaler’s Village transfer point is off-street but on private property and survives at the will of the property owner. Although this location will not need to increase in size for buses it may become necessary to move the stop to an on-street location.

The Pi’ilani Village Shopping Center is a two route bus stop on private property. This is proposed to serve three, timed-connected routes in the future but the operation will move to on street.

The Ma’alaea Harbor transfer site could be relocated to avoid the circuitous routing required by the Lahaina Islander. The War Memorial Stadium could benefit from a large shelter for waiting passengers.



The planning, design, land acquisition and construction of these multiple transit centers and transfer point improvements has been grouped together in the MSRTP CIP as one transit center development program comparable to the ongoing bus stop and passenger shelter CIP program. Costs for these major improvements will depend upon extensive site location planning and could vary considerably depending upon land costs and site conditions. Cost estimates are based on the experience of Honolulu over the past fifteen years.

MDOT has been investigating the design of transit centers on O'ahu to gain insight as to what designs and components are appropriate for Maui. The City and County of Honolulu has sixteen transit centers and park and ride lots in various forms of development and operation. The City has other transit centers and park-and-rides under development at various station locations as part of the Honolulu Rail Project. These facilities represent a wide variety of circumstances with some features that are applicable to Maui Bus transit centers. Features from Honolulu's transit centers were selected as a best practice for Maui to emulate for one of two reasons: 1) they are mature facilities that have many features or 2) they are comparable in scale to what is appropriate for Maui. The number and types of features provided at Honolulu's transit facilities varies substantially. All of the facilities have passenger shelter, seating, lighting and trash receptacles. The facilities that are most notable for Maui consideration are:

- Alapai Transit Center – a new facility opened in 2013
- Ala Moana Transit Center (Kona Street) – one of the largest U.S. bus transit centers
- Hawai'i Kai Transit Center Kai – a combined transit center and park and ride
- Kapolei Transit Center – a temporary facility exemplifying phased development
- Middle Street Kalihi Transit Center – both a mature existing and new transit center
- Mililani Transit Center – a newer facility adjacent to a regional shopping center
- Mililani Mauka Park & Ride - a combined transit center and park-and-ride
- Sinclair Circle – a terminal transit center at UH Mānoa
- Waianae Transit Center – a new, off-street transit center opened in 2005.
- Waipahu Transit Center – an on-street transit center opened in 2001.

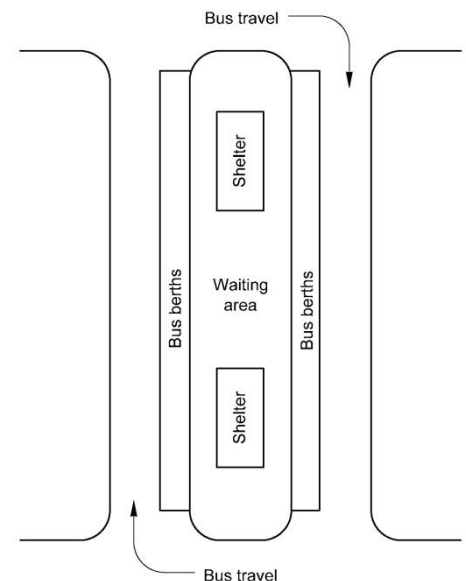
Seven of the above transit facilities are considered off-street, buses are separated from general purpose traffic. All of the facilities except for Ala Moana (Kona Street) provide electronic, real-time information displays showing passengers when their bus will arrive. A summary of the passenger amenities and facility characteristics is provided in the following paragraphs.

- Access: Three of the transit facilities provide access signage. A bus-only sign is posted at Sinclair Circle; access signage is posted on King Street for Alapai Transit Center; and, Hawai'i Kai provides signed information for the drop-off and commuter parking areas. All of the transit facilities are supported with sidewalk access. Only the Hawai'i Kai facility has a standard signalized intersection with turning lanes for direct vehicle and pedestrian access to the transit center. The Mililani Transit Center provides an elevator as well as stairs to access the facility from the shopping center ground level.

- Bus Stop Positions:** There are two prominent designs for the bus positions: straight curb and saw tooth. All of the facilities except for Mililani Mauka have straight curb bus positions. Three of the facilities, Ala Moana (Kona Street), Hawai'i Kai and Waianae, have both straight curb and saw tooth bus positions. Thirty-two of the bus positions are considered straight curb and seventeen have a saw tooth design. All of the facilities' bus stops are constructed with reinforced concrete except for the Kapolei Transit Center which is constructed with asphalt because it is a temporary location. The park-and-ride lots at Mililani Mauka and Hawai'i Kai are constructed with asphalt.

- Passenger Waiting Area:** There are three types of passenger waiting areas: center island, plaza and sidewalk. The center island where buses stop on both sides and passengers can transfer between buses without vehicle conflicts. This type of facility is located at Kalihi, Hawai'i Kai and Mililani. Waianae has a similar type of facility but on a larger scale, described as a plaza.

The third type is the sidewalk, where the majority of passengers are waiting in the sidewalk area. This occurs at Ala Moana, Alapai, one stop at Hawai'i Kai, Kapolei, Middle Street, Mililani Mauka, Sinclair Circle and Waipahu. Kalihi has an extensive waiting area adjacent to the Customer Service office and could be considered a plaza-type facility. Transferring buses at Waipahu and Kapolei (and the one-stop at Hawai'i Kai) can require the passenger to cross a street to access their next bus.



Waipahu has a raised pedestrian crosswalk to accommodate this movement across Hikimoe Street, the Kapolei Transit Center does not. The Kapolei Transit Center is a temporary location that is lacking in some of the amenities that were present at the prior location.

- Lighting:** A range of lighting treatments are employed at the transit facilities from standard high-mast street lamps such as those at the Kapolei Transit Center to specialized lighting treatments designed specifically for a facility such as the in ground lighting at the Waianae Transit Center (21 lights surrounding the clock tower) and the 14 decorative medium-mounted poles at the Waipahu Transit Center. Most of the passenger shelters at the transit centers have overhead lights underneath the shelter roof.
- Passenger Seating:** A variety of seating treatments are provided at the transit facilities. These include individual stools such as the 47 stools at the Mililani Transit Center (almost all of which were in use at the time of the site visits). Standard cement and slate benches are provided at most of the facilities as well as supplemental seating being offered by large tree planters (Hawai'i Kai) and other landscaping features (such as the low, decorative walls provided around each bus stop position at the Waianae Transit Center). None of the facilities had leaning rails.

- **Bicycle Access and Storage:** Three of the facilities, Kalihi, Mililani Mauka and Hawai'i Kai provide bicycle racks. None have enclosed bicycle lockers although Kalihi has two sheltered bike storage areas. Bicycle access routes are not clearly defined even though bike routes are nearby all of the facilities. None of the facilities have separated bike path access although Alapai is next to the King Street cycle track.

Connecting bicycle facilities to transit centers helps extend the trip length for cyclists and reduces automobile travel. Secure bicycle parking must be provided at or within close proximity to the passenger waiting area. At a minimum, the accommodations can be bike racks or lockers. Bike stations and automated bicycle parking can be located at areas with high levels of transit and bicycle use. The Kailua bike sharing station shown below is located near a Honolulu bus stop.



Kailua bike sharing station in operation since 2010.

Honolulu is launching a large-scale bike-sharing program modeled after the demonstration project in Kailua. Up to 180 stations will be placed across the city that will hold up to 1,700 bikes. The City plans to place bike sharing stations within close proximity to transit stops, centers and stations to optimize multi-modal connectivity.

- **Passenger Shelter:** All of the facilities provide shelter for waiting passengers. Some provide the standard sized passenger shelter such as those located at the Kapolei, Waianae and Waipahu Transit Centers and Sinclair Circle. Many of these shelters have interior lighting installed. Other facilities have larger, unique shelter designs such as Hawai'i Kai and Mililani Mauka. Shelter at Ala Moana Transit Center is provided by other structures that are a part of the Shopping Center complex.
- **Public Restrooms:** Restrooms are provided at six of the transit facilities: Alapai, Kalihi, Mililani and Waipahu. Kapolei and Waianae are served by portable units.

- [Way-Finding Display or Maps](#): Only Sinclair Circle has a way-finding or area map near the passenger waiting area (showing the University of Hawai'i at Mānoa campus layout and directory).
- [Vending](#): Newspaper/free publication machines are available at all of the facilities except for Hawai'i Kai and Mililani Transit Center. These are provided as individual machines frequently chained to posts or polls. Vending snack/drink machines are located at the Ala Moana Transit Center; four at Stop 3 and three at Stop 1. Kalihi is the only facility with an ATM readily available.
- [Communication/Public Telephones](#): All of the transit facilities have signs indicating which bus routes stop at the individual bus positions. All facilities except for Ala Moana (Kona Street) have electronic reader boards indicating bus arrival times. The Kalihi Transit Center has four interactive electronic kiosk allowing passengers to find the best bus routing to their destinations. Only four of the facilities offer public telephones; Hawai'i Kai, Middle Street, Mililani and Mililani Mauka. Kalihi has a public address system.
- [Community Functions](#): The Mililani Transit Center has a community meeting room as part of its design. Both the Hawai'i Kai and Mililani Mauka park-and-ride lots provide recycle facilities in their parking lots. Hawai'i Kai also has a booth for Goodwill drop off. The Kalihi Transit Center has a Customer Service Office providing transit passes.

5.3.1.3 Maintenance and Operations Facility

Maui Bus now contracts for all fixed route services including vehicle maintenance. The goal is to bid out services and provide a facility to support all operations. The MSRTP CIP includes the planning, design, land acquisition (if County land is not available), construction, equipment and installation costs for a public transit maintenance and operations facility. Bus base facility needs are created by changes in fleet size, technology advances, shifts in fleet composition, modifications in service delivery characteristics, introduction of new public transportation modes and new comprehensive initiatives requiring a substantial transit system response.

Extensive planning is required to identify and investigate alternative sites for a maintenance and operations facility. The County may have land available for the maintenance and operations facility but the suitability of any possible site needs to be confirmed and evaluated against possible alternative locations. Consideration of non-revenue versus revenue service time and miles by route a critical component of the evaluation because a poorly located facility can contribute significantly to excess operating costs over the life of the facility. When fuel was relatively expensive this was much more of a concern. But now, even with today's lower fuel costs on Maui, unnecessary non-revenue mileage should be considered of paramount importance since low fuel cost may not continue.

The size of the site needs to account for the residual possible site configuration after consideration of topographical constraints and creation of reasonable buffer zones between the site and adjoining land uses, operational efficiency given knowledge of the existing system and how it might evolve, overall community impacts, evident environmental impacts and other obvious or readily available information for a candidate site. Land costs could be significant for a properly located and sized site. Various resources were researched to determine the best screening criteria to identify the most viable sites including:

- Zoning: industrial use or compatible current use.
- Size: ten or more acres preferably with multiple adjoining parcels with five or more acres.
- Accessibility: ingress and egress for buses.
- Proximity: relationship to revenue service to minimize deadheading.
- Compatibility: fit with adjacent land uses.
- Environmental: wetlands, sensitive areas and other site considerations.
- Configuration: ability to use site efficiently to support bus service functions
- Topography: relatively level terrain.
- Availability: currently available for use or sale.

A site with 10 acres of industrial land could cost over \$10,000,000 if County land is not available. A smaller site may be viable if sized for just the maximum fixed route fleet and not the commuter bus operation. However, a maintenance facility should be designed with a 50-year life expectancy and it is recommended that the site be able to serve and store 50 buses. Recent examples indicate that construction costs should be around \$200,000 per vehicle or \$10,000,000. This generally excludes equipment, installation and other related costs which have been included in the MSRTP CIP.

5.3.1.4 Signs & Wayfinding

In addition to the normal bus stop signage this includes the planning, design, procurement and installation of both wayfinding signage to direct intending riders to the closest transit center or bus stop and real time electronic information displays that should be procured as an independent program to seek partnerships that allow some degree of advertising on the displays to generate revenue or at least be self-sustaining.

5.3.2 Passenger Systems

The passenger survey conducted in MSRTP 2015 showed that 20.2 % of all riders paid with cash, all others used some form of pass – either the daily pass (27.2%), the adult monthly pass (26.8%), seniors or persons with disability passes (16.8%) or a student monthly pass (9.1%). The use of a physical ticket or cash is becoming less of a transit system's farebox revenue throughout as use of magnetic and smart cards continues to grow in popularity. The use of technology is becoming so prevalent passengers expect it, especially younger riders and visitors. Prudent use of technology for the benefit of the passenger makes the system easier to understand and more attractive. It is as much an operational necessity as it is a marketing tactic.

5.3.2.1 Fare Collection System

Smart cards are particularly beneficial for both the system and the passenger. The benefits to the system include more secure financial transactions, more accurate and quicker accounting and real time monitoring of passenger movements.

Honolulu has budgeted \$40,000,000 for their procurement of a complete system for rail, bus and paratransit. The Honolulu award is expected by January 2016 and that will provide detailed cost information.

The cost of the Maui Bus passenger fare collection system is expected to be about \$4,000,000 excluding the cost of the back office, money room, accounting and related control system space which is included with the cost of the maintenance facility. The possibility of using the Honolulu procurement should be investigated as a cost and time saving measure. The Honolulu procurement involves hundreds of pages of technical specifications and it is best to let the technology be tested on O'ahu first.

5.3.2.2 Electronic Information

This includes the planning, design, procurement and installation of real time electronic information displays that should be procured as an independent program to seek partnerships that allow some degree of advertising on the displays to generate revenue or at least be self-sustaining. The real time arrival information is enabled by many competitive applications now available in most major urban areas on smart phones.



5.3.3 Transit Fleet

It is proposed that seven high capacity buses be acquired in 2018 and replace the existing double decker bus and the six El Dorado National 2007 model year buses. Sufficient numbers of buses are available to fulfill fleet needs but not to respond to the MS RTP analysis and service recommendations that identify the need for higher capacity buses. It is necessary to have more higher-capacity buses just to serve existing passenger demands. No replacement vehicles are needed until the year 2019 based upon FTA's service-life policy with the exception of the Alexander Dennis double-decker bus which is a 2004 model year and should be replaced in the first year of the fleet acquisition program.⁶ However, it is not practical to have just one high capacity bus in terms of spare parts inventory and mechanical familiarity.

The next fleet replacement would be in 2020 to replace the seven El Dorado National 2008 model year buses. The five El Dorado National 2008 model year buses would be replaced in 2022. Alternative bus propulsion systems should be investigated before these bus replacements and in conjunction with the planning for the new maintenance facility. The arrival of the bus fleet replacements should be timed so as to occur after the new maintenance facility is operational.

5.4 FINANCIAL PLAN

The financial plan consists of the capital improvement program provided in the previous section plus the operating program including costs and revenues by year. These are included in a series of tables with different funding possibilities.

5.4.1 *Operating Costs by Year*

Table 5-19 provides the operating costs to implement the service plan over the next several years. The service column lists current routes and additions to current routes under the existing service heading. The current routes column includes the commuter bus operation. A listing of the new routes is shown and the ADA paratransit service is the final category under services.

No new services are planned for implementation in Fiscal Year 2016 (current year). Therefore operation costs reflect the current budget. Subsequent years have a three percent (3%) inflation factor built into the operating costs. MDOT contracts with Roberts Hawai'i for the fixed-route and commuter route operations and with the Maui Economic Opportunity, Inc. (MEO) for the ADA paratransit services. Both contracts have provision for a maximum of five percent (5%) increase per year for operating costs. Any increases need to be negotiated each year.

The operational costs shown in years 2017 through 2022 are drawn from Appendix F. Appendix F gives the operational details of the services which serves as input to the annual hours and miles of service and ultimately the operational costs for each year.

- [2017](#): In 2017 additions to current routes include expanding the span of service on Kula Villager, Lahaina Villager and the North Kīhei Villager. New route service is provided to the Maui Airport.
- [2018](#): Additions to current routes include later evening service on the Kīhei Islander, Lahaina Islander, Ka'anapali Islander and the Napili Islander routes.
- [2019](#): Additions to current routes includes the introduction of the Kīhei Express route adding 6 additional trips per day and 3 additional afternoon trips to the Lahaina Islander route. Supporting the Kīhei Express route is the addition of the South Kīhei Villager route.
- [2020](#): Three new routes are added to Central Maui in 2020. These routes will serve new areas in Kahului and Wailuku.
- [2021](#): One new route providing service to communities in north Wailuku including Waihee is added in 2021.

Table 5-19: Financial Plan Operating Costs by Fiscal Year

SERVICE	FIXED ROUTE AND COMMUTER ROUTE OPERATING COST BY YEAR						
	2016	2017	2018	2019	2020	2021	2022
EXISTING SERVICE							
Current Routes	\$7,949,319	\$7,981,799	\$8,221,253	\$8,467,891	\$8,721,927	\$8,983,585	\$9,253,093
Additions to Current Routes		\$62,654	\$381,315	\$838,205	\$863,351	\$889,252	\$915,929
NEW ROUTES							
Route 3 Wailuku County Bldgs					\$224,126	\$230,850	\$237,775
Route 4 Kahului Airport		\$395,227	\$407,084	\$419,296	\$431,875	\$444,831	\$458,176
Route 7 Wailuku Central					\$417,338	\$429,858	\$442,754
Route 8 Wailuku Waihee						\$443,844	\$457,159
Route 9 Maui Business Park					\$191,347	\$197,087	\$203,000
Route 15B S. Kihei Villager				\$500,971	\$516,000	\$531,480	\$547,425
Route 38 Paia-Makawao							\$506,178
Subtotals	\$7,949,319	\$8,439,680	\$9,009,651	\$10,226,363	\$11,365,965	\$12,150,788	\$13,021,489
ADA PARATRANSIT							
Current Service	\$2,000,711	\$2,025,523	\$2,162,316	\$2,454,327	\$2,727,832	\$2,916,189	\$3,125,157
Totals	\$9,950,030	\$10,465,203	\$11,171,968	\$12,680,690	\$14,093,796	\$15,066,977	\$16,146,647
<p>Notes: 3% escalation per year has been added to the operational costs. The current contracts for fixed route and ADA paratransit service have a maximum escalation of 5% per year to be negotiated each year. ADA Paratransit current service cost is based upon FY2015 costs of \$29.70 per passenger trip times 67,364 passengers; future costs are based upon 24% of fixed route costs.</p>							

- 2022:** A new route connecting Pā'ia Town with Makawao is added to the system in 2022. This route will provide service to residential areas within Makawao that are currently unserved.
- Paratransit:** The National Transit Database report for Maui Bus identified 150,676 annual vehicle revenue hours were provided in 2013. The peer group review indicated the average system has 81,750 annual vehicle revenue hours of service with the largest systems other than Maui being in California with much larger service area populations. Therefore, the service plan only considered adding minor service increases for paratransit to match the span of service on those routes that were improved. The paratransit costs shown provide an escalation of 3 percent per year and increased paratransit service hours related to new fixed routes or existing fixed route extensions.

5.4.2 Operating Revenues by Year

Table 5-20 provides the details of the calculations used to estimate the operating revenues by year for each of the three primary modes: fixed route, commuter bus and paratransit. The fixed route services are consistent with the service improvements included in Appendix F.

Table 5-20: Financial Plan Operating Revenues by Fiscal Year

REVENUE SOURCE	MAUI BUS OPERATING REVENUE BY YEAR					
	2017	2018	2019	2020	2021	2022
Fixed Route Bus						
Revenue Service Hours	90,793.8	93,610.8	104,378.3	114,324.6	119,434.6	124,635.9
Passengers Per Hour	27.12	27.12	27.12	26.00	27.00	27.00
Annual Passenger Trips	2,462,328	2,538,725	2,830,739	2,972,440	3,224,734	3,365,169
Revenue Per Unlinked Trip	\$1.14	\$1.14	\$1.14	\$1.20	\$1.20	\$1.30
Annual Revenue	\$2,807,054	\$2,894,146	\$3,227,043	\$3,566,928	\$3,869,681	\$4,374,720
Commuter Bus						
Revenue Service Hours	7,847.5	7,847.5	7,847.5	7,847.5	7,847.5	7,847.5
Passengers Per Hour	25.00	25.00	25.00	25.00	25.00	25.00
Annual Passenger Trips	196,188	196,188	196,188	196,188	196,188	196,188
Revenue Per Unlinked Trip	\$1.14	\$1.14	\$1.14	\$1.20	\$1.20	\$1.30
Annual Revenue	\$223,654	\$223,654	\$223,654	\$235,425	\$235,425	\$255,044
ADA Paratransit						
Revenue Service Hours	36,162.2	36,838.3	39,422.5	41,809.6	43,036.0	44,284.3
Passengers Per Hour	1.86	1.86	1.86	1.86	1.86	1.86
Annual Passenger Trips	67,364	68,623	73,437	77,884	80,169	82,494
Revenue Per Unlinked Trip	\$0.83	\$0.83	\$0.83	\$0.90	\$0.90	\$1.00
Annual Revenue	\$55,743	\$56,785	\$60,769	\$70,096	\$72,152	\$82,494
Other (advertising)	\$0	\$50,000	\$100,000	\$150,000	\$200,000	\$300,000
Totals	\$3,086,451	\$3,224,585	\$3,611,465	\$4,022,448	\$4,377,258	\$5,012,258

The annual revenue for each year is determined by multiplying those service hours by a passenger per hour productivity rate. That rate is expected to be the same as today until the first fare adjustment when a slight decrease in productivity is expected coinciding with increases in service to relieve overcrowding and the implementation of higher capacity buses.

The revenue per unlinked trip represents the current fare structure and it is assumed that by the year 2020 the fare structure will be adjusted to provide an increase in revenue per unlinked trip of \$1.20. This rate will also increase in 2022 with the second fare adjustment potentially including a distance based or zone fare capability allowed by the full implementation of a smart card based fare collection system. Total annual passenger boardings are projected to rise over 50 percent from Fiscal Year 2015 based upon an increase in area served, service frequency and an increase in service hours as shown in Table 5-20.

The commuter bus operation will maintain the current revenue service hours. The annual revenue is computed using passenger per hour and revenue per trip rates as shown in Table 5-20. Operating costs are based upon the existing five-year contract and may change when the contract is put out to bid. The year 2020 assumes a fare adjustment which impacts the revenue per unlinked trip by increasing it to \$1.20 from \$1.14 per trip while decreasing the passengers per hour from 27 to 26. The year 2022 assumes a second fare adjustment with similar impacts upon those rates.

The paratransit operating revenues per year are impacted by fare adjustments in the same manner as with fixed route and commuter bus but with an expectation that the revenue per unlinked trip will increase significantly as the introduction of advanced technology smart cards.

Operating revenues by year include a line item for other revenue associated with the capital investment in electronic information systems. The full capital cost has been included in Table 5-18 for these investments. Other systems have recognized these can be revenue neutral or revenue generating activities and this line item identifies that possibility starting in 2020.

5.4.3 Financial Plan by Year

Table 5-21 includes the expenses, operating revenue and capital funding for the period 2017 to 2022. The administration and marketing line item is based upon the FY2015 budget plus an escalation of 3% per year to 2022. The administration and marketing line item does not include the additional staff Maui Bus will need to oversee the Capital Improvement Program. These costs are included within the planning, design and specifications line items for each project budget included in Table 5-18 for each year. These combined annual amounts range from a high in 2018 of \$1,200,000 to a low of \$80,000 in 2022. The best approach for these services is to use a mix of contract personnel and consultant services. Sufficient planning, design and specifications work exists over the 2017 to 2019 to warrant retaining up to three on site professionals on renewable one year contracts to conduct some of the required work and oversee the project specific tasks performed under larger consultant contracts.

The operations line items are the total numbers from the last row in Table 5-19, Financial Plan Operating Costs by Year. The capital investments line item is the last row in Table 5-18, Capital Improvement Program.

Table 5-21: Financial Plan by Fiscal Year

ITEM	MAUI BUS FINANCIAL PLAN BY YEAR					
	2017	2018	2019	2020	2021	2022
Expenses						
Administration & Marketing	\$246,000	\$258,300	\$271,215	\$284,776	\$299,015	\$313,965
Operations	\$10,465,203	\$11,171,968	\$12,680,690	\$14,093,796	\$15,066,977	\$16,146,647
Capital Investments	\$1,350,000	\$12,100,000	\$15,310,000	\$16,565,000	\$12,600,000	\$13,360,000
Total Expense	\$12,061,203	\$23,530,268	\$28,261,905	\$30,943,572	\$27,965,992	\$29,820,612
Operating Revenue						
Fare Revenue & related	\$3,086,451	\$3,224,585	\$3,611,465	\$4,022,448	\$4,377,258	\$5,012,258
Farebox Recovery Ratio	28.8%	28.2%	27.9%	28.0%	28.5%	30.5%
County Highway Fund	\$7,624,752	\$8,205,683	\$9,340,440	\$10,356,124	\$10,988,734	\$11,448,354
Capital Funding						
Federal Grants by Formula	\$2,620,000	\$2,698,600	\$2,779,558	\$2,862,945	\$2,948,833	\$3,037,298
Federal Grants Discretionary	\$0	\$0	\$768,000	\$3,200,000	\$200,000	\$3,744,000
County CIP	\$524,000	\$7,607,400	\$11,762,442	\$10,502,055	\$9,451,167	\$6,578,702
Notes: Administration expense is based on FY 2015 plus 3%. Added staff required to support planning, design and specifications development included as part of capital program. Operations expense is from Table 5-19. Capital investments from Table 5-18. Fare revenue from Table 5-5-20.						

The fare revenue and related income is from the last row of Table 5-20, Financial Plan Operating Revenues by Year. The farebox recovery ratio attempted to reconcile all of the assumptions and calculations with an expectation that the current farebox recovery ratio of 27.3 percent would be either maintained or improved. This has been achieved in all years. The deficit has been identified as being supported from the County General Fund Operating Budget.

The capital funding is from Federal grants by formula assumed to be those that exist today and escalated each year by 3 percent. The second line item under capital funding is Federal discretionary grants. These are not predictable and are often very competitive. The good news is that on December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act into law. This bill is the first long-term surface transportation authorization in ten years, since the passage of SAFETEA-LU in 2005. This timely and strong bipartisan vote allows the Maui Short Range Transit Plan to assume continued Federal support for future capital investments. Therefore, the assumption has been that discretionary grants will be directed toward fleet replacements on an 80 percent Federal and 20 percent local matching basis. This is as much a strategy as a forecast.

The benefit of focusing upon using Federal discretionary money for rolling stock replacement for Maui Bus is that its current fleet is of adequate size and life expectancy to provide a manageable degree of flexibility in altering the number of vehicles and the replacement year to reflect the success in capturing the maximum amount of federal discretionary grant opportunities available. The difficulty in using Federal discretionary funds for fixed capital assets such as the proposed maintenance and operations facility or transit centers is that often these are not scalable investments in that a minimum lump sum amount is necessary to make the project viable whereas the fleet replacement program is alterable in that the number of vehicles being replaced can be reduced or deferred to a subsequent year.

With fixed investments there is the issue of the Federal government being involved in the ownership of the land where the fixed investment is constructed. This has proven to be an awkward situation with other transit operations when there is a desire to change the function of the land to either a different public operation or joint partnership with private interests. Local government has much greater flexibility than what is allowed by Federal law. The balance of the capital funding is expected to be supported by Maui County Capital Improvement Program budget requests.

The capital investments identified in the MSRTP are ones that are essential for the cost effective and productive continued operation of Maui Bus. However, the County may not be prepared to undertake the level of proposed CIP funding obligations identified in by the MSRTP. Consideration should be given to an alternative funding opportunity.

Alternative funding opportunities can include various types of business endeavors, advertising revenues and impact fees. Business endeavors might include partnerships with technology vendors interested in using electronic displays to provide real time bus arrivals and other transit information, public announcements and news reports in combination with customer advertising. Other opportunities for advertising exist in combination with interior bus displays.

Some of the future Maui Bus needs will be the result of new development. Impact fees are defined by HRS §46-141 as the charges imposed upon a developer by a county or board to fund all or a portion of the public facility capital improvement costs required by the development from which it is collected, or to recoup the cost of existing public facility capital improvements made in anticipation of the needs of a development. The Maui County Traffic Impact Fee Study proposed using impact fees for the acquisition, construction, and installation of physical facilities intended to facilitate public transportation services to the public including, but not limited to:

- Acquisition of transit and paratransit vehicles intended to operate on roadways and fixed guideways, land and easements for physical facilities,
- Purchase and installation of equipment supporting transit service including, but not limited to, dispatching and vehicle location equipment, capital maintenance equipment, passenger amenities such as bus shelters, information kiosks and bus pass vending machines, route signing, and
- Construction of facilities necessary to support the provision of transit services including, but not limited to, maintenance and storage facilities, passenger shelter and terminals.

5.4.3.1 Excise Tax Surcharge

Act 240 was approved by the Governor on July 14, 2015. Section 46-16.9, Hawaii Revised Status, was amended to read as follows:

(c) Each county that has not established a surcharge on state tax prior to the effective date of this Act may establish the surcharge at the rates enumerated in sections 237-8.6 and 238-2.6. A county electing to establish this surcharge shall do so by ordinance; provided that:

(1) No ordinance shall be adopted until the county has conducted a public hearing on the proposed ordinance;

(2) The ordinance shall be adopted prior to July 1, 2016, but no earlier than July 1, 2015; and,

(3) No county surcharge on state tax that may be authorized under this subsection shall be levied prior to January 1, 2018, or after December 31, 2027.

