COUNTY OF HAWAI`I

TRANSIT AND MULTI-MODAL TRANSPORTATION MASTER PLAN

AUGUST 2018 FINAL VERSION

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EXECUTIVE SUMMARY

The Mayor and County Council for Hawai'i County have long supported public transit on the island. It has been seen as an important means for connecting workers with their jobs, oftentimes on opposite sides of the island. Cost of public transit is a major component of the County budget. The FY 2017-18 budget was $14,031,908 which includes both major capital expenditures and the operating budget.

By 2014-15 the Council was openly asking itself what was the context for these expenditures, as well as how could service expand to meet needs of a growing population. The idea for a Master Plan appears to have been spawned in the Puna CDP Action Committee and then championed by the area councilman of the time. Council placed $500,000 into the county budget to undertake a next generation Master Plan that looked ahead twenty years.

In the three years since Council called for a Master Plan, the situation has become dire. Aging buses, overly-stretched staff, rising costs per passenger mile, and dropping ridership add to the urgency of creating both immediate and longer term plans.

Hele-on is at a cross roads. It can continue as is and continue to lose both ridership and user confidence, or it can make strategic investments and thereby lift up to a higher level of performance. In making that choice, it is essential to set clear goals that can be achieved and make priorities for addressing multiple needs.

New Developments

The island community and economy were rocked in May 2018 when Kīlauea Volcano began erupting. As lava poured through 700 homes and roads on its way to the sea, earthquakes shook residents, and severe air quality problems arose. County government had to turn its attention to temporary shelter and care of those who lost their homes and businesses throughout Puna. Bus service was among things that were disrupted when roads in lower Puna became unpassable and riders moved out of their homes. It will take time for recovery efforts to create permanent housing solutions and the mass transit system will need to adjust to relocated homes, schools, and commercial activity.

In June 2018 the Hawai'i County Council approved a quarter of one percent surcharge on the state excise tax for an eighteen month period. This new source of revenues was made available for a limited time by the State Legislature, meant for transportation improvements such as roadways and transit. Collection will start in January 2019 and could raise as much as $10 million the first year and $25 million in the second year. In the first year, MTA will no longer receive funds from the General Fund, freeing up $4.9 million to be spent on relief costs and loss of property tax revenues from properties destroyed by the lava.

Planning for Current and Future Needs

Planning for public transit should reflect the island's shared vision for the future. It needs to address current problems and also be forward looking. If the goal of quality service provided in an efficient and equitable manner is to be realized, then priorities must be set and hard choices made. With a Master Plan, these choices can be made transparently and based on data.

Table ES-1. Forecasts and Implications for Transit

Category	Discussion	Implications to Transportation System
Employment	The Districts have unique characteristics and the trends point to differences within each District. All areas will need to plan for a higher percentage of elderly and disabled residents; however, Hilo and Kona have more of the services geared to these populations. Others will have more residents but not enough jobs.	Several demographic indicators determine transit propensity. Many disabled people cannot access jobs, education, or services with a personal auto and rely upon public transportation. Since many are located outside the urbanized areas, looking at alternative transportation modes other than 'big bus' may be more cost effective.
District Level Trends	Other issues that may be exacerbated by the increased development are issues of equity. Hilo's airport is served by 8 bus trips, while Kona's has just a couple. Consistency in service will be much more important. Attractions and neighborhoods may need more than 1 or 2 trips.	An increase in the elderly and disabled populations will add demand to transportation programs including paratransit and the shared ride taxi. It is advisable to continue efforts to have the elderly and disabled use fixed route transit as much as possible.
ADA Complementary Paratransit and Shared Ride Taxi Programs	Hele-On's ADA Complementary Paratransit program is new. It is offered in the urban Hilo and Kona areas and should be available in implemented in other areas in the County. The Shared-Ride Taxi Program is available in Hilo only and has been available for over a decade.	Both services can expect an increase in demand in the future. The ADA service is priced according to Federal law; the Taxi Program has not had a fare increase in at least 10 years. Both services will need to be managed carefully to avoid unsustainable financial subsidies.
Evolving Transportation Systems	Developing a Complete Streets (CS) Policy and incorporating CS principles into the planning process is a County priority. Bike sharing launched in Kona in 2016. Both Lyft and Uber started services in March 2017.	Pedestrian, bicycle, and vehicle alternatives are being incorporated into the overall transportation palette offered by many jurisdictions. Hele-On has most of these options available to incorporate into the overall system. This is important in those areas that are difficult to serve with traditional fixed-route transit.
Technology	Many transit systems are taking advantage of technology. Examples are real-time GIS based Apps, real-time electronic displays at transit hubs, automated next stop announcements, automated passenger counts, fare collection systems some using smart card technology to video surveillance on buses and at transit centers and hubs.	Hele-On is currently pursuing a GIS based real time App that will allow passengers to locate their bus and estimate its arrival. This is a good start and can lead to real-time electronic displays and other systems. The Master Plan will review these systems in the Financial and Capital Plans.

This Transit Master Plan includes policies and standards for the delivery of service, as well as criteria for measuring what can be expected. Among the most basic of purposes for the Transit Master Plan is to assist decision makers with funding and expenditure choices.

The Transit Master Plan (TMP) project prepared seven detailed subject studies, an on-board passenger survey, financial analyses, and public input. Two rounds of public meetings were held to gather reaction to proposed service changes. The latest round presented the Draft Master Plan:

- **Kona April 12, 2018 at West Hawai'i Civic Center**
- **Kea'au April 15, 2018 at Keeau Community Center**
- **Pāhoa April 7, 2018 at Pāhoa Neighborhood Facility**
- **Ocean View April 8, 2018 at Ocean View Community Center**
- **Waimea April 10, 2018 at Waimea Elementary School**
- **Hilo April 16, 2018 at Aupuni Center**

Service proposals were modified to incorporate the public input and to develop a revised financial plan.

A series of important conditions, trends, and forecasts influence what needs to be considered in a master plan that covers both current needs and future needs. Table ES-1 lists those.

THE TRANSPORTATION SYSTEM ON HAWAI'I ISLAND

Transit

The Mass Transit Agency, MTA, providing service known as the Hele-On Bus System, has been in existence since 1975. For nearly forty years it has provided service across the island with an emphasis on commute trips.

At its peak in 2012, Hele-On provided service to 1.2 million passengers. Ridership has dropped by a third, and the primary cause is believed to be decreased reliability of service. Ridership was 874,424 in 2016 while the shared ride taxi program served 137,890 passenger trips.

Previous fleet size was 55 buses, but as of early 2017, 43 of these were out of commission. Most needed to be decommissioned and sold off or re-purposed. The fleet was boosted when Honolulu gifted the County of Hawai'i with seven of its retiring buses, but buses continued to break-down. The current fleet size is 11. Companion to the aging of the fleet, breakdowns have become a major issue and are the major cause of the drop in ridership.

MTA budget in FY17-18 was $14,031,908. This amount covers operating cost of bus drivers, the shared ride taxi program, fuel, insurance, salary and wages for eleven MTA employees and capital expenses. Ten percent of costs comes from federal funds, about ten percent from fares, and the balance is a County subsidy from the General Fund and $7,500,000 from the Highway Fund.

There is wide agreement within the community that having a well- functioning and dependable transit system is critical to quality of life for individuals and families as well as to the economy of the island. Support for improving the system is found in all districts, albeit with differing needs. Cross island travel, inter district travel, and intra-community circulation are all in need of improved public transit. Clearly, there needs to be agreed upon, fair, and transparent criteria and methods for setting priorities.

Known as the "Big Island," Hawai'i County scale is a factor that requires understanding when formulating a transportation system. It is roughly the size of the State of Connecticut. Puna District alone is the size of O'ahu. These comparisons put in perspective the distances that are travelled regularly.

Transit Essential to Vital Economy

A well-functioning public transportation system is vital to the economy of the county. Public transportation helps build the community, connects workers to jobs, customers to businesses, and opens up a wider market for businesses hiring employees. Currently, Kona businesses report needing to connect with potential workers in Hilo and elsewhere on the island, and that bus service makes that possible.

Transit is a lower cost option for individuals and families allowing them to have options and opportunities. Public transportation is good for the environment, reducing pollution, and lessening dependence on foreign oil. Transit provides critical evacuation option during emergencies. It creates mobility options for youth, elderly and the disabled. Of the islands population just under 200,000, 16% are 65 or older and 13.1% report living with a disability that affects their mobility. The County poverty rate is 9.3%, and most of those do not have access to a car.

For those who already ride Hele On, 84.5% report that they are dependent on Hele On for their mobility. Only 36% state they would be able to find another ride if Hele On were not available.

Roadways

The most common means of travel is by private automobile. The federal aid roadway system is under both State and County jurisdictions. The system consists of 788 miles of roadway, most of this two lane roadways. Major arterials comprise 129 miles; minor arterials 177 miles; and collectors 482 miles. While periodically new roads are built, such as Ane Keohokalole in Kona(County) and upgrade to Saddle Road, aka Daniel K. Inouye Highway (State), the pace of new roadway improvements is such that the route system of today is what will be available for the foreseeable future. The county and communities are exploring priorities for connector roads in Puna District.

Bicycling

Bicycling is a viable and affordable form of transportation capable of expansion on Hawai'i island. Hawai'i District has 27 miles of designated facilities (paths, bike lanes, and signed shared roadways). *Bike Plan Hawai'i* (2003) identifies future facilities, primarily of the signed shared roadway variety. If this occurs, it will go a long way to making bicycling a more viable mode choice.

Pedestrian

Pedestrian infrastructure is practically non-existent, and this is a challenge not only for walk trips, but also for bus riders who need to walk to their stop. Most state roadways have no sidewalk facilities at all, and a few have sidewalks only on one side. Sidewalks exist on county roads in Hilo and Kailua-Kona. But even in those areas there are gaps, narrow shoulders, lack of crosswalks, and other needs and deficiencies. Hopefully, the adoption of Complete Streets Policies at both the State and County level will provide the necessary spotlight and lens for making changes.

VISION

A new vision has been created for a multi-modal transportation system. It states,

Create a high quality multi-modal transportation system that provides safe, reliable, convenient mobility choices that meet the commuting, social service, and other needs of our residents and visitors. The multi-modal system should be environmentally responsible and cost effective.

Accompanying this Vision is a set of five Polices and 35 Strategies for the Multi-Modal and the Transit Programs.

Goal One:
Make riding transit easier, reliable, and more desirable than other options.

Goal Two:
Create a transit system to serve the employment and social needs of all people

Goal Three:
Implement technology to provide real time transportation information

Goal Four:
Create transportation hubs and bus stops with amenities that provide rider comfort and safety and that help support community and village gathering places

Goal Five:
Phase system implementation in a fiscally sustainable manner

MULTI-MODAL PROGRAM AND RECOMMENDATIONS

Transit is one part of an overall multi-modal transportation system operating on Hawai'i Island. Other modes

include ride share, bicycling, and walking. The intention is for all modes to have maximum availability so that driving is not the only option.
Four forms of Ride Share are available: carpool, vanpools, taxi and transportation network companies such as Uber and Lyft. There is evidence that quite a lot of ridesharing is taking place through hitching a ride from someone. In the on-board passenger survey, 36.5% said they would "ride with someone" if the bus were not available to them for that ride. Further, 18.1% said they were dropped off by someone to get to the bus stop.

Vanpools are an option gaining renewed interest. Currently, Enterprise Hawai'i is extending leases for people to form vanpools for up to 15 passengers. It is a turnkey program that includes insurance, maintenance and repairs, fuel, registration, taxes, and emergency service. The recommendation for Vanpool is for the county to enter a two year demonstration program, subsidizing up to 25 vanpools at up to $1000 each per month. Total annual program cost if at capacity: $300,000.

Taxi. MTA has already been innovative in offering a shared taxi program. It costs passengers $2 for a coupon and is allowed towards any ride of four miles or less. The program has been very popular, over 156,600 taxi rides were taken last year.

This program can be expanded to other parts of the island. It is recommended that the Council consider a requirement that companies with over five cabs be required to participate in the program. Also, it is timely to consider an increase in fares due to the excellent but highly subsidized service that is provided.

Transportation Network Companies are entering into partnerships with transit agencies elsewhere to provide single trip options. There are several possibilities for the County including participation in the shared taxi program, designated pick up locations, and agreements for emergency support.

Bicycling has always been an inexpensive, healthy, and environmentally desirable option for travel. Bike is a reasonable option for distances under 3-4 miles. The county-owned buses all have bike racks with two positions as a standard feature. This is usually enough, but not always.

Bike Share has been active in Kona. It was financially supported by the County in partnership with PATH (People Advocating for Trails and Hikes) with an initial $250,000 for equipment, shipping, and one year of insurance plus salary for an Operations Manager who maintains and re-balancing the bikes as required. The Bike Share Program is ripe for expansion: in Kona for 4-7 more ten stations; in Hilo for an initial 8-10 stations; and in Waimea for an initial 3-4 stations. The initial cost per station, which includes 7 bikes, kiosk and lighting plus tools and spare parts is $43,750 plus $8,300 for shipping and installation or $52,000 rounded.

The recommendation therefore is to fund $780,000 over two years for a total of 15 new stations and 105 bikes. To this should be added $120,000 per year for each of three years to continue the operations, balancing, customer service, publicity, and administration of the program. Usage fees should be established to cover up to half the administrative cost with the goal of becoming self-sustaining.

Coordination with County Roadway Program

The County road maintenance program repaves roads on a thirty cycle, which comes to 32 miles per year. Two years ago, the County Council approved a fuel tax increase to fund an accelerated program. Of the approximately $4.5 million available each year, $1 million each goes to Road Paving, Mass Transit, and an Emergency Fund. The balance is shared with Traffic Signal upgrades, Roads in Limbo, Striping and Equipment.

When roads are resurfaced, the plans are check to see if a bike lane should be striped in. It will be prudent for MTA and DPW to coordinate so that bus stop signs, shelters and other transit amenities can be installed when crews are out in the field. The Puna District

Table ES-2. Summary of Proposed Services by District

CURRENT SERVICES			PROPOSED SERVICES		
DISTRICT	**Hele-On Reference**	**Number of Trips**	**Route Number**	**Number of Trips**	**Changes/Additions**
Hilo	Hilo/Kona	3 OW	1	3 OW	Serves new Kona Hub
	Intra-Hilo Keaukaha	8 RT	101	9 RT	Modifies service to provide every other trip to King's Landing offering a more direct trip to Banyan Drive and MBT from Airport. Adds new service to North Hilo. Sunday service is introduced.
	Intra-Hilo Kaumana	5 RT	102	7 RT	Kaumana City is provided 1 RT departing KC at 7 AM and returning from MBT after 5 PM. 3 additional trips are offered to the Gentry subdivision turnaround and 3 trips serve Waianuenue Ave.
	Intra-Hilo Waiakea-Uka*	2 RT	103	9 RT	6 trips will serve Waiakea-Uka and 3 additional trips will serve as far as PKP. Service to gym is discontinued and service to North Hilo is added.
			104	6 RT	New route serving center Hilo including Mohouli housing, St. Joseph School, Kamana Senior Center and housing and County agencies.
			Blue Line Express	2 RT	Express service between MBT and Kona Hub via Daniel K. Inouye Highway. Sunday service is added.
	Hilo/South Kohala Resorts*	9 RT	80	9 RT	2 trips will travel from MBT to South Kohala Resorts via Daniel K. Inouye Highway.
Hāmākua	Hilo/Honokaʻa*	2 RT	60	4 RT	Flex service is introduced to provide access to transit to the villages and small towns along the coast. The route will divert 3/4 mile off route to serve prearranged pickups. Park and ride locations are identified.
North Kohala	North Kohala-South Kohala	1 RT	70	1 RT	none
	North Kohala-Waimea-Kona	1 RT	75	1 RT	Service is added to the Kona Airport. Saturday service to Waimea is added. Longer term flex service is added as demand warrants.
South Kohala	Waimea Shuttle	11 RT	301	7.5 RT	Flex service is introduced. The route will divert 3/4 mile off route to serve prearranged pickups.
			Green Line	2 RT	Express service added between Honokaʻa, Waimea and Kona Hub. Sunday service is added.
					Waimea Hub is developed.
Kona	Kona/Hilo	3 OW	2	3 OW	Provides service to Kona Hub
	Intra-Kona*	6 RT	201	7 RT	4 Kona oriented circulator routes replace the current Intra-Kona service. All 4 routes connect at a new Kona Hub located in the vicinity of the Old Kona Airport. Route 201 provides South Kona service via Alii Drive.

			202	9 RT	Connects the Kona Hub with the Airport via Ane Keohokalole Highway.
			203	9 RT	Connects the Kona Hub with the Airport via Highway 190.
			204	9 RT	This route serves South Kona via Kuakini Highway.
					New maintenance facility to be located in Kona.
Kaʻū	Pahala/South Kohala Resorts	3 RT	90	4 RT	Added trip between Pahala and Kona Hub for a total of 4 roundtrips.
				2 RT	Two RTs are added between Oceanview and Volcano for residents to connect with Route 10 to Hilo.
			Zone 3	2 Days	Zone paratransit service is added two days a week.
Puna	Hilo/Volcano	5 RT	10	5 RT	Fern Acres service is provided by separate route.
			Red Line	2 RT	2 trips between MBT and Volcano are provided by the Red Line. Sunday service is offered.
			403	2 RT	2 AM and 2 PM trips are provided to Fern Forest, Eden Roc, and Fern Acres communities scheduled to provide commuter service.
	Hilo/Pāhoa/ Pohoiki	11 RT	40	15 RT	Service is provided between MBT and Pāhoa without diverting into the residential communities. Sunday service is added.
			401	10 RT	Flex service is added between Kea'au and Pāhoa and Hawaiian Beaches and Nanawale. One new trip for a total of 4 trips are provided to Kalapana and Seaview via Highway 130 and 137. This new trip is designed to serve commuters. Service is extended from Nanawale Blvd. to Mauna Kea Road (road improvements may be needed on Mauna Kea) in Nanawale serving further into the community.
			402	2 AM and 2 PM	New service is added in Hawaiian Paradise Park to serve Shower Drive and the future park and regional center on Kaloli Drive. The route is extended from 16th to 1st Avenue between Paradise Drive and Makuu Drive in Hawaiian Paradise Park. Ainaloa service is connected to Highway 11 via Hawaiian Acres and new service is introduced through Orchidland.
					Two hubs are developed; one in Keaau and one in Pāhoa.
			Zone 1	1 Day extending to 5 days	Zone paratransit service is added one day a week for areas along Highway 130. This service is extended to five days as demand warrants.
			Zone 2	2 Days	Zone paratransit service is added two days a week for areas along Highway 11.
*	Does not include trips operated by other routes.				
OW	One Way				
RT	Round Trip				

needs additional attention, not only due to the loss of roads due to lava flow, but the community was already actively working on identify new or improved roadway projects that would create better connectivity between communities. Creating better roadway connectivity would allow MTA to use these roads for new routes as part of the hub and spoke pattern.

SERVICE IMPROVEMENT PROGRAM AND RECOMMENDATIONS

The desirability of using transit depends on two things: what is available and how reliable is the service. Recommendations to improve performance of the current service include:

- **Improve Customer Information including public schedules and route identification**
- **Improve Schedule Adherence**
- **Improve Service Plan Development**

Improved Customer Information

The recommendations for improved customer information start with posting correct public schedules for the current routes. This can be done on the Hele-On web page. A route numbering scheme is proposed to prepare for a Hele-On APP which would provide real time information. One of the most frequent requests from the public was to have a real-time bus tracking and live maps with estimated arrival times. This could be integrated with complementary multi-modal transportation options such as bike share, taxis and commercial transportation options using a smart phone APP. This needs to be compatible with Android and iOS platforms. Web APP that are non-iOS and non-Android mobile devices should also be available and connected to text messaging, personal computers and audio visual displays. The system must also be ADA friendly with stop announcements to include transfer information, intersection and major destinations, and requested stops.

Schedule Adherence and Safety

Upgrading the vehicle fleet needs to be MTA's highest priority. Passengers need to know their bus is going to show up. Any hopes for expansion of routes and frequencies will depend on having a full running fleet of 55 vehicles. The current running fleet is down to 11 vehicles which necessitates the expense of daily rental of tour buses. This drains the budget just to keep going.

Generally, 30-foot buses or larger are planned for a 12-year life expectancy. These vehicles are built on bus or heavy truck chassis. These vehicles frequently have longer life-spans with on-going maintenance procedures, parts replacement and depending upon service terrain and use. Smaller vehicles built on SUV or smaller truck chassis such as paratransit or cutaway vehicles have a 7 to 9-year life depending upon maintenance and use.

To maintain a state of good repair, the average fleet age should be about half of the expected life of the vehicles, which would be six years. The smaller vehicles should have an average age of 3.5 to 4.5 years. Hele-On's vehicles have an average age of twelve (12) years. A suggested bus replacement schedule is presented in the Capital and Financial Plan. While the current County practice is to only use County funds to match federal funds when purchasing vehicles, this will not get the County where it needs to be. A focused vehicle application program of federal funds (with local match) and local only funds will be necessary.

Service Plan Development

A comprehensive service improvement plan to expand the routes and service is proposed to be implemented in stages. New service would be introduced and trialed for a six month period to ensure there is true demand for that service. In more rural areas, service would be tested by implementing Flex service and Zone service. Flex service is deviations off a route for up to ¾ mile off the route. It would use the smaller buses to provide ADA service, but everyone would be eligible to use the service with a 24-hour advance call in. After one year, service would be re-assessed to see if the Flex area should be expanded, or if a new route is justified as having consistent demand. Another option is the use of Zone service which would trial service for 2-3 days per week rather than the full five or six day week. Zone service would connect to regular service and after the trial period ends, be considered for route change or a new permanent route.

The vision and goal for the island-wide system is to be operating as a Hub and Spoke System. The additional routes and services being recommended by area are shown in Table ES-2. Addressing community concerns: routes have been adjusted to better meet community needs, routes have been expanded to operate farther into large subdivisions of Puna, service is added; circulator service is added in new growing areas of Kona and also

to serve both Hilo and Kona Airports; new cross island service is added to shorten travel time; hours are extended for commuter routes; and Sunday service is added on several routes. These adjustments and additions all have financial implications for both capital and operating expenses.

CAPITAL NEEDS AND CAPITAL FINANCIAL PLAN

Rider Information

The top request from riders was for development of a transit application (APP) that would provide real time information showing whether buses are on schedule. MTA has already started a procurement for such a system using GPS based hardware and software features, automatic vehicle tracking, APC, and audio/visual displays. The cost for the system is estimated at just under $500,000, which can be funded over two years. Until a Hawaii Island App can be created, Google App should be used.

Transit Fleet

Far and away the most important capital need for the current transit program is to get a reliable fleet, replacing the current vehicles, and expanding to a fleet that is dependable and suited to the type of services being provided. Vehicle availability and reliability effects service, rider confidence, and MTA pride. The current

Table ES-3. Recommended Hubs for Hawai'i County

Hub	Year	Description
Pahoa	2021	The initial Pahoa hub would be temporary and located on street and can be implemented in 2019. Two passenger shelters would need to be installed. The permanent Pahoa Hub would be located near the new Puna Kai development and would require more passenger amenities including electronic signage, bike parking, fare machines, restroom.
Waimea	2021	The current Waimea hub is located on street with one passenger shelter. There is insufficient space for additional amenities on the sidewalk. However, adjacent land is undeveloped and may be available for expanded facilities including customer information, bike share, bike parking, fare equipment. Many passengers will cross the street to access shopping opportunities. Therefore, upgraded pedestrian facilities will be appropriate.
Mo'oheau Bus Terminal	2022	MBT is allocated $500,000 for upgrading facilities beyond normal maintenance. Electronic information, fare machines, bike parking, bike share need secure, covered space.
Ocean View	2022	Ocean View Park and Ride has minimal infrastructure with a gravel lot and sign. Upgraded surface, bathroom (can be portable), access signage, shelter, and seating should be added. Lighting needs to be assessed.
Honoka'a	2023	Honoka'a has two areas for bus traffic, the upper lot and lower lot. Both lots need electronic signage, electronic information, bike parking, adequate shelter and adequate seating.
Prince Kūhiō Plaza	2023	Upgrades include electronic signage, fare machines, and additional shelter and seating.
Kona	2024	The Kona Hub will be substantial and requires additional planning and design. This Hub should be designed to hold a customer service center, bike share, bike parking, restroom, electronic signage and bus bays for a minimum of 7 buses. Potential for coordination with transit oriented development is available.
Kea'au	2025	The Kea'au Hub will include a park-and-ride lot, as well as enough room for 4 buses and passenger amenities.

running fleet is 11 buses, well below what is required to operate current bus routes. The CIP places an emphasis on rebuilding the fleet.

The 40-foot buses have an average useful life of 12 years by industry standard, the smaller vehicles generally have a useful life of 7 to 9 years. Therefore, since MTA will have a fleet composed of over 42 percent smaller vehicles (by 2027), the overall average fleet age should be below six years.

Starting in Fiscal Year 2019, it is recommended that five (5) smaller vehicles be procured and added to the fleet. The following year 2020 should add three (3) 40 foot and three (3) less than 30-feet. The replacement and expansion schedule shows the number of vehicles required to operate the service – listed as Peak Assignment. Both currently and the over next several years into the future, MTA will continue to require contracting with private providers for buses. If funds become available, such as additional grant opportunities, then a more aggressive bus acquisition program should be pursued.

By 2027, the fleet size of 55 vehicles required to operate current and expanded services will be procured. This total number includes all vehicles including commuter services currently provided by private operators using their coaches. If MTA desires to continue the commuter service with coaches provided by private operators, then the fleet acquisition plan can be reduced. The vehicle spare ratio should be at 20 percent in 2027.

From 2027 on, MTA should continue to purchase four to five vehicles a year to maintain the fleet. The spare ratio may need to increase slightly with the opening

of a second maintenance facility in Kailua-Kona. Both maintenance facilities will need sufficient spares to operate the required services.

Maintenance Facilities

For the past two years, MTA has invested in the planning, design, and construction of a new Hilo maintenance facility. The previous shared facility with Public Works was outdated and unable to accommodate the needs of the MTA system. The new maintenance facility opened in 2018.

Due to the large number of routes operating through the north and west sides of the island, it is recommended that a second maintenance facility be planned. It will likely take several years to go through the steps of planning, land acquisition, design and construction. Therefore, the capital plan recommends starting as soon as practicable to reserve the desired site. A site near the police department on Hale Māka'i off Highway 19 would be a good location. Certainly, a site owned by a public agency will cost less than one that has to be purchased on the open market.

Passenger Facilities

Hub planning and design is proposed to start in Fiscal Year 2020. Construction would begin in 2021 and continue through 2025. Hubs to be developed and updated are shown in ES-3.

The planning, design, land acquisition and construction of these multiple hubs and transfer point improvements have been grouped together in the financial plan as a single transit center development program comparable to the ongoing bus stop and passenger shelter program.

Park and Ride Lots

Park and Ride lots require additional amenities; in particular, lighting and sometimes bathrooms. Most park and ride lots serve commuters. Hele-On's commuters leave in the early morning hours when it is dark. Lighting adds safety. Bathrooms (even portable) become necessary for many commuters. Commuter trips are long. Having a bathroom available can make a difference to an intending passenger.

Bus Stops

Formalizing a bus stop includes determining what type of amenities should be included at the bus stop. The most basic of bus stops would have a sign, route designation, and route schedule. Each bus stop needs to have a unique bus stop number. These numbers need to be posted at each bus stop.

Amenities at bus stops include signs, benches, shelter, information, lighting and others items. The planning, design, procurement, land acquisition and construction line items in the CIP are to fund bus stop locations. The MTA and County need to determine which stops will have benches and/or shelters. Primary Local Stops would add passenger shelters and seating to the basic stop amenities. Adding additional amenities would be dependent upon safety and space concerns, as well as passenger usage at that stop and route frequency.

Fare Collection System

Most transit 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, Magnetic Stored-Value Pass, Magnetic Stored-Time Pass, and Smart Cards. 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.

COMBINED CAPITAL AND OPERATING FINANCIAL PLAN

The capital investments identified in this plan are ones that are essential for the cost effective and productive continued operation of Hele-On and other modal operations. The operating expenses relate to the levels of service being offered as they progress over the years of the plan.

The Finacial Plan shows expenses and funding sources as presently known. In this Table ES-4, the GET is only available for 18 months, will allow the program for immediate priorities to move foward. After that the program needs a new influx of revenue.

The largest source of revenues has been and will continue to be the County, through the General Fund and Highway Fund. Federal funds are available to MTA for both capital and operating expenses, as formula grants and discretionary grants. The third source of revenue is fares. Over the past three years, fare box recovery has averaged 15.9%.

Table ES-4. Financial Plan Fiscal Years 2018-2022

EXPENSES	FISCAL YEAR				
	2018	2019	2020	2021	2022
Category					
Administration & Marketing	$672,100	$692,263	$713,031	$734,422	$756,454
Bus Operations	$11,129,658	$10,785,818	$10,876,176	$12,503,915	$14,175,553
Other Modal Operations	$3,083,279	$3,526,279	$3,817,729	$3,981,243	$4,001,341
Capital Investments	$1,565,000	$3,048,900	$5,757,238	$5,540,700	$4,709,500
Total Expenses	$16,450,037	$18,053,260	$21,164,174	$22,760,279	$23,642,849
FUNDING SOURCES	**2018**	**2019**	**2020**	**2021**	**2022**
Operating Revenue					
Bus Fare Revenue	$809,271	$950,697	$1,093,302	$1,290,096	$1,508,756
Other Modal Revenue	$523,766	$722,738	$1,059,761	$1,174,029	$1,183,068
Total Fare Revenue	$1,333,037	$1,673,435	$2,153,063	$2,464,125	$2,691,824
Grants					
Federal Operating Grant	$1,042,000	$1,042,000	$1,042,000	$1,042,000	$1,042,000
Federal Bus & Facilities	$700,000	$880,000	$880,000	$880,000	$880,000
Federal Capital Investment*	$575,000	$575,000	$575,000	$575,000	$575,000
Total Grants	$2,317,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax (18 months):					
Estimated Excise Tax Revenue	--	$10,000,000	$25,000,000	--	--
GET Transit Funding	--	$8,500,000	$11,350,000	--	--
GET Other Transportation Projects & Carryover	--	*$1,500,000*	*$13,650,000*	--	--
County Funding:					
General Fund	$5,600,000	$0	$0	$7,000,000	$7,000,000
Highway Fund	$7,200,000	$5,382,825	$5,164,111	$10,799,154	$11,454,025
Total County non-GET Funding	$12,800,000	$5,382,825	$5,164,111	$17,799,154	$18,454,025
SUMMARY	**2018**	**2019**	**2020**	**2021**	**2022**
Total Expenses	$16,450,037	$16,450,037	$21,164,174	$22,760,279	$23,642,849
Fare Revenue	$1,333,037	$1,333,037	$2,153,063	$2,464,125	$2,691,824
Grants	$2,317,000	$2,317,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax	--	$8,500,000	$11,350,000	--	--
County General Fund	$5,600,000	$0	$0	$7,000,000	$7,000,000
County Highway Fund	$7,200,000	$5,382,825	$5,164,111	$10,799,154	$11,454,025
Total Funding Sources	$16,450,037	$18,053,260	$21,164,174	$22,760,279	$23,642,849
GET Other Transportation Projects & Carryover	--	*$1,500,000*	*$13,650,000*	--	--

Table ES-4. Financial Plan Fiscal Years – 2023-2027

EXPENSES	FISCAL YEAR				
	2023	2024	2025	2026	2027
Category					
Administration & Marketing	$779,148	$802,523	$826,598	$851,396	$876,938
Bus Operations	$15,259,062	$15,613,641	$16,258,494	$16,638,887	$17,028,544
Other Modal Operations	$4,022,043	$4,043,366	$4,065,329	$4,087,950	$4,111,250
Capital Investments	$5,284,100	$7,262,100	$12,481,300	$3,600,500	$2,591,000
Total Expenses	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
FUNDING SOURCES	**2023**	**2024**	**2025**	**2026**	**2027**
Operating Revenue					
Bus Fare Revenue	$1,659,632	$1,825,595	$2,091,828	$2,301,010	$2,591,858
Other Modal Revenue	$1,187,930	$1,198,138	$1,209,569	$1,222,460	$1,237,094
Total Fare Revenue	$2,847,561	$3,023,733	$3,301,397	$3,523,470	$3,828,952
Grants					
Federal Operating Grant	$1,042,000	$1,042,000	$1,042,000	$1,042,000	$1,042,000
Federal Bus & Facilities	$880,000	$880,000	$880,000	$880,000	$880,000
Federal Capital Investment*	$575,000	$575,000	$575,000	$575,000	$575,000
Total Grants	$2,497,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax (18 months):					
Estimated Excise Tax Revenue	--	--	--	--	--
GET Transit Funding	--	--	--	--	--
GET Other Transportation Projects & Carryover	--	--	--	--	--
County Funding:					
General Fund	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
Highway Fund	$12,999,792	$15,200,897	$20,833,324	$12,158,263	$11,281,781
Total County non-GET Funding	$19,999,792	$22,200,897	$27,833,324	$19,158,263	$18,281,781
SUMMARY	**2023**	**2024**	**2025**	**2026**	**2027**
Total Expenses	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
Fare Revenue	$2,847,561	$3,023,733	$3,301,397	$3,523,470	$3,828,952
Grants	$2,497,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax	--	--	--	--	--
County General Fund	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
County Highway Fund	$12,999,792	$15,200,897	$20,833,324	$12,158,263	$11,281,781
Total Funding Sources	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
GET Other Transportation Projects & Carryover	--	--	--	--	--

Future sources of revenue that may be considered are Development Impact Fees, use of fuel tax and and extended period the excise tax surcharge.

CONCLUSIONS

The implementation of recommendations in the Transit and Multi-Modal Master Plan will require phasing. This is due to both funding constraints, and as a practical reality how many things can be done at once.

Immediate Priorities (next two years)

1) Restore service reliability and get ridership back to previous levels (1.2 million revenue miles)
2) Acquire up to 14 buses/vans using previous grants and new capital funds to bring the fleet to 25.
3) Once fleet size is enlarged and reliability can be restored, continue to add additional service hours and routes to create a hub and spoke pattern
4) Start Hilo to Kona service using Saddle Road
5) Continue to review paratransit service per federal requirements.
6) Create a multi-modal transportation system on the island. Embrace multiple vendors for providing bicycle, vanpool, transit and other multi modal services
7) Increase staffing of the MTA to adequately address the range of responsibilities being assigned to them. Add new positions for Garage Supervisor, Administrative Services Assistant, and an Account Clerk
8) Create a Google Transit APP for rider information

Near Term (2020-2025)

1) Acquire 5-6 new and replacement vehicles per year to bring the fleet to 40
2) Increase service to have all proposed circulators in place
3) Continue the multi-modal program
4) Plan, design, and build the Kona hub. Consider options to provide light service on Kona side.
5) Add staffing to include a Deputy Administrator, Inventory Clerk, and a second shift of (4) mechanics and working supervisor. By the time the fleet size is 35, there should be no less than six mechanics.
6) Start to implement the Bus Stop numbering and signage program at all time spots.

Mid Term (2025-2030)

1) Reassess the Paratransit program and expand it to other parts of the island. Add a paratransit clerk position.
2) Continue to acquire 5-6 buses per year to achieve a fleet size of 55
3) Continue the multi-modal, bus stop and amenities program
4) Design and develop a Puna hub and complete roadway improvements to allow for Intra-Puna service.
5) Implement the multi-modal complete streets program in Hilo.

Long Term (2030-2035)

1) Plan, design, and construct a Waimea hub
2) Upgrade Mooheau hub
3) Update this Transit Master Plan
4) Expand the number of runs for routes that have demostrated consistantly high ridership

Vision (2035-2040)

1) Service to operate on a full hub and spoke pattern with hubs in Hilo, Kona, Waimea, and Puna and Keeau.
2) Conduct robust Bike Share, Vanpool and TNC programs
3) Have a full Public Information and Outreach Program

Implementing the Vision will require the hard work and dedication of the MTA staff. A total of twelve new positions are recommended of which five are for the second maintenance shift and working supervisor.

With commitment to funding and diligent implementation, the phased growth toward the Vision can be realized.

INTRODUCTION

INTRODUCTION TO FINAL MASTER PLAN

So much has changed since the Draft Transportation Master Plan was released in February 2018, and yet so much remains the same.

The changes that have occurred since the Draft Master Plan was issued present challenges, but also opportunities.

- **Comments received during the public comment period from February through April and a round of six Public Information Meetings conducted in April 2018**
- **Eruptions coming from Kīlauea Volcano which started May 3, 2018**
- **Issuance of a Legislative Auditor Report on Cash Handling at MTA and subsequent concerns with MTA management expressed during budget hearings for the FY 2019 budget.**

What remains the same is:

- **The need for a public transit system throughout the island is widely recognized and supported by residents, businesses, and elected officials.**
- **Unfortunately the slide the system has been experiencing over the past few years when budgets were restricted and investments were not made, continues to the present.**
- **Improvements and strategies described in this Master Plan are essential to turning the situation around.**
- **These will need new funding and finance mechanisms.**

Public Comments Received on Draft Master Plan

A second round of public meetings was held during the month of April 2018 in six locations around the island, fulfilling one of the study guiding principles to *"engage the community and stakeholders through public workshops and presentations to establish consensus and broad support for a transportation system."*

A report of all input received was prepared, distributed to Council members, and posted on the website. Eighteen comment letters were received either on the website, email or regular mail. In addition, nearly eighty attendees at the public meetings shared their comments verbally, or on one of the comment sheets provided.

The level of support for Multi-modal transportation options presented in the Draft Master Plan was sought, in particular, bike mode, taxi voucher program. Support was very high for multi-modal options. When asked how they would pay for this, reaction was distributed among federal and state grants, user feeds, and new taxes. *Multi-modal comments and support are reflected in Chapter 3.*

Many of the comments provided specific recommendations on routes, schedules, and types of service (such as express, circulators, paratransit). Specific reaction was sought to recommendations in the Draft Master Plan for diversions, circulators, express trips between Hilo and Kona, zone paratransit, flex service, Sunday service, later evening service and more frequent service. *Service comments have all been addressed and can be found in Chapter 4.*

Various types of transit expenditures were presented and all received high levels of support: Buy new buses, build more shelters, put up information signs at bus

stops, paratransit, transit centers, improved security, and a second maintenance facility.

These types of expenditures are explained in Chapter 5 and the capital financial plan presented in Chapter 6.

Kilauea Eruptions Change the Landscape

When Kīlauea Volcano began erupting on May 3, spewing lava hundreds of feet in the air from over two dozen fissures, channels moved in multiple directions and eventually reached the sea. This forever changed the landscape and way of life in Lower Puna and elsewhere on the island. While the eruption is ongoing at the time of writing this Final Master Plan, one month later, lava had already covered 6000 acres and 700 plus homes, including parts or all of the communities of Leilani Estates, Lanipuna Gardens, Pohoiki, Kapoho Beach Lots, and Vacationland. Lava also crossed Highways 132 and 137 (Government Road), Pohoiki Road and subdivision streets, cutting off access for hundreds of residents, although many of their homes are now covered by lava.

Of immediate impact to the Master Plan, service would no longer be possible to the covered areas. Route recommendations were changed to reflect that. Where these residents relocate, on both a temporary and a permanent basis, means new routes and stops will have to be developed and revised every few weeks or months as the disaster continues to unfold. *This is reflected in the discussion and maps found in Chapter 5.*

The disaster has immediate and long term impact to the County budget. Faced with the needs of those evacuated, the county has focused all resources possible to help shelter, feed, and support those impacted. Evacuation shelters were set up at County parks in Pāhoa, Keeau, and at a church. Effects from air pollution, dust, fumes and gases are being felt by communities throughout the island, especially downwind areas such as Kaʻu and Kona and people there have medical and other needs being expressed.

County resources, human and fiscal, are being stretched thin. Increased needs are paired with loss of property tax from the lava covered properties combine to a shortfall estimate in the range of $5 million. The Council is trying to find the money for this ongoing disaster in a manner that least impacts the needy. County Council approved a quarter of one percent excise tax surcharge to be collected from January 2019 to December 2010. *MTA budget has shifted to reflect the adjusted financial tables and can be seen in Chapter 6.*

Legislative Auditor Report on MTA Cash Handling

In May 2018, the legislative auditor released its audit of MTA Cash Handling and presented its findings to the County Council. This shone light on the severe need for improved procedures, management, oversight and new fare box equipment. The auditor made over 30 recommendations which management immediately began to address. The Final Master Plan addresses the importance of staying focused on improvements recommended, as well as reporting progress to County Council which wishes to provide a greater amount of oversight and accountability. *This can be found in Chapter 7.*

BACKGROUND TO THE MASTER PLAN

The Mayor and County Council for Hawaiʻi County have long supported public transit on the island. It has been seen as an important means for connecting workers with their jobs, oftentimes on opposite sides of the island. Cost of public transit is a major component of the County budget. The FY 2017-18 budget was $14,031,908 which includes both major capital expenditures and the operating budget.

By 2014-15 the Council was openly asking itself what was the context for these expenditures, as well as how could service expand to meet needs of a growing population. The idea for a Master Plan appears to have been spawned in the Puna CDP Action Committee and then championed by the area councilman of the time. Council placed $500,000 into the county budget to undertake a next generation Master Plan that looked ahead twenty years.

The administration prepared a set of guiding principles for the Master Plan which would reflect the issues and needs that should be addressed. The administration selected SSFM International with Weslin Consulting to undertake the study. Work began in the fall of 2016.

In the three years since Council called for a Master Plan, the situation has become dire. Aging buses, overly-stretched staff, rising costs per passenger mile, and dropping ridership add to the urgency of creating both immediate and longer term plans.

Hele-on is at a cross roads. It can continue as is and continue to lose both ridership and user confidence, or it can make strategic investments and thereby lift up to a higher level of performance. In making that choice, it is essential to set clear goals that can be achieved and make priorities for addressing multiple needs.

WHY HAVE A TRANSIT AND MULTI-MODAL TRANSPORTATION MASTER PLAN?

This is the first County Master Plan for the Hele-On system in over twenty five years. Previously, the state of Hawai'i Department of Transportation sponsored a plan for Hawai'i County in 1992 and then a tri-county data analysis in 2005. Since its inception forty years ago under Mayor Matayoshi, the system has evolved through trial and error and by being opportunistic. But recent problems demonstrate that good fortunes can also reverse themselves, buses get old and break down, service can deteriorate, and ridership drop.

Planning for public transit should reflect the island's shared vision for the future. It needs to address current problems and also be forward looking. If the goal of quality service provided in an efficient and equitable manner is to be realized, then priorities must be set and hard choices made. With a Master Plan, these choices can be made transparently and based on data.

This *Final Transit and Multi-Modal Transportation Master Plan* identifies policies and standards for the delivery of service as well as criteria for measuring what can be expected. Among the most basic purposes for the Master Plan is to assist decision makers with funding and expenditure choices.

Appreciation is extended to the Mayor Kim and Council of Hawai'i County, other officials, organizations & associations, and most of all, to the citizens who so willingly gave their time, passion, and ideas to the making of this future generation foward looking Master Plan.

GUIDING PRINCIPLES

The approach to developing this Master Plan followed several Guiding Principles as provided by the County in contract documents. The Guiding Principles are:

- **Create a system that is safe, reliable, friendly, and accessible for users of all ages**
- **Consider all modes of transportation, but emphasize alternatives to the automobile, including public transit, ride share, bicycle, and walking**
- **Be cognizant of persons with disabilities, which is an increasing portion of the community. Modes of transportation must comply with the Americans with Disability Act (ADA)**
- **Set realistic priorities that are visionary, yet practical, measureable, and achievable**
- **Identify features of the transportation network or barriers that make it unsafe or uncomfortable for users**
- **Provide a means to measure existing safety, access and mobility, environmental health and economic vitality, and then provide tools to measure change over time**
- **Coordinate with the County of Hawai'i General Plan, Community Plans, and other relevant Plans for State and County infrastructure**
- **Be environmentally sensitive by reducing congestion, decreasing emissions, and encouraging non-polluting modes of transportation**
- **Use the latest and best design criteria and guidelines for bus stops, shelters, and hubs**
- **Engage the community and stakeholders through public workshops and presentations to establish consensus and broad support for a transportation system**

PLAN DEVELOPMENT PROCESS

The initial focus of the master plan project was to make an assessment of previous work, current conditions, and future projections. The results of these tasks was the preparation of seven Task Reports, each on a specific topic which are briefly described below. Task reports are available at the project website, www.heleonmasterplan.com.

1) Review of Previous and Ongoing Studies.

A search was made of various island-wide plans, studies and documents. County sources included the General Plan (2005) and Community Plans (various years), Complete Streets Resource Paper (2015), MTA Bus Stop Location Study (2010), Keāhole to Honaunau Regional Circulation Plan (2003), Hawai'i County Health Needs and Assessment (2013), Bikeway Plan (1979), and a study by University of Michigan on Expanding Transportation Opportunities on Hawai'i Island (2014).