(f) Each county with a population equal to or less than five hundred thousand that adopts a county surcharge on state tax ordinance pursuant to this section shall use the surcharges received from the State for:

(1) Operating or capital costs of public transportation within each county for public transportation systems, including public roadways or highways, public buses, trains, ferries, pedestrian paths or sidewalks, or bicycle paths; and

(2) Expenses in complying with the Americans with Disabilities Act of 1990 with respect to paragraph (1).

In fiscal year 2015, The Honolulu Authority for Rapid Transportation (HART) received a total of \$220,793,293 from the GET surcharge. This equates to a per capita amount of \$222.62 for Oahu's 2014 population of 991,788. Maui's population in 2014 was estimated at 163,019. At \$222.62 per capita that would equate to \$36,291,289 annual GET surcharge revenue to Maui.

This estimate may be low considering Maui has a greater contribution to its GET from visitors. In 2014 Oahu received 463,598 visitors arriving by air. Maui had 230,947 visitors in 2014 arriving by air. Table 5-22 includes an alternative financial plan by fiscal year that demonstrates what might be possible with approval of a General Excise Tax increase by the County Council by July 1, 2016.

The table identifies the estimated total revenue from 2018 to 2022 for a General Excise Tax. It assumes the collection would be initiated on January 1, 2018 as specified by Act 240 but the funds generated would encounter a distribution lag time of several months. Fiscal Year 2017 would have no change since collection of the excise tax would not commence until Fiscal Year 2018. The table sets the operating revenue for Maui Bus from the County Highway Fund at \$0 for each of the full years that the general excise tax is collected starting in Fiscal Year 2019. It sets the County CIP required at \$0 as well starting in Fiscal Year 2018.

Table 5-22: Financial Plan by Fiscal Year with a General Excise Tax Approval

ITEM	MAUI BUS FINANCIAL PLAN BY YEAR					
	2017	2018	2019	2020	2021	2022
Expenses						
Administration & Marketing	\$246,000	\$258,300	\$271,215	\$284,776	\$299,015	\$313,965
Operations	\$10,465,203	\$11,171,968	\$12,680,690	\$14,093,796	\$15,066,977	\$16,146,647
Capital Investments	\$1,350,000	\$12,100,000	\$15,310,000	\$16,565,000	\$12,600,000	\$13,360,000
Total Expense	\$12,061,203	\$23,530,268	\$28,261,905	\$30,943,572	\$27,965,992	\$29,820,612
Operating Revenue						
Fare Revenue & related	\$3,086,451	\$3,224,585	\$3,611,465	\$4,022,448	\$4,377,258	\$5,012,258
Farebox Recovery Ratio	28.8%	28.2%	27.9%	28.0%	28.5%	30.5%
County Highway Fund	\$7,624,752	\$8,205,683	\$0	\$0	\$0	\$0
Capital Funding						
Federal Grants by Formula	\$2,620,000	\$2,698,600	\$2,779,558	\$2,862,945	\$2,948,833	\$3,037,298
Federal Grants Discretionary	\$0	\$0	\$768,000	\$3,200,000	\$200,000	\$3,744,000
County CIP	\$524,000	\$0	\$0	\$0	\$0	\$0
General Excise Tax Funding						
Estimated Total Revenue	\$0	\$12,084,999	\$36,291,289	\$36,291,289	\$36,291,289	\$36,291,289
Operating Subsidy	\$0	\$0	\$9,340,440	\$10,356,124	\$10,988,734	\$11,448,354
Capital Funding	\$0	\$9,401,400	\$11,762,442	\$10,502,055	\$9,451,167	\$6,578,702
Carryover balance	\$0	\$2,683,599	\$17,872,006	\$33,305,116	\$49,156,505	\$67,420,738

The amount of revenue in the Fiscal Year 2018 shows a lower estimate at one-third the estimated annual total due to the fact that this is half of a fiscal year and there could be mobilization and fluctuation issues associated with the initiation of such a new program. The full estimate is used for Fiscal Year 2019 and each year thereafter without any escalation to provide a conservative estimate of the potential total revenue. The amount of revenue produced is sufficient to fully fund all MSRTP operating and capital obligations. The last row identifies a carry-over balance ending the six year period with over \$67 million available for other County transportation related needs.

Chapter 5 Endnotes:

¹ Out of the 786 agencies that report statistics uniformly through the National Transit Database (NTD) program, the average amount of purchased transportation was 13.4 percent in 2013 as reported in Table 13: Transit Operating Expenses by Mode, Type of Service and Object Class in NTD data tables. 2013 was the first year Maui Bus reported to NTD. Maui Bus reported 99.1 percent purchased transportation. Few systems reported over 80 percent purchased transportation. Questions have been asked whether Maui Bus could perform almost all functions through third-party vendors limiting the County's role to grant oversight with perhaps one or two employees.

Due to the receipt of Federal Transit Administration funds, reporting requirements under NTD and the recent Metropolitan Planning Organization formation compliance issues, it would be difficult for the County to certify they have the "capacity" to meet their minimum requirements to continue to receive grant funds with a decrease in employees. The County needs to show it has sufficient staff control and management of Federal operating and capital programs. Not having sufficient control and oversight could raise a "red flag" during a triennial audit.

² The 19% farebox recovery rate for comparable systems was calculated from the averages in Table 5-16.

³ Note: On March 4, 2015, the U.S. Department of Transportation (DOT) received a petition for rulemaking from Access Services, the Americans with Disabilities Act (ADA) complementary paratransit provider for 44 fixed route transit providers in Los Angeles County, California. Access Services uses a "coordinated" or two-tier fare structure where it generally charges \$2.75 for one-way trips up to 19.9 miles, and \$3.50 for one-way trips of 20 miles or more. In some cases, these fares exceed twice the fixed route fare. The DOT's ADA regulation at 49 CFR 37.131(c) provides that the fare for a trip charged to an ADA paratransit eligible user of the complementary paratransit service shall not exceed twice the fare that would be charged to an individual paying full fare for a trip of similar length, at a similar time of day, on the entity's fixed route system. In recent triennial reviews of some fixed route providers in Los Angeles County, the Federal Transit Administration (FTA) has made findings that the ADA paratransit fares exceed twice the fixed route fare. In other words, some paratransit riders are paying more for ADA paratransit fares than they should be under the Department's existing regulations.

In general, any paratransit services that a transit operator provides above and beyond its regulatory obligations, including service to individuals who do not fall under one of the three categories of eligibility established under the ADA, are not subject to the service criteria for ADA complementary paratransit (i.e., service area, response time, fares, trip purpose, hours and days, and capacity constraints). Transit operators may therefore elect to establish "premium charges" for such services.

Under the ADA, paratransit functions as a "safety net" for people with disabilities who are unable to make use of the fixed-route – e.g. "mainstream" – transit system (bus or rail). It is not intended to be a comprehensive system of transportation that meets all of the travel needs of persons with disabilities. As such, the level of service is required to be comparable to the fixed-route system, and service is required only for individuals whose disability – permanent or temporary – prevents them from using the fixed-route system. The eligibility requirements are incorporated into §37.123 of the Department's regulations, and the service criteria are established by §37.131.

Section 37.131 establishes the minimum requirements for complementary paratransit provided under the ADA; transit operators are free to provide any level of additional service that they or their communities find necessary. This could include providing paratransit service to individuals who do not meet the eligibility criteria, operating paratransit service beyond the fixed-route service area, providing service when the fixed-route system is not running, or by exceeding the basic next-day service requirement. In such cases, the operator would not be bound by the service criteria for ADA complementary paratransit, including the requirement that limits the fare to no more than twice the fare for a comparable trip on the fixed-route system.

⁴ More detailed information on the peer group analysis is included in the *Maui Short Range Transit Plan Capital Improvement Program and Financial Plan* report dated October 2015 including several appendices that are not included in the final report. The selection of the peer group in that report was primarily based upon achieving an average urban and service area population as included in the NTD database that is comparable to that of the population statistics reported for the Wailuku urban area. The average peer group urban area population was 65,228 as compared to Wailuku's of 55,934. The average peer group service area population was 136,785 as compared to Wailuku's of 144,444. It is recognized that other sources of information may provide different population and other service characteristics, but the NTD data was not adjusted to keep all statistics uniform based upon the NTD's reliable and consistent reporting methodology and validation procedures. This Final Report adds five California systems at the request of MDOT.

⁵ All of the six peer group systems with a service area over 200 square miles had some form of zone system. Maui Bus with a service area of 727 square miles should be offsetting the added cost of serving these longer transit trips. The major benefit of this approach is to more equitably distribute the cost of service among those who use it. The primary disadvantage is that it does complicate the fare structure which is why the zone system should await the introduction of smart cards.

⁶ The Federal Transit Administration's (FTA's) service-life policy for transit buses and vans establishes the minimum number of years (or miles) that transit vehicles purchased with federal funds must be in service before they can be retired without financial penalty. The clear goal of this policy is to ensure that vehicles procured using federal funds remain in service for a substantial portion of their service life, thus ensuring that federal taxpayers obtain an adequate return on their investment. Over time, perception of these requirements has become less as a minimum service-life requirement (to ensure a reasonable return on federal dollars invested) and more as the actual useful life (a point at which the asset should be retired). Given this change in interpretation, most industry experts commonly refer to a standard, 40-foot bus as a "12-year" bus, and many transit authorities have adopted 12 years as their retirement policy for this vehicle type. While many federal regulations and industry procurement practices are believed to have potential useful life implications, these implications are generally considered minor relative to the issues of annual mileage, new vehicle designs, changing life-cycle economics, and other drivers of useful life. The key exception here is the low-bid procurement process, which may yield vehicles with lower quality structures leading to reduced vehicle longevity.

Maui Short Range Transit Plan



Chapter 6 ACTION PLAN



6. ACTION PLAN

This chapter, Action Plan, lists those actions needed in each calendar year to implement the proposals identified in the Maui Short Range Transit Plan. The Action Plan starts with calendar year 2017 to allow some mobilization time between the plans completion and when efforts to implement service improvements and capital investments should start.

6.1 BUDGET YEAR 2017

MDOT provides public transportation service for county residents and visitors through regularly scheduled fixed route service on the island of Maui. Fixed route and commuter route services are contracted with Roberts Hawai'i. Complementary paratransit demand-response service for eligible people with disabilities under the Americans with Disabilities Act (ADA) is provided on the island of Maui. Human service transportation is provided on the Islands of Maui, Lâna'i and Moloka'i. This Action Plan has focused upon identifying specific improvements for the fixed route service on Maui while recognizing that continual efforts are needed to make sure all Maui County resident's transportation needs are addressed as best as possible.

The following actions are not predicated upon enactment of the provisions of Act 240. However, it should be observed that the window of opportunity to use those provisions will be closing. Act 240 requires an ordinance to be adopted prior to July 1, 2016.

6.1.1 Service Improvements In 2017

In 2017 additions to current routes include expanding the span of service on Kula Villager, Lahaina Villager and the North Kihei Villager. Changes to these three routes require additional bus stop placements, especially on the Kula and North Kihei Villager routes. New route service is provided to the Maui Airport. The new Airport route will require new bus stops as well. These new stops should be designed with an information plate to identify the new route schedule as part of the new service promotion. Service improvement planning will continue to address some of the route alignment changes necessitated by the ridership growth of the system. This includes route modifications to avoid disadvantaging passengers who now are being deviated from more direct service to individual transit destinations, primarily shopping centers. This practice in the past benefitted a few riders, but causes conflicts with pedestrians and vehicles in the parking lots and impacts on-time performance.



Bus schedule for Route 40.

6.1.2 Capital Investments In 2017

The bus stop and shelter program that has been budgeted for the previous several years to upgrade existing passenger stops will continue throughout the span of the short range transit plan. The references to bus stops in the capital program are for those new locations needed for service expansions. The capital improvement program emphasis during 2017 will be to gear up to conduct the extensive planning work needed for developing the new transit centers and maintenance facility during 2018. To oversee this work Maui Bus will need to either hire new staff or retain several professionals on personal services contracts. Since the planning and design of major transit capital improvements are concentrated over a multi-year period starting in 2018 and winding down significantly by 2021 it is recommended that these be personal services contracts with a term limit.

Planning for the following capital improvements will need to be initiated in 2017: bus stop improvements for the new fixed route services, location and concept planning for multiple transit centers and planning and concept development for the future maintenance and operations facility. The development of the transit centers is such a major undertaking that it should be the responsibility of one full-time staff or personal services contract professional. The same is true for the future maintenance and operations facility.

The new location and concept plan to replace the transfer center located at Queen Ka'ahumanu Center should be given the highest priority. The County will need to prepare and conduct a solicitation for a consultant contract to locate, plan and design a new centrally located primary transit center. This location is already over capacity to support existing services with the pulse operation. The pulse is operating effectively and is expected to be used to integrate new services with current routes. However, this important existing transit center location cannot be expanded and is located on private property so the transit operation survives at the will of the mall. A new transit center is needed that should be able to accommodate up to 12 buses at the same time and be located as close as possible to the existing site but on land dedicated to serving as the Maui Bus transit center. Because of the size, complexity and importance of the Queen Ka'ahumanu Center transfer center it is recommended that this project not be grouped with the other capital improvement projects.



Queen Ka'ahumanu Center transfer center.

6.2 BUDGET YEAR 2018

The main focus for 2018 should be on the extensive planning needed to advance the replacement transit center Queen Ka'ahumanu Center and the transit maintenance facility into the design phase. Planning will also start on other transit centers. Major fixed route service improvements should be delayed until these capital improvements are completed.

6.2.1 Service Improvements In 2018

Only minor service adjustments are proposed for 2018. Additions to current routes include later evening service on the Kīhei Islander, Lahaina Islander, Ka’anapali Islander and the Napili Islander routes. None of these service improvements in 2018 will require additional fleet or transit center capacity investments.

6.2.2 Capital Investments In 2018

The County will need to prepare and conduct a solicitation for a consultant contract to locate, plan and design the bus maintenance and operations facility. Extensive planning is required to identify and investigate alternative sites. The County may have land available for the facility but the suitability of any possible site needs to be confirmed and evaluated against possible alternative locations. Consideration of non-revenue versus revenue service time and miles by route are critical components of the evaluation because a poorly located facility can contribute significantly to excess operating costs over the life of the facility.



Google Earth image of Island Transit (Washington state) bus maintenance and operations facility opened in 2013.

The size of the bus maintenance and operations facility site needs to account for the residual possible site configuration after consideration of topographical constraints and creation of reasonable buffer zones between the site and adjoining land uses, operational efficiency given knowledge of the existing system and how it might evolve, overall community impacts, evident environmental impacts and other obvious or readily available information for a candidate site. Land costs could be significant for a properly located and sized site.



The County will need to conduct a solicitation for a consultant contract to evaluate, locate, plan and design the secondary transit centers currently located at Wharf Cinema Center, Whaler's Village, Pi'ilani Village Shopping Center and Pā'ia Town. Grouped with these secondary transit centers is the need to plan, design and construct a turnaround for the northern terminus of the Napili Islander. The Whaler's Village site is a lower priority and may in fact be sufficient. It is recommended that these be grouped into one consultant contract to make County management of the work more cost effective.



Interlining Islander Routes 25 and 30 may reduce the need for a transit center at Whaler's Village

Timed connections are made at these transit centers where passengers wait on private property. At the Wharf Cinema Center three buses are positioned on street at the current location where two are scheduled to make timed connections. Service improvements will require a transit center that can serve three buses at the same time to make timed connections. A new transit center is needed located as close as possible to the existing site but on land dedicated to serving as the Maui Bus transit center. The location in Pā'ia Town should be able to accommodate two buses (Haiku Islander and Pā'ia/Makawao Villager and a paratransit vehicle). The implementation of the Pā'ia and Makawao Villager is identified for the last year of the plan; however, opportunities may exist to have a transit center or hub designed into the Bypass Road project.

6.3 BUDGET YEAR 2019

This is the peak year for Maui Bus staff and consultant team activity to achieve timely and full implementation of the Maui Short Range Transit Plan. Critical path capital investments need to be on schedule for future service improvements to occur.

6.3.1 Service Improvements In 2019

Additions to current routes in 2019 include the introduction of the Kīhei Express route adding 6 additional trips per day. Supporting the Kīhei Express route is the addition of the South Kīhei Villager route. The South Kīhei Villager will require bus stops to be placed prior to service implementation.

6.3.2 Capital Investments In 2019

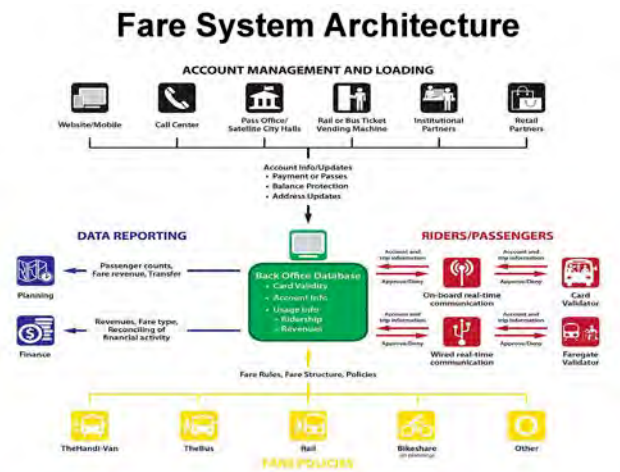
This is the most ambitious year for capital investments. It is expected that the design for the new maintenance and operations facility will be finished and construction documents available to go out to bid for construction. The Queen Ka’ahumanu Center transfer operation is at capacity. The Queen Ka’ahumanu Center transit center replacement is needed for the subsequently planned service improvements to be implemented.



It is anticipated that several of the other outlying transit centers should be able to advance into the land acquisition and preliminary construction phases during 2019. The Whaler’s Village transfer point is off-street but on private property and survives at the will of the property owner. Although this location will not need to increase in size for buses it may become necessary to move the stop to an on-street location. The Pi’ilani Village Shopping Center is a two route bus stop on private property. This is proposed to serve three, timed-connected routes in the future but the operation will move to on street.

The County will need to prepare and conduct a solicitation for a vendor contract to design a program that includes the planning, design, procurement and installation of both wayfinding signage to direct intending riders to the closest transit center or bus stop and real time electronic information displays that should be procured as an independent program to seek partnerships that allow some degree of advertising on the displays to generate revenue or at least be self-sustaining.

The County will need to prepare and conduct a solicitation for a vendor contract to design a program that includes a fare collection system. The possibility of using the Honolulu procurement should be investigated as a cost and time saving measure. The Honolulu procurement involves hundreds of pages of technical specifications and it is best to let the technology be tested on O’ahu first. O’ahu’s fare collection system procurement is underway in 2016.



O’ahu’s Fare Collection System Architecture

6.4 BUDGET YEAR 2020

The previous years of the Maui Short Range Transit Plan have been consumed with the planning and conceptual design of major transit capital projects. By 2020 it is anticipated that those projects are either well into final design or actually into construction. The next several years will have more of an emphasis on proceeding with major service improvements. The most critical path capital project needed for these service improvements to be possible is the completion of the primary transit center that will be replacing the Queen Ka'ahumanu Center. If this has not been accomplished, the service improvements will have to be deferred or redesigned.

6.4.1 *Service Improvements In 2020*

Three new routes are added to Central Maui in 2020. These routes will serve new areas in Kahului and Wailuku. These three routes will require two buses to operate, with two of the routes sharing one bus. New bus stops will need to be sited and installed. Minor changes are being made to the existing loop routes by adding bus stops and serving shopping centers with different alignments.



6.4.2 *Capital Investments In 2020*

The County will be in the middle of the construction of the bus maintenance and operations facility. The progress of this facility will depend upon the challenges of the site selected and whether or not there were any extenuating circumstances such as environmental mitigations inhibiting its timely design and construction. It is anticipated that vehicle procurements will be timed to coincide with the opening of the new facility, but this is not essential.

It is planned that all outlying transit centers should be advanced into final design and initial construction phases during 2020. The progress of these transit centers will depend upon the challenges of each site selected.



There may be reasons why existing locations are able to be reconfigured to make them work better or to have other interim arrangements, but it is desired to have all of these outlying transit centers work for the passengers and for the efficiency of the operation which is best achieved if they are located and designed properly. This is a big challenge and it may be ambitious and optimistic to expect all locations to advance without difficulty. Therefore, a timeline for each facility has not been explicitly detailed in this plan to allow flexibility.

It is expected that the procurement of the wayfinding signage, information displays and fare collection systems will have been completed by 2020 so that these systems components can be integrated into the design of the transit centers, acquisition of fleet and design of corresponding marketing programs.



6.5 BUDGET YEAR 2021

The series of Maui Short Range Transit Plan major service improvements are now well underway and should coincide with full completion of the bus maintenance and operations facility. Some of the service improvements may need to be reprogrammed depending upon which of the transit centers are nearing completion. Ideally, the deployment of geographic service improvements will coincide with the opening of each of the transit centers.

6.5.1 *Service Improvements In 2021*

One new route providing service to communities in north Wailuku including Waihee is added in 2021. Performance monitoring on all routes may result in modifications to other services.

6.5.2 *Capital Investments In 2021*

The County will be completing the construction of the bus maintenance and operations facility in 2021. This year will include the installation, testing and acceptance of all internal systems and equipment. Punch list issues usually exist with such a major and unique facility, but it is assumed that none will be so significant that occupancy of the facility and its functionality is negatively impacted.

It is expected that at least one of the outlying transit centers will be advanced into full construction by 2021. One or two of the others should be well into final design and initial construction phases. The launching of service improvements by geographic area may need to be reprogrammed based upon the progress of the transit centers; although service provision is not expected to be impacted by the progress of the outlying transit centers.

6.6 BUDGET YEAR 2022

This is the final year of the Maui Short Range Transit Plan. Service improvements have been made and will continue because the capacity constraints at major system transfer points have been removed. The expectation is that Maui County residents are more attracted than ever to Maui Bus because the system is easy to use, convenient and reliable. The system connects all major parts of the service area using well maintained vehicles with ample capacity. Passengers are able to know where the system goes and when it goes there using their mobile devices. Payment is easy and reasonably priced. Options for fare payment (cash, smart cards, cell phones, etc.) have been provided because of the advanced technology fare collection system.

6.6.1 Service Improvements In 2022

A new route connecting Pā'ia Town with Makawao is added to the system in 2022. This route will provide service to residential areas within Makawao that are currently unserved and provide connections to the Haiku Islander.

6.6.2 Capital Investments In 2022

The intent of this action plan is that by 2022 all of the major transit capital projects will have been either completed or are entering their final phase of construction. No new major projects are expected to be initiated and only routine vehicle fleet replacements will occur.

It is expected that the operations of the wayfinding, signage, information displays and fare collection systems will have resulted in minor needs for replacements and upgrades which would occur in 2022.

Mauı Short Range Transit Plan



APPENDICES

APPENDICES

- A: Federal Transportation Legislation Chronology
- B: Maui Bus Passenger Survey Statistical Summary
- C: Maui Bus Passenger Survey Passenger Comments
- D: Maui Bus Demographic Analysis
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APPENDIX A: Federal Transportation Legislation Chronology

Appendix A provides a chronological history of Federal transportation legislation.

APPENDIX A: Federal Transportation Legislation

For many decades Federal transportation legislation emphasized auto use by providing funding for the creation of an extensive network of interstate highways beginning with the Federal Aid Highway Act of 1956. Forty years after President Eisenhower signed this legislation into law, the nation has nearly 45,000 miles of interstate highways.

The Rural Highway Public Transportation Program established by the Federal-aid Highway Act of 1973 and the National Mass Transportation Act of 1974 recognized some of the public transportation needs in rural areas. This legislation made over \$500 million available for grants between 1974 and 1980 exclusively for assistance with capital expenses in areas other than urbanized. These non-urbanized areas were instructed to use the procedures urban areas used to apply for these funds, eligibility was limited to public bodies only, and, while funds could pay for operating expenses in urban areas, no such provision existed for those areas designated as “other than urbanized.”

The experience with federal legislation in the early 1970’s led to the creation of the non-urbanized area public transportation program as part of the Surface Transportation Assistance Act of 1978. The lead role later transferred to the Urban Mass Transit Administration (UMTA), since renamed the Federal Transit Administration (FTA), a change that later reflected the agency’s shift to a concern with rural as well as urban areas. A history of relevant transportation legislative actions is provided in the table on the following pages.

In 1994, the Federal Transit Act was reenacted as part of Chapter 53 of Title 49 of the United States Code. At that time, the Section 18 program officially became 5311 of Title 49. The TEA-21, 49 USC, Section 5311 refers to “Formula Grants for Other than Urbanized Areas”. These provide capital, operating, state administration, and project administration assistance, through the states, to areas with populations of fewer than 50,000.

Federal financial assistance for public transportation in rural and small urban areas comes through the Federal Transit Administration of the USDOT. By 1994, there were 1,196 federally funded local rural transportation operations around the United States, at least one in every state and territory.

Non-Federal government appropriations now account for nearly 60 percent of all government support for rural public transportation, even though there still are a number of states such as Hawai’i that put no state funds into rural public transportation.

Federal Transportation Legislation
(page 1 of 5)

Year	Legislation	Features
1956	Federal Aid Highway Act	Created the Interstate Highway system. Public transportation not addressed.
1964	Housing and Urban Development Act	Provided public transportation demonstration funding and mass transportation project loans. Program administered by the Urban Mass Transportation Administration (UMTA) within the Department of Housing and Urban Development.
1966	Urban Mass Transportation Act	Expanded capital funding and allowed funding for research, planning, and training. UMTA was moved to the newly created Department of Transportation.
1970	Urban Mass Transportation Assistance Act	Authorized a \$3.1 billion program of capital grants.
1973	Federal-Aid Highway Act	Increased the federally funded portion of public transportation capital projects from 66 2/3% to 80 % and authorized the use of Federal-Aid Urban System highway funds and Interstate Highway Transfers for qualifying public transportation projects.
1974	National Mass Transportation Assistance Act	Provided public transportation demonstration funding and mass transportation project loans.
1978	Federal Public Transportation Act, Title III of the Surface Transportation Assistance Act	Divided the formula grant program into categories. Included capital grants for bus purchases and additional operating grants for fixed guideway systems and places outside of urbanized areas.
1982	Federal Public Transportation Act of 1982, Title III of the Surface Transportation Assistance Act	Provided 1 cent of a 5 cents per gallon increase in the Highway Trust Fund tax on motor fuels would be placed into a Mass Transit Account for capital projects, increased the portion of all funding allocated through the formula grant program, and altered the formula grant program allocation formula to include public transportation service data as well as population data.
1984	The Tax Reform Act	Allowed employees to receive up to a \$15 per month, tax-free fringe benefit in the form of an employer-provided public transportation subsidy or pass.
1987	The Federal Mass Transportation Act of 1987, Title III of the Surface Transportation and Uniform Relocation Assistance Act	Provided that a portion of the Highway Trust Fund Mass Transit Account would be allocated by formula for capital purposes.

Federal Transportation Legislation
(page 2 of 5)

Year	Legislation	Features
1990	The Omnibus Budget Reconciliation Act of 1990	Raised to 1.5 cents per gallon the portion of the Highway Trust Fund tax on motor fuels to be placed in the Mass Transit Account.
1990	The Americans with Disabilities Act of 1990 (ADA)	Required transit agencies to provide service accessible to persons with disabilities.
1990	Clean Air Act Amendments of 1990	Recast transportation planning to provide for improved air quality.
1991	Federal Transit Act Amendments of 1991, Title III of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)	Extended public transportation assistance through FY 1997, increased the amounts authorized, re-named the transit law the Federal Transit Act and the Urban Mass Transportation Administration the Federal Transit Administration, and converted the rail modernization portion of Section 5309 major capital funds to a formula basis.
1991	Surface Transportation, Title I of ISTEA	Provided that specific funds authorized through Federal-Aid Highways programs may be used for either public transportation or highway projects. These flexible funds were to be used for the mode of transportation best suited to the needs of individual areas and states.
1991	The Omnibus Transportation Employee Testing Act	Mandated the establishment of anti-drug and alcohol misuse programs for safety-sensitive employees of recipients and contractors to recipients of Major Capital Investment, Urbanized Area Formula, and Rural Area Formula public transportation funds.
1992	The Energy Policy Act of 1992	Increased the tax-free amount of the public transportation commuter fringe benefit to \$60 per month with an inflation provision, removed the cliff provision which had made the entire benefit taxable if the monthly limit was exceeded, and extended the benefit to vanpools.
1993	The Omnibus Budget Reconciliation Act of 1993	Raised to 2 cents per gallon the portion of the Highway Trust Fund tax on motor fuels to be placed in the Mass Transit Account, effective October 1, 1995.
1994	The Federal Transit Act	The Federal Transit Act was codified as Title 49, Chapter 53--Mass Transportation, of the United States Code.
1997	The Taxpayer Relief Act of 1997	Raised to 2.86 cents per gallon the portion of the Highway Trust Fund tax on motor fuels to be placed in the Mass Transit Account, effective October 1, 1997.
1997	Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)	ISTEA was extended through March 31, 1998.