State sources reviewed included the Coordinated Public Transit Human Services Plan (2011), Statewide Mobility Management Report (2014), Transit Technical Study for Kaua'i, Maui and Hawai'i (2004), Public Transit Plan for Hawai'i County (1991), Federal-Aid Highways 2035 Transportation Plan for Hawai'i District (2014), Bike Plan Hawai'i Master Plan (2002), Statewide Transportation Plan (2011), and Statewide Pedestrian Master Plan (2013).

Collectively, these documents identify a shift in policy away from vehicles as a priority and toward a new accommodation of multi-modal travel. Many of the reports call for an increase in transit routes, transit centers, stops, vehicles, and user amenities as well as improvements for non-motorized modes.

A thorough review was made of the County General Plan and the six adopted community plans, their technical studies, as well as Envision Hilo and the Downtown Hilo Multi-Modal Master Plan. Policies and themes that have repeated themselves in the community plans are similar to what was heard from the public during this study: look at the needs of those who are transit dependent, create ride-sharing and park-and-ride options which are secure and convenient, improve bus stops, add more airport service, and find financial resources for equipment, bus service expansion and other needs.

Figure i-1. Mo'oheau bus terminal – actively used by bike, transit and tour companies.

2) Transit Infrastructure Report

The County and MTA have made considerable investment in its fleet, passenger infrastructure, and by building a new maintenance facility and operating base. Some of the older investments have reached the end of their useful life. Others need upgrading.

County owned vehicles in regular service of November 2017, 19 buses were running and in service. By June 2018 there were 12. Lack of vehicles require MTA to lease large numbers of buses from private tour operators at a considerable daily cost. Only six county-owned buses were under five years of age and three of those were inoperable. The need for both a fleet replacement program and preventative maintenance is stark.

The heart of the passenger facilities is at Mooheau Bus Terminal on Kamehameha Highway in Hilo. Most routes stop at this location which can accommodate up to six buses at a time, although there is no designation where to stop. Some commuters park in the adjacent lot, however most use the park and ride lot located 2,000 feet away. The area is crowded on cruise ship days when additional vehicles operated by commercial tour services use the positions usually used by Hele-On.

Transit hubs for the system are located at Prince Kūhiō Shopping Center (Hilo), University of Hawai'i-Hilo, Parker Ranch Shopping Center, and K-Mart in Kona. PKSC has shelter, trash cans, street lighting, designated bus lane, and fenced sidewalks to encourage people to use the crosswalk. A security person is often present.

The UH-Hilo hub is located near the student center and waiting passengers use adjacent buildings for shelter.

The Waimea hub is located on Pukalani Road where a shelter was installed in March 2017. It is a barren area with little evidence of the purpose it serves and buses have to pull over into a nearby field to layover. This is not an ideal situation. Previously it was located behind the shopping center parking lot where people could wait closer to the food court and restrooms.

In Kona, the K-Mart serves as a hub for both Hele-On transfers and other commercial services. While this is a mutually advantageous activity with K-Mart, there is no branding, rider information or other indication at this location that gives notice of how it is used.
The system has five park and ride lots: Bayfront in Hilo (104 spaces), Ocean View in Ka'u (40 spaces), Honoka'a in Hāmākua (68 stalls), South Kona/Captain Cook (27 spaces), and Takeshi Kamigaki in Kona/Kealakekua (12 spaces).

Bayfront Lot has portable toilets, street lighting, and passenger shelters, which are good, but the area is prone to flooding. The Ocean View lot, which is also used by school buses, is gravel with a single sign and no other amenities, including lighting. Honoka'a lot on Lehua Street is a well-designed paved parking lot with a passenger shelter and sign, but minimal lighting. It is likely underused because of security concerns. By contrast, the South Kona lot is along Highway 11 and adjacent to the senior center on Kinue Road, is paved with a large passenger shelter and designated bus lane.

Many bus stops are used as major time points for the routes and schedules. These are all marked as major destinations. Time points exist at both airports, but better signage is needed to direct arriving visitors to the Hele-On stop, similar to wayfinding signage for rental cars and taxis.

Figure i-2. New Bus Shelter at Ane Keohokālole

The system has just over fifty passenger shelters islandwide. They are well designed and easily accessible. Approximately 5-6 more are added each year, but all need better route schedule information posting. In remote and rural locations it is not unusual to find makeshift seating at stop locations. MTA has been moving away from flag stops where passengers wave down the bus to stop as these are often both confusing and sometimes unsafe. A 2010 study of these found that of 575 recognized stop locations, 224 were recommended to be improved with amenities, and 89 made official in the County code.

Figure i-3. Hele-On Bus Sign

Technology and information dissemination was among the highest requests received during the course of this study. Only Mooheau Terminal has notices posted in glass cabinets mounted on the wall. Most but not all the buses have destination signs, and some were hand written. Current practices elsewhere have destinations shown electronically on the front, rear and sides of the buses. This needs to be incorporated into any bus order.

The most major change in the bus infrastructure is the erection of a new maintenance facility and operating yard on Hololaulima Road. The facility is 26,500 square foot building with 19,500 square foot warehouse for storage and space for administrative offices. The facility has four working bays, double the number at the Leilani Street facility, which was shared with DPW.

Figure i-4. New Transit Maintenance Facility on Hololaulima Road

Overnight parking of buses occurs at Hawai'i County Police Department in Kailua-Kona, at the Public Works base in Waiohinu. But no other place does minor service or repairs. Over time, it will be important to have remote service agreements so every vehicle does not have to come back to Hilo every time something goes wrong.

3) Existing Conditions Report

The study looked at the current and future demographics of Hawai'i Island population, employment, levels of disability and poverty, affordable housing, and languages spoken. The graphs for these subjects can be found in the Appendix A and the findings are briefly described here.

County of Hawai'i population was 180,362 in the 2010 census. The American Community Survey shows that growth has been rapid, up to 198,449 in 2016, a ten percent growth. Population continues to grow with concomitant demands on services such as transit. The median age is 41.1 years of age, which continues to rise, and also has an impact on providing transit service.

Figure i-5: Passengers Boarding

The concentration of settlements is scattered and rural with the exception of Hilo and some parts of North Kona. Yet, rural Puna has had the greatest percentage of change for any district, 50.8% between 1990 and 2000 and 44.6% between 2000 and 2010 according to the County Data Book 2015. Districts of Ka'u and South Kohala also show high rates of growth. The implications here are for more demand for transit from all districts, but especially rural areas.

Close to 92% of the population over 16 years and under 64 of age is employed. Unemployment is not distributed evenly; over 19.4% of those in the Discovery Harbour section of Ka'u; 23.4% in Hāmākua CDP; and 23.1% in Nanawale Estates in Puna. Part of this may be due to far fewer employment opportunities in their community;

persons wanting to work must travel out of district, sometimes long distances.

Disabilities as a percent of the total population hovers just above 13%. Around 9% of the population of Hawai'i County lives below the poverty line as compared to 5.5% for the State of Hawaii.

The US Department of Transportation is committed to and requires its grantees to also commit to principles of Environmental Justice, which means to avoid, minimize or mitigate high or adverse effects on minority or low income populations; to ensure full and fair participation by all affected communities; and to prevent the denial of receipt of benefits by minorities and low income populations.

Environmental Justice analysis was conducted for Hawai'i County by looking at the population at the block level, using two accepted methods: Above Average and Standard Deviation. The Above Average method identified the number of census blocks with a minority population over 67% and/or census blocks where 14.6% or more households are below the poverty line. Using this method, 63 blocks met the minority population threshold, 38 blocks met the poverty threshold, and 19 block groups met both criteria. Using the second method, one standard deviation above the mean, 16 blocks met the minority criteria, 19 met the poverty criteria, and one block met both. Areas with minority EJ qualification are in Naalehu/Waiohinu and Discovery Harbour in Ka'u, Kuristown, and parts of Hilo. Areas which meet the poverty EJ qualification are in Hawaiian Ocean View and other parts of Ka'u, most of Puna district, and areas of Papaikou/Paukaa/ Wainaku, Pepe'ekeo in northern Hilo. This plan places particular attention to serving the communities in EJ areas. Maps for these are shown in the Appendix B.

Employment is a major reason for trip making. The State DBEDT estimated the County had 65,400 non-agriculture jobs in 2015 which was an 8.5% increase over 2010. Resort jobs are concentrated in the large resort properties in Kohala and Kona coastlines which require 24-hour staffing. Other large employers are at major shopping destinations (65 locations) and medical facilities (25 locations). Over half of all jobs are in small establishments with 1-4 employees.

4) Passenger Survey Report

An on-board passenger survey was conducted in February –March 2017 on all routes. Passengers were handed a form and a pen and asked to fill out a two-sided questionnaire before they de-boarded. Survey assistants rode the bus to help this run smoothly. A total of 750 responses were received back.

Figure i-6. Surveyor

Characteristics of those responding: 32% have been riding for six or more years, 19.8% for 3-5 years; 18.3% for 1-2 years, and 29.1% for one year or less. Males were 56.5% and females 43.5%. Most were residents, only 7.6% were tourists. Employed full time 35.2%, employed part time 15.4%, seeking work 14.1% which reflects the importance of the Hele-On system for employment (almost two-thirds of all participating riders).

Most frequent trip purpose was work at 31%. Other trip purposes included school and college, shopping, social, personal business, medical and airport trips. Most passengers pay the base fare or the discounted senior and student fare. 29.4% use the bus ticket system which are bought in blocks of ten rides.

If the bus were not available for their trip, 36.5% say they would try to find a ride with someone, 15.6% would drive, 34% would bike/taxi/walk, and perhaps most importantly, 23.9% say they would not be able to make the trip at all.

Most passengers access the bus by walking 66.3%, 18.1% are dropped off, 7.9% drive and park a car, and the balance by bicycle. These results provide important information for the kind of infrastructure needed at bus stops and hubs.

Customer satisfaction question showed 20% rate the system as Excellent, 43.2% as Good, 29.1% as Fair and 7.7% as Poor. Those characteristics which were given high ratings (more than sixty percent rated Excellent or Good) were driver courtesy, safety, route identification and route directness. Those characteristics with low ratings (more than sixty percent rated as Fair or Poor) were Service Frequency, Evening Service, Weekend Service, and On-Time Performance.

The most frequent comment added by passenger respondents was "get more buses that don't break down." The survey occurred during a period of frequent breakdowns, so this was not a surprise. Other repeated comments concerned being on time and having realistic schedules, having more information available on line and/or on an APP, and having buses run more often,

5) Trends and Future Needs

An analysis was made of trends and future needs for the transportation system. These are summarized in Table i-1.

Ten major trends were identified:

- **Population growth and aging**
- **Elderly and disabled growing at rate faster than the rest of the population**
- **Development growth fastest in Puna, Kona, and Hilo**
- **Roadways are over capacity, but few new roads are planned**
- **Housing growth is unevenly distributed**
- **Jobs will remain concentrated in Kona and Hilo**
- **Districts have uniquely different characteristics and trends**
- **ADA paratransit program is new and demand will grow**
- **The transportation picture is evolving to include Complete Streets Policies and new service providers**
- **Technology for transit is evolving rapidly**
- **Autonomous vehicles**

6) Second Round of Public Meetings

The Second Round of Public Meetings were advertised and conducted in April 2018. These were held at:

- **Pāhoa, April 7 at Pāhoa Neighborhood Facility**
- **Ocean View, April 8 at Ocean View Community Center**
- **Waimea, April 10 at Waimea Elementary School**
- **Kona, April 12 at West Hawai'i Civil Center**
- **Kea'au, April 15 at Kea'au Community Center**
- **Hilo, April 16 at Aupuni Center**

The Draft Master Plan was presented. Two discussion periods were held on 1) Proposed Services Improvements, and 2) Multi-Modal Improvements, Financial Plan and Priorities.

The input received was provided in a report (May 2018) and posted on the website. This input guided changes in the Final Master Plan.

Figure i-7 Second Round of Public Meetings

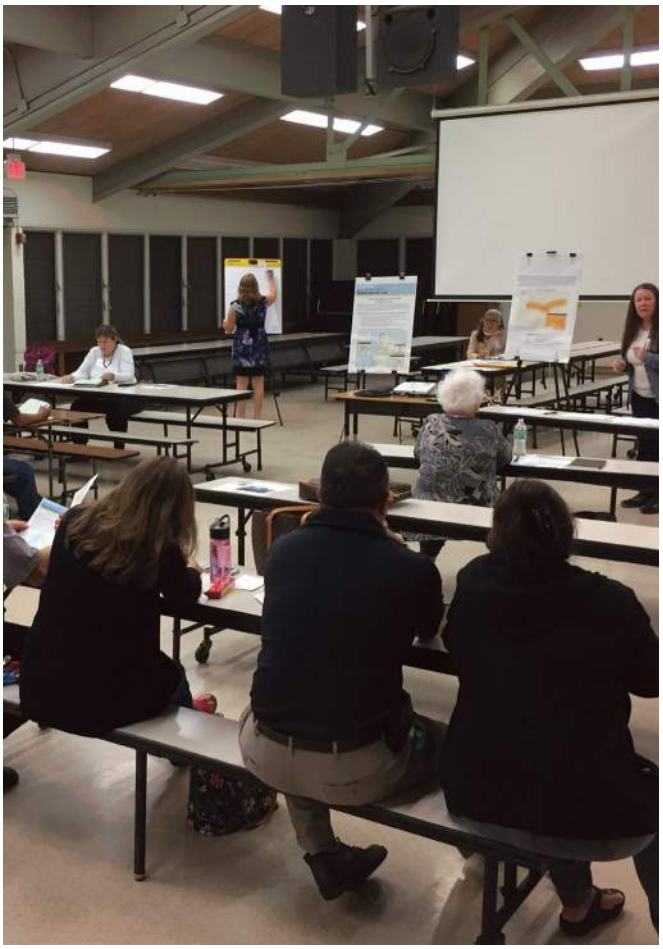


Table i-1. Trends and Future Needs

Category	Discussion	Implications to Transportation System
Population	The population is forecasted to grow by 60% by the year 2040 from the last US Census in 2010. In addition to the 296,322-resident population will be an average 36,320 daily visitors.	People will be looking to transit to avoid driving on increasingly congested streets. Visitors will want easy access to the County's tourist sites.
Elderly and Disabled Population	The elderly and disabled population will grow at a faster rate than other age groups. The age 85 and older will increase from 2.2 percent of the population to 5.2 percent.	An increase in the elderly and disabled populations will add demand to transportation programs including paratransit and the shared ride taxi. Disabled clients require extra mobility options to be full members of the community. Partnerships with transportation providers should continue. All vehicles purchased should be accessible.
Development Patterns	Growth areas are Hilo, Kona, and Puna. The County has identified Puna and Kaʻū as underserved growth areas. Underserved means limited services and infrastructure.	Both Districts have long travel times to urban centers. In addition, the zoning includes large tracts resulting in low density, which is longer trip times.
Road Capacity	The only roads connecting Puna to Hilo are currently "significantly over capacity." There are no major new road projects to increase capacity to be able to serve current demand let alone demand from new development.	The single seat ride on transit may not be the best mechanism to deal with increasing traffic congestion on these long routes. Not all roads are suitable for transit services.
Housing	Housing growth will not be spread evenly throughout the County. Growth will occur from a low of 29% in Hilo to a high of 171% in Hawaiian Paradise Park-Orchidland. Three regions with the highest projected housing growth rates are in the Puna District.	Resources will need to be increased to serve the expected demand. Long trips will need to be streamlined with passengers perhaps having to transfer to another vehicle to complete their trip. This impacts the fare system as well as operational system.
Employment	Jobs, however, are projected to remain concentrated in Hilo and Kona. Other areas will see an increase, but the major job centers will be as today.	Affordable housing will be in Districts with long commutes to the job centers. The roads will not be able to accommodate additional single-occupant vehicles, therefore, transit will be tasked with providing additional services.
District Level Trends	The Districts have unique characteristics and the trends point to differences within each District. All will need to plan for a higher percentage of elderly and disabled residents; however, Hilo and Kona have more of the services geared to these populations. Others will have more residents but not enough jobs.	Several demographic indicators determine transit propensity. Many disabled people cannot access jobs, education, or services with a personal auto and rely upon public transportation. Since many are located outside the urbanized areas, looking at alternative transportation modes other than 'big bus' may be more cost effective. Other issues that may be exacerbated by the increased development are issues of equity – Hilo's airport is served by 8 bus trips, while Kona's has just a couple. Consistency in service will be much more important – attractions and neighborhoods may need more than 1 or 2 trips.

CONTINUED ON NEXT PAGE

Table i-1. Trends and Future Needs

Category	Discussion	Implications to Transportation System
ADA Complementary Paratransit and Shared Ride Taxi Programs	Hele-On's ADA Complementary Paratransit program is new. It is offered in the urban Hilo and Kona areas and should be available in other areas of the County. The Shared-Ride Taxi Program is available in Hilo only and has been available for over a decade.	The demand for paratransit and shared ride taxi will continue to increase. These services are critical to the client users. Fare policies should consider the special needs of the low income clients. Sensitivity training of staff and drivers is important.
Evolving Transportation Systems	Developing a Complete Streets (CS) Policy and incorporating CS principles into the planning process is a County priority. Bike sharing launched in Kona in 2016. Both Lyft and Uber started services in March 2017, but in general these are not accessible vehicles.	Pedestrian, bicycle, and vehicle alternatives are being incorporated into the overall transportation palette offered by many jurisdictions. Hele-On has most of these options available to incorporate into the overall system. This is important in those areas that are difficult to serve with traditional fixed-route transit.
Technology	Many transit systems are taking advantage of technology, whether it is real-time GIS based Apps to electronic displays at transit hubs, automated next stop announcements, automated passenger counts, fare collection systems some using smart card technology to video surveillance on buses and at transit centers and hubs.	Hele-On is currently pursuing a GIS based real time App that will allow passengers to locate their bus and estimate its arrival. This is a good start and can lead to real-time electronic displays and other systems. The Master Plan includes these systems in the Financial and Capital Plans.
Autonomous vehicles and drones	Autonomous vehicles are projected to be part of everyday life within a decade. The technology is accelerating and being used in test cities for robotaxis. This could reduce personal car ownership. Drones are now widely used for surveillance, mapping and research. Oversight by FAA requires registration for commercial uses. Amazon is actively exploring package delivery by drones.	Trends in autonomous vehicles and drones should be tracked.

COUNTY COUNCIL INVOLVEMENT WITH THE PLAN

Council was involved in many ways, including:

- **An initial power point presentation on the Master Plan study was made to the County Council on September 9, 2017 just prior to the series of public meetings. Council members all offered the support of their offices to notify people of the public meetings and to forward input received.**
- **A second presentation was made on January 23, 2018 to inform Council of the results of the public input and how it was used. This presentation was done just prior to releasing the Draft Transit Master Plan. Several Council members attended one or more of the public meetings in their communities.**
- **A third presentation will be offered to present the Final Master Plan.**

Draft Master Plan

The *Draft Transit Master Plan* was released for comment and input over a two and a half month comment period in early 2018. Comments were received by mail or online at a dedicated web site.

Final Transit and Multi-Modal Transportation Master Plan

The Master Plan has been revised to incorporate feedback. It was submitted to MTA and the County Administration.

CONSISTENCY WITH COUNTY PLANNING

The *Hawai'i County General Plan* was first adopted by ordinance in 1989 and last revised in 2005. The General Plan is organized into thirteen elements, with policies, objectives, standards, and principles for each. The transportation policies tie the provision and improvement of transportation service to other policies such as housing density and economic vitality.

In addition to the General Plan, the County has six Community Development Plans. The CDP and their latest adoption date includes: Kona (2008), Puna (2010), North Kohala (2008), South Kohala (2008), Kau (2017). A recommended draft for Hāmākua was issued in January 2017.

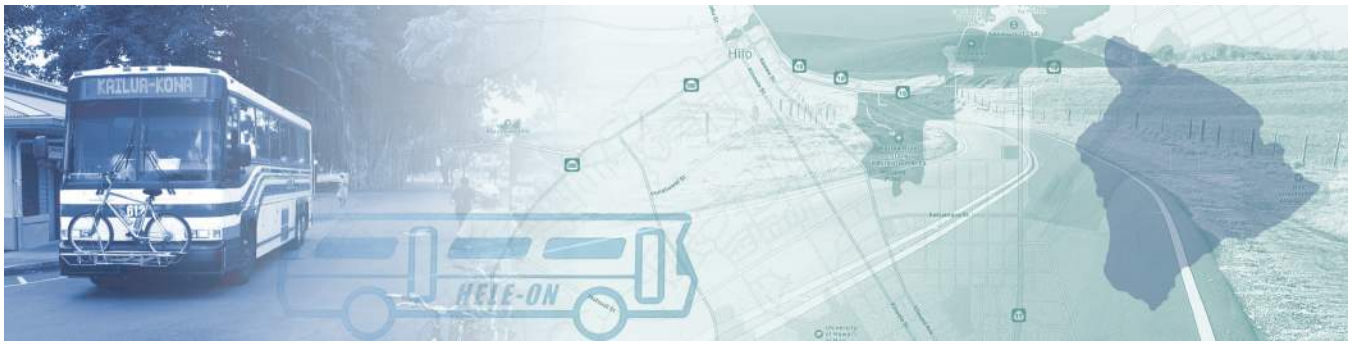
There is no adopted plan for Hilo. Several resource documents are used, in particular, *Envision Hilo*, which was prepared by a grassroots group in 2004. In response to one of the action items in *Envision Hilo* and its *Five Year Action Plan (2010)*, the Planning Department is developing the *Downtown Hilo Multimodal Master Plan* to make recommendations for traffic circulation, parking, and pedestrian streetscape that would make downtown Hilo a more vibrant place.

An update of the *2005 General Plan* is currently underway. The preparation of this *Transit Master Plan* has closely tracked the General Plan Update which is happening at the same time.

Population and residential location forecasts were taken from work of the Planning Department on the General Plan. The preliminary General Plan work looks at 13 Forecast Analysis Zones (FAZ) which represent cluster locations for residences. See Figure i-8.

Figure i-8. Forecast Analysis Zones

The population on Hawai'i County is projected to increase in 2040 by 75,100 people to 255,400. This will create a strain on all public services, including transportation and transit. The distribution of employment is expected to remain similar to current, but the distribution of residences will vary greatly.
The number of housing units in these areas in 2015 is compared to the number projected to be there in 2040 as shown in the Table below. For transit planners to address future needs in their work, this data in this table shows that the greatest amount of growth would come in HPP-Orchidland, Upper Puna, and Lower Puna as well as in North Kona and Hilo. Particular attention needs to be paid to creating routes that can expand over the next twenty years along with this growth.



Chapter One:

1.0 HELE-ON AND THE TRANSPORTATION SYSTEM ON HAWAI'I ISLAND

The Mass Transit Agency, MTA, providing service known as the Hele-On Bus System, has been in existence since 1975. For over forty years it has provided service across the island with an emphasis on commute trips. It has expanded exponentially as needs arose. But these shifts have occurred opportunistically and without the benefit of a master plan to guide the system growth.

There is wide agreement within the community that having a well- functioning and dependable transit system is critical to the quality of life for individuals, and families as well as to the economy of the island. Support for improving the system is found in all districts, albeit with differing needs. Cross island travel, inter district travel, and intra-community circulation are all in need of improved public transit. Clearly, there needs to be agreed upon, fair, and transparent criteria and methods for setting priorities.

Routes and stops have been added to provide service to schools, social service agencies and medical facilities, and to major shopping locations. Service within some of the large rural subdivisions has proven difficult due to dispersal of large acre home lots, limited connectivity, unpaved roads, and in some cases high levels of economic need.

Known as the "Big Island," Hawai'i County scale is a factor that requires understanding when formulating a transportation system. It is roughly the size of the State of Connecticut. Puna District alone is the size of O'ahu. These comparisons put in perspective the distances that are travelled regularly.

1.1 PUBLIC TRANSIT, THE COMMUNITY, AND THE ECONOMY

A well-functioning public transportation system is vital to the economy of the county, the state, and the nation and investments in public transportation generate significant economic benefits. According to the American Public Transportation Association (*Public Transportation: Benefit for the 21st Century, 2007*), nationwide fifteen times more trips are taken on public transit (bus, train, subway, trolley, and ferry) than on domestic airlines. Residents and visitors have expectations that transit is available, reliable, and accessible to them.

Economy. For the community, public transportation builds economic revenues, keeps business districts vital, and has proven to increase property values. Expenditures on public transportation (both capital and operating) generate three times as many dollars of business sales (APTA, 2007). A million dollars in transit expenditures results in supporting 47 jobs. Businesses near public transportation experience more employee reliability and less absenteeism.

Testifiers during public meetings for this Master Plan state that Kona businesses have jobs available and need to draw upon a wider base of workers. To make this possible, expanded and reliable public transit between Hilo and Kona is needed. The Master Plan proposes new service between Kona and Hilo using Saddle Road to reduce the travel time. With this new service, potential workers can access Kona regional opportunities for training, interviews, and eventual employment.

Lower costs. For individuals, public transportation saves money, and provides people with choices, freedom, and opportunities. Transit riders can save money on gas (and the fluctuations of gas prices), car maintenance, depreciation, and insurance. AAA estimates these costs to be $8,558 per year per car in 2017, or 57 cents per mile (*AAA website, accessed June 8, 2018*).

Environment. Public transportation helps support goals for the environment, including reduced dependence on foreign oil. When people travel by public transit they take cars off the road. When transit vehicles move to alternate fuels, as currently planned in the County, then oil dependency is decreased. Taking cars off the road, reduces the air pollution effects from cars. This in turn helps produce better health, lowers emergency room visits, and lowers death rates. Asthma, respiratory illness, and cardiovascular/heart conditions are all exacerbated by pollution from cars.

Assistance during Emergencies. Public transportation provides critical response in emergencies. Transit can help with evacuations during natural disasters, and it can be flexible in providing transportation services to dislocated and relocated persons.

Mobility Options for Youth, Elderly, Disabled. Public transportation provides mobility options for everyone, but is particularly important for those without cars or access to cars. This includes youth, seniors, low income, and persons with disabilities. Public transportation assists them in being part of the community. The numbers below for percentages of people in each category are compare against an island-wide population size of 198,449 in 2016.

- **Seniors who can retain their mobility and independence live longer. According to American Community Survey (ACS) data in 2015, 32,169 or 16% of island residents was 65 or older. By 2025 one in every five persons will be over the age of 65 and for most of these, public transportation is a better option than driving alone, especially at night.**
- **The County disability rate was 13.1% in 2015 (ACS). Public transportation provides a vital link to persons with disabilities allowing them to remain actively involved in their community, maintain productive roles in the economy, and have access to the full range of facilities and services needed to lead enjoyable and productive lives.**
- **The County poverty rate has been rising steadily and was at 9.3% in 2015. Many of these are without access to a vehicle.**
- **According to the on board survey taken for this Master Plan, Youth rides to school represent 30% of all rides on HeleOn.**
- **The bus survey also showed that 84.5% of the riders were dependent on transit, although 36% may be able to get a ride from someone if the bus were not available.**
- **The bus survey showed that 17.5% of riders have a disability that limits their mobility**

1.2 TRANSPORTATION SYSTEMS ON HAWAIʻI ISLAND

Roadways

The most common means of travel in Hawaii county is by private automobile. The federal aid roadway system is under both State and County jurisdictions. The system consists of 788 miles of roadway, most of this two lane roadways. Major arterials comprise 129 miles; minor arterials 177 miles; and collectors 482 miles.

Other roadways are under County or private ownership and conditions vary widely. The Hele-On vehicles are restricted to travelling on paved roads both for the preservation of the vehicles and for the comfort and safety of riders. This means that many passengers must travel (walk, bike or drive) several miles to get to a pick up location to take a bus ride. While periodically new roads are built, such as Ane Keohokalole in Kona(County) and upgrade to Saddle Road, aka Daniel K. Inouye Highway (State), the pace of new roadway improvements is such that the route system of today is what will be available for the foreseeable future. The county is focused on a connection system in Puna and a resurfacing and upgrades elsewhere on the island.

Bicycling

Bicycling is a viable and affordable form of transportation capable of expansion on Hawaiʻi island. Hawaiʻi District has 27 miles of designated facilities (paths, bike lanes, and signed shared roadways). Bike Plan Hawaiʻi (2002) identifies future facilities, primarily of the signed shared roadway variety. If this occurs, it will go a long way to making bicycling a more viable mode choice.

Public transit can support bicycling by continuing to provide racks on buses. In addition, as hubs are built bus storage lockers can be considered. Right now, bicycling is most prevalent in Kona, where it is elevated to a major sports activity due to the Triathlon and other races.

The demonstration Bike Share program in Kona has three stations and 32 bikes, with hopes of expanding (through sponsorships) to ten stations and 100 bikes. Seven stations is considered a self-sustaining level. A grant from the county ($250,000) provided purchase of the equipment, shipping, insurance and one year of salary for an Operations Manager (to do the repairs and re-positioning) as well as administrative costs. The demonstration year has proven that expansion is desirable both within Kona and in other more thickly settled areas like Waimea and Hilo. The costs are modest compared to the transportation, health, and community benefits. Cost to riders is $3.50 for a single rate, or $20 for 300 minutes, or $25 for unlimited monthly rides.

By comparison, the Oʻahu Biki Bike program which launched on June 28, 2017, stationed at 100 locations and 1,000 turquoise colored bikes, mostly in urban Honolulu and Waikīkī. In the first three months of this nascent program, 180,000 rides were taken using one of four pricing plans. This amounts to over 2,100 uses a day.

Pedestrian

Pedestrian infrastructure is practically non-existent, and this is a challenge not only for walk trips, but also for bus riders who need to walk to their stop. Most state roadways have no sidewalk facilities at all, and a few have sidewalks only on one side. Sidewalks exist on county roads in Hilo and Kailua-Kona. But even in those areas there are gaps, narrow shoulders, lack of crosswalks, and other needs and deficiencies, as noted in the *Statewide Pedestrian Master Plan* (2013). Hopefully, the adoption of Complete Streets Policies at both the State and County level will provide the necessary spotlight and lens for making changes.

Multi-Modal

The County has not been shy about trying new things: a double decker bus (which strained to work on the island varied terrain); alternate fuel (which may have contributed to the break-down of some buses); creativity in providing trips to disadvantaged with both paratransit service and taxi coupons; the new Bike Share program in Kona; adoption of a complete streets policy; and innovative markings to signify pedestrian areas. This courage to try new things should continue.

1.3 CURRENT SITUATION FOR BUS TRANSIT

The County Mass Transit Agency was created to provide mass transit service. It provides service from 3:15 am to 11:00 pm with limited service on Sundays and holidays. One-way Fares are $2.00 with discounts available to seniors over 60, students, and persons with disability. Monthly passes are $60, with a discount to $45 for those named above. Sheets of ten tickets can be purchased for $15, or half that for the discount eligible persons. Fares were last raised (doubled) to be effective in July 2013.

Figure 1-1. Federal Aid Roadway Map of Hawaii County

The Hele-On system had a fleet of 19 running buses as of December 2017, and is down to 12 in June 2018. Breakdowns are a major and costly problem for MTA and the passengers. Several buses are on order.

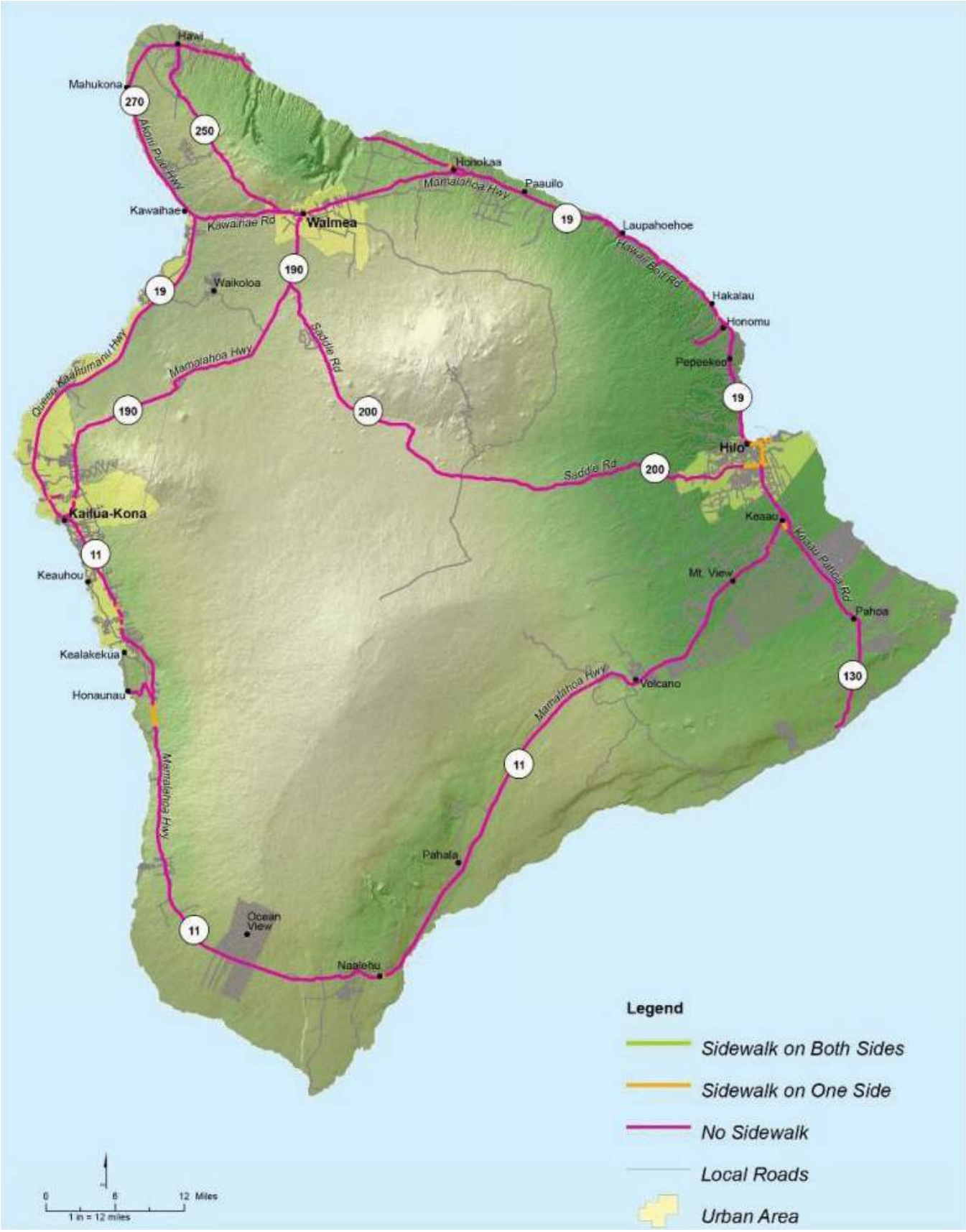
In addition to Hele-On, since 1990-1 the County has offered a Shared-Ride taxi service that provides curb-to-curb service within the urban area of Hilo and Kailua-Kona through vouchers. Currently, the program is heavily used in Hilo while taxi companies in Kailua-Kona are not participating in the program. The programs allows the public to purchase coupons and use the coupons instead of cash with participating taxi companies. Each coupon costs $2 and may be used for travel up to four miles. In 2017, 134,986 rides were taken. A portion of the taxicabs are accessible (20%).

Hele-On Kākoʻo paratransit service started in August 2016 for both the Hilo and Kona areas with service Monday through Saturday. Participants have to be deemed eligible by a clinician, complete an application process, and call in reservations 24 hours in advance. By agreement with FTA, service is provided within 1 mile of regular service (the usual requirement is ¾ mile) during the demonstration period. The one year evaluation showed that usage in Kona greatly out-numbered use in Hilo. Potential Hilo area participants are more likely to use the Shared Taxi Program than the paratransit service. Two primary factors for the Shared Taxi Program are the paratransit program requires an advance reservation and the cash fare is higher for a ride.

Average service cost in Hilo was around $127.00 per ride according to data kept by MTA for a sustained period towards the end of the first year. It was about ten dollars less in Kona. Most users traveled 1-2 times per month and the most predominant trip purpose was medical. The paratransit vans had 96% on time performance; and

Figure 1-2. Existing and Planned Bicycle Facilities on Hawaii Island (source Bike Plan Hawaii, 2002)

Figure 1-3. Sidewalks on State Facilities (source: Statewide Pedestrian Master Plan, 2013)



there was only a 2% rate of "no show" or late cancels.

At its peak in 2012, Hele-On provided service to 1.2 million passengers. Ridership has dropped by a third, and the primary cause is believed to be decreased reliability of service. Ridership was 874,424 in 2016 while the shared ride taxi program served 137,890 passenger trips.

The reported fleet listing is 37(down from 55 in 2016). Many needed to be decommissioned and sold off or re-purposed. The fleet was boosted in 2017 when Honolulu gifted the County of Hawai'i with seven of its retiring buses. This was a welcome relief, but will ultimately prove to be only a temporary one. Companion to the aging of the fleet, breakdowns have become a major issue and are the major cause of the drop in ridership.

MTA budget in FY17-18 was $14,031,908. This amount covers operating cost of bus drivers, the shared ride taxi program, fuel, insurance, and salary and wages for eleven MTA employees. Ten percent of costs comes from federal funds, about ten percent from fares, and the balance is a County subsidy from the General Fund and $7,500,000 from the Highway Fund. The history of MTA budgets is shown in Table 1-1.

1.4 CONTRACT TRANSPORTATION PROVIDERS

MTA contracts with others to provide certain custom services to those who are low income, senior, or disabled.

In 2017, this included contracts with Hawaii County Economic Opportunity (known as HCEOC), Goodwill and Bentley Center. The largest of these is HCEOC. Their contract in the amount of $592,000 started February 2017 with three one-year options. They provide curb-to-curb service for qualified clients, who must call in advance for appointment. Service hours are 4:30 AM to 2:30 PM. They service areas such as Hilo, and also Naalehu, Ocean View going to Kailua. In the past year, HCEOC drove over 300,000 miles, providing 72,400 rides to employment, nutrition, and medical visits (dialysis, chemotherapy, drug treatment, as well as domestic violence cases).

HCEOC also has contracts with the Office of Aging to take clients to congregate nutrition sites run by Parks & Recreation and they have bid on transport for the Kupuna Care Program (door-to-door service for people who have lost at least one life function). No fares, but voluntary contributions are accepted.

HCEOC currently has eight vans in Hilo and four in Kona; but are due to receive fourteen additional vans, including four that are accessible. They also received a state GIA grant to build a new maintenance facility in Hilo. With this added capacity, they are in a position to continue to partner with MTA and perhaps expand what they do.

The Bentley Center contracts runs year to year at a cost of $21,000. Centered in Honoka'a, they provide demand responsive service for medically certified disabled clients to go to employment, medical, training and recreation trips.

The County Office of Aging, working with the County Department of Parks and Recreation Elderly Activities Division with the State Department of Business, Economic Development & Tourism will develop a pilot demonstration plan for seniors from North Hilo along the Hāmākua Coast to have "social transportation" opportunities within that District.

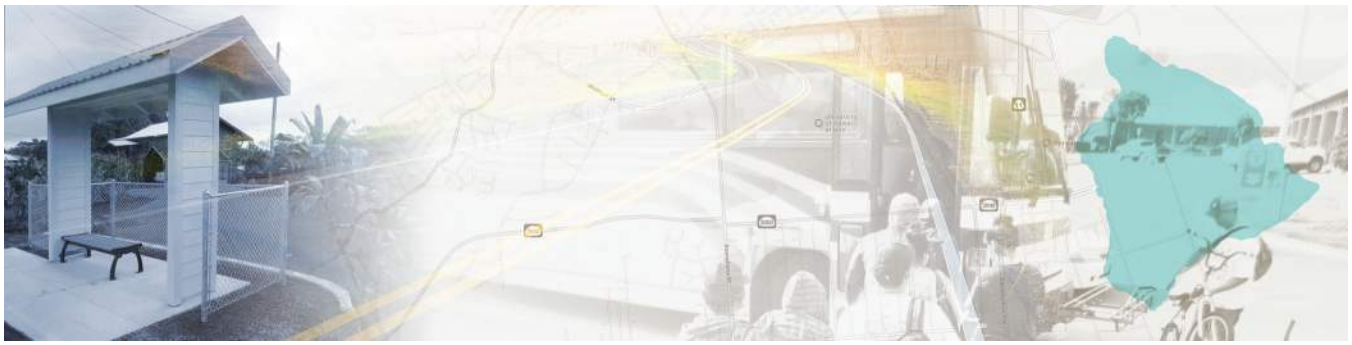
1.5 PARATRANSIT AND OTHER SPECIAL SERVICES FOR DISABLED AND LOW INCOME

Hele-On Kākoʻo paratransit service started in August 2016 for both the Hilo and Kona areas with service Monday through Saturday. Participants have to be deemed eligible by a clinician, complete an application process, and call in reservations 24 hours in advance. By agreement with FTA, service is provided within 1 mile of regular service (the usual requirement is ¾ mile) during the demonstration period. The one year evaluation showed that usage in Kona greatly out-numbered use in Hilo. Potential Hilo area participants are more likely to use the Shared Taxi Program than the para-transit service. Two primary factors for the Shared Taxi Program are the paratransit program requires an advance reservation and the cash fare is higher for a ride.

Average service cost in Hilo was around $127 per ride according to data kept by MTA for a sustained period towards the end of the first year. It was about ten dollars less in Kona. sMost users traveled 1-2 times per month and the most predominant trip purpose was medical The paratransit vans had 96% on time performance; and there was only a 2% rate of “no show” or late cancels.

Table 1-1. Ten Year History of MTA Budget

Year	Account	Operating Budget	Spent	Difference
FY2008-2009	5311	4,983,244	4,054,627	-928,617
	5316	1,177,480	1,943,149	765,669
Totals		6,160,724	5,997,776	-162,948
FY2009-2010	5311	4,820,711	8,105,376	3,284,665
	5316	1,055,982	1,371,970	315,988
Totals		5,876,693	9,477,346	3,600,653
FY2010-2011	5311	5,753,999	5,934,103	180,104
	5316	943,892	943,892	0
Totals		6,697,891	6,877,995	180,104
FY2011-2012	5311	3,955,499	2,765,720	-1,189,779
	5316	4,044,593	3,982,377	-62,216
Totals		8,000,092	6,748,097	-1,251,995
FY2012-2013	5311	3,300,812	2,840,638	-460,174
	5316	4,845,250	4,865,749	20,499
Totals		8,146,062	7,706,387	-439,675
FY2013-2014	5311	3,461,171	2,499,585	-961,586
	5316	6,726,250	6,613,942	-112,308
Totals		10,187,421	9,113,527	-1,073,894
FY2014-2015	5311	4,395,978	3,619,197	-776,781
	5316	7,449,005	6,482,305	-966,700
Totals		11,844,983	10,101,502	-1,743,481
FY2015-2016	5311	6,254,404	3,434,446	-2,819,958
	5316	7,500,000	5,782,088	-1,717,912
Totals		13,754,404	9,216,534	-4,537,870
FY2016-2017	5311	5,510,898	2,723,245	-2,787,653
	5316	7,400,000	6,660,178	-739,822
Totals		12,910,898	9,383,423	-3,527,475
FY2017-2018	5311	6,831,908	3,861,243	-2,970,665
	5316	7,200,000	8,323,107	1,123,107
Totals		14,031,908	12,184,350	-1,847,558
FY2018-2019	5311	6,474,785		
	5316	9,200,000		
Totals		15,674,785		



Chapter Two:

2.0 VISION, GOALS, AND STRATEGIES

A carefully crafted vision statement is at the heart of every successful transit agency. It should clearly and concisely communicate where the agency wants to be in the future. It contains the core ideals that give an agency shape and direction. Along with the County General Plan and Community Development Plans (CDP), it serves as a tool for decision-making.

2.1 VISION

Create a high quality multi-modal transportation system that provides safe, reliable, convenient mobility choices that meet the commuting, social service, and other needs of our residents and visitors. The multi-modal system should be environmentally responsible and cost effective.

2.2 GOALS TO ACHIEVE THE VISION

Five goals are identified which will help achieve the vision. This plan assigns icons to each of them.

GOAL ONE:

Make riding transit easier, reliable, and compatible with other multi-modal options.

GOAL TWO:

Create a transit system to serve the employment and social needs of all people.

GOAL THREE:

Implement technology to provide real time transportation information.

GOAL FOUR:

Create transportation hubs and bus stops with amenities that provide rider comfort and safety and that help support community and village gathering places.

GOAL FIVE:

Phase system implementation in a fiscally sustainable manner.

2.3 STRATEGIES

Strategies were developed for each of the goals. These are presented for a twenty-year horizon.

GOAL ONE:

Make riding transit easier, reliable, and compatible with other multi-modal options

Strategy One:
Implement transit as part of a comprehensive multi-modal system that includes programs for bicycles and pedestrians.

Strategy Two:
Provide for the needs of island residents whose disability limits their mobility. Allow disabled persons to have mobility options so they can lead full productive lives participating in the community.