Federal Transportation Legislation
(page 3 of 5)

Year	Legislation	Features
1998	The Federal Transit Act of 1998, Title III of the Transportation Equity Act for the 21st Century (TEA 21)	Extends the public transportation program through FY 2003. TEA 21 increases public transportation funding authorizations, up to 70 percent above ISTEA appropriation levels. A total of \$41 billion is authorized for the six-year period, of which \$36 billion is guaranteed. Guaranteed amounts are protected in the budget process and can only be appropriated for public transportation uses. The guaranteed amounts, however, are subject to annual appropriation by the Congress.
2004	Surface Transportation Extension Act of 2004	Extended authorizing legislation (TEA 21) until May 31, 2005.
2004	Consolidated Appropriations Act	Provides a combination of trust and general funds based upon the limits of the Surface Transportation Act.
2005	The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)	Extended the public transportation program through FY 2009. SAFETEA-LU was a funding and authorization bill that governed United States federal surface transportation spending. It was signed into law by President George W. Bush on August 10, 2005. The \$286.4 billion contained programs and earmarks intended to improve and maintain the surface transportation infrastructure in the United States, including the interstate highway system, transit systems, bicycling and pedestrian facilities, and freight rail operations.
2008	SAFETEA-LU National Surface Transportation Policy and Revenue Study Commission.	Completed the National Surface Transportation Policy and Revenue Study mandated by SAFETEA-LU to find ways to fund transportation. A primary recommendation was to increase the federal fuel tax by up to 40 cents per gallon. The Transportation for Tomorrow final report was passed by the study's commission on a split vote with US DOT Secretary Peters dissenting. The commission disbanded and the report's recommendations were not implemented.
2009	SAFETEA-LU extensions	Renewed SAFETEA-LU funding formulas ten times after the 2009 expiration date, ultimately replacing the bill with Moving Ahead for Progress in the 21st Century Act in 2012.
2009	The American Recovery and Reinvestment Act.	Enacted the American Recovery and Reinvestment Act on February 17, 2009. The three immediate goals of the Recovery Act (or Stimulus) were: create new jobs and save existing ones, spur economic activity and invest in long-term growth and foster unprecedented levels of accountability and transparency in government spending. Construction and repair of roads and bridges as well as transit investments were funded. There was no end date written into the act because some infrastructure projects are expected to take a while to complete and to contribute to economic growth for many years.

Federal Transportation Legislation
(page 4 of 5)

Year	Legislation	Features
2011	The American Recovery and Reinvestment Act funding.	Increased the original expenditure estimate of \$787 billion to \$840 billion. As of the end of 2013, \$2,206,854,849 has been spent in Hawaii from the act. This includes three awards of \$43,837,376 to Hawaii for transit projects, none of these were awards to Maui.
2012	MAP-21 State of Good Repair and Bus Livability Programs.	Provided \$8,440,000 to Hawaii to improve public transportation in Maui, Kauai, Honolulu and Hawaii counties. Maui Bus received \$1,000,000. Hawaii DOT received \$800,000 from the Bus Livability Program to construct bus shelters and implement ADA improvements for 10 bus stops on Maui. Shelter improvements included solar powered lighting, bike racks and recycle containers.
2012	The Moving Ahead for Progress in the 21st Century Act (MAP-21)	Enacted MAP-21, a funding and authorization bill to govern United States federal surface transportation spending. MAP-21 was passed by Congress on June 29, 2012, and President Barack Obama signed it on July 6. The \$105 billion, two-year bill does not significantly alter total funding from the previous authorization, but it does include many significant reforms. The Congressional Budget Office estimates that enacting MAP-21 will reduce the federal budget deficit over the 2012-2022 period by \$16.3 billion. The number of funding programs is consolidated by two-thirds. The environmental review process is reformed in an effort to speed up project development. More projects will be categorically excluded from review, and there will be a four-year review deadline enforced with financial penalties. (In 2011 the average review took 8.1 years.) Funding for bicycle and pedestrian transportation is reduced and consolidated into a broader program called "Transportation Alternatives." Half of this funding will go to metropolitan planning organizations and the other half will go to states, which may choose to use the funds for other purposes. Bicycle and pedestrian advocates were highly critical of this change, anticipating a 60-70% drop in funding.
2013	MAP-21 formula funding.	Provides direct annual formula and discretionary funding from about ten different programs. FTA Section 5307 Urbanized Area Formula Apportionment for FY 2014 is \$1,040,679. Some FTA Federal funding is allocated to the state for redistribution. Programs include statewide transportation planning program Section 5303(e), Non-Urbanized Area Formula Program Section 5311, Rural Transit Assistance (RTAP) Section 5311, Job Access and Reverse Commute (JARC) Section 5316, New Freedom Program Section 5317, Veterans Transportation and Community Living Initiative (VTCLI) Program.

Federal Transportation Legislation
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Year	Legislation	Features
2104	MAP-21 USDOT FHWA and FTA Policy Guidance	Enacted Policy Guidance dated June 2, 2014 for USDOT FHWA 23 CFR Part 450 and FTA 49 CFR Part 613 on MPO Representation. By October 1, 2014 MPOs that serve a Transportation Management Area (TMA) must include a representative of providers of public transportation in addition to local elected officials and appropriate State officials as previously required. Since a TMA is defined as an urbanized area with a population of 200,000 or greater, this new requirement does not apply to Maui.
2014	MAP-21 USDOT FHWA and FTA Proposed Rule	Proposed Rule dated June 2, 2014 for USDOT FHWA 23 CFR Part 450 and FTA 49 CFR Part 613; Statewide and Non-Metropolitan Transportation Planning; Metropolitan Transportation Planning; Notice of Proposed Rulemaking (NPRM) will require states, MPOs and providers of public transportation to establish and coordinate performance-driven, outcome-based planning approaches. Investment priorities are to be linked to the achievement of performance targets in keys areas.
2014	Comments of the County of Maui on MAP-21 USDOT FHWA and FTA Proposed Rule	Comment letter dated September 2, 2014 expressed concerns that the USDOT's FHWA and FTA may have dramatically underestimated the costs of implementing the proposed rule for smaller MPO's, especially for those areas in the process of creating an MPO like Maui.
2014	Oahu MPO TMA Certification Review Final Report.	A joint FHWA/FTA Federal Review Team conducted a review of the OahuMPO. The primary finding was that HRS 279E conflicts with 23 U.S.C. 134 and 135 and 23 CFR Part 450. HRS 279E will need to be repealed or revised during the 2015 legislative session to ensure appropriate authority for the MPO to comply with Federal laws applicable to the MPO as outlined in a December 16, 2013 letter from FHWA and included as Appendix C to the Certification Review Report. Proposed new HRS 279E legislation has been drafted. The HRS 279E draft is designed to be applicable to all state MPOs.
2015	Both branches of Congress have passed different versions of a bill to replace MAP-21.	The Developing a Reliable and Innovative Vision for the Economy (DRIVE) Act was passed by the House as an amended version of the Senate-passed H.R. 22. Over 300 amendments were filed with more than 100 heard on the floor of the House. The final vote on the \$340 billion bill was 363-64.
2015	FAST passed by Congress and signed into law.	On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act into law. This was the reconciliation bill formed by the conference committee to negotiate the differences between the House-passed Surface Transportation Reauthorization and Reform (STRR) Act and the Senate-passed Developing a Reliable and Innovative Vision for the Economy (DRIVE) Act. The committee report passed by a House vote of 359 – 65 and a Senate vote of 83 – 16. This is the first long-term surface transportation authorization in ten years. This timely and strong bipartisan vote allows the Maui Short Range Transit Plan to assume continued Federal support for future capital investments.

The total funding for the Section 5311 program is small in comparison to the overall funding needed to maintain and develop viable public transportation systems in rural and small urban areas. Because of the relatively low level of funding, major themes of the program include coordination with other funding sources.

Funds may be used for capital and operating assistance by State agencies, nonprofit organizations, and public transportation authorities. For capital and administrative expenses, the Federal share is 80 percent and the local share is 20 percent; for net operating expense, up to 50 percent is supplied by the Federal government. Up to 15 percent of the State apportionment may be used for State administrative and technical assistance. Federal share for these funds is 100 percent.

ISTEA, enacted in 1991, ensures an intermodal transportation system economically efficient and environmentally sound. It provides the foundation for the Nation to compete in the global economy, and moves people and goods in an energy efficient manner. TEA-21 reaffirmed ISTEA and authorized increased funding.

With ISTEA and the subsequent TEA-21 and MAP-21 legislation, Congress recognized the need to promote and reintegrate "alternative" modes within the nation's transportation system. The legislation emphasizes the importance of multimodal facilities serving as transfer points between various modes, including automobiles, buses, ferries, airports, bicycles, and walking. By creating central transfer points between different transportation modes, the use of all modes is enhanced.

In July of 2015 the Senate passed its six-year surface transportation bill by a vote of 65 – 34. In November, the House of Representatives passed its version of the multi-year surface transportation authorization bill, the Surface Transportation Reauthorization and Reform (STRR) Act of 2015. The House amended the Senate-passed version of H.R. 22, the Developing a Reliable and Innovative Vision for the Economy (DRIVE) Act. Over 300 amendments were filed with more than 100 heard on the floor of the House. The final vote on the \$340 billion bill was 363-64.

On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act into law. This legislation was the reconciliation bill formed by the conference committee charged with negotiating the differences between the House-passed Surface Transportation Reauthorization and Reform (STRR) Act and the Senate-passed Developing a Reliable and Innovative Vision for the Economy (DRIVE) Act. The committee report passed by a House vote of 359 – 65. Later that day, the bill was brought to the Senate, where it passed that night by a vote of 83 – 16. This bill is the first long-term surface transportation authorization in ten years, since the passage of SAFETEA-LU in 2005. This timely and strong bipartisan vote allows the Maui Short Range Transit Plan to assume continued Federal support for future capital investments.

APPENDIX B: Maui Bus Passenger Survey Statistical Summary

Appendix B provides the 2014 Maui Bus Passenger Survey Statistical Summary Database.

2014 Maui Bus Passenger Survey
Statistical Summary of Database (3/2/2015)

Survey Question	Number	Percent
What bus route were you on when you received this survey?		
1 or 2 Wailuku Loop	88	7.2%
5 or 6 Kahului Loop	101	8.2%
10 Kihei Islander	211	17.2%
15 Kihei Villager	53	4.3%
20 Lahaina Islander	131	10.7%
23 Lahaina Villager	69	5.6%
25 Ka'anapali Islander	93	7.6%
30 Napili Islander	73	5.9%
35 Haiku Islander	104	8.5%
39 Kula Villager	12	1.0%
40 Upcountry Islander	116	9.5%
Haiku-Wailea Commuter	10	0.8%
Kihei-Kapalua Commuter	15	1.2%
Makawao-Kapalua Commuter	16	1.3%
Wailuku-Kapalua Commuter	135	11.0%
Total	1,227	100.0%
How did you get to this bus?		
Walk or Wheelchair	629	51.8%
Another bus	283	23.3%
Drove vehicle and parked	99	8.2%
Vehicle passenger/was dropped off	147	12.1%
Bicycle	31	2.6%
Other (scooter, skateboard were common entries)	25	2.1%
Total	1,214	100.0%
If walked or used wheelchair, how many blocks?		
1 block or less	347	57.5%
2 to 3 blocks	165	27.4%
4 to 5 blocks	49	8.1%
More than 5 blocks	42	7.0%
Total	603	100.0%
If bicycled, how many miles?		
Less than 1 mile	2	6.9%
1 to 2 miles	19	65.5%
3 or more miles	8	27.6%
Total	29	100.0%
Did you take another bus to get here? Did you transfer?		
No	924	76.6%
Yes	283	23.4%
Total	1,207	100.0%

2014 Maui Bus Passenger Survey
Statistical Summary of Database (3/2/2015)

Survey Question	Number	Percent
If transferred, what route?		
1 or 2 Wailuku Loop	16	10.2%
5 or 6 Kahului Loop	17	10.8%
10 Kihei Islander	26	16.6%
15 Kihei Villager	3	1.9%
20 Lahaina Islander	51	32.5%
23 Lahaina Villager	2	1.3%
25 Ka'anapali Islander	23	14.6%
30 Napili Islander	4	2.5%
35 Haiku Islander	6	3.8%
39 Kula Villager	2	1.3%
40 Upcountry Islander	7	4.5%
Total	157	100.0%
If transferred, how long did you wait between buses?		
5 minutes or less	50	31.3%
6 to 14 minutes	27	16.9%
15 to 29 minutes	11	6.9%
30 or more minutes	72	45.0%
Total	160	100.0%
When you got on this bus, where were you coming from?		
Home	702	58.5%
Work	216	18.0%
School (K-12)	12	1.0%
College (students only)	24	2.0%
Medical/dental	26	2.2%
Social/recreation/sightseeing/visiting friends	67	5.6%
Personal business (bank, post office)	45	3.8%
Hotel	46	3.8%
Shopping	57	4.8%
Airport (air passenger)	4	0.3%
Total	1,199	100.0%
Will you take another bus to get to where you are going?		
No	815	71.6%
Yes	323	28.4%
Total	1,138	100.0%

2014 Maui Bus Passenger Survey
Statistical Summary of Database (3/2/2015)

Survey Question	Number	Percent
If you will transfer, to route?		
1 or 2 Wailuku Loop	21	12.9%
5 or 6 Kahului Loop	16	9.8%
10 Kihei Islander	16	9.8%
15 Kihei Villager	21	12.9%
20 Lahaina Islander	20	12.3%
23 Lahaina Villager	7	4.3%
25 Ka'anapali Islander	14	8.6%
30 Napili Islander	16	9.8%
35 Haiku Islander	13	8.0%
39 Kula Villager	4	2.5%
40 Upcountry Islander	15	9.2%
Total	163	100.0%
How will you get to your destination after you get off this bus?		
Walk or Wheelchair	625	59.0%
Another bus	323	30.5%
Drive vehicle	18	1.7%
Vehicle passenger/be picked up	50	4.7%
Bicycle	27	2.5%
Other (scooter, skateboard were common entries)	17	1.6%
Total	1,060	100.0%
If walked or used wheelchair, how many blocks?		
1 block or less	400	66.0%
2 to 3 blocks	132	21.8%
4 to 5 blocks	43	7.1%
More than 5 blocks	31	5.1%
Total	606	100.0%
If bicycled, how many miles?		
Less than 1 mile	2	13.3%
1 to 2 miles	8	53.3%
3 or more miles	5	33.3%
Total	15	100.0%
How did you pay your fare?		
\$2.00 Cash	245	20.2%
Daily Pass (\$4.00)	330	27.2%
Adult Monthly Pass \$45.00	326	26.8%
Student Monthly Pass \$30.00	110	9.1%
Senior Monthly Pass \$25.00 for fixed route only	200	16.5%
Persons with Disabilities Monthly Pass \$30 for fixed route only	4	0.3%
Total	1,215	100.0%

2014 Maui Bus Passenger Survey
Statistical Summary of Database (3/2/2015)

Survey Question	Number	Percent
How many buses will you board today including all trips?		
1 bus	235	20.1%
2 buses	494	42.2%
3 buses	139	11.9%
4 buses	223	19.0%
5 or more buses	80	6.8%
Total	1,171	100.0%
How long have you been riding Maui Bus?		
This is my first trip	69	5.8%
Less than one week	51	4.3%
Less than one year	222	18.8%
1 year	98	8.3%
2 years	170	14.4%
3 to 5 years	336	28.4%
6 to 9 years	156	13.2%
10 or more years	82	6.9%
Total	1,184	100.0%
How often do you use Maui Bus?		
10 or more times a week	423	36.2%
5 to 9 times a week	336	28.7%
3 to 4 times a week	226	19.3%
1 to 2 times a week	113	9.7%
This is my first trip or day using Maui Bus	72	6.2%
Total	1,170	100.0%
How do you get information about Maui Bus routes?		
Internet	280	24.7%
Phone	137	12.1%
Brochure	350	30.9%
System Representative	76	6.7%
Other (workplace, friends, family, hotel, other riders were mentioned)	217	19.1%
Multiple sources	74	6.5%
Total	1,134	100.0%
Would you use a phone or internet app to get information about Maui Bus routes?		
Yes	737	67.0%
No	363	33.0%
Total	1,100	100.0%
Are you a licensed driver and able to drive?		
Yes	610	52.4%
No	555	47.6%
Total	1,165	100.0%

2014 Maui Bus Passenger Survey
Statistical Summary of Database (3/2/2015)

Survey Question	Number	Percent
If bus service had not been available today, how would you have made this trip?		
Drive	226	19.4%
Ride with someone	375	32.1%
Walk	117	10.0%
Bicycle	44	3.8%
Taxi	88	7.5%
Would not make this trip	207	17.7%
Multiple response and Other (scooter, skateboard)	110	9.4%
Total	1,167	100.0%
Are you a student?		
No	899	80.1%
Yes (K through 12th grade)	48	4.3%
Yes (College/technical school or program)	176	15.7%
Total	1,123	100.0%
Do you have a disability that limits your mobility?		
Yes	101	8.7%
No	1,054	91.3%
Total	1,155	100.0%
Are you:		
Female	646	54.8%
Male	532	45.2%
Total	1,178	100.0%
Are you a Veteran?		
Yes	99	8.5%
No	1,064	91.5%
Total	1,163	100.0%
Are you a visitor or tourist to Maui?		
Yes	95	8.1%
No	1,083	91.9%
Total	1,178	100.0%
If visitor, how long are you staying on Maui?		
5 days or less	32	54.2%
6 to 15 days	14	23.7%
16 or more	13	22.0%
Total	59	100.0%

2014 Maui Bus Passenger Survey
Statistical Summary of Database (3/2/2015)

Survey Question	Number	Percent
What is your age?		
Under 18	54	4.7%
18 to 24	244	21.3%
25 to 34	158	13.8%
35 to 44	169	14.8%
45 to 54	203	17.7%
55 to 64	222	19.4%
65 or older	95	8.3%
Total	1,145	100.0%
Including you, how many people live in your household?		
One	214	18.8%
Two	268	23.5%
Three	184	16.1%
Four	166	14.6%
Five	115	10.1%
Six	91	8.0%
Seven	40	3.5%
Eight	18	1.6%
Nine	12	1.1%
10 or more	32	2.8%
Total	1,140	100.0%
How many vehicles in working condition are available to your household?		
None	310	27.4%
One	352	31.1%
Two	273	24.1%
Three	121	10.7%
Four or more	77	6.8%
Total	1,133	100.0%
Employment status:		
Employed full-time (at least 35 hours per week)	628	55.7%
Not currently employed but seeking work	104	9.2%
Not currently employed but not seeking work	90	8.0%
Employed part-time (less than 35 hours per week)	223	19.8%
Retired	83	7.4%
Total	1,128	100.0%

2014 Maui Bus Passenger Survey
Statistical Summary of Database (3/2/2015)

Survey Question	Number	Percent
Annual household income:		
Less than \$15,000	226	21.5%
\$15,000 to \$24,999	147	14.0%
\$25,000 to \$34,999	170	16.1%
\$35,000 to \$49,999	146	13.9%
\$50,000 to \$74,999	76	7.2%
\$75,000 to \$99,999	31	2.9%
\$100,000 to \$149,999	35	3.3%
\$150,000 or above	11	1.0%
Don't know	211	20.0%
Total	1,053	100.0%

2014 Maui Bus Passenger Survey
 Statistical Summary of Database (3/2/2015)

Rate Maui Bus on each of the following:	Excellent		Good		Fair		Poor		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Cleanliness	427	37.1%	505	43.9%	177	15.4%	41	3.6%	1,150	100.0%
Comfort	409	35.8%	518	45.4%	192	16.8%	22	1.9%	1,141	100.0%
Convenience	454	39.9%	449	39.4%	187	16.4%	49	4.3%	1,139	100.0%
Appearance	444	39.2%	542	47.8%	131	11.6%	17	1.5%	1,134	100.0%
Driver courtesy	523	46.0%	420	37.0%	164	14.4%	29	2.6%	1,136	100.0%
Safety	530	46.5%	483	42.4%	109	9.6%	17	1.5%	1,139	100.0%
Schedule readability	463	41.3%	453	40.4%	166	14.8%	39	3.5%	1,121	100.0%
Service frequency	351	31.5%	457	41.0%	218	19.6%	89	8.0%	1,115	100.0%
Area served	356	32.2%	485	43.9%	199	18.0%	64	5.8%	1,104	100.0%
Transfer Connections	353	32.3%	509	46.5%	192	17.6%	40	3.7%	1,094	100.0%
Weekend service	410	38.5%	491	46.1%	132	12.4%	33	3.1%	1,066	100.0%
Evening service	318	30.9%	406	39.4%	202	19.6%	104	10.1%	1,030	100.0%
On-Time performance	308	27.9%	511	46.2%	234	21.2%	52	4.7%	1,105	100.0%
Overall service quality	380	34.2%	570	51.4%	139	12.5%	21	1.9%	1,110	100.0%
Ease of getting information	444	40.2%	511	46.2%	126	11.4%	24	2.2%	1,105	100.0%

APPENDIX C: Maui Bus Passenger Survey Passenger Comments

Appendix C provides the 2014 Maui Bus Passenger Survey List of Passenger Comments.

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
1 or 2	Be friendly to passengers
1 or 2	be on time
1 or 2	be on time
1 or 2	be on time
1 or 2	be on time
1 or 2	better customer service
1 or 2	buses leave queens 5-10 minutes late
1 or 2	cleaner
1 or 2	come early and leave asap
1 or 2	could be cheaper monthly rates
1 or 2	don't pass bus stop earlier than scheduled
1 or 2	Friendly drivers treat us nice
1 or 2	get a bus stop at Hale Makana
1 or 2	Kihei routes crowded
1 or 2	make it to be latest at 11:30PM
1 or 2	make passes cheaper
1 or 2	more buses
1 or 2	more buses
1 or 2	more buses
1 or 2	more buses
1 or 2	more buses
1 or 2	more buses
1 or 2	more buses, better stop areas
1 or 2	more bus stops on routes
1 or 2	more comfortable seats, drivers don't always call out stops, need reverse upcountry plus Makawao
1 or 2	more often runs better routes
1 or 2	more stops, more often buses
1 or 2	take roach traps off bus
1 or 2	too much walking required, needs more stops
1 or 2	watch out for harassment and violence
5 or 6	adding new routes
5 or 6	arrive at bus stops no later than 5 minutes if possible
5 or 6	Be on time and on schedule
5 or 6	Bus drivers need to communicate with each other, like when one bus running late the other buses need to wait
5 or 6	bus should be ever 15 to 20 minutes
5 or 6	by servicing every time
5 or 6	cheaper monthly passes
5 or 6	cheaper rates, children should be free till age 7
5 or 6	comfort model is bad, bring back old stops
5 or 6	Create more transfer points or more stop so people don't have to ride multiple buses to get somewhere they passed on their previous bus

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
5 or 6	depend on the survey, 30 min every hour is good for me
5 or 6	enforce rules i.e.. Loud talk (cell phones)
5 or 6	go to mune tower (?)
5 or 6	I like on time schedule
5 or 6	I think every stop should have a shade and a bench at least or both, especially its hot and sometimes rain
5 or 6	install shade at lanai st bus stop
5 or 6	its excellent
5 or 6	just be aloha
5 or 6	Just don't be late sometimes
5 or 6	Keep up the good work, god bless
5 or 6	kid should be free (7)
5 or 6	lower monthly rates
5 or 6	make a stop on colane rd. in (No Suggestions) would be nice
5 or 6	Make plastic card bus pass so if bus pass is stolen we can cancel it when that happens
5 or 6	make the chairs more comfortable please :)
5 or 6	more frequent transitions
5 or 6	more routes and longer run times
5 or 6	more routes plus bust stops with a 3 block radius
5 or 6	more stops?
5 or 6	New drivers should be more nice to drivers
5 or 6	no improvement needed
5 or 6	on time
5 or 6	one more bus to reach wailed at 930PM. Make Walmart stop on Kihei route (illustrated on survey)
5 or 6	one or two more hours for Kihei
5 or 6	please be on time
5 or 6	please build up waiting shed to all bus stop
5 or 6	safety from homeless
5 or 6	shed at Walmart for shade
5 or 6	some drivers need to be more friendly
5 or 6	Sometimes when you call the office they are very rude
5 or 6	the mobile app would be a great idea, have a bus stop for (No Suggestions) (?) have a bus for Hana
5 or 6	there should be a bus stop @kahuna for the old folks
5 or 6	We're waiting long time 20 min every bus ride
10	Add stops and drop some other stops
10	be on time
10	be on time
10	be on time
10	bug control
10	bus drivers need more aloha!
10	bus leaves mall every half hour

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
10	Driver should carry change. Don't let stinky people ride
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	extend night service for night workers
10	have Anthony (rt 10) train all drivers
10	Have one more bus leave Kihei @ 9:30 PM
10	larger buses, run later
10	later buses and run every half hour
10	later routes more frequent service
10	later service from QKC to Lahaina
10	make extension to big beach
10	make more accessible stops. Schedule better around cruise ships to keep buses for school kids who live far away
10	more buses
10	more buses more routes
10	more buses, run every 30 minutes
10	more frequent buses and more routes. Takes 3.5 hours to get from s. Kihei to Paia
10	more frequent buses and run later
10	more frequent service
10	more seats
10	more seats and more room for bikes. Seats are dirty
10	more stops, more benches
10	natural gas powered bus. Decorate bus exteriors with local art
10	need change station for money
10	need more stops, buses need to run later. The seats are disgusting
10	Need to bug bomb and clean bus
10	on time every time
10	phone app with bus info
10	post schedules at the bus stop. Have more buses that go to Walmart without having to take bus from Kihei
10	provide shade at stops
10	put stop on this route near dairy road
10	run bigger buses into Kihei
10	run bus every half hour instead of hour
10	run buses every half hour. Have back up for when a bus breaks down
10	run later in the evening. Clean the windows and seats
10	run more often

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
10	run more than one bus every hour
10	Serve Kahului Elementary
10	service time extended to midnight
10	Some of us are overnight workers in Wailea, Pick up and drop off later than 8:30 PM would be nice.
10	steam clean the seats. Make later routes
15	Cheaper fares
15	Cleaner bus
15	Continue the good work
15	Extend hours on routes 15, 10 and 20
15	I think you are doing great
15	Later evening service
15	Later pm buses
15	Later pm buses
15	Later pm buses
15	Later pm buses
15	Later services - later trip for workers
15	Later services - later trip for workers
15	More buses
15	More buses more frequent 30 min
15	More buses, Need later service, Need earlier bus, bus every half hour
15	More direct route from Lahaina to Kihei
15	More direct route from Lahaina to Kihei
15	More direct route from Lahaina to Kihei
15	More direct route from Lahaina to Kihei
15	more frequent service, more night service, don't leave stops early, more bicycle space
15	More routes, more frequency, service should go to midnight.
15	Need to run routes later at night
15	Nice
15	Post time schedule, post designated stops
15	Run buses later, I pou work at 11:00 pm
15	Run later hours, improve info
15	Run later in the evening
15	Run the system till midnight
15	Too much AC, 6-6:30 AM bus from Kula would assist to Kahului
20	AC to cold, more frequency on services on all routes
20	Add Lahaina Post Office bus stop
20	add more routes in the evening
20	add more routes in the evening
20	Bigger bus
20	break up the harassing belligerent drivers. Some act like a gang
20	Don't let passengers talk to driver while in motion

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
20	Give transfers
20	go to cruise port
20	Good service
20	haiku should be more often. Buses should run later in the evening
20	Hawaiian music on buses
20	Keep same drivers on route
20	Later bus like on Oahu
20	later bus service from Lahaina + Kihei. Some drivers excellent some should be fired
20	Later service and a stop in Olowaki
20	make later service to Kaahumanu and Napoli
20	More back up buses for break downs and overflow
20	more bike holder please
20	more bike holder please
20	More bike racks
20	more bus stops
20	more bus stops
20	More bus stops closer together
20	more buses
20	more buses
20	more buses, clean them, no drunks. Drivers need to work on people skills. Make sure ac isn't too cold
20	More buses, Haiku should stop at Walmart
20	More double decker buses to and from Lahaina. Raise the bus fare to keep addicts and bums off the bus.
20	more frequent bus/routes
20	more frequent buses
20	more frequent service out of Lahaina.
20	Need benches, shelters, schedules at stops
20	Need later evening service
20	Need more availability to Kaiser-Wailuku bus stop
20	Need more buses
20	Need more buses on cruise days
20	Need one later bus and one earlier bus
20	need service at least twice hourly. buses are too cold
20	Set safety standards
20	Sometimes we have too many people on bus. Most drivers are nice. 808-757-3609 call me if you want to discuss. On cruise days we are overloaded. Charge tourists more and limit number of people that stand -- what is the limit?
20	Stops too far apart
20	turn down ac. Seats need shampooing, kill mosquitos
20	when it's cold outside lower the ac
20	You're great
23	add another route to linalool

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
23	add another stop in the middle of Lahaina luna
23	always use the bigger bus
23	be on time
23	be on time
23	be on time
23	be on time, cleanliness
23	bus shelter
23	bus shelters
23	bus shelters
23	bus usually late, be on time
23	if an app may be real time tracking (know where bus is)
23	keep up with happy people and cleanness
23	later buses in Lahaina
23	later routes
23	longer night time service
23	make bus to luhailillo welfare office
23	more aloha
23	more buses, service every half hour
23	need more buses, too long a wait between transfers
23	Service operates well
23	wish there was a bus from 2-3PM
25	bus every half hour
25	Good service
25	have late night service
25	have plan for if bus is broken
25	have route every 30 minutes
25	have route every 30 minutes
25	increase the frequency
25	late night routes
25	later bus service for night workers
25	later buses from Lahaina to Kahului
25	less expensive , more upcountry stops
25	longer routes
25	maintenance on buses more often
25	more bus stops
25	more bus stops on kabala side 'maiha st'
25	more bus stops
25	more number of buses
25	phone apps
25	wait a couple minutes since many get off work at 6PM
25	wait at least minutes before leaving
25	want route from whales to sky