Strategy Three:
Starting in FY 2018-19 and over the next four years, acquire 6-7 buses per year to replace half the current fleet size and lower the average fleet age to below 6 years. Target a fleet size of 55 buses including 25 operating 35-40 foot buses and 5 spares and 20 operating cutaway buses (30 feet or less) with 5 spares. Move away from contracting for tour buses.

Strategy Four:
Once the fleet is at optimum size of 55, practice a fleet replacement program to acquire 4-5 buses per year on an on-going basis.

Strategy Five:
Develop protocols for daily maintenance, weekly maintenance, and preventive maintenance for all vehicles. Improve electronic record-keeping for all buses.

Strategy Six:
Increase the number of positions at the maintenance facility from 5 mechanics to 8-10 mechanics in two shifts, plus day and night supervisors and an inventory clerk.

Strategy Seven:
Increase the hours for live customer information during service hours starting at 5AM to midnight, and provide real time information on each run from the dispatcher.

Strategy Eight:
Serve persons with disabilities using a variety of accessible options from paratransit to outside service providers.

GOAL TWO:

Create a transit system to serve the employment and social needs of all people

Strategy One:
Update and modify the routes currently in existence to reach residential and employment locations.

Strategy Two:
Add direct cross island service for commuters and job seekers.

Strategy Three:
Increase the hours of service.

Strategy Four:
Add circulator routes in Puna and continue them in Hilo, Waimea, and Kona

Strategy Five:
Add Flex service in Waimea, along Route 130 in Puna, in Hawaiian Beaches and Nanawale, and along the Hāmākua Coast.

Strategy Six:
Add Sunday and holiday schedule service.

Strategy Seven:
Add Bike share in Waimea and Hilo and contract for this service with PATH or another non-profit.

Strategy Eight:
Provide bike lockers at hubs and racks on all buses.

Strategy Nine:
Subsidize a Vanpool program.

Strategy Ten:
Continue the Shared Taxi Program and expand it to other parts of the island; ensure a percentage of taxis are accessible by offering an incentive.

Strategy Eleven:
Expand the current Paratransit program in Kona and Hilo to ¾ mile and add to other areas of the island, starting with Puna.

GOAL THREE:

Implement technology to provide information to riders and others

Strategy One:
Install a technology package on each bus. The package consists of: mobile data router and validators, automatic vehicle locator, automatic passenger counting, electronic signage and wifi.

Strategy Two:
Develop a Hele-On Transit APP. While waiting for this to be done, develop a Google Transit APP.

Strategy Three:
Develop and distribute new route maps. Post route information at bus stops

Strategy Four:
Bus stop sign program. Install signs at stops and provide schedule information, trouble call number, and web site.

Strategy Five:
Develop an Outreach Program. Provide current information on the Hele-On website. Conduct district meetings and/or rider surveys every other year.

Strategy Six:
Help achieve clean energy goals through alternate energy bus and infrastructure purchase, doing so in a fiscally responsible manner.

GOAL FOUR:

Create transit hubs and bus stops with amenities that provide rider comfort and safety and that help support community and village gathering

Strategy One:
Upgrade the Mooheau hub.

Strategy Two:
Identify the site for the Kona hub, plan for its design and construction.

Strategy Three:
Acquire the land for the hub in Pāhoa, plan for the design and construction. Plan the design of the Keeau satellite hub and park & ride.

Strategy Four:
Identify the location for the Waimea hub and add appropriate signage and passenger features.

Strategy Five:
Bus stop program. Fund the bus stop program at a level that upgrades ten or more stops per year. Include benches, rider information systems, lighting, and protection from the elements. Continue to build bus shelters at major stops.

Strategy Six:
Enter into partnerships with others to provide hub features and shelters.

Strategy Seven:
Establish roadway standards (width and pavement condition) for flex and new service.

Strategy Eight:
Create bus pullout design standards and shelter standards.

Strategy Nine:
Establish hub standards and needs for partnerships with community associations and others.

GOAL FIVE:
Phase implementation in a fiscally sustainable manner

Strategy One:
Add and fill the following staff positions:

- **Deputy Administrator**
- **Fiscal and Records Officer, Research, Data, and Grants**
- **Customer Service and Outreach**
- **Multi Modal Administrator**
- **Paratransit Clerk**
- **Garage Supervisor**
- **Second Shift of Mechanics**

Strategy Two:
Create a partnership with Hawai'i Economic Office to connect with social service agencies and others.

Strategy Three:
Create a stable level of funding, accounting for inflation, at about $16-18 Million per annum for the combined operating and capital programs.

Strategy Four:
Use FTA formula grants as part of the bus replacement program and for portions of the operating program.

Strategy Five:
Pursue other sources of funding such as federal discretionary grants, State support, and corporate subsidies.

Strategy Six:
Address the State and island clean energy goals in a fiscally responsible manner. Test alternate energy fuels for the bus fleet, demonstrate how well they work on the island's various climate and terrains. Once proven, pursue conversion to the most successful alternate energy fuels for the fleet.

Chapter Three:

3.0 MULTI-MODAL PROGRAM AND RECOMMENDATIONS

Through most of this plan the focus has been on Hele-On bus service as the heart of transportation services in the County. The Hele-On analysis work was progressed in light of the goal to create a multi-modal transportation system. This Chapter focuses on other multi-modal and non-vehicular modes, the role they can play, and steps to be taken to improve their viability and usefulness.

Based on feedback from the six public information meetings held in April 2018, there is wide support for creation of a multi-modal transportation system on the island. 77% responded "yes" to the question asking their support for multi-modalism. 20% said "no." The remainder were unsure, or felt it depended on the area.

3.1 RIDE SHARING

Three forms of Ride-sharing will be discussed: carpools, vanpools, taxi, and the newest form, transportation network companies such as Uber and Lyft.

Carpools have long been an option for getting somewhere. They are negotiated and implemented on a person to person basis. Some employers provide incentives such as preferred parking locations or assistance in forming carpools. The 2016 American Community Survey indicated that of the 81,650 workers in Hawai'i County aged 16 and older, 74 percent drove alone to work, 12.3 percent carpooled, and 1.4 percent used public transportation. The remaining 12.3 percent work at home, walk, taxi or use other means to get to work.

There is evidence that quite a lot of ridesharing is taking place through hitching a ride from someone. In the on-board passenger survey, 36.5% said they would "ride with someone" if the bus were not available to them for that ride. Further, 18.1% said they were dropped off by someone to get to the bus stop.

Vanpools are a valuable option because it offers a transportation solution for geographic pockets that presently are not being served by public transportation. In 1991 a vanpool program was sponsored by the State Department of Transportation but ended in 2011. Currently, Enterprise Hawaii provides a program for groups of up to 15 people to form a Vanpool group to share their commute to and from work. It is a turnkey program that includes the vehicle for a monthly Vanpool rate (plus taxes and fees) and also covers the cost of insurance; maintenance and repairs; 24-hour emergency roadside service; registration and safety check.

There are currently about 15-20 Ride Share vanpools on Hawaii island going to employment locations such as Pohakuloa Training Area, Macadamia Farms, various construction sites, and Kona Coast resorts. Transportation Incentive Programs offered by employers are a proven way to assist employees with reliable transportation, especially those with fixed or shift schedules. The State DOE, Hawaii Island District is interested in vanpool as a way to recruit and retain teachers, especially in remote locations.

The federal government has established and implemented a mass transit benefit program-- Transportation Incentive Program (TIP) for all federal employees and

Table 3-1. Comparisons of Ride Share Costs & Subsidy to Commuter Bus

Characteristic	Commuter Bus	Vanpool
Passengers	50	15 x 3 = 45
Daily Boardings	100	90
Cost	$1,000 day	$2,400 month each
	$30,000 month	$7,200 for 3
Passenger Boardings	3,000 month (30 days)	1,800 month (20 days)
$1.5 bus ticket ($60 per month)	$4,500 month fares	$2,700 month fares
Subsidy	$25,500 month	$4,500 month for 3
		$1,500 per vehicle
Net Subsidy per Passenger Trip	$8.50	$2.50

active military employees to help reduce their daily contribution to traffic congestion and air pollution, as well as expand their commuting alternatives. Effective January 1, 2018, the transit benefit participants are eligible for transit benefits up to $260.00 per month (parking fees are not included) for specific pre-approved commuter mass transit transportation costs not to exceed actual expenses. TIP is designed to pay for mass transit costs incurred by personnel in their local commute for residence to work place or permanent duty station. The recommendation is to create a Vanpod subsidy program for up to 30 Vanpods.

Shared Taxi. The County has been innovative in offering a shared taxi program which is administered by MTA. Riders can purchase $2.00 for each coupon for rides of four miles or less. MTA subsidizes drivers $6.00 (which is a 2/3, or $4 subsidy). The program only exists in Hilo where it is very popular (70% say they support it). In FY 2017, 134,986 share taxi rides were taken at a program cost of $939,624. Revenues were $378,760.

This program can be expanded to other parts of the island. It is recommended that Council consider a requirement that companies with over five cabs be required to participate in the program. It is timely to consider an increase in coupon cost due to the excellent, but highly subsidized service that is provided. An increase to $3.00 - $5.00 should be considered.

Finally, participating cabs should be ADA accessible. The County should consider a two- year incentive program offering half the cost of the difference for an accessible versus non- accessible vehicle. This cost is estimated to be $14,000, so a 50% incentive would be $7,000.

Transportation Network Companies are entering into partnerships with transit agencies elsewhere to provide single trip options. There are several possibilities for Hawaii County:

- Enter an agreement to allow Uber and Lyft to participate in the shared taxi program currently available. Coupons are sold worth $2 (this study recommends having a higher price and value) for an under four mile ride in Hilo and Kailua-Kona. With Uber and Lyft, this program could be extended to any part of the island under the same conditions.
- The State Department of Transportation Airports Division granted a temporary permit in December 2017 for a three-month pilot program with Uber and Lyft to allow pick-up and drop-off at two designated locations at Honolulu International Airport. The companies will pay Airport Division seven percent of the prearranged trip fares. More and more travelers expect to have this option available to them, and it can be anticipated that this demonstration will eventually extend to airports statewide, including Kona and Hilo. No subsidies are involved; pricing is dynamic and on a bid basis negotiated prior to the passenger choosing their driver.
- MTA could have an agreement for emergency support when there is a bus breakdown. In this case, MTA would pay the full cost of rides as a customer service to riders who are stranded and cannot wait for a new bus to arrive.
- MTA can make accommodations at the hubs with signed locations to allow the TNC drivers to pick up and drop off passengers needing a final ride to their destination.

3.2 BICYCLE MODE

Bicycling has always been an inexpensive, healthy, and environmentally desirable option for travel. Bike is a reasonable option for distances under 3-4 miles. Support for bike mode expenditures was 64% at the April PIM meetings. 30% were opposed, and 6% replied maybe, or unsure. Again, this reflects high support, and that was so at all meetings except Ocean View and Waimea (which was 50-50). Those who oppose generally do so because they feel the roads are not (yet) safe for bicycles. DPW and State DOT are actively looking for the main routes through Waimea to be more bike friendly.

The county-owned buses all have bike racks with two positions as a standard feature. This is usually enough, but not always. However, during the public meetings, people complained that when the tour buses are used in service, they do not have bike racks. Since it cannot always be predicted when a (substitute) tour bus may have to be used, this is an uncertainty introduced to bike riders. One recommendation of this study is that the County move as quickly as possible to use all County owned buses. In the meantime, this problem will remain and the only recommendation is to post the information on the web site and/or APP so bike riders can plan accordingly.

Another challenge for bike riders is the lack of suitable biking facilities on most roads. Since both the State and the County have adopted Complete Streets policies, this should slowly change: each time a new road is built, it needs to accommodate bicyclists and pedestrians. Retrofit treatments can occur when an existing road is repaired or paved. But the most effective method would be a proactive Bike Plan to build bike facilities as well as place bike racks around developed areas. The last Bike Plan for Hawaii County was developed in 1979.

Bike Share has been active in Kona since August 2016. It was financially supported by the County in partnership with PATH (Peoples Advocacy for Trails Hawaii) with an initial $250,000 for equipment, shipping, and one year of insurance plus salary for an Operations Manager who maintains the bikes and stations and re-balances the bikes as required. In Kona, there are three stations with 32 bikes (each station accommodates 15 bikes when full). However, for balancing purposes, the ideal ratio is 2 docking ports per bike to insure that there is always a place for users to dock the bike at the end of their trip.

There are several possibilities for rider payment: single ride at $3.50; 300 minutes for $20; or unlimited rides of

Figure 3-1 A. Bike Share Station in Kailua-Kona

Figure 3-1 B.

Figure 3-1 C.

30 minutes for $15 per month or 60 minutes rides for $20 per month.

The Bike Share Program is ripe for expansion in Kona. Currently grants are being sought from the State Legislature to help fund three additional stations with 27 bikes added plus operational assistance. The grants could also cover Hilo with 8 stations in 2019. While it is desirable to have a bike share program in Waimea, that will await roadway improvements for either wider shoulders and/or marked bike lanes from narrower lane widths. The ultimate goal is for the Bike Share Program to become self-sufficient from user fees, but in the meantime, public support is needed.

The recommendation is for the County of provide match support (from The Bike Fund) for outside grants received to expand the bike share program, particularly as roadway improvements can be made.

3.3 PARK AND RIDE LOTS

Off-road park and ride lots facilitate inter-modal transfers and are convenient meet and pick-up locations. They need to be made as secure as possible, should accommodate no less than 15 parked cars, along with bike racks and shelters with seating and lighting. In many locations, co-location with churches is a beneficial arrangement.

3.5 SUMMARY OF MULTI-MODAL RECOMMENDATIONS:

- **1) Van Pool Subsidy Program: $300,000 annual**
- **2) Continue Taxi Voucher Program: $1,000,000 annual**
- **3) Emergency support contract with transportation network companies: $100,000 annual**
- **4) Expand bike share: $120,000 annual plus $750,000 one-time capital cost**
- **5) Offer ADA vehicle incentives: $200,000 over 2 years.**
- **6) Budget County match for bike grants: $50,000.**
- **7) Create multiple secure park & ride lots that can also serve as collection points for multi-modal services: $150,000.**

3.6 COORDINATION WITH COUNTY ROADWAY PROGRAMS

The County Roadway program would typically pave and improve 32 miles of county roads using a 30-year cycle with the fuel tax increase, an accelerated program is underway. The accelerated program is complementary to this Transportation Master Plan. The accelerated program is in addition to normal maintenance and daily operation services provided.

In 2017 the County raised fuel tax revenues from 15 cents per gallon to 19 cents per gallon starting July 1, 2018. In the fiscal year 2018-19 the County collected an additional $4,660,817 over the previous year. According to a June 2018 report to Council, funds were used in the following way as shown in Table 3-2.

Table 3-2 Highway Fund Utilization

Fuel Tax Increase Revenue Utilization	Fund Dollars
Emergency Fund	$1,000,000
Road Paving	$1,000,000
Mass Transit	$1,000,000
Roads in Limbo	$250,000
Signal Upgrades	$750,000
Stripping for Roadway Projects	$450,000
Equipment and Materials	$210,817
Total:	$4,660,817

The current list of projects due for resurfacing under this program are listed here. There are several multi-modal opportunities presented whenever a road is resurfaced. First, it is an opportunity to stripe for a bike lane. Indeed, DPW is widening the shoulders to allow for this and to increase safety. Second, it is an opportunity to work with the MTA bus stop and signage program to have these installed at the same time is an efficient way to use resources.

- **South Hilo: Kamehameha Avenue (Wainuenue to Ponahawai) and Kinoole (Kawili to Mohouli)**
- **Puna: Pāhoa Post Office Road, Opae Street, Aku Street, North Peck Road**
- **Kaʻu: South Point Road, Wākea Avenue, Maile Road, Ohai Road**
- **South Kona: Old Māmalahoa Highway (Teshima's at Haukapili), Kealakaa**
- **South Kohala: Kamamalu Street (Highway 19 to Kamanawa Street), Saddle Road, Paniolo Ave**
- **North Kohala: Kamakana Circle, Paaina Nani Street**
- **Hāmākua: Kukuihaele Road, Āhualoa (Old Māmalahoa)**

Special attention is warranted for Puna District where the Puna Connectivity Committee has been working for several years to identify the roadways (including some private roadways) they would like improved in order to achieve connectivity within the district. These are also roads that, if improved, would be used by MTA to expand the circular system in Puna. So in this way, they work hand in hand. The Committee continues to meet, and has thus far come up with the following:

CL-1 Kaleponi Drive and Punahele Avenue (Fern Forest – Eden Rock)
CL-2 Punahele Avenue Extension (Eden Rock – Kopua Farmlots)
CL-4 Orchid Street Extension (Fern Acres – Hawaiian Acres)
CL-14 Puhala Street Extension (Fern Acres – Kopua/Eden Rock)
Mauna Kea Road – Lower Puna: connects two Country roads in Nanawale to create a loop for buses.

With the ongoing lava eruptions, it is expected that some priorities may change. For example, the project CL-5 ʻŌlaʻa Road to Kuauli Road Connection (Orchidland Estate–Hawaiian Acres) may no longer stay on the list due to lava.

3.7 ALTERNATE FUEL FOR GROUND TRANSPORTATION

As a policy directive, MTA has tried alternative biofuels in place of diesel, but this has not been completely successful, either for mileage or for how the alternate fuels sometimes clog the fuel lines causing performance problems. This is a problem that has been experienced by other properties, so it is not unique in any way to the alternate fuel used here.

Decreased dependence on fossil fuels remains a strong State and County goal. Specifically, the goal is to achieve 100% Clean Energy by 2045 and 75% by 2030. As of June 2017, Hawaiʻi County was at 54% (twice the statewide level). Focus up to now has been on clean energy to produce electricity, but the new emphasis has shifted to the transportation sector.

The four County Mayors committed to 100% renewable ground transportation by 2045 as part of the Aloha+ Challenge. In December 2017 the Mayors and counties furthered that goal by signing proclamations that committed them to moving the public and private ground transportation systems to 100 percent renewable fuel sources. The intention is to reduce carbon dioxide emissions and fossil fuel imports, to ensure a more resilient future. The Big Island goal is consistent with the goals of the Paris Climate Agreement to reduce greenhouse gas emissions and keep global warming below 1.5 degrees Celsius. In addition to electric power, renewable biofuels and hydrogen will likely become more prevalent.

The County bus system is an excellent entity to help achieve these goals. But assistance will be needed from others, as MTA's mission and expertise is for providing transportation and will be strained to have to properly fulfill research/demonstration requirements.

One alternate fuel that MTA will test later in 2018-2020 is hydrogen. The National Energy Lab of Hawaii (HELHA) is gifting the County one vehicle and the hydrogen fuel at a fueling station under construction. The vehicle will seat 29 passengers, and has space for two wheelchairs. It has an electronic package with PA, camera surveillance, two way radio, front and side vehicle electronic signs and a bike rack. It will start its testing on the Kona and Waimea routes, later adding others. Similar buses are being provided to the National Park Service, although closure of Volcano National Park may mean they are deployed elsewhere. Should the vehicles operate well, and the County decides to add more hydrogen powered vehicles, then the County will also have to determine a permanent source of hydrogen fuel as storage locations. This has not yet been done.

A second alternate fuel of interest is electric. The County is pursing Federal "Low-No" grants to purchase electric fueled vehicles for testing. This is consistent with the Hawaii County General Plan and with sentiments expressed by the public during PIM meetings. Walk the Talk.

The downside, however, is that right now electric buses are in high demand and they cost 30-50% more than a diesel bus costs. This is offset by Federal "Low-No" grants up to 90%. It is hoped that the cost of electric buses and battery technology will drop as current investment advance the state of the art and if bought in larger quantities through a state consortium.

An issue for electric buses or hydrogen in Hawaii County will be the driving range. Today's electric bus range is 150-200 miles, which will not be sufficient for cross island trips. Therefore, more immediate use will be for the circulators and shorter routes. It is not desirable for the bus to have to come in mid-day for a re-charge or battery swap. So multiple battery packs must be considered.

Therefore, the recommendations for electric buses are:

- **Define the test "metrics" for demonstration periods.**
- **Do not convert any existing buses, they are too old.**
- **For electric, consider multiple battery packs.**
- **Purchase 1-2 electric buses under federal reimbursement program and demonstrate how well they handle Hawaii County roadways and route distances.**
- **Aim to achieve the clean energy goal for vehicles by 2045.**
- **Seek out state or federal incentives, grants, and subsidy programs for electric vehicles and if electric buses have proven productive, start acquiring them until the entire fleet is all electric.**
- **Once the fleet mix is determined, identify the best generation and storage requirements for fuel. Given that this will be a significant investment by the County, partner with utilities to provide offsets, investigate County source independent of the grid (e.g. wind farms), and/or partner with private entities who are developing waste-to-energy plants.**

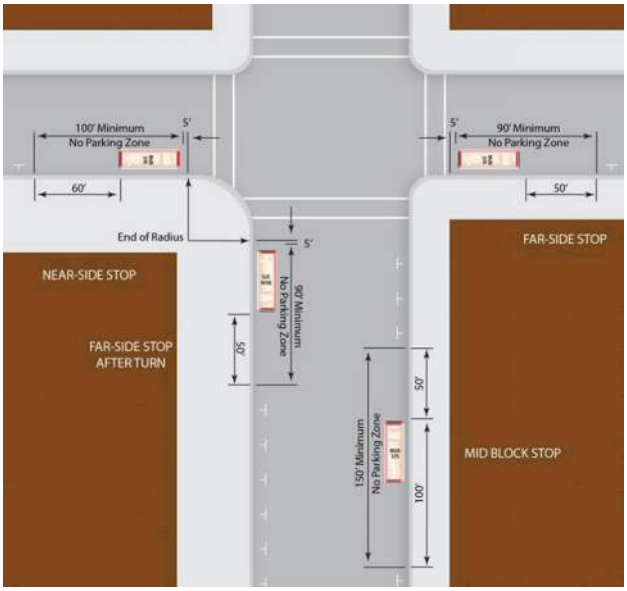
3.8 DESIGN RECOMMENDATIONS

As the County moves in the direction of a multi-modal transportation system, it is important to create design standards for streets and roads, for bus pull outs, bus shelters and bus stops, hubs, park & ride lots, information displays, and signage. A sample of a design recommendation for placement of bus stops is shown in Figure 3-3.

In addition, for service to expand into the desired hub and spoke pattern throughout the communities in Puna District, many roads will have to improve before bus service can operate there. The County is embarking on studies that examine the methods for making these improvements as well as the legal options on privately owned roads. Towards that end, standard roadway geometrics for horizontal and vertical elements, sight distance, depth and strength of pavement and shoulders should be developed to inform the work on these roads. A sample of a possible standard for developing two way lanes along a sixty-foot collector that would have buses on it and also bike lanes is shown in Figure 3-2. It comes from the *Honolulu Complete Streets Design Manual.*

As the County mores forward with its Complete Streets program, a design manual will prove helpful. There are many resources for developing a full array of design standards, including for bus stops, shelters, and hubs. Some of the more prominent designs are shown in the yellow call out box on the next page.

Figure 3-2: Design Recommendation for Bus Stop Placement



Credit: Michele Weisbart, Michele Designs

American Public Transit Association (APTA). *Design of On-Street Transit Stops and Access from Surrounding Areas.*

Institute of Traffic Engineers (ITE)/Congress for New Urbanism. *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (2010).*

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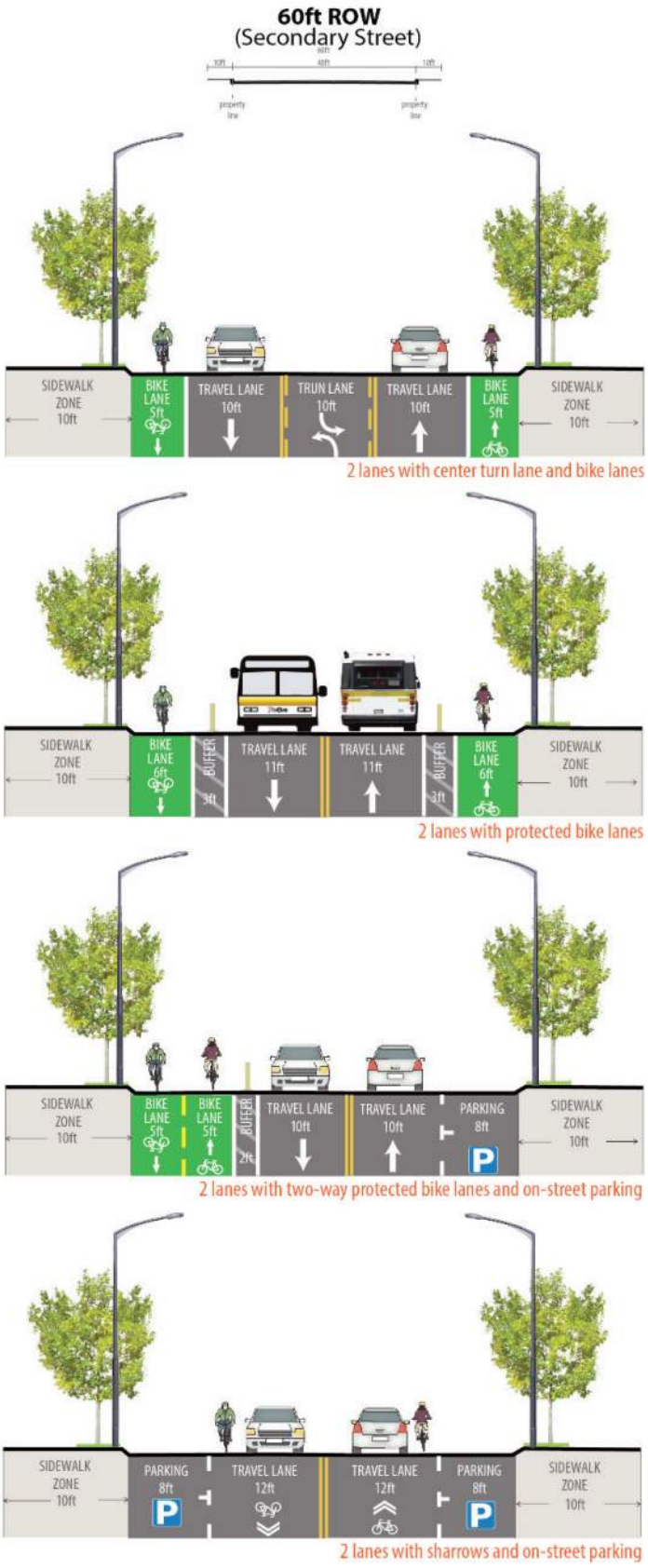
City & County of Honolulu. *Complete Streets Design Manual (2016)*

Figure 3-3. Recomended Design Profile for Multi-modal Treatments



Credit: Lulu Chun, SSFM International
Source: Honolulu Complete Streets Design Manual

Chapter Four:

4.0 TRANSIT SERVICE RECOMMENDATIONS

The County of Hawai'i is vast, encompassing 4,028.02 square miles of land area. The County has diverse climate, topography, and development patterns. Much of the land area is protected and rural. Because of its terrain, settlement has mostly occurred along the coastal and some contiguous areas, with long swaths of uninhabited and protected areas. The geographic features found within the County have a profound influence on the distribution of population and employment and thus transportation provision. Major employment areas are in Hilo and Kailua-Kona and the South Kohala Resort (SKR) areas while residences are spread throughout the island.

4.1 HELE-ON CURRENT SERVICES

Hele-On provides bus service to all the Districts to varying degrees. Americans with Disabilities Act (ADA) complementary paratransit service is provided in the urban Hilo and Kona areas. Hele-On also provides a shared ride taxi program in Hilo and contracts with the Hawaii County Economic Opportunity Council (HCEOC) and other agencies to provide paratransit services.

Hele-On Bus Routes

The Mass Transit Agency (MTA) operates bus service called Hele-On to most areas of the County. The system map is shown in Figure 4-1. Thirteen routes are operated that can be classified into three categories: Connector, Commuter, and Circulator.

Connector routes provide some circulation within their originating community and destination; however, their main function is to connect communities to provide commute options. These routes include Volcano, Pāhoa, Honoka'a, and Kailua Kona connecting with Hilo; and, Pahala and North Kohala-Waimea to Kailua-Kona.

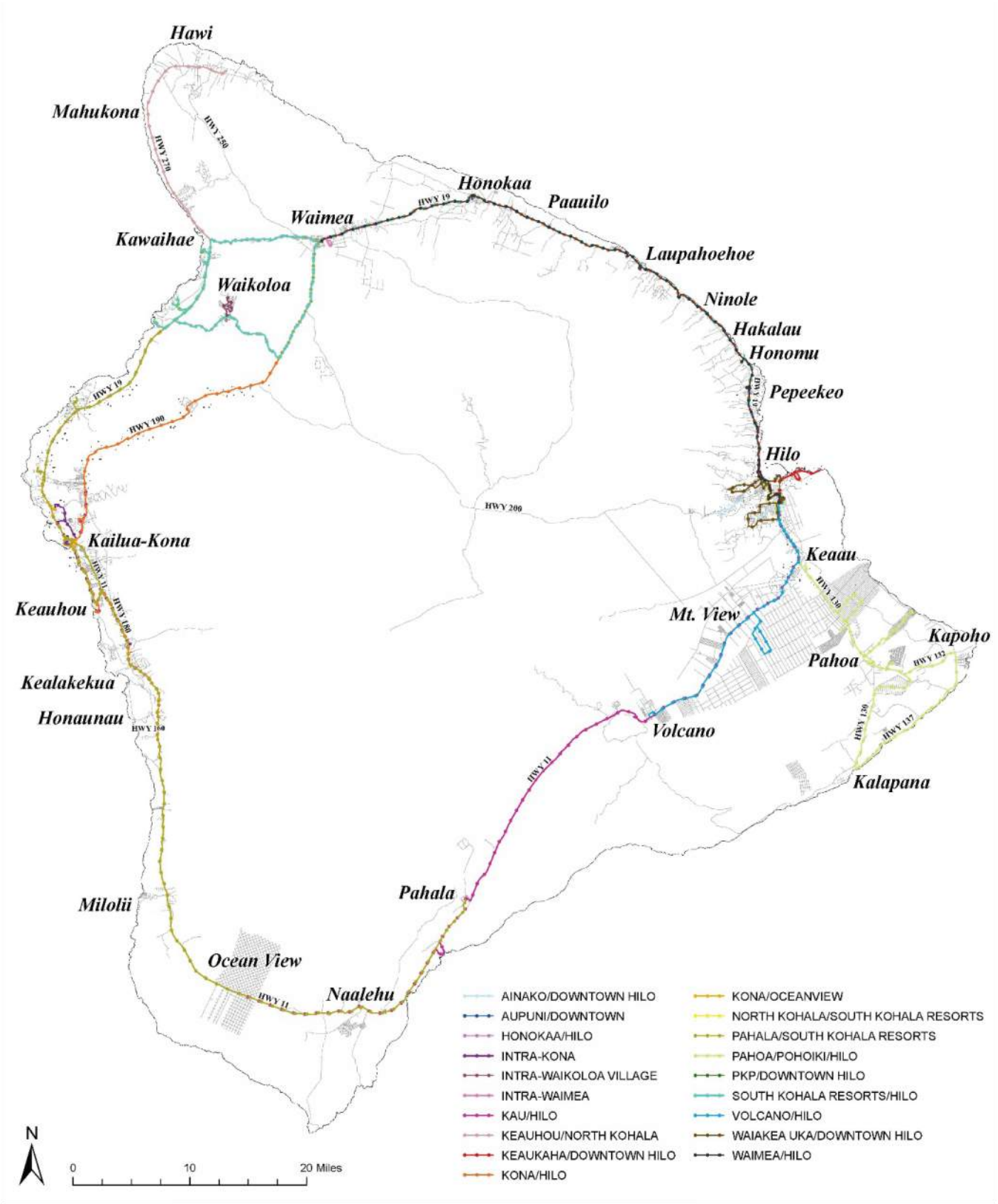
Circulator routes provide circulation within their established community. They connect at a neighborhood hub or transit center after completing their single cycle trip. Community circulators provide timed connections to other circulators and connector routes. These routes stop at all local bus stops and frequently operate with loops and branches. These routes include the three intra-Hilo routes, the intra-Kona route, and the Waimea Shuttle.

Commuter routes serve predominantly home-to-work trips by connecting specific neighborhoods to employment centers. These trips are provided in the peak period, peak direction with minimal scheduled departures. These routes include the Hilo to SKR trips and the North Kohala to South Kohala route.

Demand for Transit Services

Passenger boardings on Hele-On's bus routes grew 84.8 percent between the years 2006 and 2012 and was averaging 15 percent growth per year between 2008 and 2012. Two events occurred since the ridership peaked in 2012 at 1,315,222 passenger boardings. On July 1, 2013 fares increased, the general adult fare was raised to $2.00 per trip from $1.00. This fare increase resulted in

Figure 4-1. Hele-On System Map



a 30 percent drop in passenger boardings the next year. A rule of thumb is that for every 10 percent increase in fare, a system can expect a 3 to 5 percent decrease in passenger boardings. However, non-commute trips and choice riders are more susceptible to a major price increase which can explain why MTA did not see a larger decrease in passenger boardings.

Ridership usually starts recovering within two years of a price increase. However, the second event occurred and is ongoing which has impacted passenger boardings to the present time, that is the degradation of service. Buses started breaking down with no replacements available, several routes operated chronically late as the system tried to get service on the road, and trips have been cancelled daily.

The Transit Master Plan recognizes the need to return the system to dependability that the public can count on to meet their transportation needs. In doing so, ridership will increase as improvements are made to the system. Importantly, the Transit Master Plan based service improvements on the demographics and transportation needs of the County and individual Districts.

Technical studies identified that many of the more vulnerable populations, low-income, elderly, and disabled residents live further away from the urban centers or off the main highways and far from bus services and bus stops. Jobs are concentrated in the Hilo, Kona, and South Kohala Resort areas, while many of the employees live well outside these areas due to housing costs. Demographic information was reviewed and matched to current service provision. It was found that many of the areas with highest unemployment or those areas with higher levels of low-income people lived in areas with little access to transit services. This chapter identifies the improved performance strategies and services for Hawaii County.

4.2 RECOMMENDATIONS FOR IMPROVED PERFORMANCE

Recommendations to improve performance range from enhanced customer service information to identifying system performance measures. Some of the recommendations involve setting up programs or initiatives that are meant to collect data in an ongoing manner and monitoring activities.

The objectives for these recommended actions include:

- **Improve Customer Information including public schedules and route identification**
- **Improve Customer Service**
- **Improve Schedule Adherence**
- **Improve Safety**
- **Improve Service Design and Monitoring**

4.2.1 Customer Information

Near term recommendations for customer information include updating the public maps and schedules, updating the Hele-On web site, and developing information such that it can be easily incorporated into programs or applications that can be accessed on computers and mobile devices.

Public Schedules and Route Identification

The majority of the bus routes do not have publicly identifiable route numbers as evidenced on the system map shown in Figure 4-1. A numbering scheme for the Hele-On system was developed and is contained in Appendix C. Single digit numbers are major connector routes serving Hilo. Two-digit numbers are the remaining connector and commuter routes. Three-digit numbers are the circulator routes with the first digit referring to a geographic area. The number 1 references Hilo, 2 Kona, 3 Waimea, 4 Pāhoa and so on. With this scheme, it becomes clear that Routes 101, 102 and 103 serve Hilo, Route 201 serves Kailua-Kona, and 301 serves Waimea. Any new circulator routes would pick up on the number scheme. A new Pāhoa circulator would be Route 401. All buses, schedules, maps, and any other public information should use the same route number and description. Route descriptions may be shortened to fit bus header and side signs.

New route maps were developed as part of this TMP that show major trip generators. Arrows were added to show route direction and dashed lines were added to show where route segments have limited service. Time points, shown with letters, match schedules so waiting passengers know when the bus should arrive. These schematics were prepared for all current Hele-On fixed routes and submitted separately to the agency, so they can be implemented immediately and are included in Appendix D.

Hele-On Website

Hele-On is doing a good job in notifying the public via the Hele-On website on daily updates impacting service delivery. These updates include revised routing, trip cancellations, revised vehicle assignments, and other news. As the website is redeveloped and expanded, passengers should be able to input their contact information to receive service updates via email or text message. The revised route maps should be made available on the website.

Hele-On recognizes that additional languages are necessary to impart information to passengers. The website invites people to contact MTA for assistance via a phone number if information in another language is needed. It would be more efficient to provide the information on the website as shown in Figure 4-2 from Honolulu's TheBus website.

Figure 4-2. Honolulu TheBus Website Language Availability

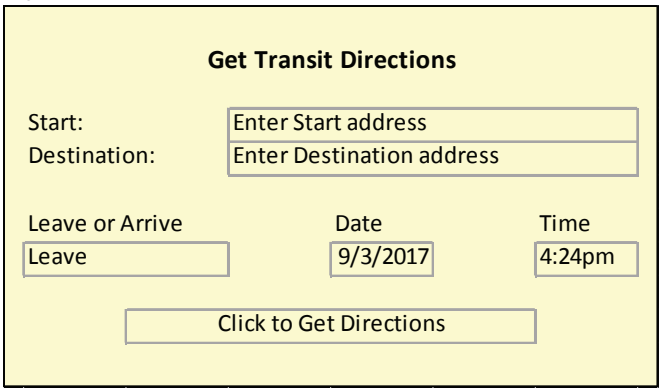
- English
- Chinese
- Chuukese
- Ilocano
- Tagalog
- Japanese
- Korean
- Laotian
- Marshallese
- Spanish
- Thai
- Vietnamese

The US Census reported for the County overall that 18.2 percent speak a language other than English at home. For Hele-On passengers that percent is 33.3 percent (221 of 664 responding to the question on the passenger survey conducted in March 2017). Interestingly only four percent (4%) of the passengers indicated they spoke English less than well (27 of 671 responding to this question). The top languages spoken by Hele-On passengers are similar to those reported by the US Census and should be a link on the website:

- Ilocano/Tagalog/Filipino 29.3%
- Hawaiian 15.2%
- Spanish 14.7%
- Marshallese 13.0%

The website should be redesigned in the near term to prominently display a link to getting transit directions. Intending passengers would then be able to input the bus stop number into an App to receive information on which routes serve that stop and when the next buses would arrive.

Figure 4-3. Transit Direction Input Example



Developing App Ready Information

A number of steps are necessary to have the information necessary to develop a computer and mobile device app. A couple of steps have been undertaken by this project. The updated route maps were provided to MTA in a format compatible with app development. Additionally, known bus stops were described with latitude and longitude coordinates.

Bus stop coordinates were provided for each route. Since much of the system is accessed by flag stop, major intersections were listed. Unique bus stop numbers should be assigned to each bus stop. This will assist in the development of an information app that will let people know where their bus is located.

Creating a Hele-On Transit App

One of the most frequent requests from the public was to have a real-time bus tracking and live map with estimated arrival times. This could be integrated with complementary multi-modal transportation options such as bike share, taxis and commercial transportation options using a smart phone app. This needs to be compatible with Android and iOS platforms. Web app that do not require use of an iOS or Android mobile devices should also be available. It is desirable for the app to have features for text messaging as well as connect to personal computers and audio visual displays.

The system must also be ADA friendly with stop announcements to include transfer information, intersection and major destinations, and requested stops. Both Honolulu and Maui counties have systems in use and Hawai'i island should check with them on their experience with various vendors systems, their advantages and disadvan-

tages. Currently the AVL tracking system (CalAmp RSI AVL) uses a 2G technology. New devices use 4G or LTE for the most advanced and fastest connection for mobile internet. Possible WiFi hotspots on buses would be highly desirable as well as broad band capabilities for the future.

These need to be in line with the National Urban Status NTD reporting requirements such as:

- **Fully automatic passenger counters (UTA counter)**
- **Usage and analytics**
- **Long term data retention**
- **AVL data**
- **Compatibility with Document Image Technology (DIT)**

While waiting to procure and implement its own system, MTA should pursue joining Google Transit. Google Transit is lodged within Google Maps. Google Transit states that their service is available for free to "Any agency that provides publicly available transportation services and operates with fixed schedules and routes is welcome to participate."

There are different levels of interaction within Google Transit. The static level uses scheduled times to indicate when a bus is due to arrive. Static does not provide real time information but relies upon scheduled times. Data required for this service includes:

- **Agency information**
- **Calendar which includes service days (weekdays, Saturday, Sunday)**
- **Calendar dates which identifies if no service is provided on holidays and identifies those holidays or if weekend service is operated on holiday dates (specific dates)**
- **Fare attributes, describing fare media**
- **Fare rules by route (some systems have zone fares)**
- **Frequencies identified by route**
- **Route descriptions including deviations**
- **Shapes include the shape files this project provided**
- **Stops includes the stop name, latitude and longitude**
- **Stop times which are pulled for the public schedules**
- **Transfers including are transfers allowed between stops and transfer time allowance**
- **Trips which identifies by route each trip operated**

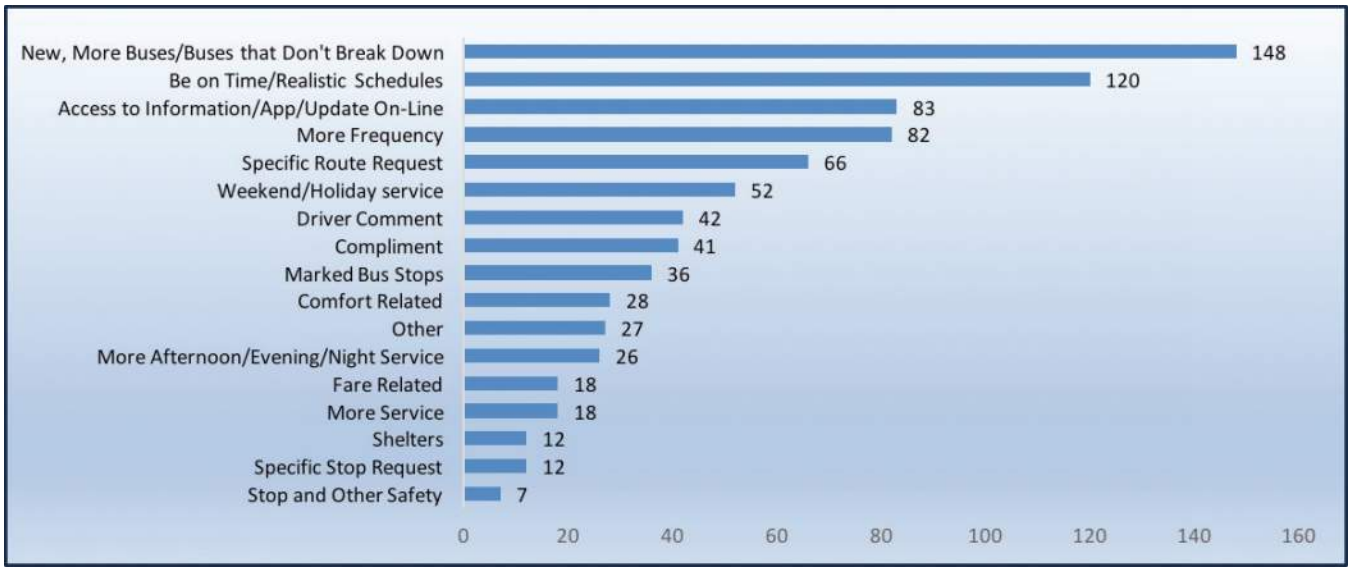
Google Transit provides a step-by-step guide on how to provide the information in the required format. The real-time capability requires an Automatic Vehicle Locator (AVL) system which allows for real time updates, service alerts and vehicle positions. Since the real-time function requires an AVL system, implementation may lag for funding.

4.2.2 Improve Customer Service

Comments made during the public meetings suggest that several improvements can be made to customer service. One of these is to train all drivers for how to handle sensitive situations (such as domestic violence) and courtesy to passengers with disabilities.

Another suggestion is better information for riders. For example, alerting passengers by e-mail or text when-

Figure 4-4. Passenger Survey Results



ever the bus will be arriving more than fifteen minutes late. People then should be able to re-plan their trips using the transit agency web site. Another suggestion is to have on-board wi-fi which makes the bus a rolling "café."

4.2.3 Schedule Adherence

Two short-term actions that are currently underway include updating the public schedules and upgrading the fleet. Both issues were mentioned by the passengers during the passenger survey. Of the 818 comments hand written on the survey forms by the passengers, almost 33 percent were on these two issues. New/More Buses/Buses that Don't Break Down had 148 written comments and 120 comments were in the Be on Time/ Realistic Schedules category as shown in Figure 4-4.

Public Schedules

On-time performance is a high priority for the agency. The two major areas of frustration are vehicle break-downs and schedules as expressed by riders.