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
30	add more stops
30	be nicer to passengers
30	driver friendliness on all routes
30	fill in drivers on knowing where stops are
30	have a late bus @ 11PM
30	have bus every 30 min
30	have bus every 30 min
30	have buses on weekends run till 10PM
30	have service available till 10-11PM
30	increase night service
30	later bus routes
30	later bus time for Napoli islander
30	later hours for service
30	later hours for workers
30	monthly bus passes, longer service at night
30	more buses
30	more buses
30	more buses
30	More buses when boats are in!
30	more frequent bus times
30	more frequent services
30	more routes, more frequent
30	Napoli- peak have every half hour instead of one hour
30	needs later buses
30	put more stops on kahuna route to Napoli
30	run bus hours later till 11PM
30	would love database access like in Portland Oregon
35	1 more for haiku
35	be on time
35	be on time, drivers should be more courteous
35	bus drivers need better attitudes
35	cleaner, bigger for surf boards
35	don't let homeless on bus
35	drivers should have more respect to passengers
35	early morning and later service
35	extend night hours
35	go past haiku
35	have to hitch ride home after work cause no bus after 9PM Kahului to Paia
35	later bus service
35	make more bus stops
35	make sure bus doesn't leave too early on weekends
35	maybe another haiku bus

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
35	more bike racks on bus
35	more bike racks on bus
35	more buses
35	more buses serving haiku
35	more frequent
35	more frequent haiku buses
35	more mid-day buses to haiku
35	more punctual, extra routes
35	more routes
35	more routes and more often
35	more service in morning
35	more stops
35	more stops in country areas like haiku
35	reverse route for Makawao and (No Suggestions)!
35	reverse route Makawao
35	tell bus drivers not to disrespect or talk differently to Caucasians
35	turn down ac
35	turn down ac
39	Have Kula bus go to town same route no transfer
39	Keep the Kula Bus, some routes better than others in frequency. Need more buses, run more often during peak hours
39	More Kula Buses upper/Kula lodge,
39	Ms. Karen is excellent
39	Need later service
39	Nothing, its okay
40	add upcountry loop and more to haiku
40	another upcountry
40	Check on drivers and let them know not to allow drugged people or people who are not ok to ride the bus
40	Don't allow homeless on the bus please
40	earlier Wailuku/ Kahului routes
40	free transfers
40	half Maui work force is night shift and no bus at that time. Need longer bus more shelters. Day people can't get on Lahaina bus
40	have a bus that would do pickups at holmes kula
40	have another upcountry bus
40	less crazy drivers please!
40	longer night services please.
40	loop to server haiku more places
40	Makawao to pukalau
40	make buses to go upcountry
40	Make more routes leg upcountry-reversal
40	make more routes please

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
40	more bus
40	More buses and people need to follow rules...no homeless
40	more frequent buses
40	more stops, make it easier for upcountry to grocery shop
40	More upcountry routes
40	need to catch the bus one hour early to get anywhere, need an upcountry reverse (No Suggestions)
40	need upcountry and haiku reverse
40	new bus hub computer to call out stops
40	(No Suggestions) needs another stop
40	Please tell drivers, advise passengers not put their feet or shoes on the chair
40	reverse route from Makawao to puka
40	reverse upcountry
40	reverse upcountry route
40	run the upcountry more often or add a reverse
40	stay a little later
40	upcountry reverse route
40	When there's an accident that prevents to bus schedule if a text msg could be sent to riders
C-1	better AC, later service on Maui Bus
C-1	Include Andaz drop off
C-1	Need bus stop at Andaz 6:45 AM and 3:15 PM
C-1	Need bus stop at Andaz 6:45 AM and 3:15 PM
C-1	Night service on Maui Bus. Light at Haiku CC
C-1	Please drop off at Andaz
C-1	Please drop off at Andaz
C-1	Please drop off at Andaz
C-1	stop at Andaz, need regular driver
C-2	24 hour operation for hotel workers
C-2	Be on time
C-2	be on time, fix AC, need bus stop by Maui LU(or LN)
C-2	Commuter bus is great -- need more seats
C-2	Fix AC, lower fare, be on time
C-2	More frequency in afternoons and evenings. More flexible hours of service.
C-2	Need bigger bus
C-2	Need bigger bus for Kihei commuters. Have been left at corner 4 times, 21 passenger bus too small.
C-2	Need bigger bus on Kihei
C-3	Add extra bus for Kaanapali - this bus is full people left behind
C-3	Driver talks too much
C-3	Juice on bus
C-3	more bus route
C-3	more bus route

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
C-3	Most drivers are awesome. Need more frequent buses, extend evening service
C-3	Need back up bus for Westin -- leave people behind
C-3	Need bus stop in Haliimaile by school bus stop and in Honuakai
C-3	Need bus stop in Haliimaile near houses in Maui Pineapple
C-3	Need to be picked up on time
C-3	People need to sit before driving
C-3	Walk too far to get to work, need bus stop in Honuakai
C-3	Water or juice served on bus
C-4	5:30 AM to Lahaina is overflowing, need bus at 5:15 AM or 5:45 AM. Passengers need to be at stadium at 4 AM to have seat for first bus.
C-4	AC needs cover, need to be on-time
C-4	add bus at 5:45 am
C-4	add more buses
C-4	Arrive on time, need extra bus people left behind
C-4	Be on time
C-4	Be on time
C-4	be on time
C-4	Be on time
C-4	Be on time
C-4	Be on time
C-4	Be on time
C-4	Be on time
C-4	Be on time
C-4	be on time
C-4	be on time
C-4	Boarderline homeless, needs bus to get to work. More buses, Wailuku - Kapahulu 5:30 and 6:00 AM #20 there is nothing from Kahului to Lahaina after 7 PM.
C-4	Bus should come earlier before departure
C-4	Bus should leave 5:15 AM not 5:30 AM and be on time
C-4	Come earlier
C-4	Come on time on weekends, please
C-4	Come on time on weekends, please
C-4	Communicate
C-4	Communicate
C-4	Communicate
C-4	Concerned - first bus to Kapalua is overflowing -- passengers must be at stadium at 3:45 AM to get on bus. If you are late have to wait for second trip at 6 AM. Our work starts at 7 AM, can we have a 4 AM bus to Kapalua.
C-4	Don't send bus without AC. Pick up sequencing off - Need more buses, sometimes full, service reliability.
C-4	driver comment -
C-4	Driver needs to stop at every stop even if not serving in AM.
C-4	Follow up bus
C-4	If bus has availability bus should pick up Westin before Hyatt

2014 Maui Bus Passenger Survey
Summarized Passenger Comments (3/2/2015)

From Route	Comment
C-4	If bus has availability bus should pick up Westin before Hyatt
C-4	If bus has availability bus should pick up Westin before Hyatt
C-4	Keep the good service
C-4	Larger bus for Saturdays, because full
C-4	more bus service at night central to Lahaina and return to midnight
C-4	More bus stops, more times, more information
C-4	more buses are needed
C-4	More buses please
C-4	More buses please
C-4	More improvements
C-4	More routes
C-4	More routes and later service
C-4	More trips
C-4	Move the last bus time to 5 pm
C-4	Need additional bus
C-4	Need later bus in AM and PM to pick up those left behind
C-4	Need later trips
C-4	Need more Aloha Spirit
C-4	Need more buses
C-4	Need more buses for hotel employees
C-4	Need more night service
C-4	Need to train dispatcher, am senior but have to pay \$45 for commuter pass
C-4	No room on bus left behind
C-4	No room on bus left behind
C-4	on time, pick up after work - check work schedules
C-4	One last departure around 5:30 PM from Kapalua
C-4	public announcements of routes,
C-4	Radio too loud, passengers too noisy, AC too cold, some have no cover on AC,
C-4	Send more buses Wailuku-Kapalua
C-4	should have extra bus when buses are full
C-4	Some drivers need to be more courteous
C-4	Very good
C-4	Westin last to be picked up -- full buses, need later bus on Sunday we work 9 AM to 5 PM
C-4	Why are we always passed by (PM return)? Westin on Sundays are 9 to 5 PM, need later bus for Sundays.
C-4	Would take Maui Bus if commuter not available
C-4	You are doing pretty good.

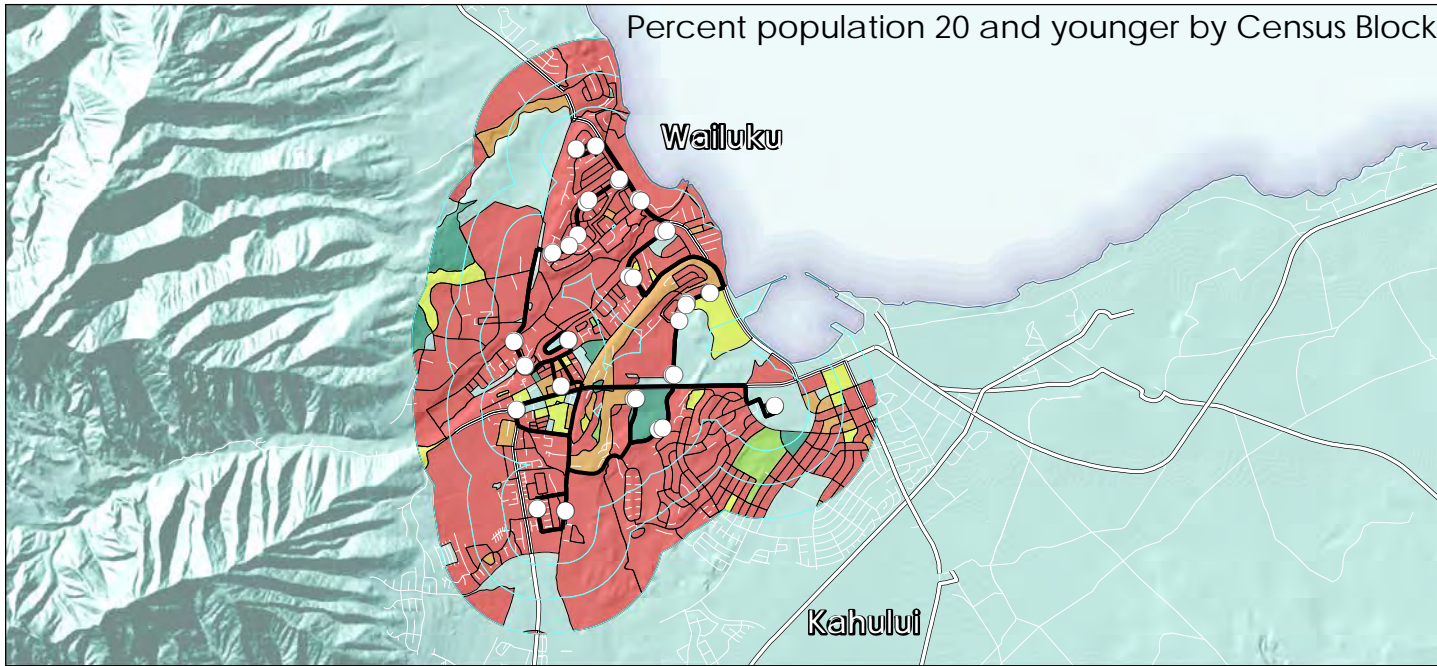
- C-1: Haiku-Wailea Commuter
- C-2: Kihei-Kapalua Commuter
- C-3: Makawao-Kapalua Commuter
- C-4 Wailuku-Kapalua Commuter

APPENDIX D: Maui Bus Demographic Analysis

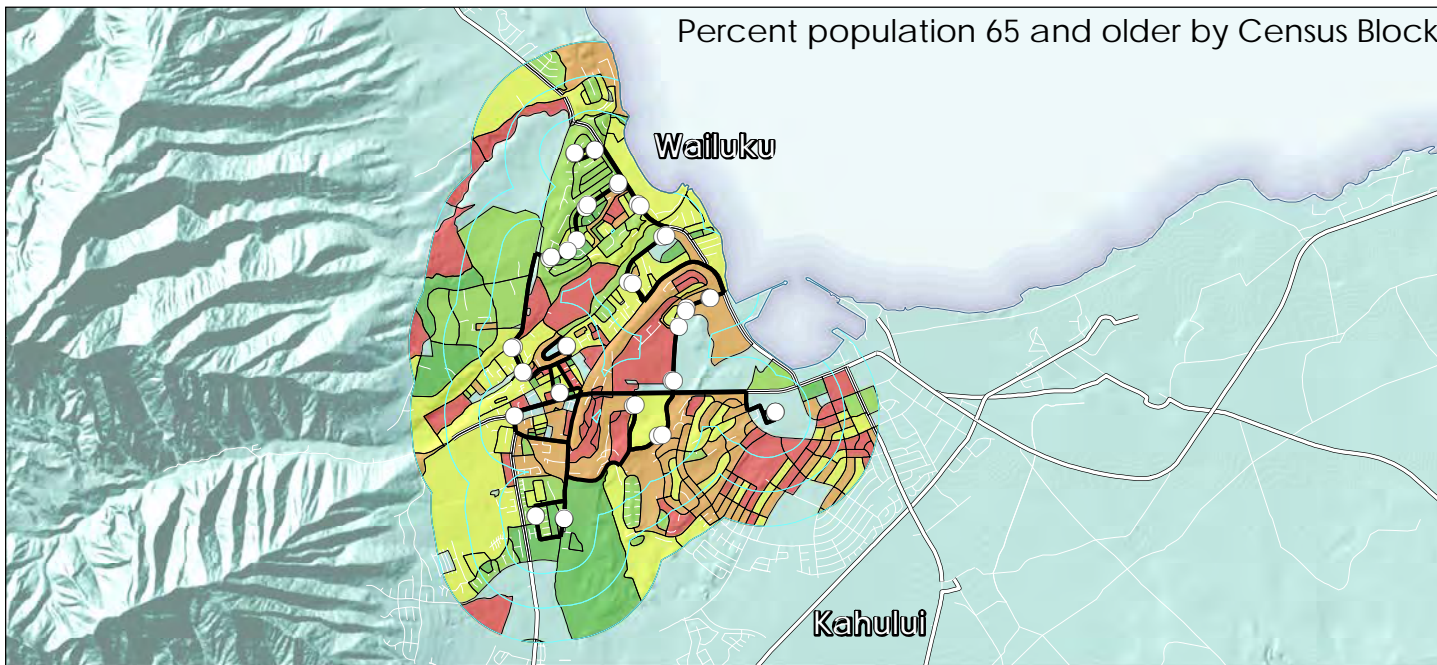
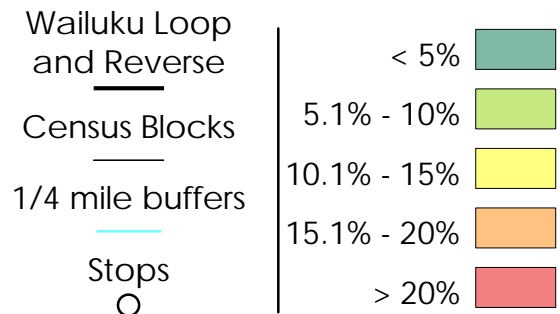
Appendix D contains route maps presenting population aged 65 and older and 20 and younger within $\frac{1}{4}$ mile, $\frac{1}{2}$ mile and $\frac{3}{4}$ mile of each route.

Wailuku Loop #1 and Reverse #2 - Service Population By Age

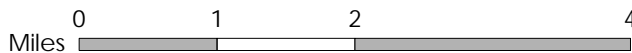
Population demographics along the Wailuku Loop and Reverse corridors



Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	28,845	7,938	27.5%
0.5	35,279	9,809	27.8%
0.75	41,082	11,523	28.0%

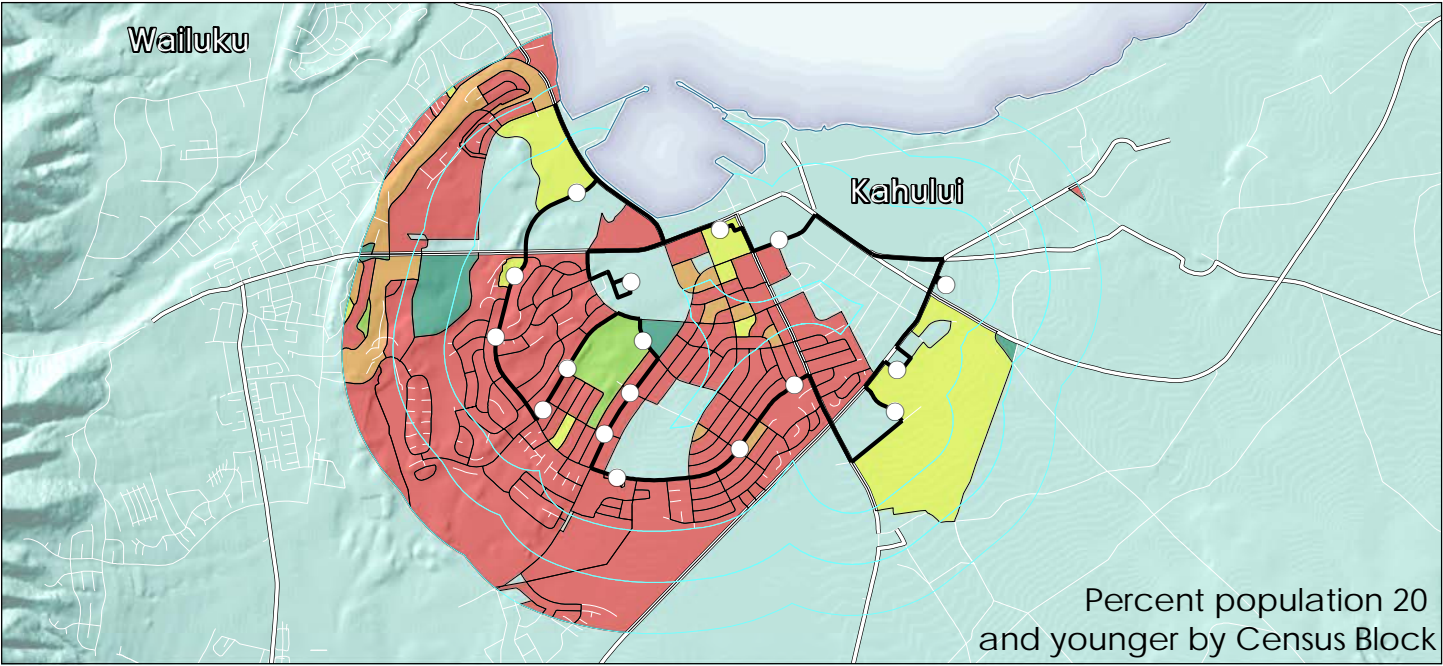


Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	28,845	4,259	14.8%
0.5	35,279	5,196	14.7%
0.75	41,082	5,990	14.6%



Source: US Decennial Census (2010).

Kahului Loop #5 and Reverse #6 - Service Population By Age

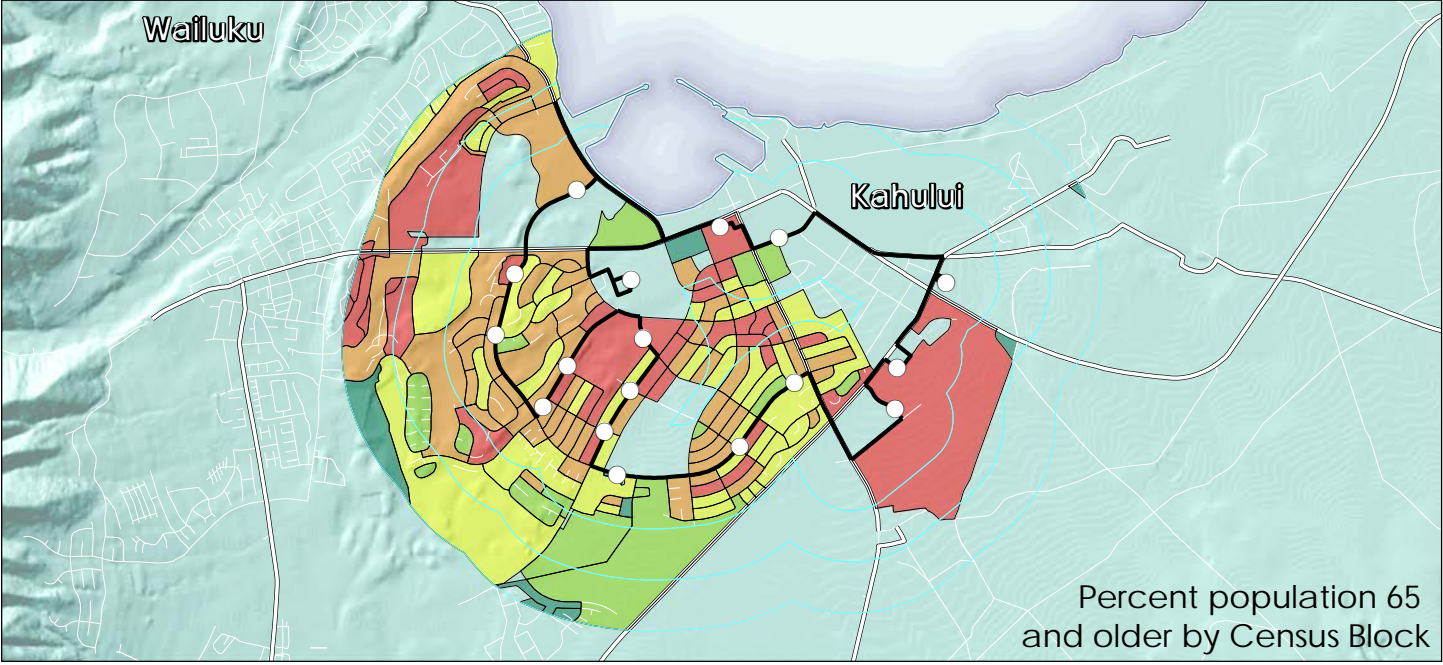


Population demographics along the Kahului Loop corridor

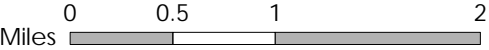
Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	22,702	6,427	28.3%
0.5	25,630	7,167	28.0%
0.75	30,136	8,345	27.7%

Kahului Loop —————
Census Blocks —————
1/4 mile buffers —————
Stops ○

Percent Population	Color
< 5%	Dark Green
5.1% - 10%	Light Green
10.1% - 15%	Yellow
15.1% - 20%	Orange
> 20%	Red



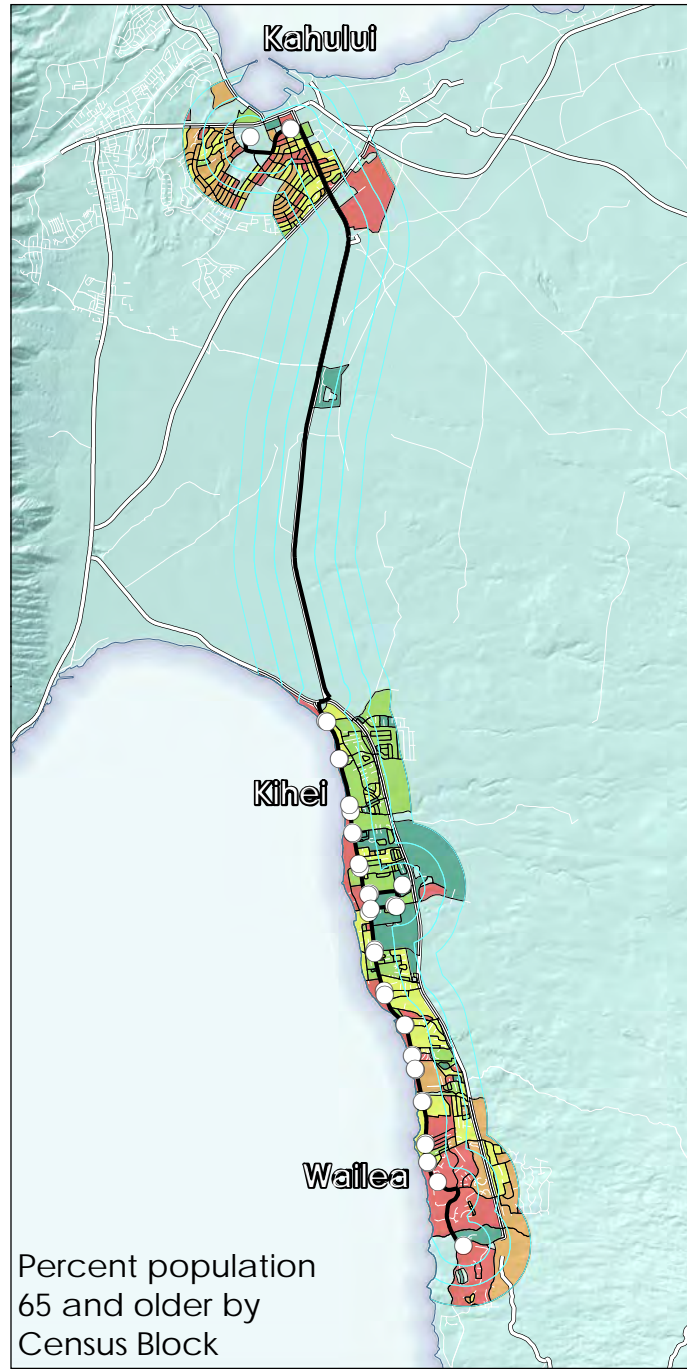
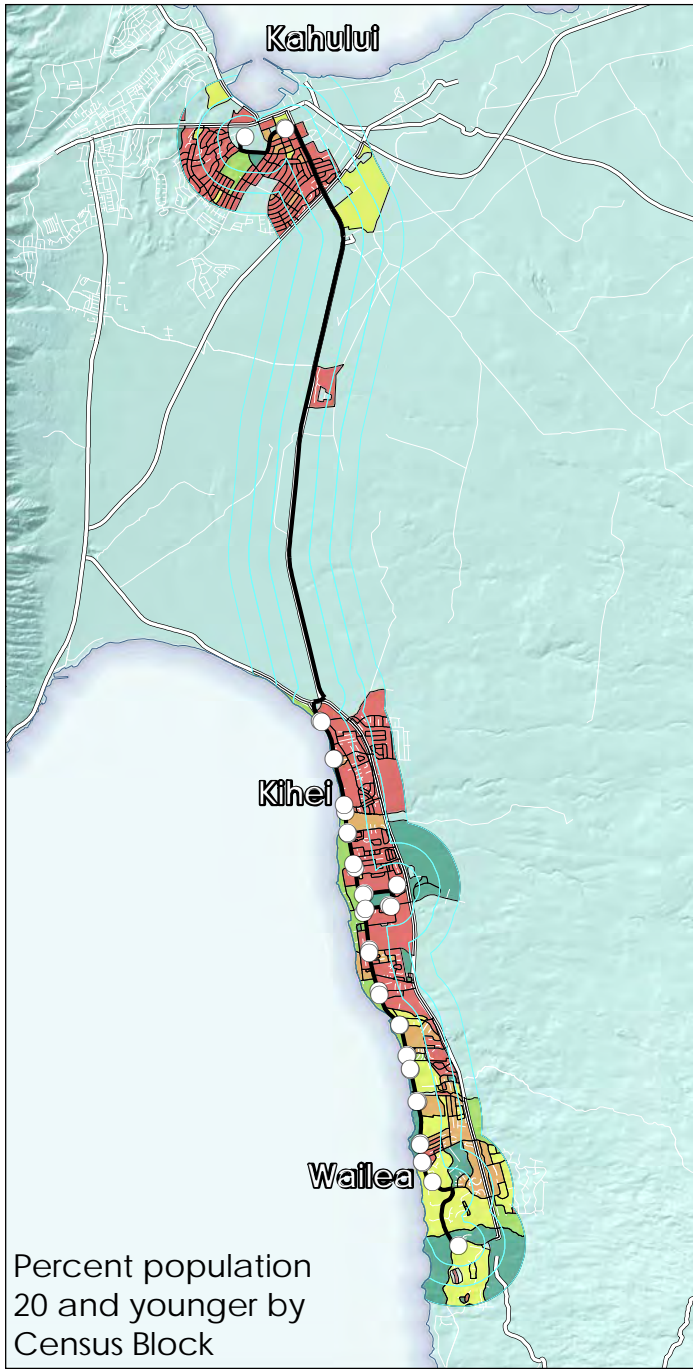
Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	22,702	4,009	17.7%
0.5	25,630	4,456	17.4%
0.75	30,136	4,902	16.3%



Source: US Decennial Census (2010).