The current public schedules were developed many years ago. Public schedules give estimated departure times for major bus stops known as timepoints. The running times (which can be defined as the amount of time it takes for buses to travel from one stop to another stop) have not been adjusted. Running time is variable based upon certain factors. These include:

- **Route or route segment length**
- **Number of bus stops**
- **Number of passenger boardings**
- **Number of passenger alightings**
- **Time of day (peak period non-peak period)**
- **Direction of travel**
- **Number of intersections**
- **Number of turning movements**
- **Weather**
- **Wheelchair and bicycle loading/unloading**
- **Road construction and other obstacles; traffic accidents**
- **Bus mechanical issues**

Due to residential growth with resultant congestion and other factors listed above, buses are becoming increasingly behind schedule. Some of the schedules are such that it is almost impossible for a bus to make the trip in the allotted time. Revised schedules were developed as part of the short-term recommendations. Even with these schedules, however, some incidents occur which impact timely performance. These revised schedules are being developed such that they are easy to read and understand.

Revising schedules is not a one-time event. Schedules should be reviewed quarterly and adjusted accordingly. The quarterly reviews are in addition to temporary reroutings due to road construction activities. The vehicles should all have AVL transponders and monitoring system to allow supervisors to monitor schedule performance. Monitoring allows supervisors to identify those areas that exhibit consistent poor schedule performance. This should be done in concert with driver observations.

Upgrade Vehicle Fleet

Upgrading the vehicle fleet needs to be MTA's highest priority. Passengers need to know their bus is going to show up. Granted any bus, including new buses, can break down at any time. However, passengers need to be assured that if their bus does break down, a replacement bus or alternative means will be available within a reasonable amount of time. MTA's service area is vast, what is considered reasonable? No passenger should be stranded longer than 30 minutes without knowing when a replacement or other transport will be arriving. Generally, 30-foot buses or larger are planned for a 12-year life expectancy. These vehicles are built on bus or heavy truck chassis. These vehicles frequently have longer life-spans with on-going maintenance procedures, parts replacement and depending upon service terrain and use. Smaller vehicles built on SUV or smaller truck chassis such as paratransit or cutaway vehicles have a 7 to 9-year life depending upon maintenance and use.

Knowing the average life span of their vehicle types, systems create bus replacement schedules. If a system requires 20 larger buses in the peak period, then they should be purchasing an average of two buses a year to maintain an acceptable average fleet age. To maintain a state of good repair, the average fleet age should be about half of the expectant life of the vehicles (average 6 years for the example). Similarly, the smaller vehicles should have an average age of 3.5 to 4.5 years. Hele-On's vehicles have an average age of twelve (12) years. A suggested bus replacement schedule is presented in the Capital and Financial Plan.

When federal funds are used, the cost of vehicles is split between the local jurisdiction at 20 percent and 80 percent federal government funds. The County budget should include a minimum of $550,000 a year as set aside for matching funds for vehicles for the next several years. This set aside would match five to six vehicles depending upon size (such as three 40-foot vehicles and three smaller less than 30-foot vehicles). The County needs to purchase buses every year to rebuild and then maintain a working fleet, even if federal funds are not available. Additionally, MTA may want to add to ongoing vehicle orders from other counties in Hawaii instead of individual procurements.

In addition to federal formula funding which MTA receives through the State, there are federal grant programs that are made available periodically. These are competitive programs that require an application to be submitted. Receiving a grant award is not guaranteed, but MTA should apply when the opportunities arise, and MTA qualifies for the program. MTA should monitor for these new or continuing grant opportunities as was recently done for the Buses and Bus Facilities Infrastructure Investment Program. A good source to monitor for these opportunities is the American Public Transportation Association (APTA). APTA's website provides a wealth of transit related information and should be monitored.

4.3 SERVICE RECOMMENDATIONS

Current fixed route transit services cannot efficiently serve the County's identified transit needs. Recommended service design guidelines and performance monitoring for Hele-On have been developed in this study and can be found in Appendix E.

4.3.1 New Service Types

Many systems throughout the Country have turned to Flex and Zone services to provide essential life-line services to their more rural populations. New service types are described in the following sections. Additional Express Routes along with a new Vanpool Program and expanded BikeShare provides additional options for intending passengers. Both programs will be discussed in the Financial Plan.

Flex Services

Flex services are bus routes that operate on an identified public schedule with an added paratransit function. Flex services can divert or "flex" off the route to pick up or drop off passengers that are within the Flex service area. This Flex area is defined as up to ¾ mile off the route. The Flex area should be reassessed after one year of service. It may be possible to enlarge the Flex area or if passenger usage is high, realign the route to provide

main route service in areas that are showing consistent off-route service demand.

Zoned residential areas are large, have low-density, and frequently have poor roads. The connecting bus routes operate with larger 40-foot vehicles on long bus routes so diverting into subdivisions with poor roads negatively impacts system performance. Routes such as 10 and 40 serving Puna should not divert into these low-density, low-ridership residential areas. These routes should remain on the main roads to maintain a predictable schedule. Additional trips could then be added to these routes. Intending passengers from the low-density residential communities would connect to the mainline bus routes using new Flex or Zone services and community routes.

Reservations are required for off-route stops. Reservation hours are 7:45 AM to 5:00 PM (similar hours of scheduling as the ADA Paratransit reservations). Flex service has the same cancellation and no-show policies as the ADA Paratransit service as it provides the ADA Paratransit service for the area.
Flex service uses smaller buses geared for ADA Paratransit service although the service is available for all passengers. The smaller buses are better able to divert into subdivisions that have poorer road conditions; although, Flex and Zone service will only operate on navigable paved roads.

Flex services are not long-haul routes. Passengers will transfer at major hubs, superstops or other bus stops if a hub is not nearby to Connector routes to continue their

Table 4-1. Public Service Suggestions and How They Were Incorporated Into Proposals

Comment Category	Service Proposals
Provide Express Services	New Express routes are Recommended: • Green Line Express with service between Honoka'a and Kona • Red Line Express with service between Hilo and Volcano • Blue Line Express with service between Hilo and Kona (via Daniel K. Inouye Highway formerly called Saddle Road)
Have Community Routes Serve Commuter Needs	Community routes are all designed to accommodate commuter trips with AM and PM peak period departures. For example: • Kaumana City will have a 7 AM departure to MBT with the return scheduled to leave MBT after 5 PM. Additionally, two new bus stops are proposed for Saddle Road at Ua Nahele Street for residents to access the Blue Line. • Instead of a 9:40 AM departure from Fern Acres, the new circulator will provide service earlier in the morning and the return will be after 5:00 PM instead of the current 2:30 PM.
Add Community Routes in Large Residential Areas	Recognizing that the Transit Master Plan is a 20-year document, and that the County can upgrade roads for transit, new community routes are proposed for: • Fern Forest • Eden Roc • Fern Acres • Hawaiian Acres • Ainaloa • Orchidland • Hawaiian Paradise Park • Hilo
Serve Growing Areas Along Ane Keohokalole Highway	The Kona area continues to grow and the Hub and Spoke services identified for Kona are designed such that they can be altered or expanded as developments come on line. The Kona to Airport circulators identify future alignments when roadways are opened.
Kaʻū and Oceanview are Isolated with Limited Opportunities to Travel to Kona or Hilo and Back	Additional trips are added: • 1 additional trip from Pahala to Kona Hub • 2 trips from Oceanview to Volcano to connect to Hilo
Add Formal Bus Stops	The Capital Program identifies an ongoing bus stop program.
Add Sunday Service	Current Sunday service is offered on selected Hilo to South Kohala Resorts and Pahala to South Kohala Resorts trips. Sunday service would be initially supplemented with the following routes: • Hilo-Keaukaha-Airport • Pahoa-Route 40 • Oceanview to Volcano • Volcano-Red Line Express • Green Line Express • Blue Line Express

trip. The hierarchy of bus stops (hub, superstop, bus stop) and their amenities is discussed in the Capital Plan. Stops that passengers will use to transfer to main line routes are identified in the service maps. Days of service for Flex routes will generally be five to six days a week.

Figure 4-5. Cutaway Van Size For Shorter Trips

Zone Paratransit Services

Zone paratransit service provides limited transit service within rural areas in the County. Similar to Flex service, there are no eligibility requirements for using zone service. Anyone within the identified zone area can request a ride. Service however, is only available to each zone on certain days of the week, generally one or two days a week. As with Flex service, reservations are required with the same requirements as ADA services.

Zone paratransit service provides an opportunity for residents to access shopping, medical, and business services at least once or twice a week. Trips are scheduled around time periods that passengers can access nearby businesses or transfer to Connector routes. For example, trips would occur once in the morning and twice in afternoon. Service would be evaluated after one year. If demand is high and consistent, then the service would graduate to Flex services and potentially into the future, fixed route hub and spoke services or additional days could be added to the service.

4.3.2 Hub and Spoke Service Design

It is recommended that Hele-On redesign connector routes to provide more predictable on-time performance, so the majority of passengers can be assured the bus will arrive. By doing so, Hele-On will also attract new riders and win back past passengers. Converting services in Puna and Kona to hub-and-spoke will provide that predictability. Hubs are a centralized location within a specific service area. The hub generally has a number of passenger amenities including information, shelter, benches, bicycle storage, restrooms, security, and lighting. Some have parking available and others have concessions such food. Hubs are a location for taxis, Uber, Lyft and demand-response services to meet buses to continue passenger trips.

The hubs are served by transit routes or "spokes." The spokes are those localized routes providing neighborhood connections to the hubs. Passengers can transfer to other routes to continue their trip. The routes will serve a hierarchy of bus stops: basic local bus stop, primary local bus stop, park and ride lot, satellite hub, and hub. These stops and associated potential amenities are discussed further in the Capital Program.

Many suggestions, recommendations, and comments were provided during the public meetings held in October and November 2017. Additional comments were submitted by mail and email. Each was carefully considered and the impact on current services was reviewed and operating costs were calculated. Table 4-1 groups the suggestions and comments into categories and provides a brief discussion of how they were addressed in the service proposals.

Revised service proposals based on the information gathered were presented to the public in a second round of public informational meetings (PIM). Comments were received during the six meetings, on the project website, from the Councilmembers' outreach efforts, and from other stakeholders. Attendees at the public meetings were asked to rate on a scale of 1 – being the lowest to 5 – being the highest their rating of eight service concepts that are recommended in the revised service plan. All service improvements received a rating higher than the median or neutral as shown in Figure 4-6. The two lowest rated services, Flex Paratransit and Zone Paratransit, are new concepts and recommended for implementation in a limited number of areas. Additional detail on the service proposals is provided by District on the following pages.

Figure 4-6 PIM Rating of Service Improvements

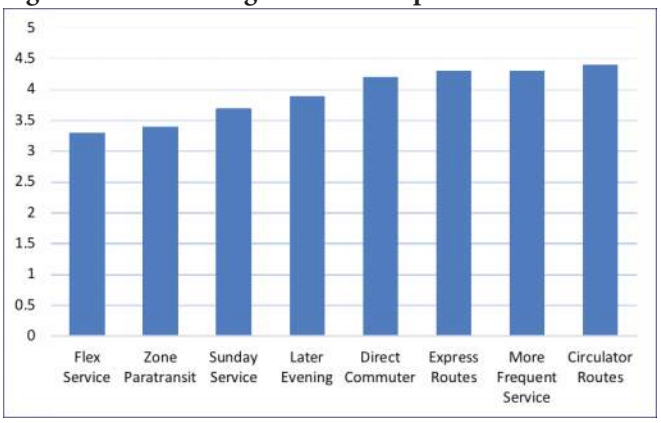


Figure 4-7. Hilo System

4.3.3 Service Proposals by District

Service proposals are presented by District in the next several pages. The proposals were developed based upon the input from the Public Information Meetings, as well as the passenger survey, identified trends and issues, population and employment projections, needs identified in the District Community Development Plan, and a review of current operations. Some of these proposals can be implemented in the immediate or near-term because they involve route alignment adjustments that do not require additional equipment. Those requiring additional equipment and perhaps bus operators are identified as near-term or longer-term recommendations.

Hilo District

Hilo is a major hub for services, education, and jobs. It is expected to maintain its importance in providing those jobs and services. Hilo is currently a hub for transit services which will become even more important into the future. Figure 4-7 shows how the Hilo routes would serve the urban area. Each route is represented with a different color. The four routes are supplemented with Routes 10, 40, and the Red Line Express connecting from Pāhoa and Volcano; the South Kohala Resorts (SKR) and Honoka'a routes arriving from the north; and, the Blue Line Express connecting Hilo to the SKR and Kona via Saddle Road.

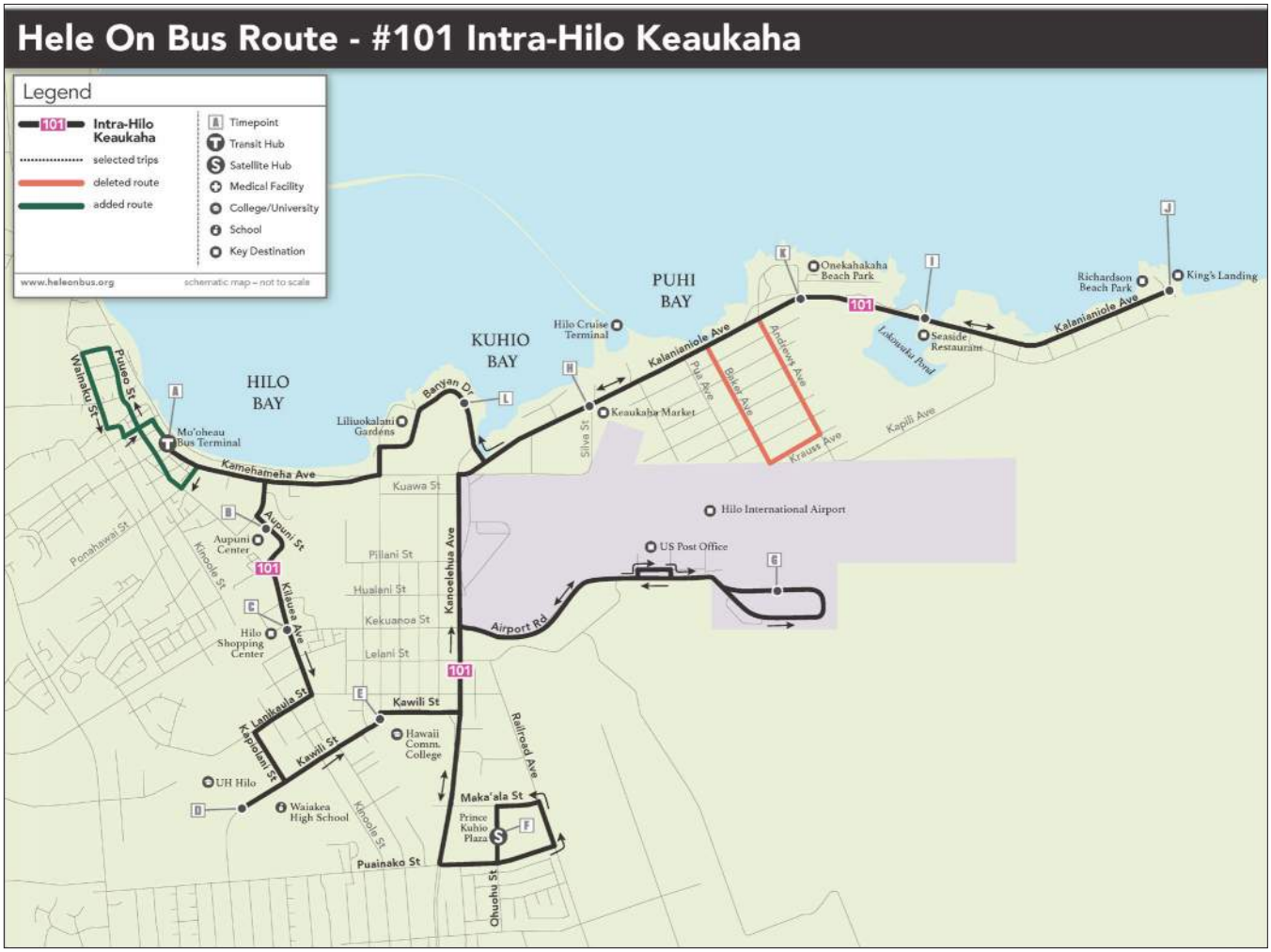
Route 101 Keaukaha serves the Hilo International Airport with eight trips currently. Two alignment changes are proposed for the route. One is the deletion of service along Baker Avenue (shown in red) and the second is the addition of service to North Hilo (shown in green). With these changes, the route will be able to add two more trips to the airport. The route currently ends at Kings Landing at 5:40 PM. It is proposed that the route complete the trip to the Mo'oheau Bus Terminal and add one additional trip to the airport ending service at 7:05 PM. In addition, it is proposed service to Kings Landing occur every other trip providing a quicker ride from the Airport to Banyan Drive and MBT. On those trips, the route would continue to North Hilo via Kamehameha Avenue serving the Bayfront Park and Ride, left on Kilauea Avenue to Keawe, continuing to Puueo Street, left onto Kauila Street, left onto Waimaku Street and returning to MBT via Wailuku Drive, Kinoole Street, and Waianuenue Avenue. Together with Route 103 (Waiakea Uka), this alignment

will provide service from the park and ride lot through Downtown Hilo. Route 101 is presented in Figure 4-8.

The current **Route 102 Kaumana** has two distinct service areas. One serves Waianuenue Avenue and Kaumana Drive. The second service area provides service to Prince Kūhiō Plaza (PKP). Six trips depart MBT for the Waianuenue Avenue service and five serve PKP. Three of the PKP trips continue service on the Waiakea-Uka Route.

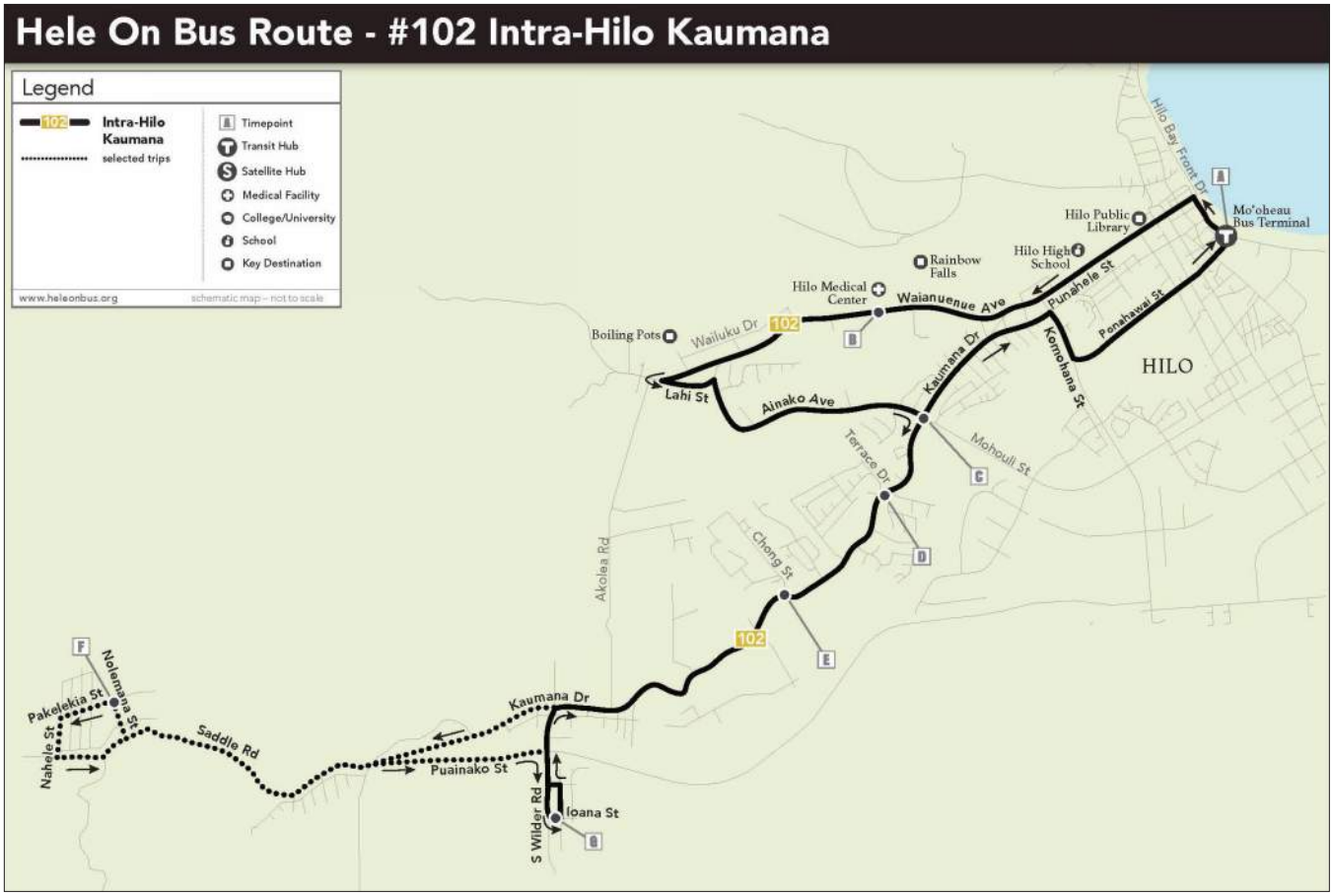
Service to Kaumana City was recommended for deletion due to very limited ridership. Comments from Kaumana City residents indicated that even though the community was served with three trips, they were not scheduled to allow for people to attend work or school. It was suggested that service to Kaumana City be scheduled such that a person could get to work and back. The proposed new route would serve Kaumana City at 7:00 AM and would depart MBT at 5:15 PM. The service within Kaumana City is changed from just serving Nolemana Street to turning left onto Pakelekia Street and continuing to left onto Ua Nahele Street to left

Figure 4-8. Hilo Route 101 Keaukaha



Span of Service:	6:30 AM to 7:05 PM; Monday through Saturday (reduced route and schedule on Sunday)
Headways:	80-minutes; 60-minutes
Number of Trips:	10 (2 added trips)
Number of Vehicles:	1 40-foot bus - can be operated with cutaway (smaller vehicle).
Implementation	Near-term. Change schedules, passenger notification. Add airport information at PKP.

Figure 4-9. Hilo Route 102 Kaumana



Span of Service:	7:00 AM to 5:45 PM; Monday through Saturday
Headways:	90-minute
Number of Trips:	7
Number of Vehicles:	1 smaller "cutaway" vehicle
Implementation	Near-term. Change schedules, passenger notification.

onto Saddle Road to return to Hilo. This change in routing eliminates the current back up maneuver on Pakelekia Street and provides more coverage within the community. The shared ride taxi program or transportation network companies (Lyft and Uber) would provide a more efficient option for any passengers desiring midday service. Additional comments included that the routes were too complicated and should be simplified and that senior housing and community centers should be served. This service would be provided by new Route 104. Figure 4-9 shows the proposed route alignment.