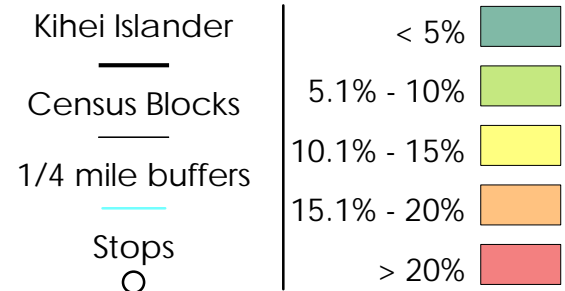


Kihei Islander #10 - Service Population By Age

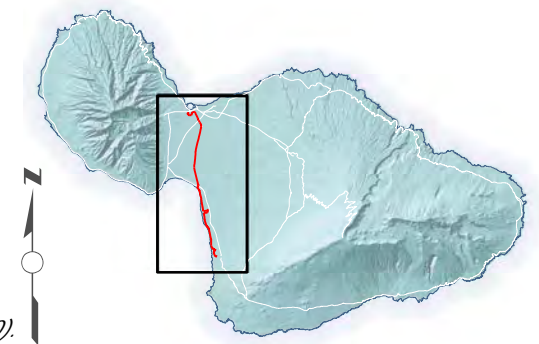


Population demographics along the Kihei Islander corridor

Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	28,471	6,700	23.5%
0.5	39,143	9,497	24.3%
0.75	46,417	11,510	24.8%

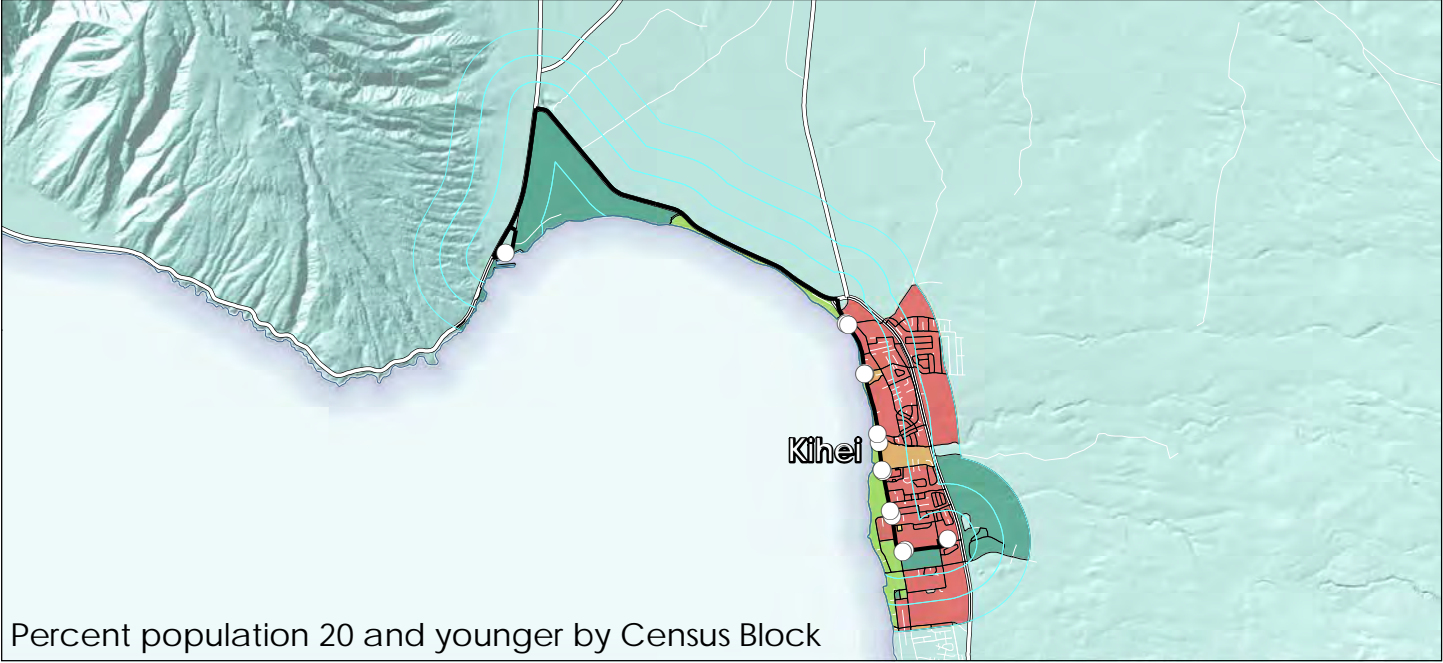


Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	28,471	4,336	15.2%
0.5	39,143	5,832	14.9%
0.75	46,417	6,870	14.8%



Source: US Decennial Census (2010).

Kihei Villager #15 - Service Population By Age

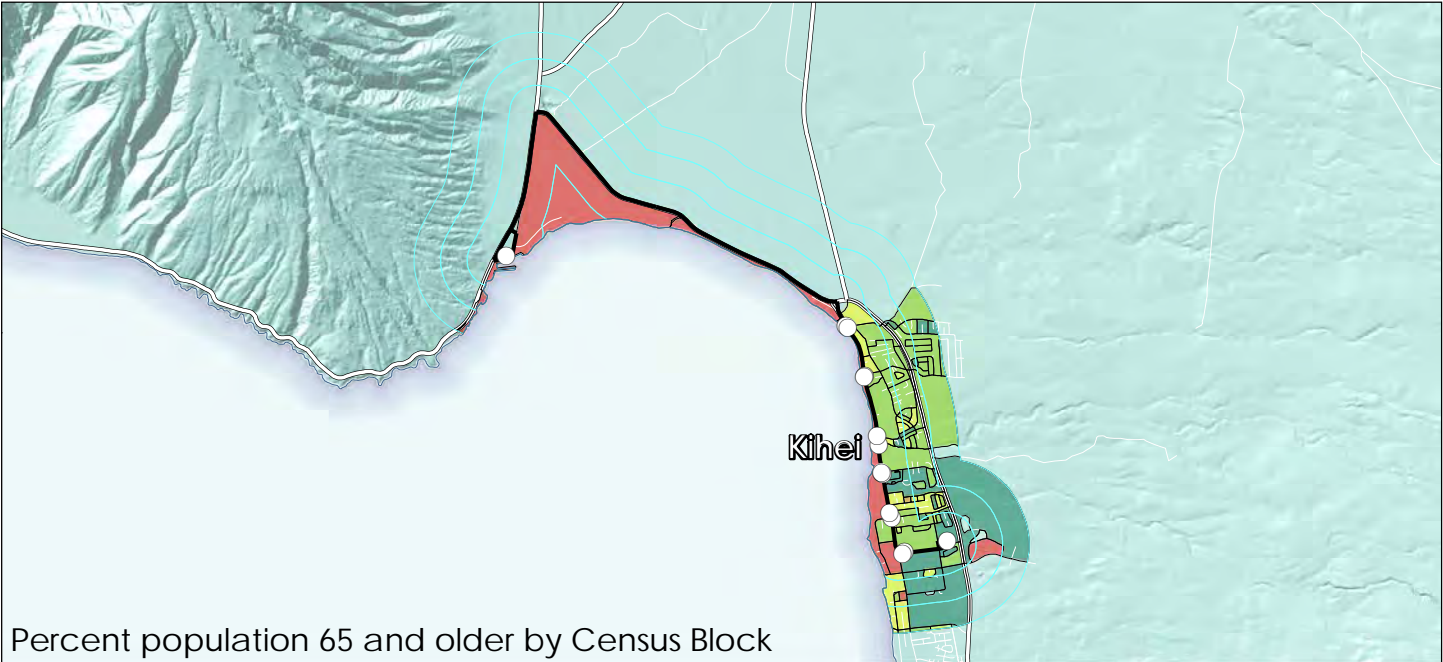


Population demographics along the Kihei Villager corridor

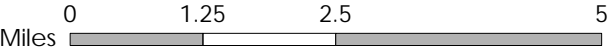
Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	10,467	2,509	24.0%
0.5	14,057	3,615	25.7%
0.75	15,805	4,108	26.0%

Kihei Villager —————
Census Blocks —————
1/4 mile buffers —————
Stops ○

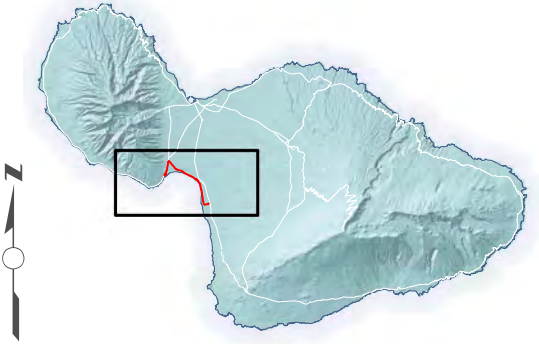
< 5%	
5.1% - 10%	
10.1% - 15%	
15.1% - 20%	
> 20%	



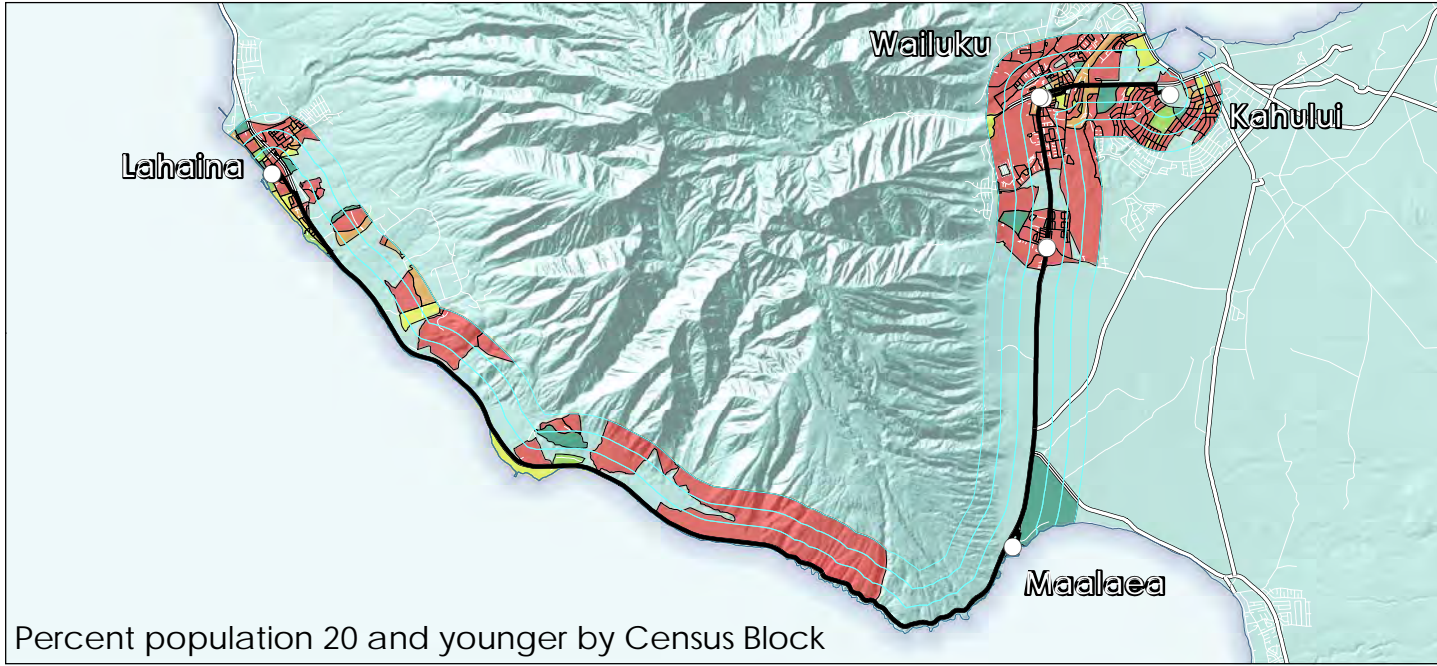
Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	10,467	1,001	9.6%
0.5	14,057	1,311	9.3%
0.75	15,805	1,443	9.1%



Source: US Decennial Census (2010).

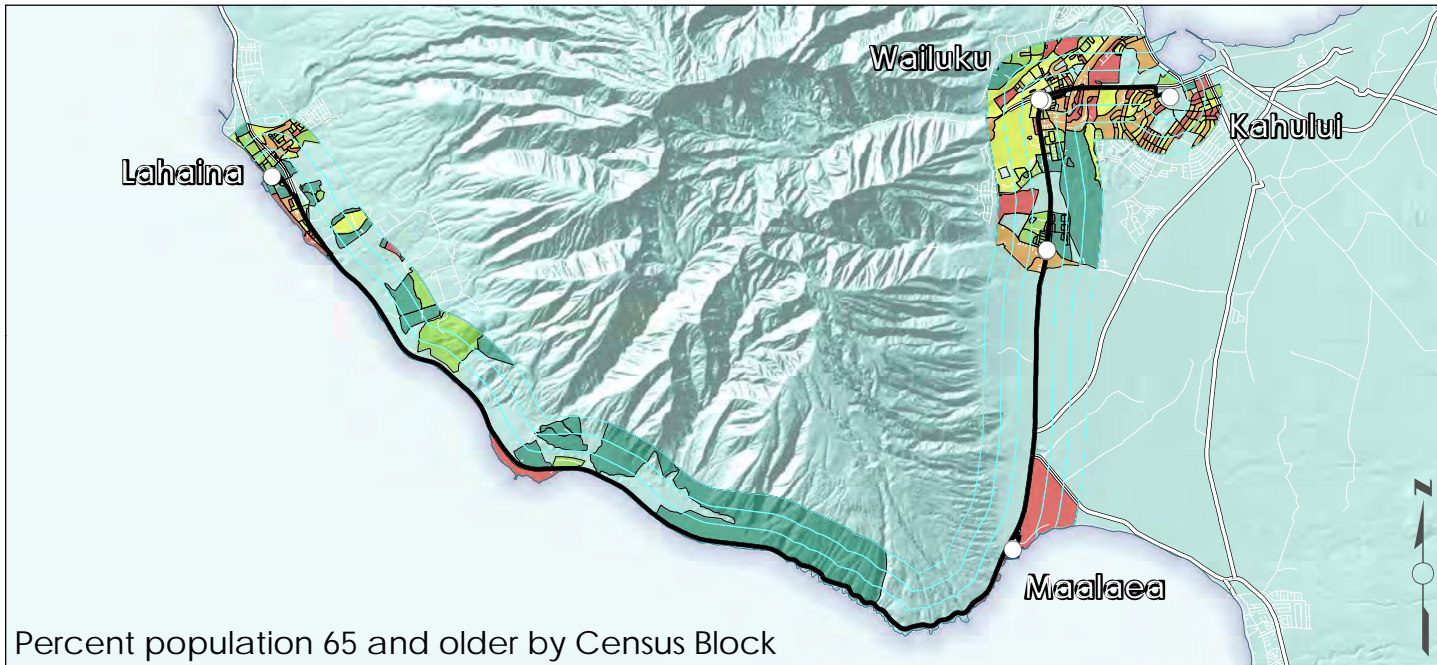
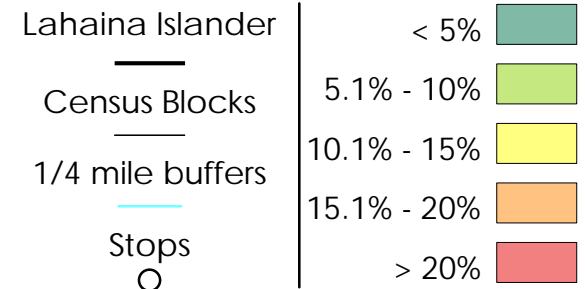


Lahaina Islander #20 - Service Population By Age

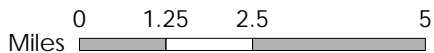
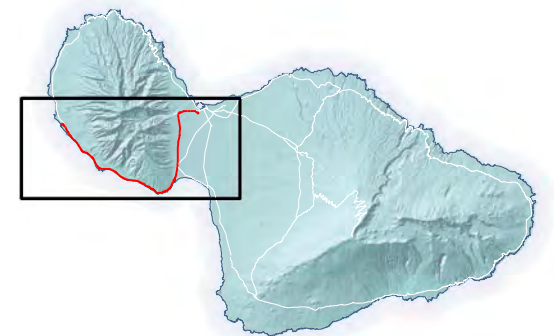


Population demographics along the Lahaina Islander corridor

Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	22,198	5,828	26.3%
0.5	32,626	8,750	26.8%
0.75	40,668	11,025	27.1%

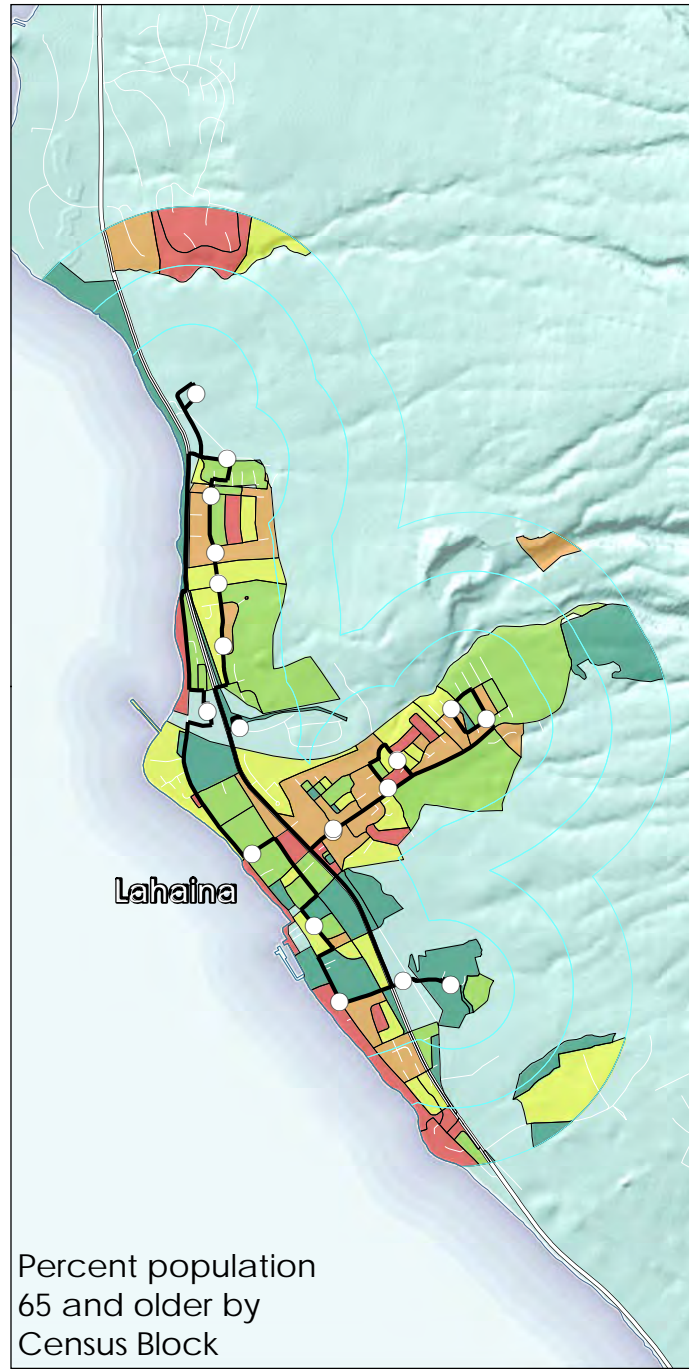
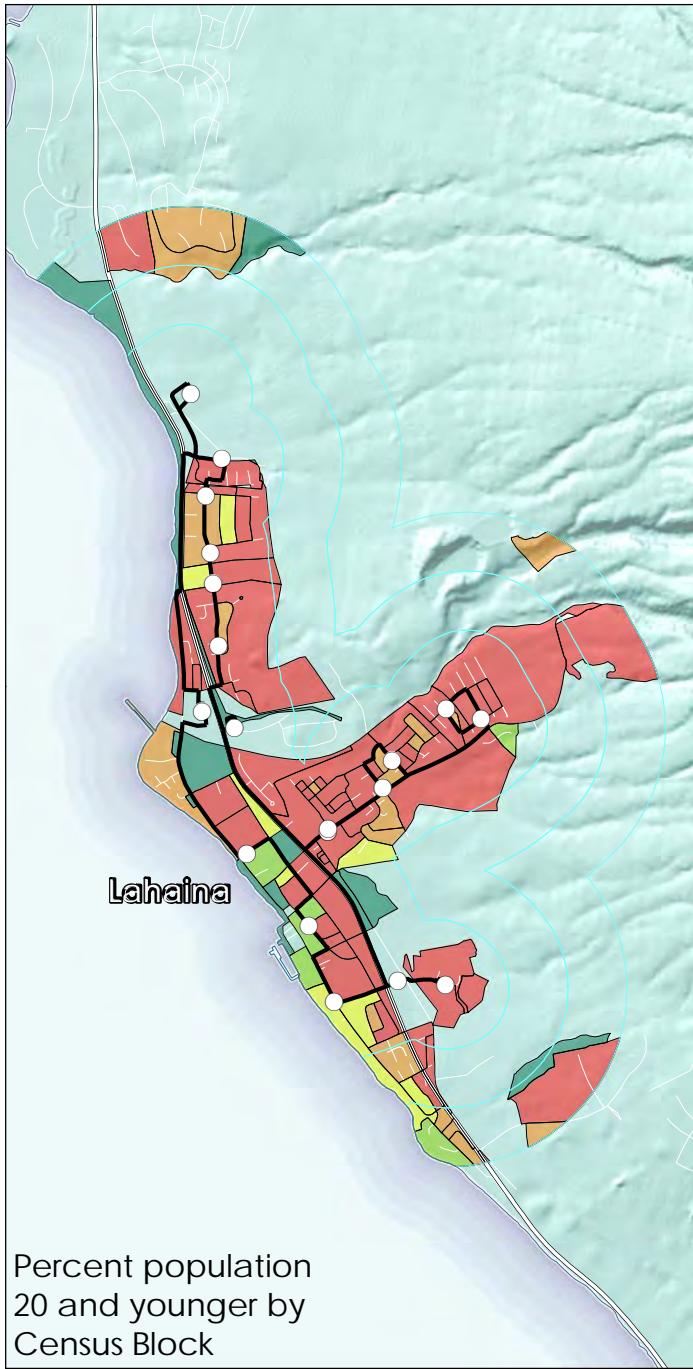


Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	22,198	3,401	15.3%
0.5	32,626	4,841	14.8%
0.75	40,668	6,057	14.9%



Source: US Decennial Census (2010).

Lahaina Villager #23 - Service Population By Age



Population demographics along the Lahaina Villager corridor

Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	11,401	3,089	27.1%
0.5	11,961	3,191	26.7%
0.75	12,125	3,216	26.5%

Lahaina Villager ———

Census Blocks ———

1/4 mile buffers ———

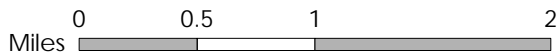
Stops ○

- < 5%
- 5.1% - 10%
- 10.1% - 15%
- 15.1% - 20%
- > 20%

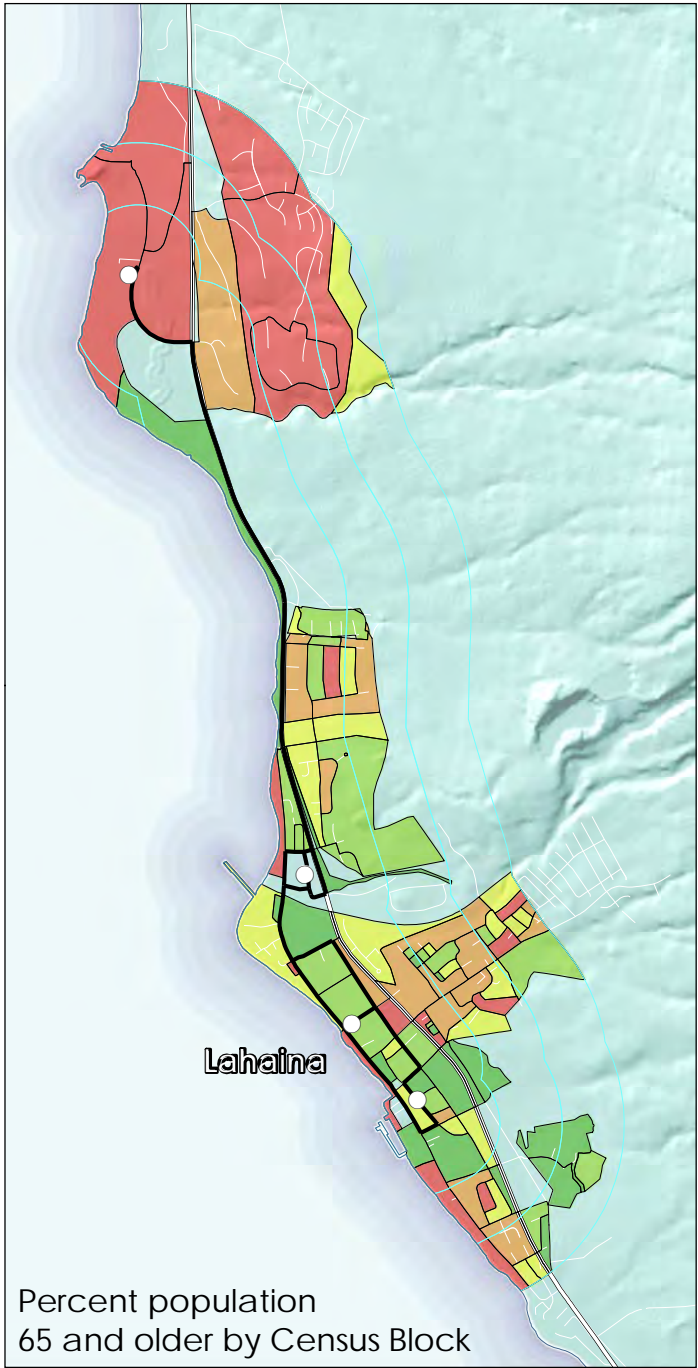
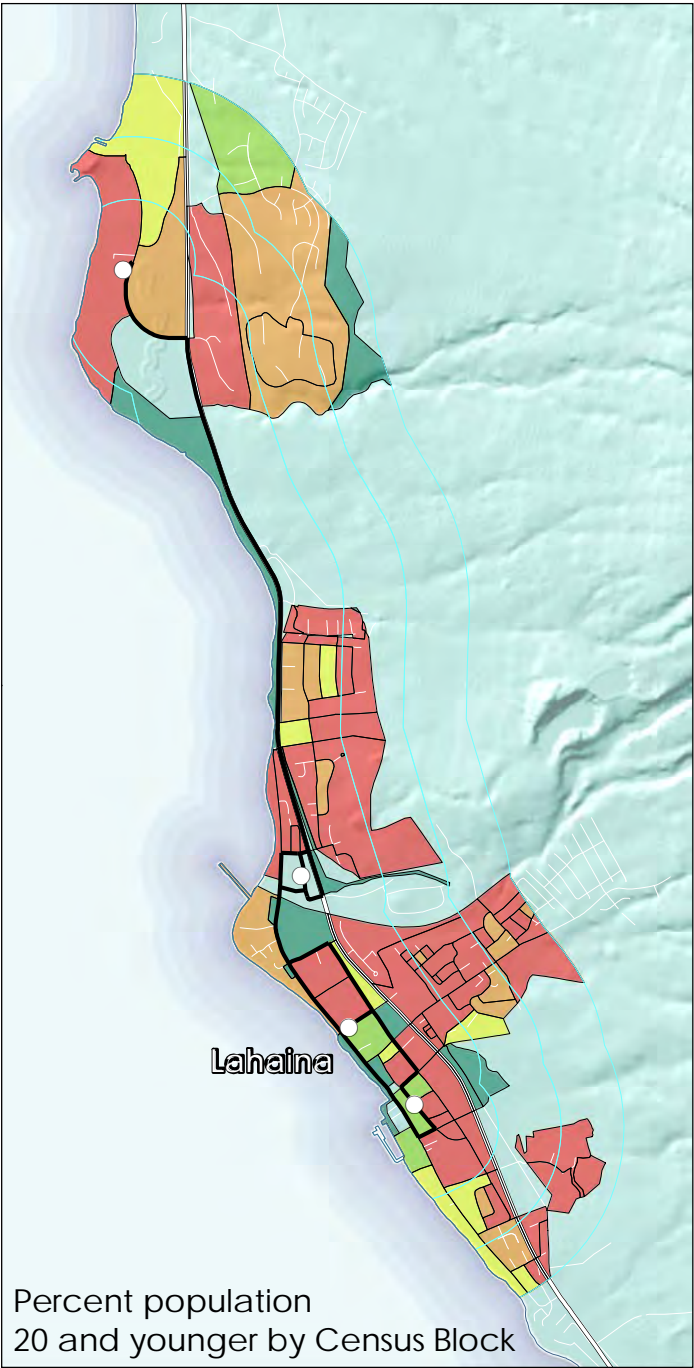
Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	11,401	1,343	11.8%
0.5	11,961	1,451	12.1%
0.75	12,125	1,483	12.2%



Source: US Decennial Census (2010).



Kaanapali Islander # 25 - Service Population By Age



Population demographics along the Kaanapali Islander corridor

Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	6,814	1,726	25.3%
0.5	8,822	2,254	25.5%
0.75	10,056	2,557	25.4%

Kaanapali Islander ———

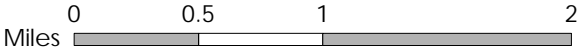
Census Blocks ———

1/4 mile buffers ———

Stops ○

- < 5% ■
- 5.1% - 10% ■
- 10.1% - 15% ■
- 15.1% - 20% ■
- > 20% ■

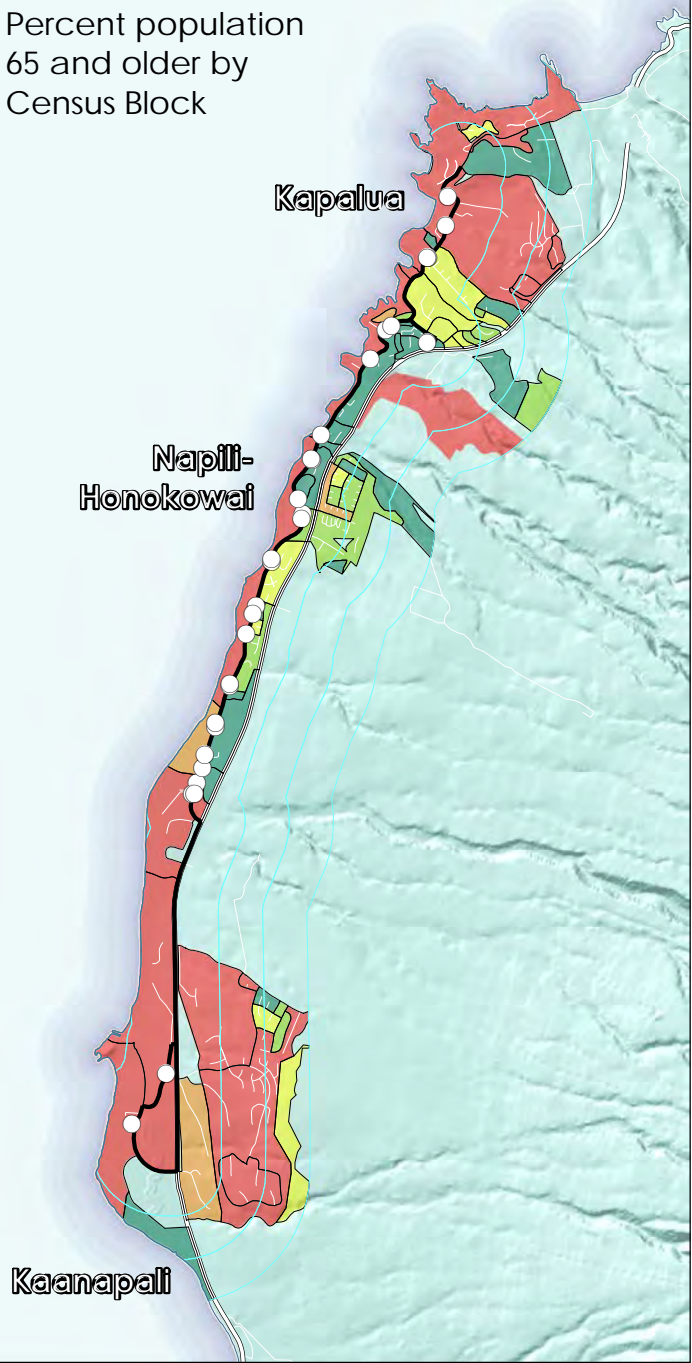
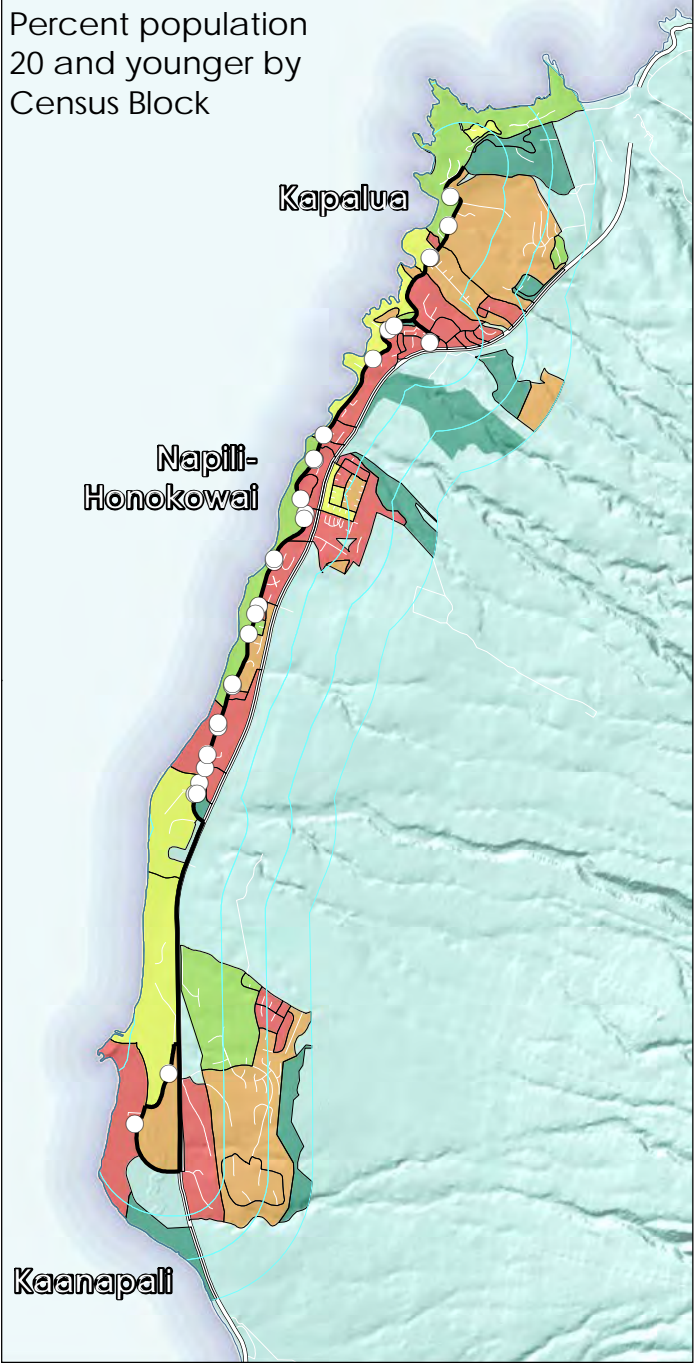
Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	6,814	842	12.4%
0.5	8,822	1,115	12.6%
0.75	10,056	1,324	13.2%



Source: US Decennial Census (2010).



Napili Islander #30 - Service Population By Age



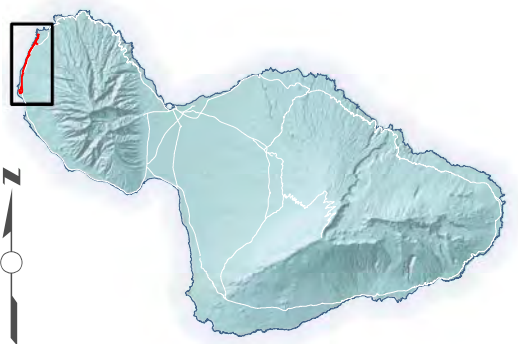
Population demographics along the Napili Islander corridor

Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	9,042	1,997	22.1%
0.5	9,350	2,063	22.1%
0.75	9,482	2,095	22.1%

Napili Islander —————
Census Blocks —————
1/4 mile buffers —————
Stops ○

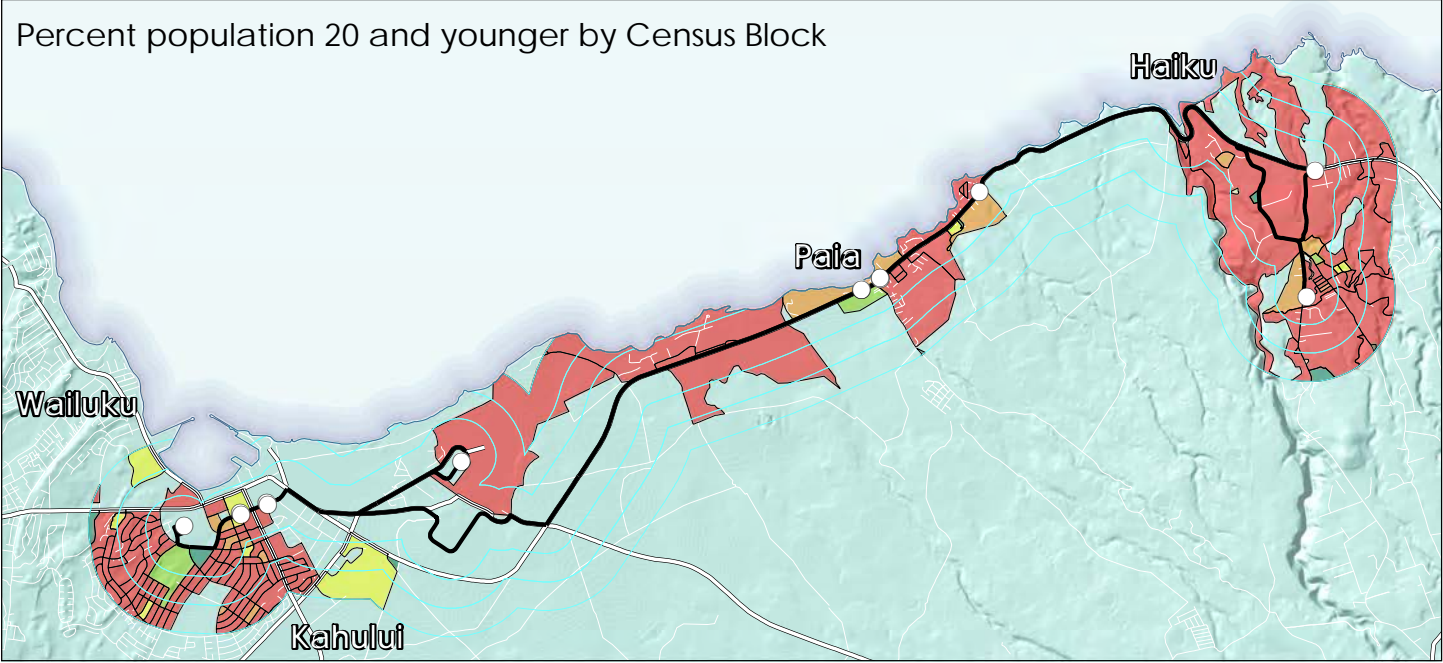
< 5%	
5.1% - 10%	
10.1% - 15%	
15.1% - 20%	
> 20%	

Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	9,042	1,002	11.1%
0.5	9,350	1,045	11.2%
0.75	9,482	1,060	11.2%



Source: US Decennial Census (2010).

Haiku Islander #35 - Service Population By Age

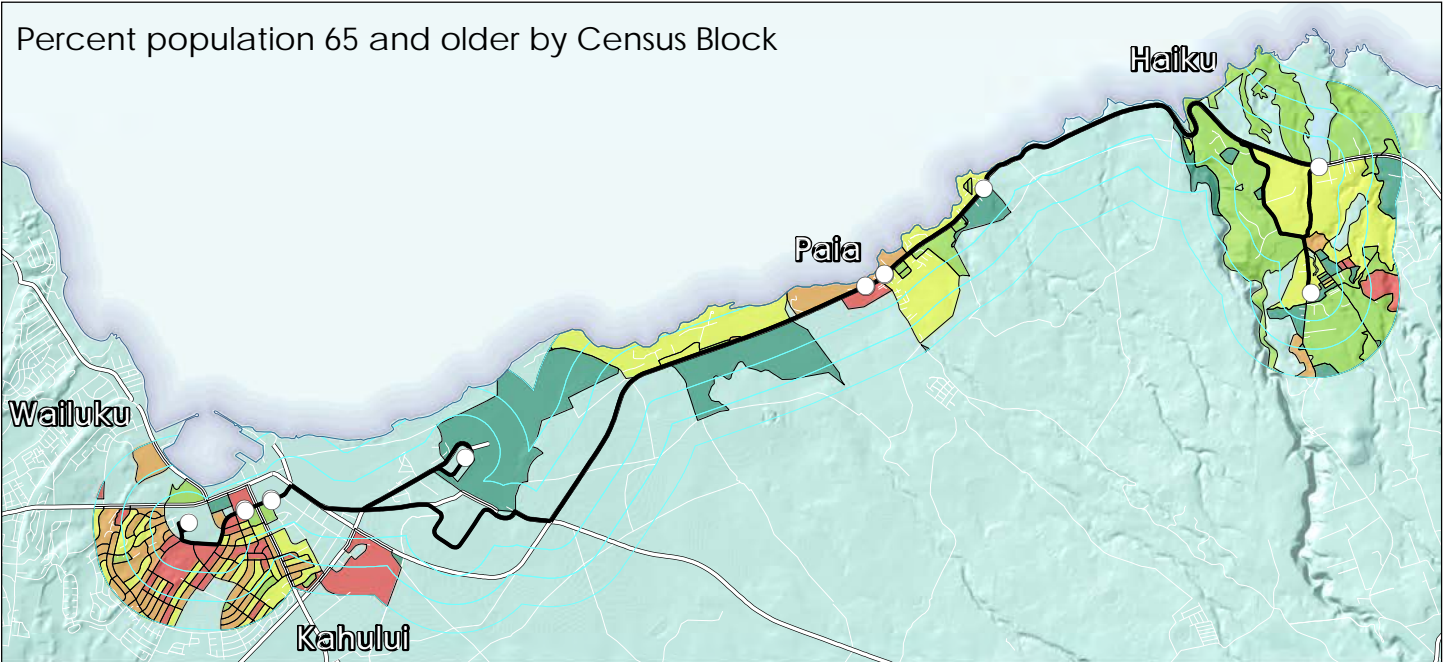


Population demographics along the Haiku Islander corridor

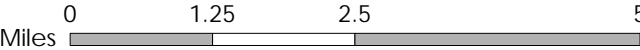
Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	10,850	2,795	25.8%
0.5	16,809	4,382	26.1%
0.75	24,795	6,621	26.7%

Haiku Islander —————
 Census Blocks —————
 1/4 mile buffers —————
 Stops ○

- < 5%
- 5.1% - 10%
- 10.1% - 15%
- 15.1% - 20%
- > 20%



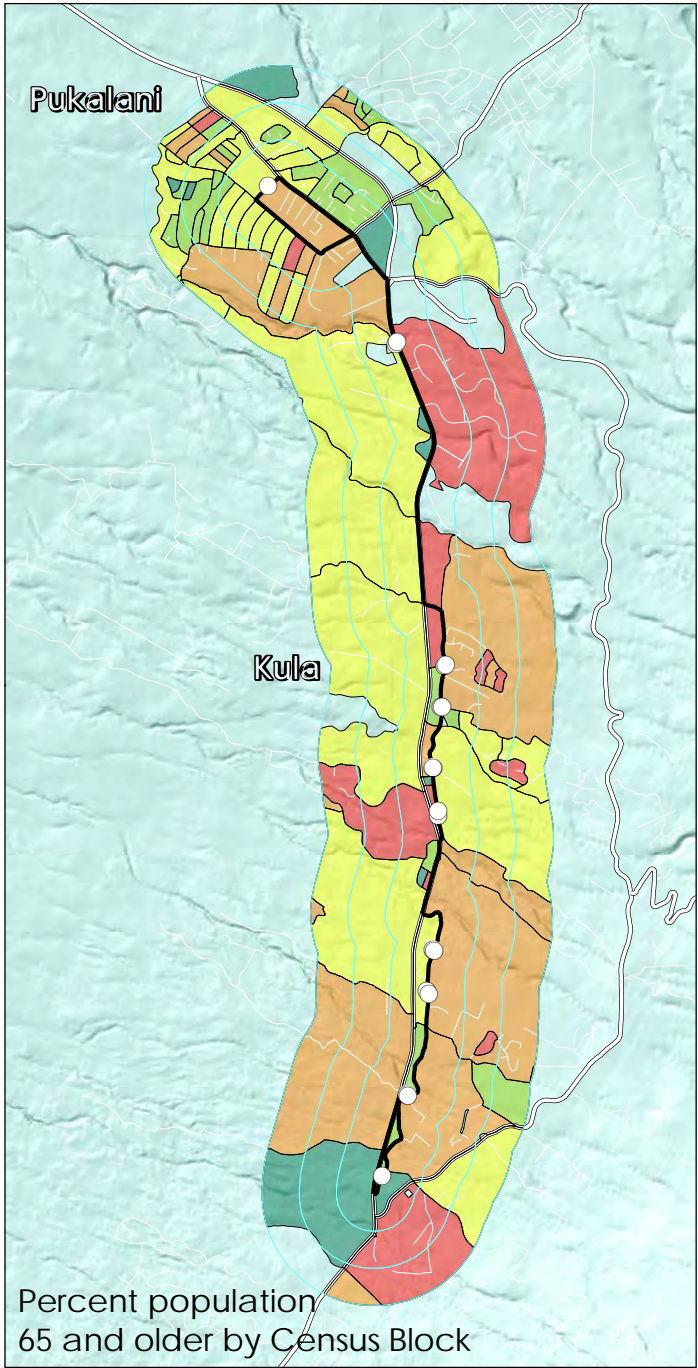
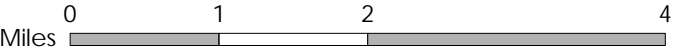
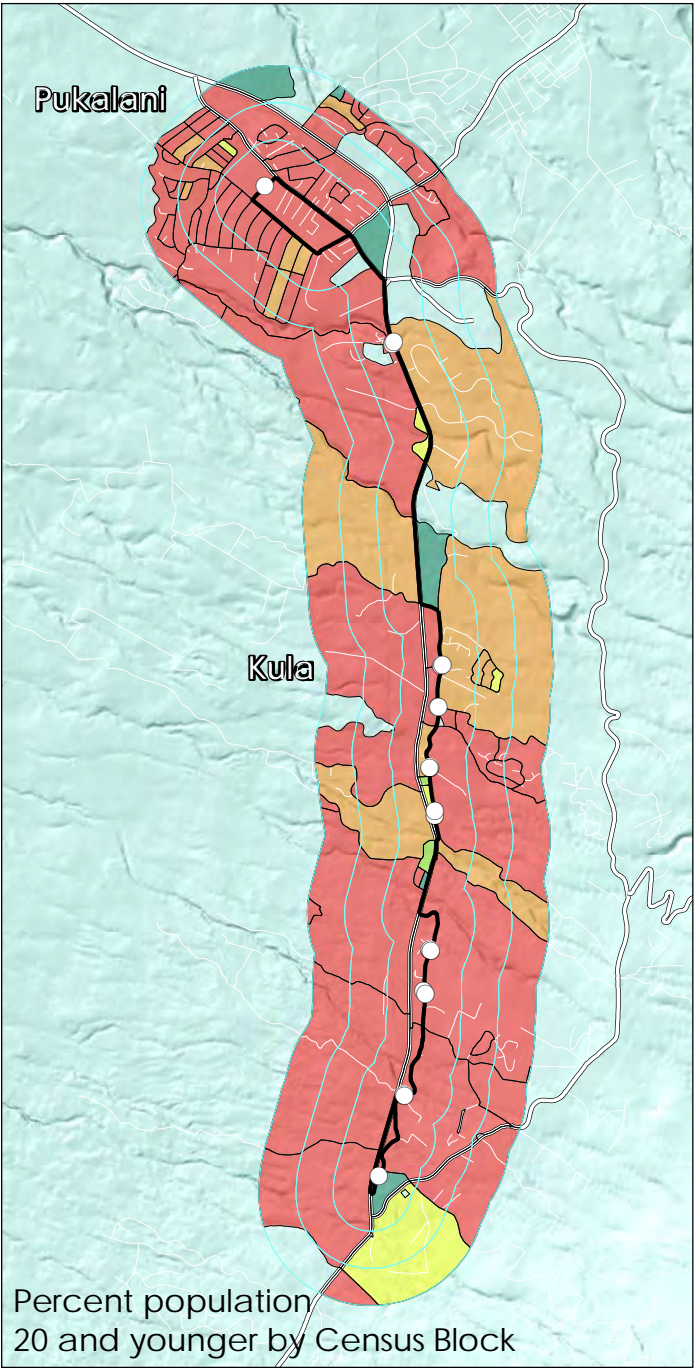
Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	10,850	1,942	17.9%
0.5	16,809	2,960	17.6%
0.75	24,795	4,118	16.6%



Source: US Decennial Census (2010).



Kula Villager #39 - Service Population By Age



Population demographics along the Kula Villager corridor

Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	10,027	2,483	24.8%
0.5	12,305	3,022	24.6%
0.75	15,395	3,893	25.3%

Kula Villager —

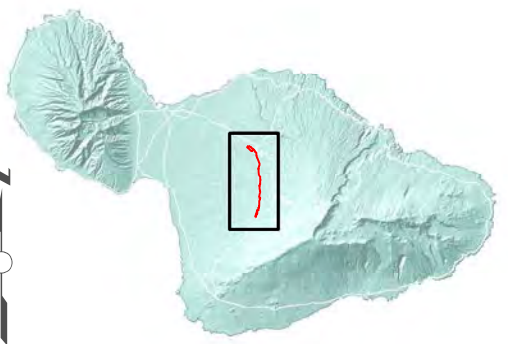
Census Blocks —

1/4 mile buffers —

Stops ○

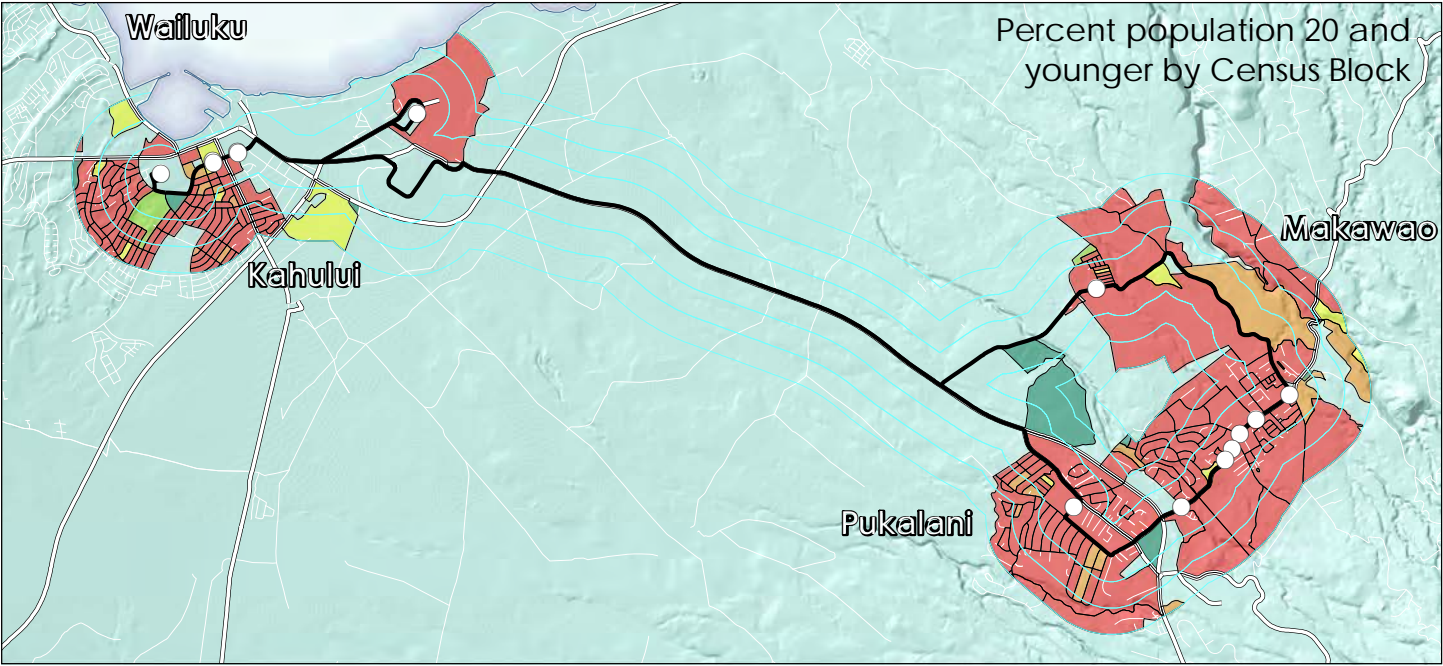
- < 5%
- 5.1% - 10%
- 10.1% - 15%
- 15.1% - 20%
- > 20%

Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	10,027	1,423	14.2%
0.5	12,305	1,697	13.8%
0.75	15,395	2,029	13.2%



Source: US Decennial Census (2010).

Upcountry Islander #40 - Service Population By Age



Population demographics along the Upcountry Islander corridor

Distance from route (miles)	Total Population	Population age 20 and younger	% Population age 20 and younger
0.25	19,335	5,251	27.2%
0.5	27,075	7,289	26.9%
0.75	36,745	9,962	27.1%

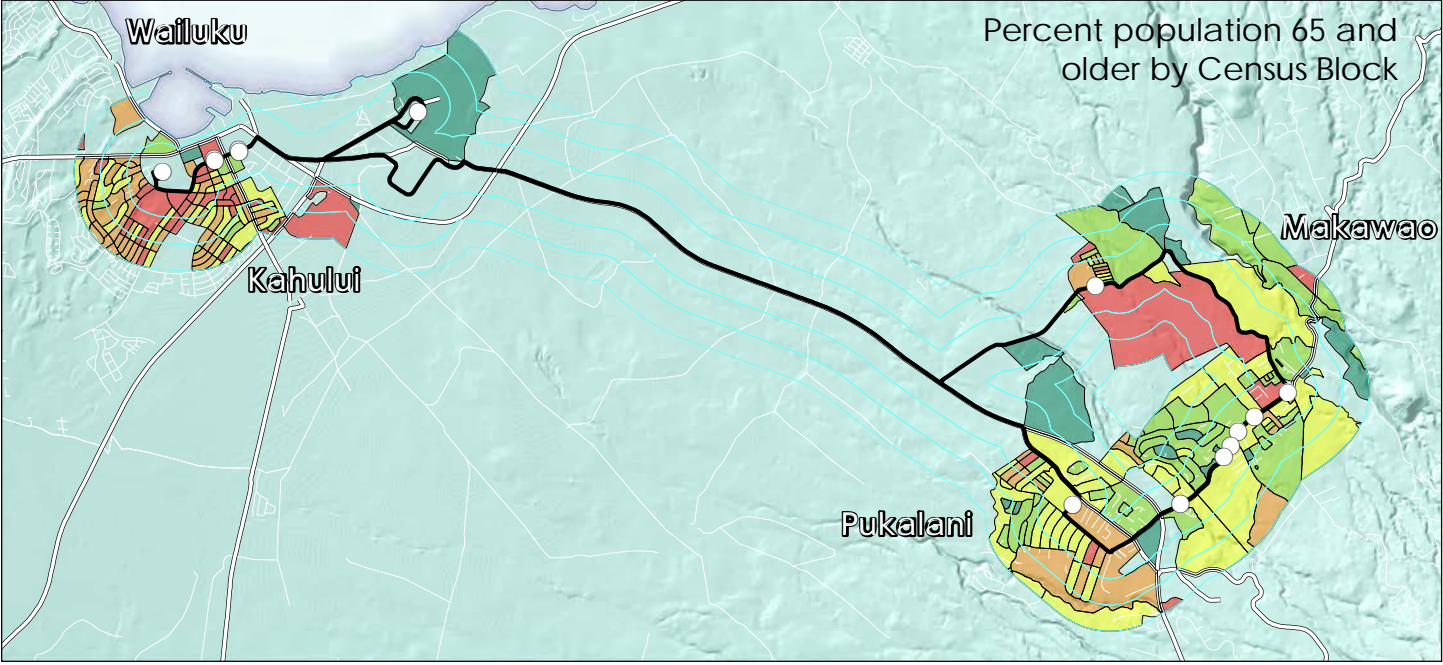
Upcountry Islander — █ < 5%

Census Blocks — █ 5.1% - 10%

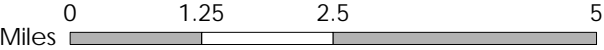
1/4 mile buffers — █ 10.1% - 15%

█ 15.1% - 20%

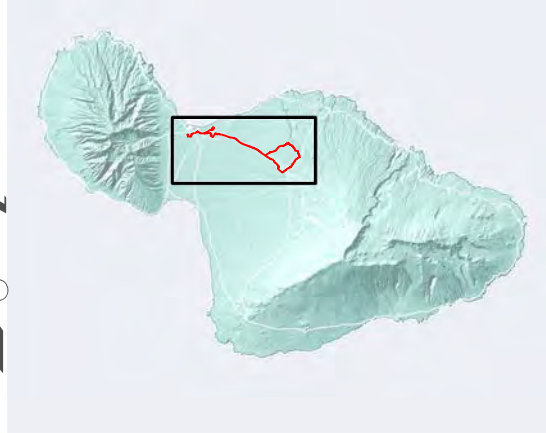
Stops ○ █ > 20%



Distance from route (miles)	Total Population	Population age 65 and older	% Population age 65 and older
0.25	19,335	3,040	15.7%
0.5	27,075	4,219	15.6%
0.75	36,745	5,595	15.2%



Source: US Decennial Census (2010).



APPENDIX E: Maui Bus Transit Supportive Area Analysis




Appendix E contains map overlays of residential and employment density.

The maps depict transit supportive areas for Central Maui, Lahaina, Kihei and Upcountry.



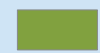




Kahului-Wailuku Residential Density

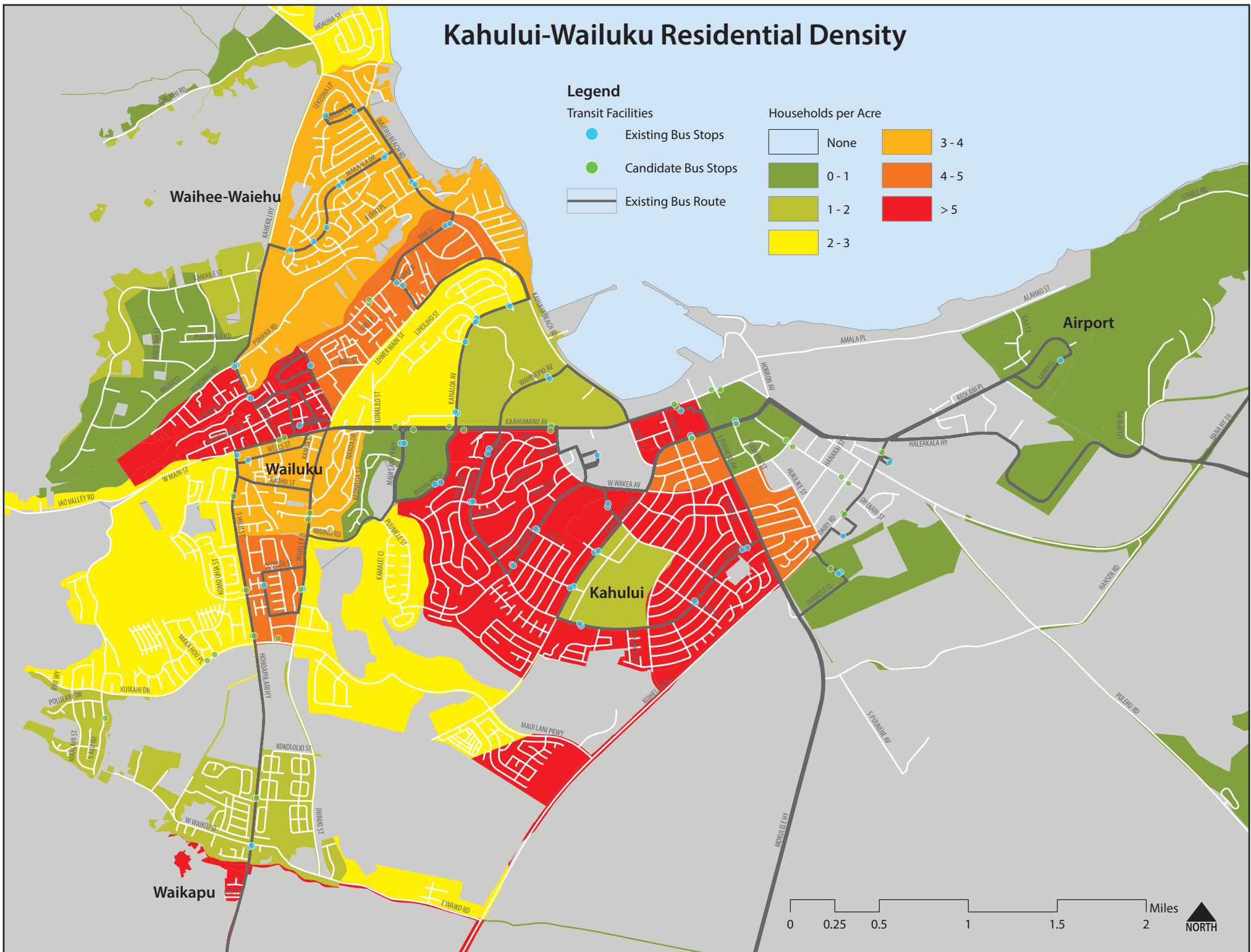
Legend

Transit Facilities

-  Existing Bus Stops
-  Candidate Bus Stops
-  Existing Bus Route

Households per Acre

- | | |
|---|---|
|  None |  3 - 4 |
|  0 - 1 |  4 - 5 |
|  1 - 2 |  > 5 |
|  2 - 3 | |



Kahului-Wailuku Transit Supportive Areas

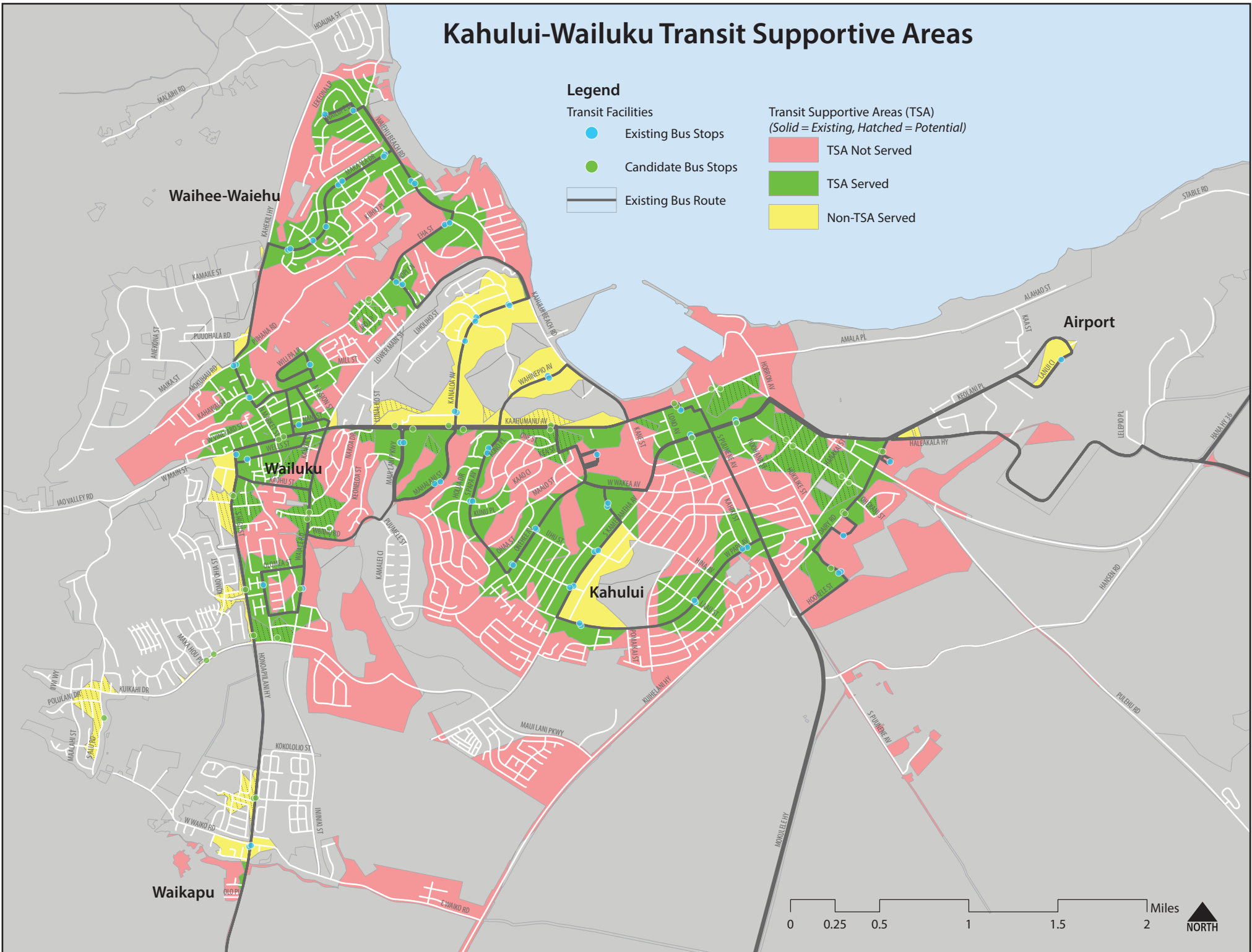
Legend

Transit Facilities

- Existing Bus Stops
- Candidate Bus Stops
- Existing Bus Route

Transit Supportive Areas (TSA) (Solid = Existing, Hatched = Potential)

- TSA Not Served
- TSA Served
- Non-TSA Served





Kihei-Makena Residential Density

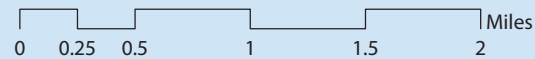
Legend

Transit Facilities

- Existing Bus Stops
- Candidate Bus Stops
- Existing Bus Route

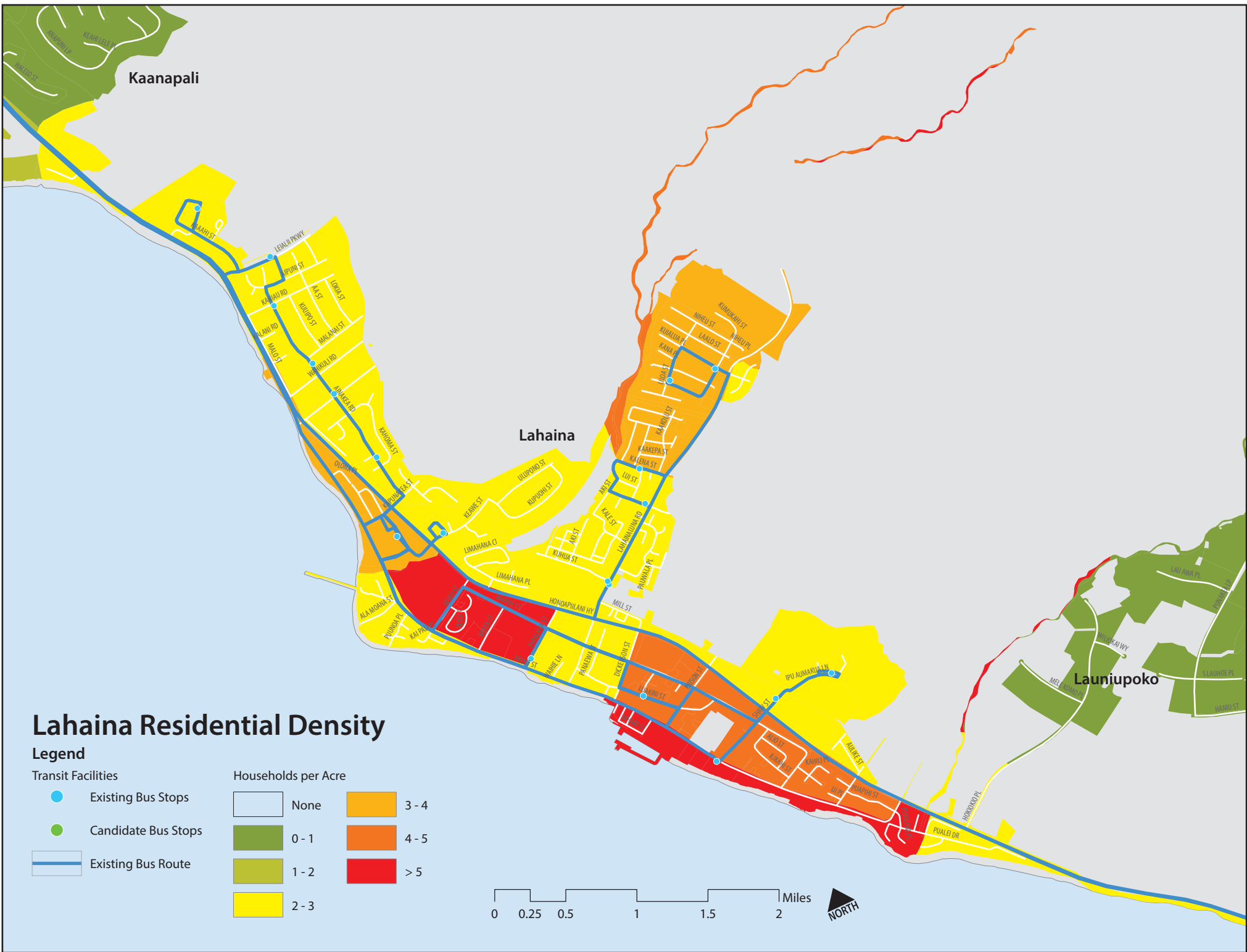
Households per Acre

- | | |
|--|---|
| None | 3 - 4 |
| 0 - 1 | 4 - 5 |
| 1 - 2 | > 5 |
| 2 - 3 | |









Kaanapali

Lahaina

Launiupoko

Lahaina Residential Density

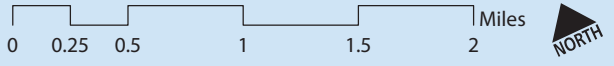
Legend

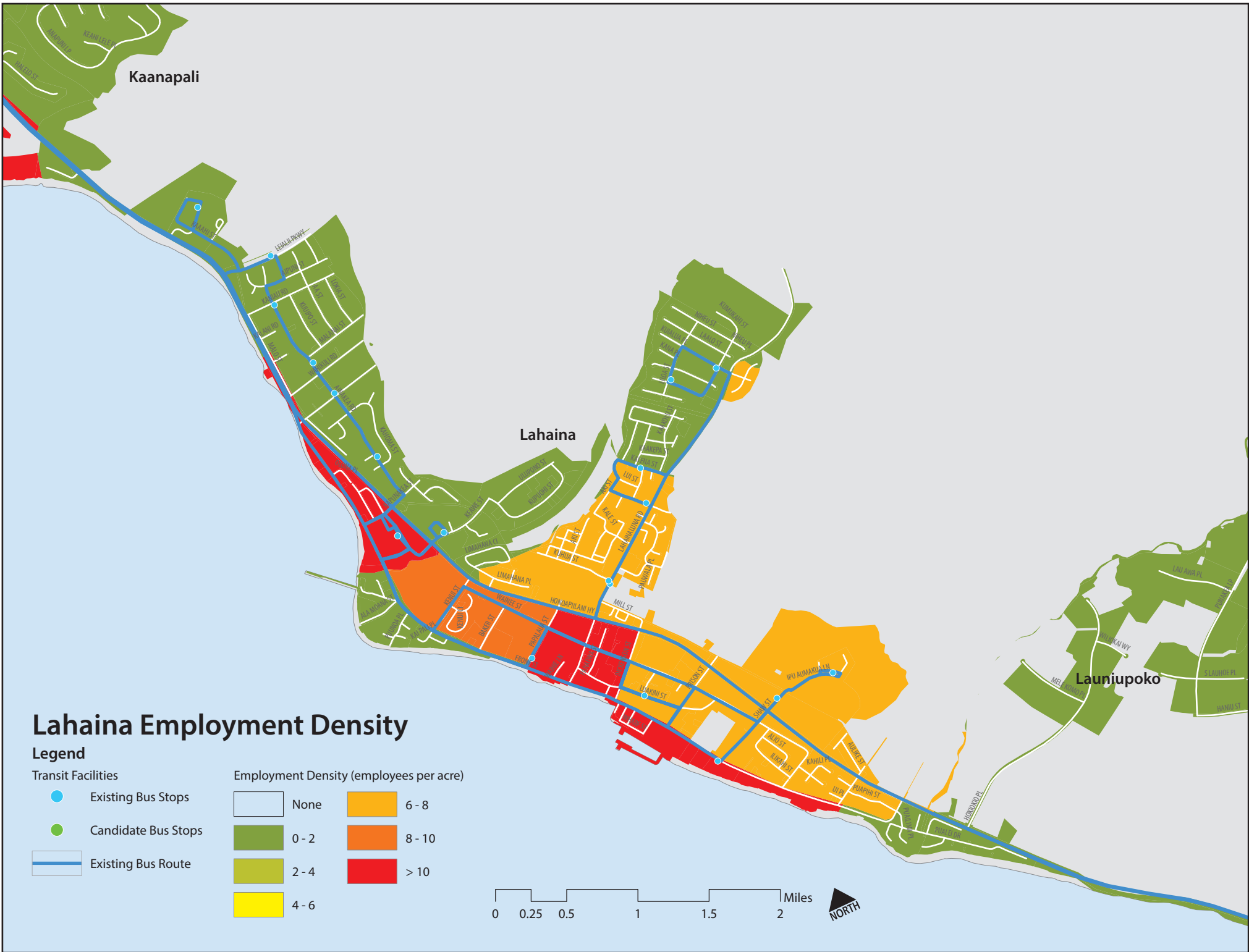
Transit Facilities

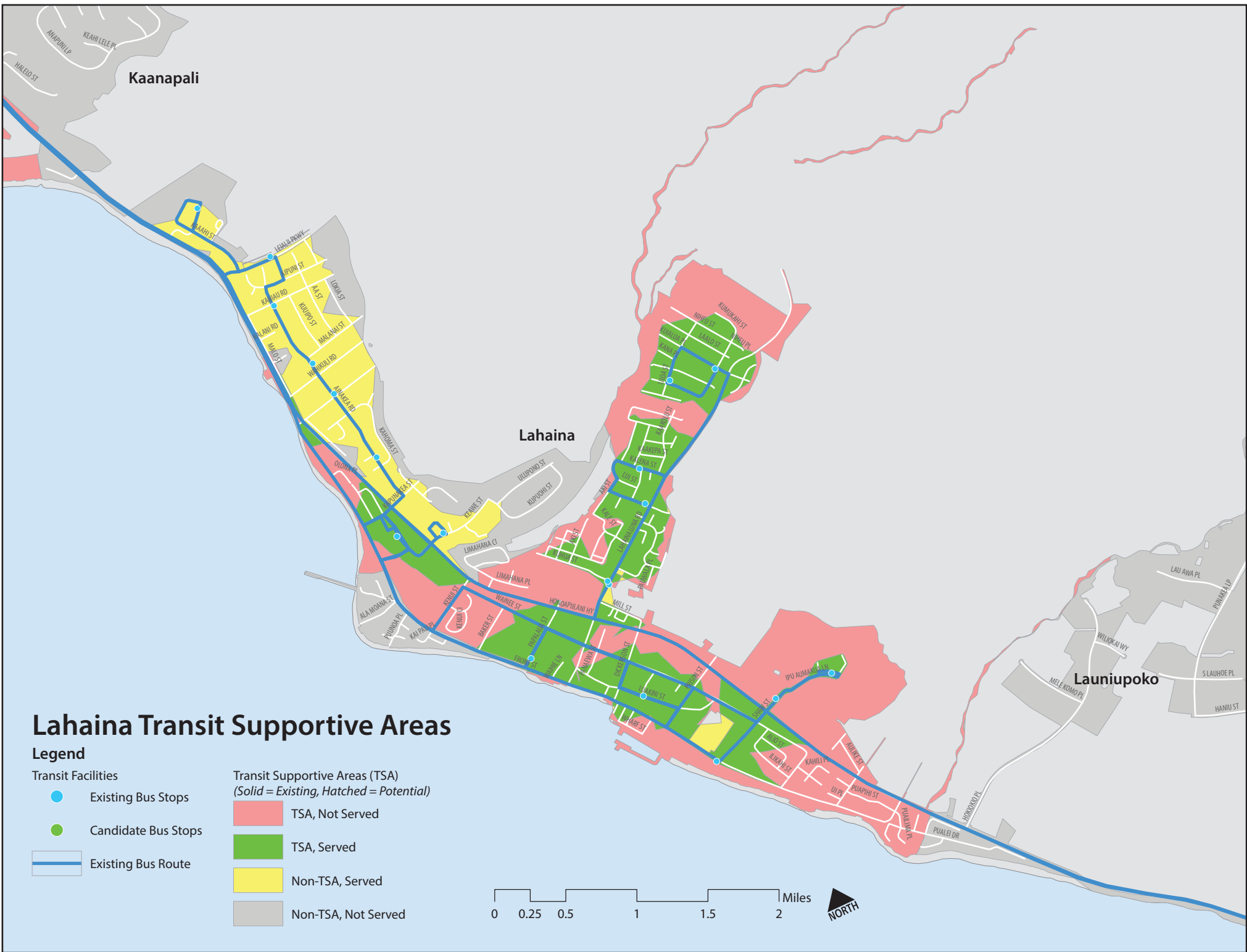
- Existing Bus Stops
- Candidate Bus Stops
- Existing Bus Route

Households per Acre

None	3 - 4
0 - 1	4 - 5
1 - 2	> 5
2 - 3	







Kaanapali

Lahaina

Launiupoko

Lahaina Transit Supportive Areas

Legend

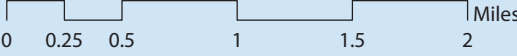
Transit Facilities

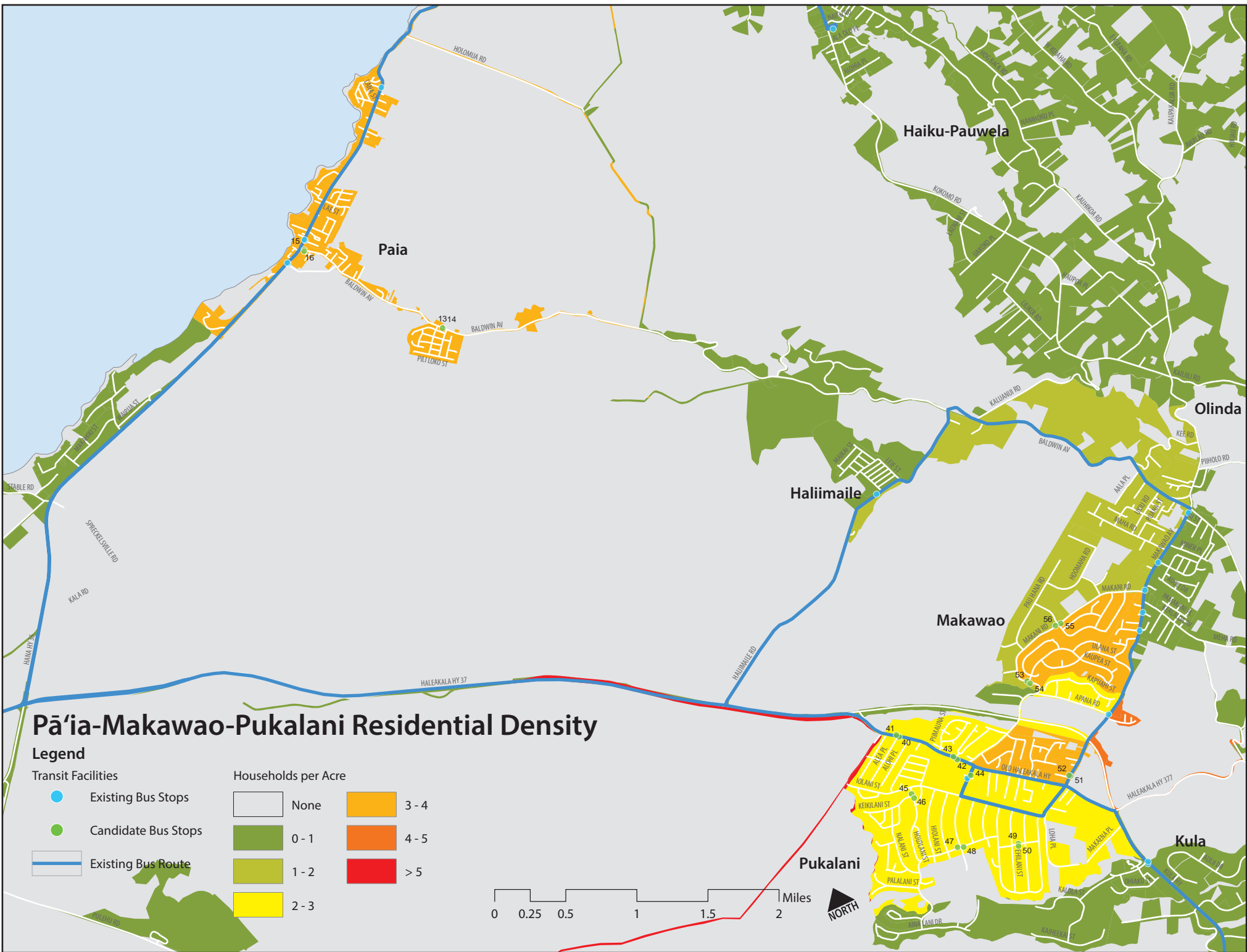
- Existing Bus Stops
- Candidate Bus Stops
- Existing Bus Route

Transit Supportive Areas (TSA)

(Solid = Existing, Hatched = Potential)

- TSA, Not Served
- TSA, Served
- Non-TSA, Served
- Non-TSA, Not Served





Paia

Haiku-Pauwela

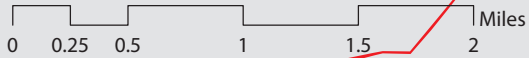
Olinda

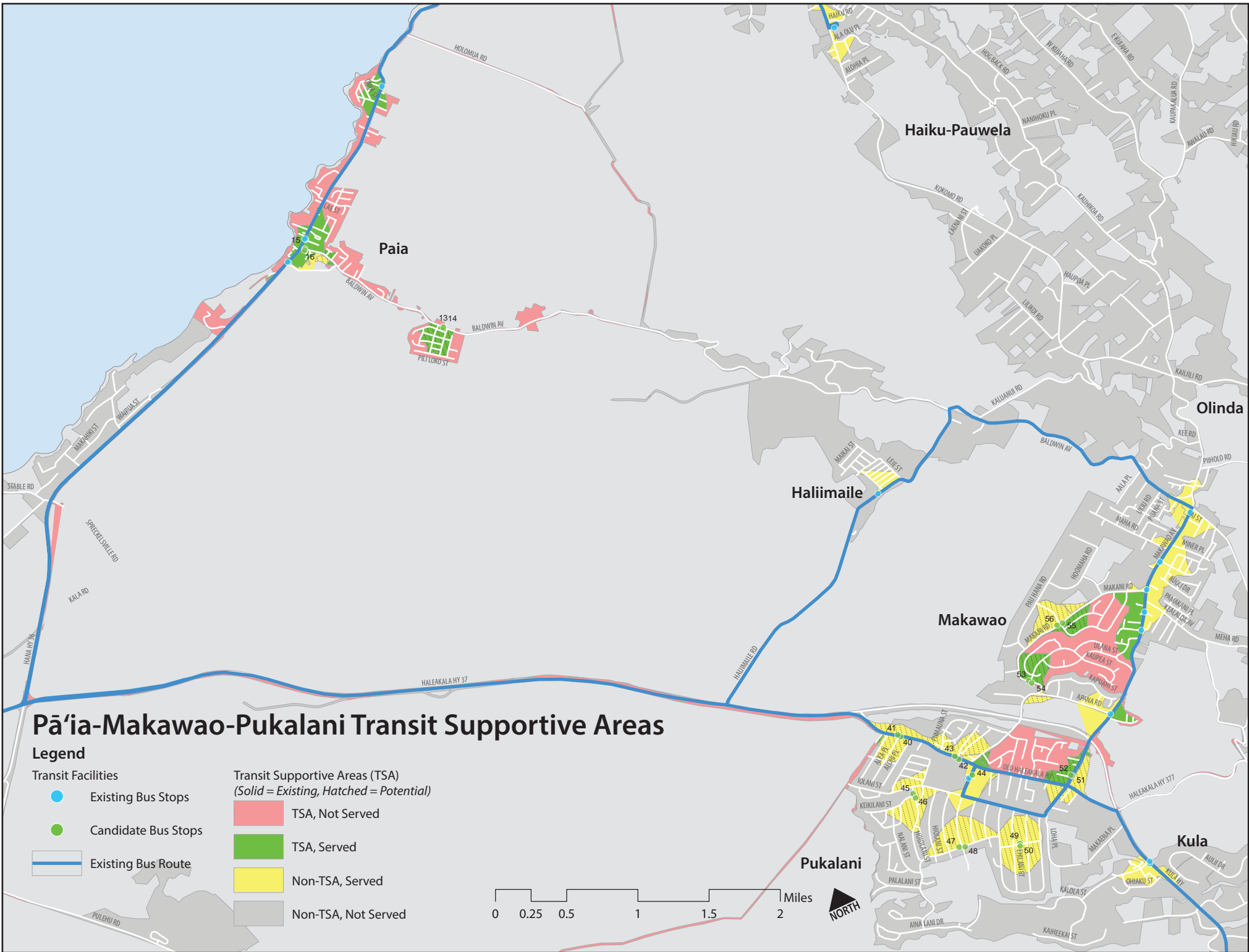
Haliimaile

Makawao

Pukalani

Kula





APPENDIX F: Maui Bus Service Improvements

Appendix F contains the Maui Bus Service Improvement Program operating statistics by route.

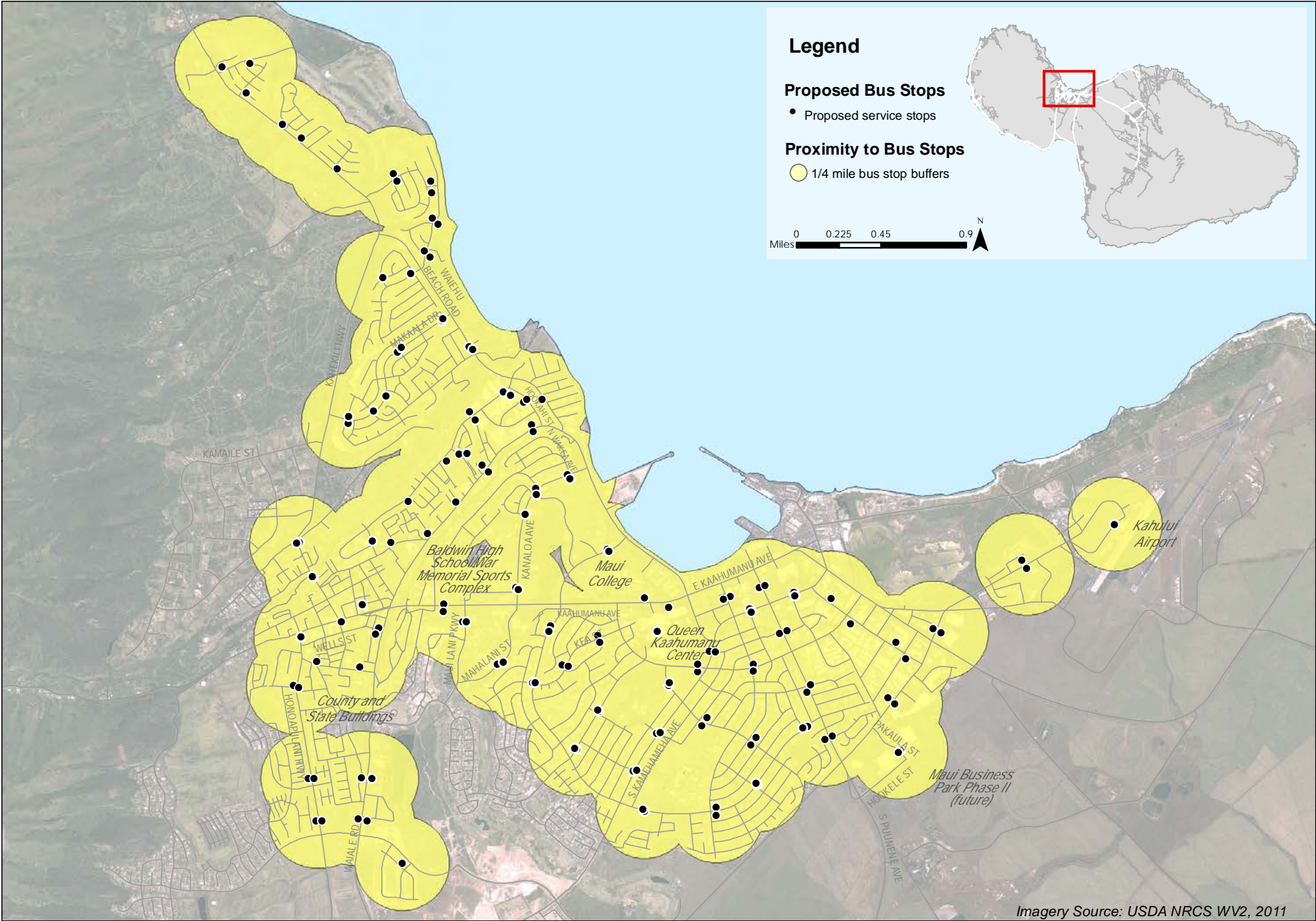
Proposed Maui Bus Routes		Span of Service		Revenue Miles	Miles Per Hour	Cycle Time	Headways						Daily Round Trips						
Number	Description	Begin	End				AM Peak	Mid-Day	PM Peak	Eve	Sat	Sun	AM Peak	Mid-Day	PM Peak	Eve	Total	Sat	Sun
Central Routes:																			
1	Wailuku Loop	6:30 AM	9:30 PM	13.9	13.9	60	60	60	60	60	60	60	3	6	3	3	15	15	15
2	Wailuku Loop Reverse	7:00 AM	10:00 PM	14.1	14.1	60	60	60	60	60	60	60	2	6	3	4	15	15	15
3	Wailuku County Bldg.	6:30 AM	10:00 PM	4.5	18.0	15	30	30	30	30	30	30	5	12	6	6	29	29	29
4	Kahului Airport	6:30 AM	10:00 PM	7.7	15.4	30	30	30	30	30	30	30	5	12	6	6	29	29	29
5	Kahului Loop	6:30 AM	9:08 PM	10.3	10.3	60	60	60	60	60	60	60	3	6	3	3	15	15	15
6	Kahului Loop Reverse	7:00 AM	10:00 PM	10.3	10.3	60	60	60	60	60	60	60	2	6	3	4	15	15	15
7	Wailuku Central	6:30 AM	8:00 PM	4.9	9.8	30	30	30	30	30	30	30	5	12	6	4	27	27	27
8	Waihee Villager	6:00 AM	8:00 PM	12.7	12.7	60	60	60	60	60	60	60	3	6	3	2	14	14	14
9	Maui Business Park	6:30 AM	10:00 PM	4.5	18.0	15	30	30	30	30	30	30	4	12	6	4	26	26	26
Islander Routes:																			
10	Kihei Islander	5:30 AM	11:00 PM	34.3	17.2	120	60	60	60	60	60	60	4	6	3	4	17	17	15
10X	Kihei Islander Tripper	Additional Trips		23.1	18.5	75	75	75	75	0	0	0	1	2	3	0	6	6	6
20	Lahaina Islander	5:30 AM	10:30 PM	46.8	23.4	120	60	60	60	60	60	60	4	6	3	3.5	16.5	16.5	15
20X	Lahaina Islander	Additional Trips		46.8	23.4	120	0	0	60	0	0	0	0	0	3	0	3	3	3
25	Ka'anapali Islander	6:00 AM	10:30 PM	9.8	9.8	60	60	60	30	60	60	60	3.5	5.5	6.5	4	19.5	19.5	18.5
30	Napili Islander	5:30 AM	10:00 PM	15	15.0	60	60	60	60	60	60	60	3.5	6	3	4	16.5	16.5	15.5
35	Haiku Islander	5:30 AM	10:00 PM	28.7	23.0	75	75	75	75	75	75	75	3	5	2.5	2.5	13	13	13
40	Upcountry Islander	6:00 AM	10:11 PM	33.4	22.3	90	90	90	90	90	90	90	2	4	2	3	11	11	11
Villager Routes																			
15A	N. Kihei Villager-mauka	5:30 AM	8:55 PM	21.7	21.7	60	60	60	60	60	60	60	4	6	3	3	16	16	16
15B	S. Kihei Villager	5:30 AM	8:55 PM	15.9	15.9	60	60	60	60	60	60	60	4	6	3	3	16	16	16
23A	Lahaina Villager	7:00 AM	11:00 PM	4.8	9.6	30	60	60	60	60	60	60	2	5	3	5	15	15	15
23B	Lahaina Villager	7:30 AM	10:30 PM	6	12.0	30	60	60	60	60	60	60	2	6	3	5	16	16	16
39	Kula Villager	6:10 AM	9:30 PM	25.5	17.0	90	90	90	90	90	90	90	2	4	2	2.5	10.5	10.5	10.5
38	Paia-Makawao	8:00 AM	9:30 PM	21.5	14.3	90	90	90	90	90	90	90	1	4	2	2.5	9.5	9.5	9.5
Subtotal													68	144	81	78	371	371	365
Commuter Routes*																			
1	Haiku-Wailea	1 trip in AM peak and 1 trip in PM				195							0.5	0.0	0.5	0.0	1.0	1.0	1.0
2	Kihei-Kapalua	1 trip in AM peak and 1 trip in PM				180							0.5	0.0	0.5	0.0	1.0	1.0	1.0
3	Makawao-Kapalua	1 trip in AM peak and 1 trip in PM				240							0.5	0.0	0.5	0.0	1.0	1.0	1.0
4	Wailuku-Kapalua	4 trips in AM peak and 4 trips in PM				180							2.0	0.0	1.8	0.0	3.8	3.8	3.8
Subtotal													3.5	0.0	3.3	0.0	6.8	6.8	6.8
Totals													72	144	84	78	377	377	372

Proposed Maui Bus Routes		Required Vehicles				Revenue Hours				Revenue Miles			
Number	Description	AM Peak	Mid-Day	PM Peak	Eve	Weekday	Saturday	Sunday	Annual Total	Weekday	Saturday	Sunday	Annual Total
Central Routes:													
1	Wailuku Loop	1	1	1	1	15.0	15.0	15.0	5,475.0	208.5	208.5	208.5	76,102.5
2	Wailuku Loop Reverse	1	1	1	1	15.0	15.0	15.0	5,475.0	211.5	211.5	211.5	77,197.5
3	Wailuku County Bldg.	0.5	0.5	0.5	0.5	7.3	7.3	7.3	2,646.3	130.5	130.5	130.5	47,632.5
4	Kahului Airport	1	1	1	1	14.5	14.5	14.5	5,292.5	223.3	223.3	223.3	81,504.5
5	Kahului Loop	1	1	1	1	15.0	15.0	15.0	5,475.0	154.5	154.5	154.5	56,392.5
6	Kahului Loop Reverse	1	1	1	1	15.0	15.0	15.0	5,475.0	154.5	154.5	154.5	56,392.5
7	Wailuku Central	1	1	1	1	13.5	13.5	13.5	4,927.5	132.3	132.3	132.3	48,289.5
8	Waihee Villager	1	1	1	1	14.0	14.0	14.0	5,110.0	177.8	177.8	177.8	64,897.0
9	Maui Business Park	0.5	0.5	0.5	0.5	6.5	6.5	6.5	2,372.5	117.0	117.0	117.0	42,705.0
Islander Routes:													
10	Kihei Islander	2	2	2	2	34.0	34.0	30.0	12,202.0	583.1	583.1	514.5	209,264.3
10X	Kihei Islander Tripper	1	1	1	0	7.5	7.5	7.5	2,737.5	138.6	138.6	138.6	50,589.0
20	Lahaina Islander	2	2	2	2	33.0	33.0	30.0	11,889.0	772.2	772.2	702.0	278,202.6
20X	Lahaina Islander	0	0	2	0	6.0	6.0	6.0	2,190.0	140.4	140.4	140.4	51,246.0
25	Ka'anapali Islander	1	1	2	1	19.5	19.5	18.5	7,065.5	191.1	191.1	181.3	69,241.9
30	Napili Islander	1	1	1	1	16.5	16.5	15.5	5,970.5	247.5	247.5	232.5	89,557.5
35	Haiku Islander	1	1	1	1	16.3	16.3	16.3	5,931.3	373.1	373.1	373.1	136,181.5
40	Upcountry Islander	1	1	1	1	16.5	16.5	16.5	6,022.5	367.4	367.4	367.4	134,101.0
Villager Routes													
15A	N. Kihei Villager-mauka	1	1	1	1	16.0	16.0	16.0	5,840.0	347.2	347.2	347.2	126,728.0
15B	S. Kihei Villager	1	1	1	1	16.0	16.0	16.0	5,840.0	254.4	254.4	254.4	92,856.0
23A	Lahaina Villager	0.5	0.5	0.5	0.5	7.5	7.5	7.5	2,737.5	72.0	72.0	72.0	26,280.0
23B	Lahaina Villager	0.5	0.5	0.5	0.5	8.0	8.0	8.0	2,920.0	96.0	96.0	96.0	35,040.0
39	Kula Villager	1	1	1	1	15.8	15.8	15.8	5,748.8	267.8	267.8	267.8	97,728.8
38	Paia-Makawao	1	1	1	1	14.3	14.3	14.3	5,201.3	204.3	204.3	204.3	74,551.3
Subtotal		22	22	25	21	342.5	342.5	333.5	124,544.5	5,564.9	5,564.9	5,401.3	2,022,681.3
Commuter Routes**													
1	Haiku-Wailea	1	0	1	0	3.3	3.3	3.3	1,186.3				
2	Kihei-Kapalua	1	0	1	0	3.0	3.0	3.0	1,095.0				
3	Makawao-Kapalua	1	0	1	0	4.0	4.0	4.0	1,460.0				
4	Wailuku-Kapalua	5	0	5	0	11.4	11.4	11.4	4,161.0				
Subtotal		8	0	8	0	21.7	21.7	21.7	7,902.3				
Totals		30	22	33	21	364.2	364.2	355.2	132,446.8	5,564.9	5,564.9	5,401.3	2,022,681.3

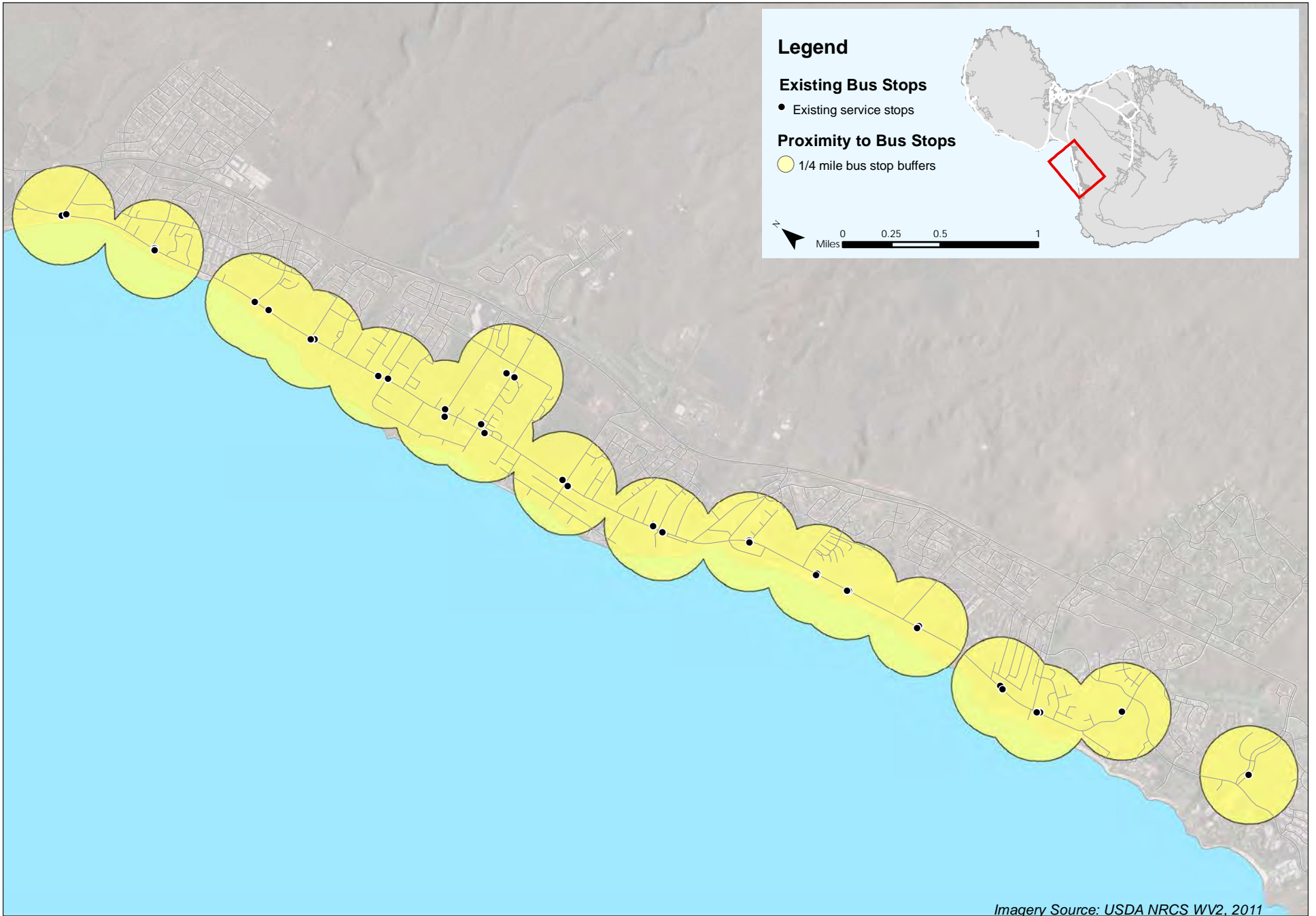
Proposed Maui Bus Routes		Roberts Cost Basis (based on cost proposal)					
Number	Description	Weekday Total Hours	Saturday Total Hours	Sunday Total Hours	Annual Total Hours	Rate per Hour	Annual Cost
Central Routes:							
1	Wailuku Loop	15.3	15.3	15.3	5,584.5	\$73.10	\$408,227
2	Wailuku Loop Reverse	15.3	15.3	15.3	5,584.5	\$73.10	\$408,227
3	Wailuku County Bldg.	7.5	7.5	7.5	2,730.9	\$73.10	\$199,631
4	Kahului Airport	14.9	14.9	14.9	5,451.3	\$70.39	\$383,715
5	Kahului Loop	14.7	14.7	14.7	5,365.5	\$69.61	\$373,492
6	Kahului Loop Reverse	15.3	15.3	15.3	5,584.5	\$70.39	\$393,093
7	Wailuku Central	13.9	13.9	13.9	5,085.2	\$73.10	\$371,727
8	Waihee Villager	14.4	14.4	14.4	5,263.3	\$73.10	\$384,747
9	Maui Business Park	6.7	6.7	6.7	2,448.4	\$69.61	\$170,435
Islander Routes:							
10	Kihei Islander	35.4	35.4	31.2	12,702.6	\$82.78	\$1,051,521
10X	Kihei Islander Tripper	7.8	7.8	7.8	2,833.3	\$80.00	\$226,665
20	Lahaina Islander	34.2	34.2	31.2	12,312.9	\$83.07	\$1,022,834
20X	Lahaina Islander	6.2	6.2	6.2	2,266.7	\$80.00	\$181,332
25	Ka'anapali Islander	20.2	20.2	20.2	7,366.6	\$77.32	\$569,586
30	Napili Islander	17.1	17.1	17.1	6,233.3	\$94.15	\$586,864
35	Haiku Islander	16.4	16.4	16.4	5,986.0	\$81.22	\$486,183
40	Upcountry Islander	16.4	16.4	16.4	5,986.0	\$90.54	\$541,972
Villager Routes							
15A	N. Kihei Villager-mauka	16.5	16.5	16.5	6,015.2	\$77.60	\$466,780
15B	S. Kihei Villager	16.5	16.5	16.5	6,015.2	\$77.60	\$466,780
23A	Lahaina Villager	7.9	7.9	7.9	2,883.5	\$67.87	\$195,703
23B	Lahaina Villager	8.2	8.2	8.2	3,007.6	\$67.87	\$204,126
39	Kula Villager	16.2	16.2	16.2	5,921.2	\$79.00	\$467,776
38	Paia-Makawao	14.7	14.7	14.7	5,357.3	\$79.00	\$423,226
Subtotal		351.7	351.7	344.5	127,985.5	\$76.67	\$9,984,641
Commuter Routes**							
1	Haiku-Wailea	5.6	5.6	5.6	2,044.0	\$82.49	\$168,610
2	Kihei-Kapalua	4.5	4.5	4.5	1,642.5	\$98.37	\$161,573
3	Makawao-Kapalua	5.3	5.3	5.3	1,934.5	\$82.17	\$158,958
4	Wailuku-Kapalua	15.1	15.1	15.1	5,511.5	\$83.01	\$457,510
Subtotal		30.5	30.5	30.5	11,132.5	\$86.51	\$946,650
Totals		382.2	382.2	375.0	139,118.0		\$10,931,291

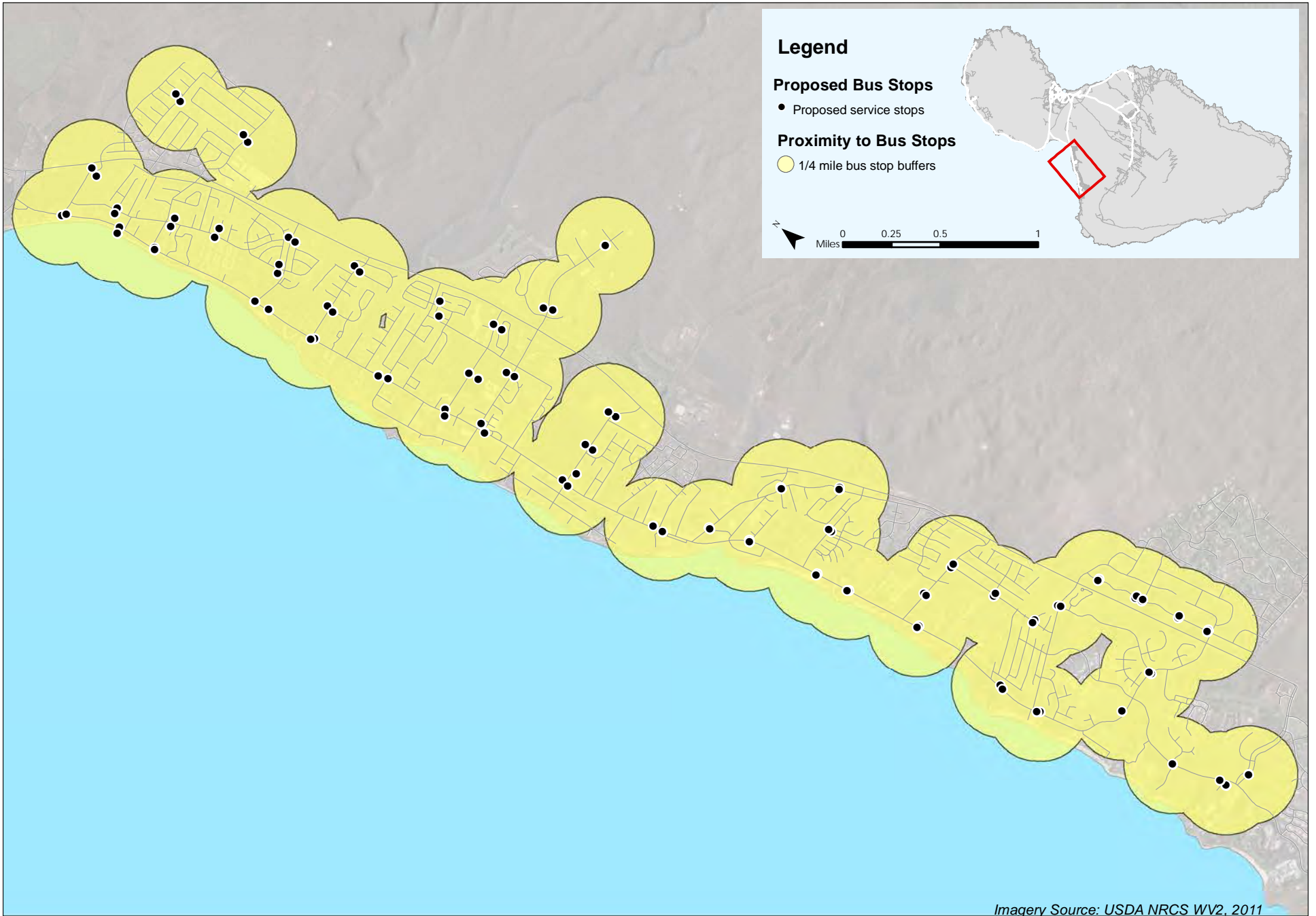
APPENDIX G: Maui Bus Fixed Route Service Coverage

Appendix G contains Maui Bus fixed route service coverage for the existing routes and short range transit service plan route improvements.



Imagery Source: USDA NRCS WV2, 2011





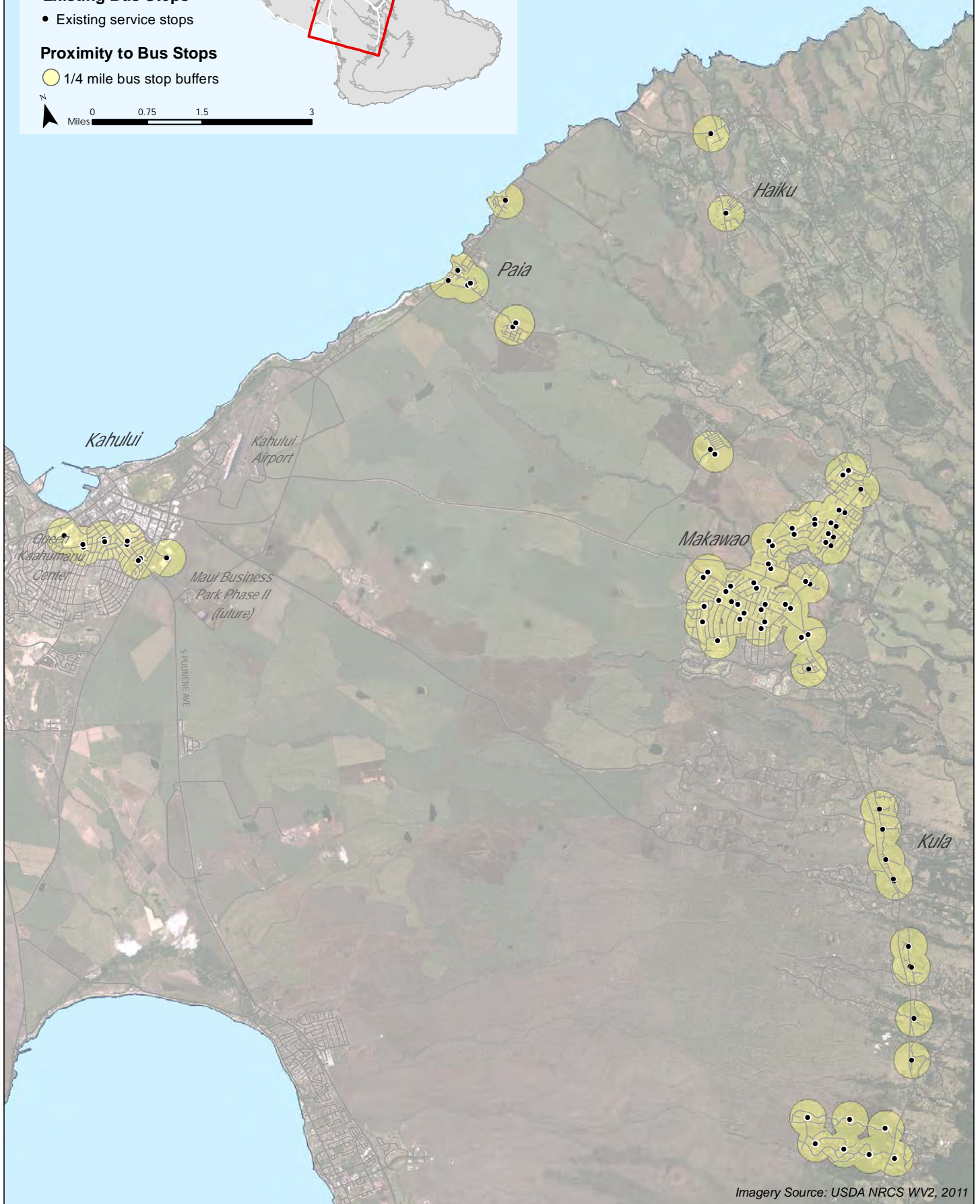
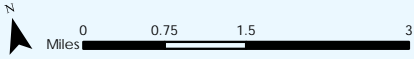
Legend

Existing Bus Stops

- Existing service stops

Proximity to Bus Stops

- 1/4 mile bus stop buffers



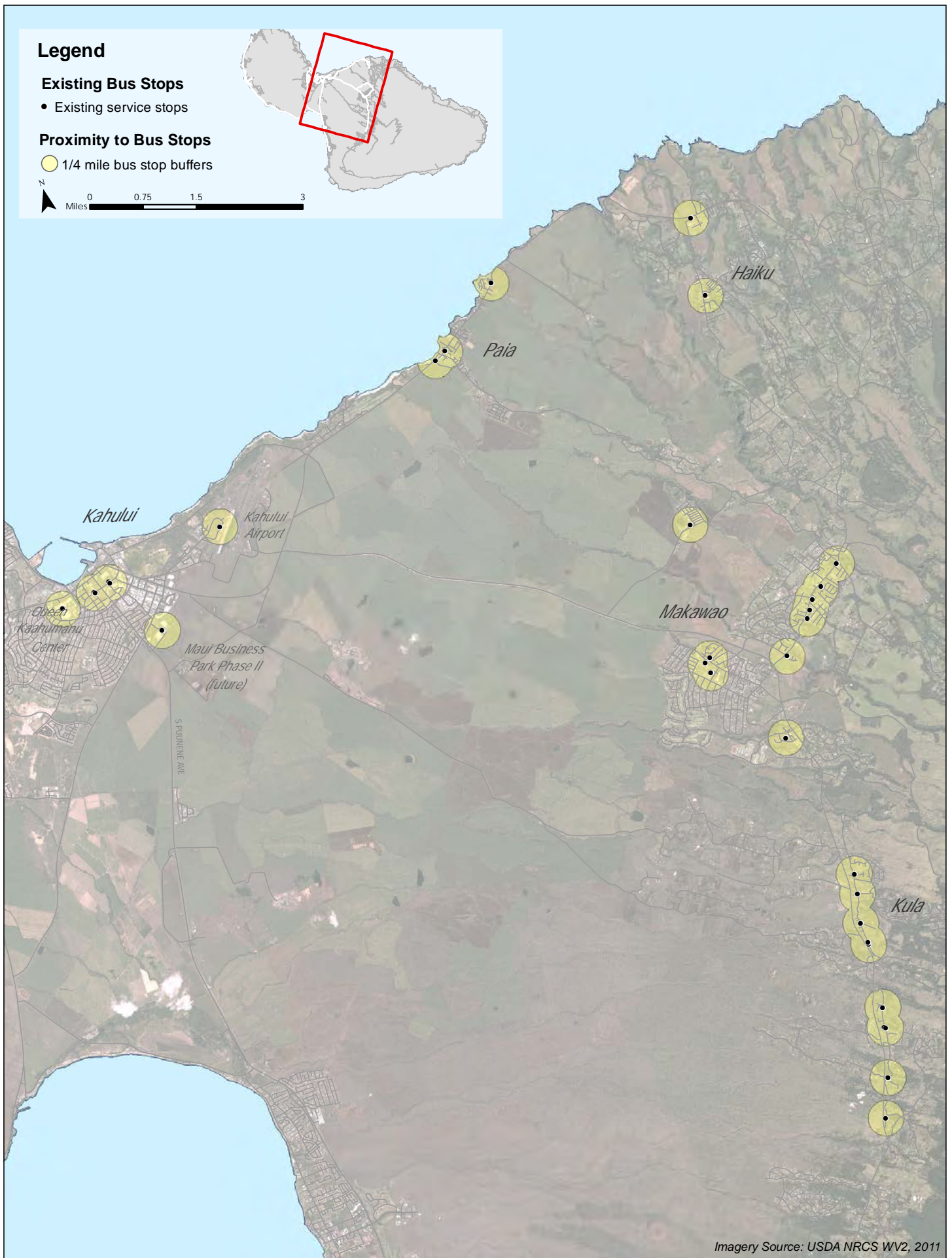
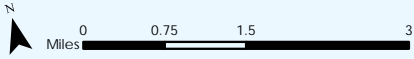
Legend

Existing Bus Stops

- Existing service stops

Proximity to Bus Stops

- 1/4 mile bus stop buffers





DANIEL ISLANDER

BUS STOP
171 8234



2701