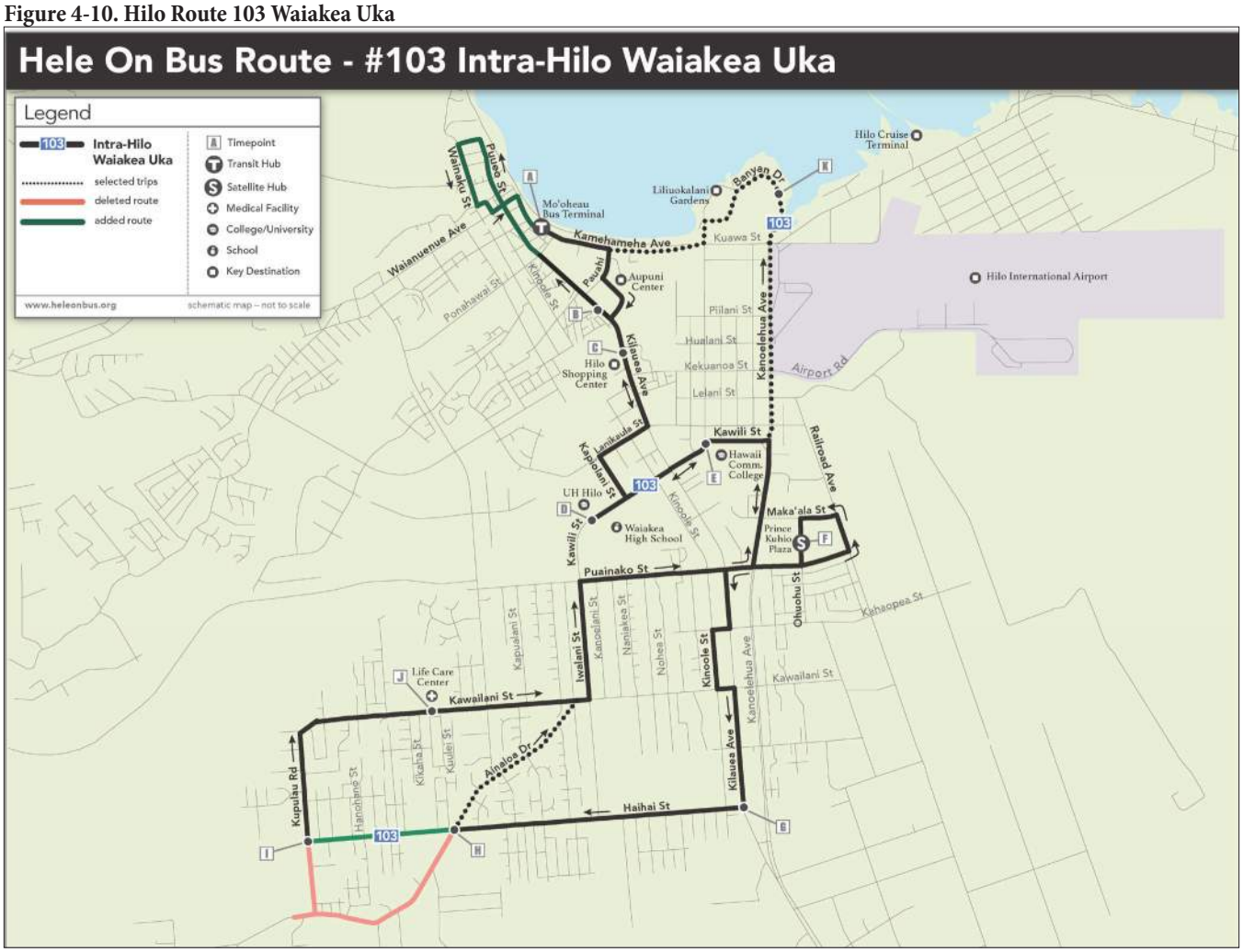
Route 103 Waiakea Uka currently has five trips, three of which are operated by the Kaumana Route. One additional trip is added at 1:30 PM. Two alignment changes are shown in Figure 4-10. Observations and discussions with drivers indicated that the Gym did not receive passengers and serving the gym requires a back-up maneuver. Instead, it is suggested the route continue on Haihai Street to Kupulau Road.

The other routing suggestion is to have the route continue service on Kilauea Avenue to Keawe, continuing onto Puueo Street, left onto Kauila Street, left onto Waimaku Street and returning to MBT via Wailuku Drive, Kinoole Street, and Waianuenue Avenue. This alignment was suggested in the Downtown Hilo Multimodal Master Plan (DHMMP), Public Review Draft, January 2017 as shown in Figure 4-10A.

Figure 4-10A. Hilo Circulator, Potential Route

An additional alignment change is suggested for all routes traveling inbound from PKP to MBT via the University. Instead of circling around Aupuni (with

Figure 4-10. Hilo Route 103 Waiakea Uka



Span of Service:	6:45 AM to 6:00 PM; Monday through Saturday
Headways:	90-minute
Number of Trips:	6 trips Waiakea Uka; 3 additional trips to PKP
Number of Vehicles:	1 smaller "cutaway" vehicle
Implementation	Near-term. Change schedules, passenger notification.

three added turning movements), the buses remain on Kilauea Avenue serving a new bus stop (sign, shelter and bench).

Route 104 Mohouli is a new route serving central Hilo and is shown in Figure 4-11. This new route will provide service to the Mohouli Senior Residences and other unserved residential streets along Mohouli Street. The route will offer new service for senior housing and the Kamana Senior Center on Kamana Street and provide service to St. Joseph's School. All bus stops would be signed.

Route 1 Hilo-Kona and **Route 2 Kona-Hilo** has minor routing changes to take advantage of the new Kona hub (see discussion starting page 34) and the new bus stop on Kilauea Avenue to avoid the circling onto Aupuni Street. This is a long trip from Kona (or south of Kona) to Hilo. However, if a person is on the first trip leaving Kona to Hilo, then they will have about three hours to take care of business or appointments before the return leaves PKP at 1:10 PM or MBT at 1:30 PM. This route was given the Route 1 and 2 designations as they link the two major centers of the County. Figure 4-12 shows the entire alignment and Figure 4-13 shows the route insets providing more detail in the communities.

A route alignment change is proposed connecting Hilo (commuter lot and MBT) with the South Kohala Resorts and Kona using the Saddle Road. The Human Resource offices of the major South Kohala Resorts were contacted and surveyed regarding employee shift times and other transportation issues. Several representatives indicated their properties had difficulties with staffing

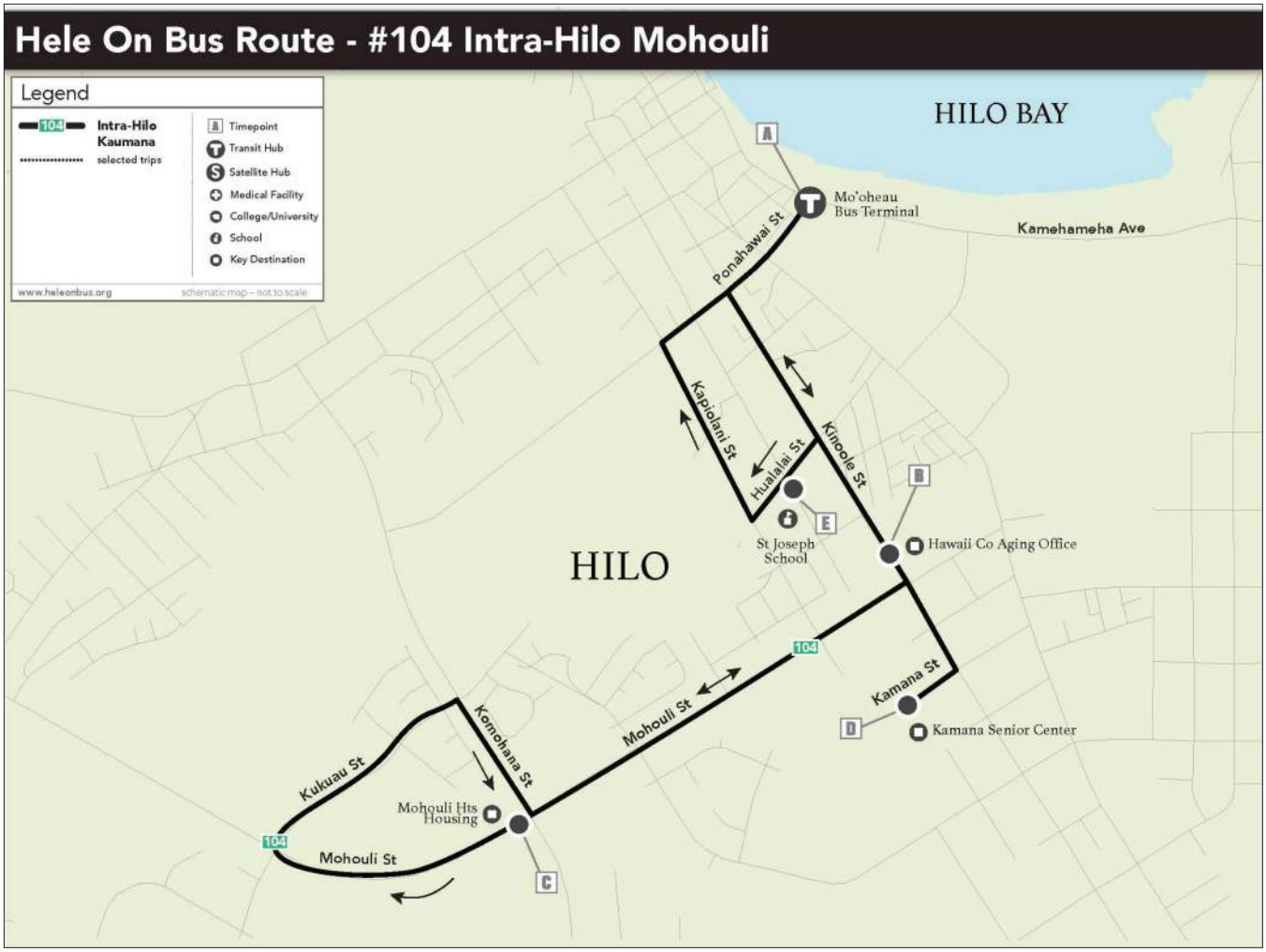
Table 4-2. South Kohala Resorts and Hele-On Bus Schedule Comparison

Resort	Shift Start	Bus Arrives		Shift End	Bus Departs			
Mauna Kea Beach	7:30 AM	5:30AM	7:00 AM	3:30 PM	2:50 PM	4:25 PM		
	2:00 PM	--	--	10:00 PM	--	--		
	3:00 PM	--	--	11:00 PM	--	--		
Hapuna Prince	7:30 AM	5:35 AM	7:05 AM	3:30 PM	4:20 PM	--		
	2:00 PM	1:10 PM	--	10:00 PM	11:35 PM	--		
	3:00 PM	1:10 PM	--	11:00 PM	11:35 PM	--		
Hualalai Four Seasons	8:00 AM	6:40 AM	--	4:00 PM	4:10 PM	--		
	10:00 PM	10:00 PM	--	6:00 AM	7:35 AM	--		
Hilton Waikoloa	4:00 AM	--	--	12:00 PM	2:30 PM	--	4:20 PM	4:35 PM
	5:00 AM	5:20 AM	--	1:00 PM	2:30 PM	--		
Largest Shift	**6:00 AM**	**5:20 AM**	**6:05 AM**	**2:00 PM**	2:30 PM	--		
	7:00 AM	6:25 AM	6:45 AM	3:00 PM	3:30 PM	4:05 PM		
	8:00 AM	7:15 AM	--	4:00 PM	4:05 PM	4:10 PM		
Mauna Lani Bay	7:00 AM	5:40 AM	5:50 AM	3:00 PM	2:35 PM	3:10 PM		
	8:00 AM	7:05 AM	--	4:00 PM	4:20 PM	--		
	2:00 PM	1:30 PM	--	10:00 PM	11:25 PM	--		
Food & Beverage	3:00 PM	1:30 PM	--	11:00 PM	11:25 PM	--		
Fairmont Orchid	6:00 AM	5:35 AM	5:45 AM	2:00 PM	1:45 PM	2:30 PM		
	7:00 AM	7:00 AM	--	3:00 PM	3:05 PM	--		
	8:00 AM	7:00 AM	--	4:00 PM	4:20 PM	--		
	3:00 PM	1:25 PM	--	11:00 PM	11:20 PM	--		
Food & Beverage	10:00 PM	9:10 PM	--	6:00 AM	8:15 AM	--		
Marriot (Waikoloa)	8:00 AM	5:25 AM	6:30 AM	4:00 PM	4:05 PM	4:10 PM	4:25 PM	
		6:10 AM	7:20 AM					
		6:50 AM						
7:00 AM Green denotes a bus miss or very tight arrival or departure from scheduled shift time.								

due to transportation. Table 4-2 presents the shift start and end times for the major reports. The scheduled bus arrival and departure times are shown that are closest to the shift times. The cells highlighted in green indicate those bus arrivals or departures that miss the shift times or are too tight.

Current Hele-On passengers stated they were frequently late to work due to schedules and requested trips using Saddle Road to shorten the travel time. The Blue Line Express will shave 30 minutes from the current travel time to the resorts. Two current Route 80 trips (4:15 AM and 4:40 AM) would use the Saddle Road and Daniel K. Inouye Highway as shown in Figure 4-14. The shortened travel time would allow passengers to reach their destinations in time for work. The return trips would depart the Kona Transit Center at 3:10 and 3:20 PM. It is expected that Hilo passengers would elect to use the Blue Line Express trips which would free up other departures for intending passengers along the Hāmākua Coast and Waimea which currently pass up intending passengers due to full buses.

Figure 4-11. Hilo Route 104 Mohouli

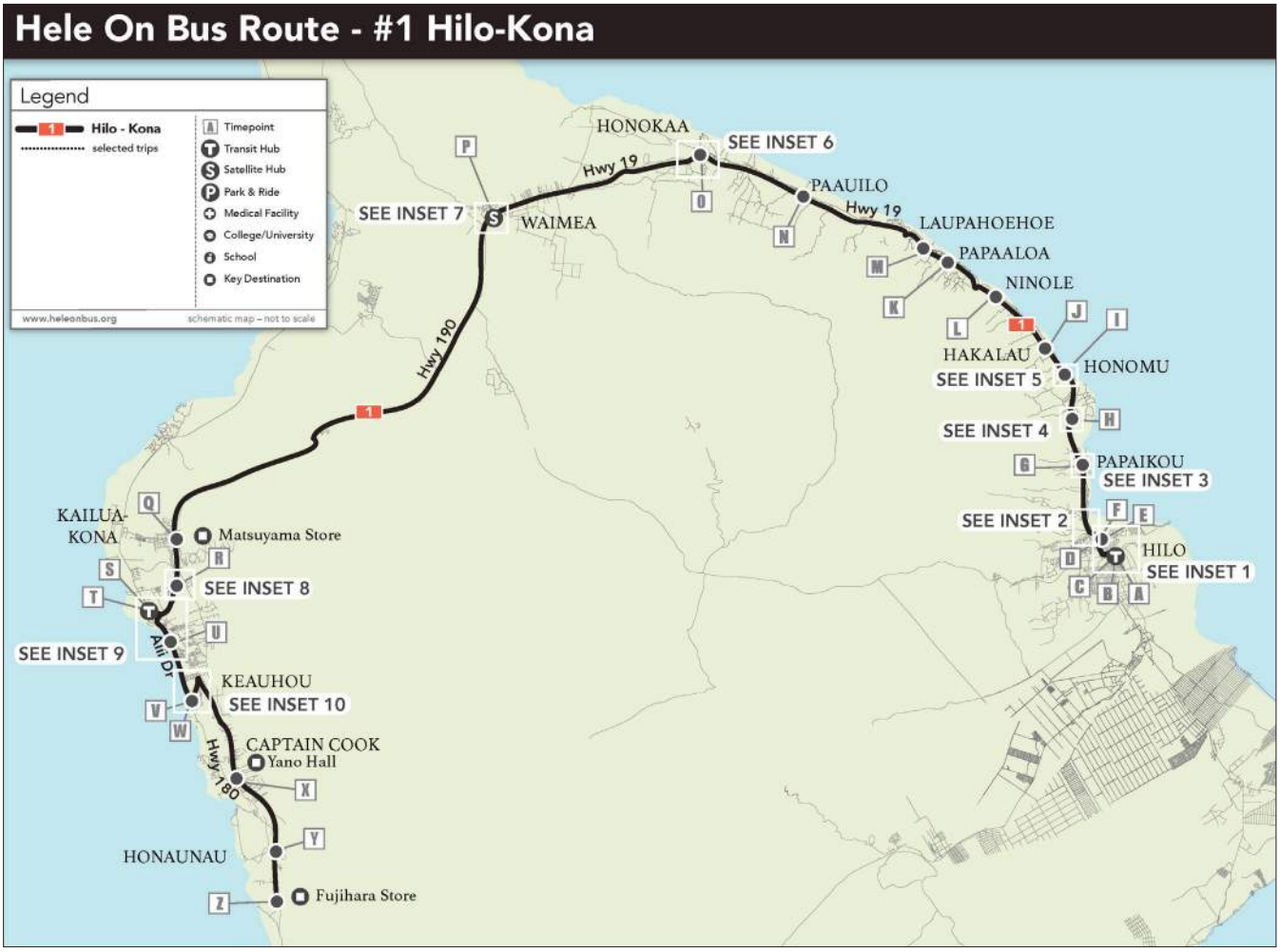


Span of Service:	6:45 AM to 5:30 PM; Monday through Saturday
Headways:	90-minute
Number of Trips:	6
Number of Vehicles:	1 smaller "cutaway" vehicle
Implementation	Near-term. Change schedules, passenger notification.

Bus stops for the SKR Blue Line Express include:

- **New bus stops serving Kaumana City located on Saddle Road and Ua Nahele Street**
- **Waikoloa Village (remaining on highway)**
- **Hilton Waikoloa**
- **Marriott**
- **Four Seasons**
- **Costco**
- **Kaiser**
- **Kona TC**

Figure 4-12. Route 1 Hilo-Kona



Span of Service:	3:40 AM to 7:00 PM; Monday through Saturday
Headways:	N/A
Number of Trips:	3 roundtrips; one is also listed as Intra-Kona and one is listed on the Hilo-South Kohala Resorts schedule
Number of Vehicles:	2 40 to 45-foot vehicles plus 1 SKR vehicle. There are 10 Hele-on buses required for the Hilo to South Kohala Resorts commuter trips including one that is also on the Hilo-Kona schedule (3:35 AM departure from Bayfront parking).
Implementation	Near term: Change schedules, passenger notification.

Figure 4-13. Hilo-Kona-Route Insets

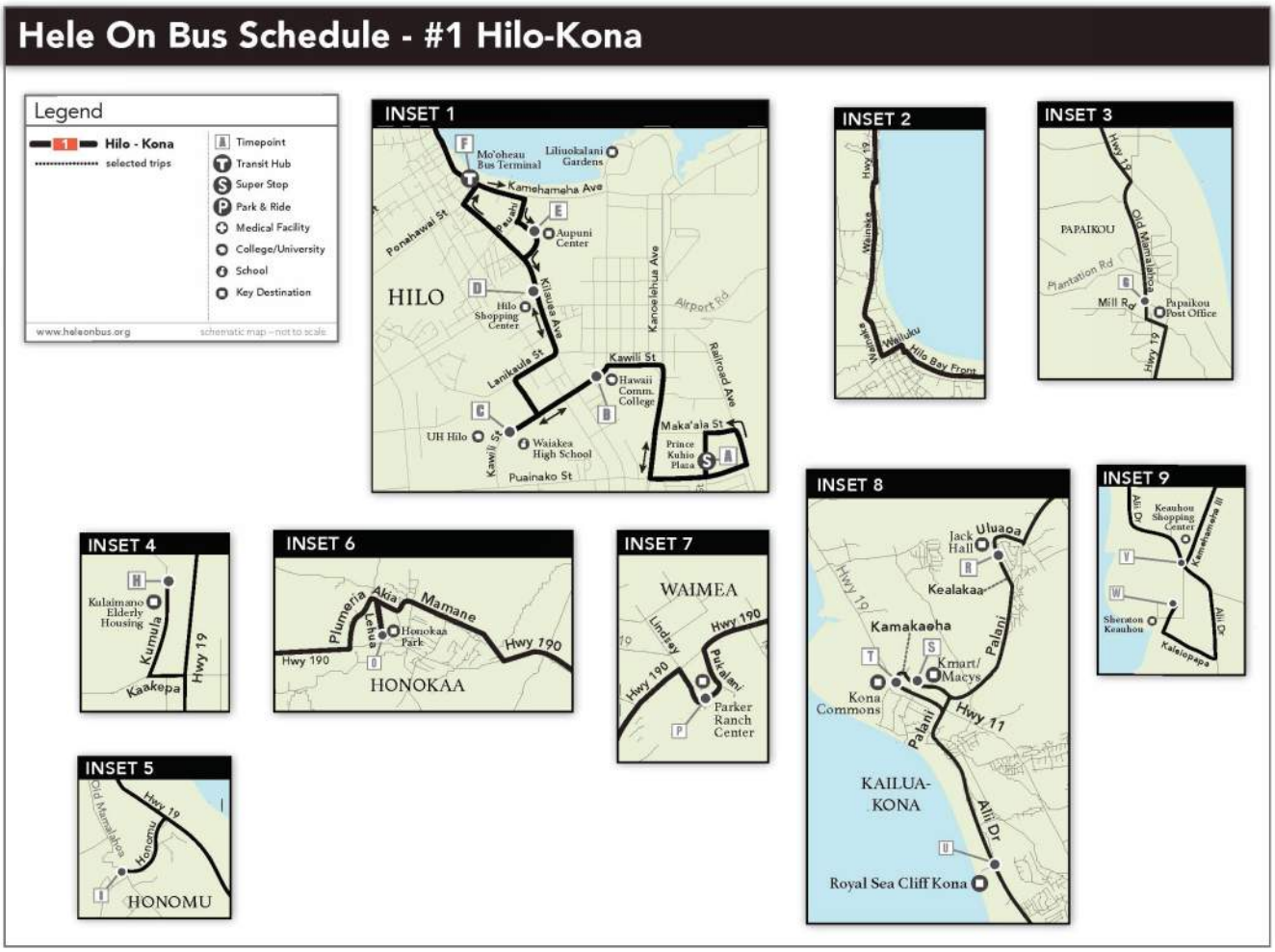


Figure 4-13A. Conditions Along Highway 19 Intersection Hakalai and Chin Chuck Road

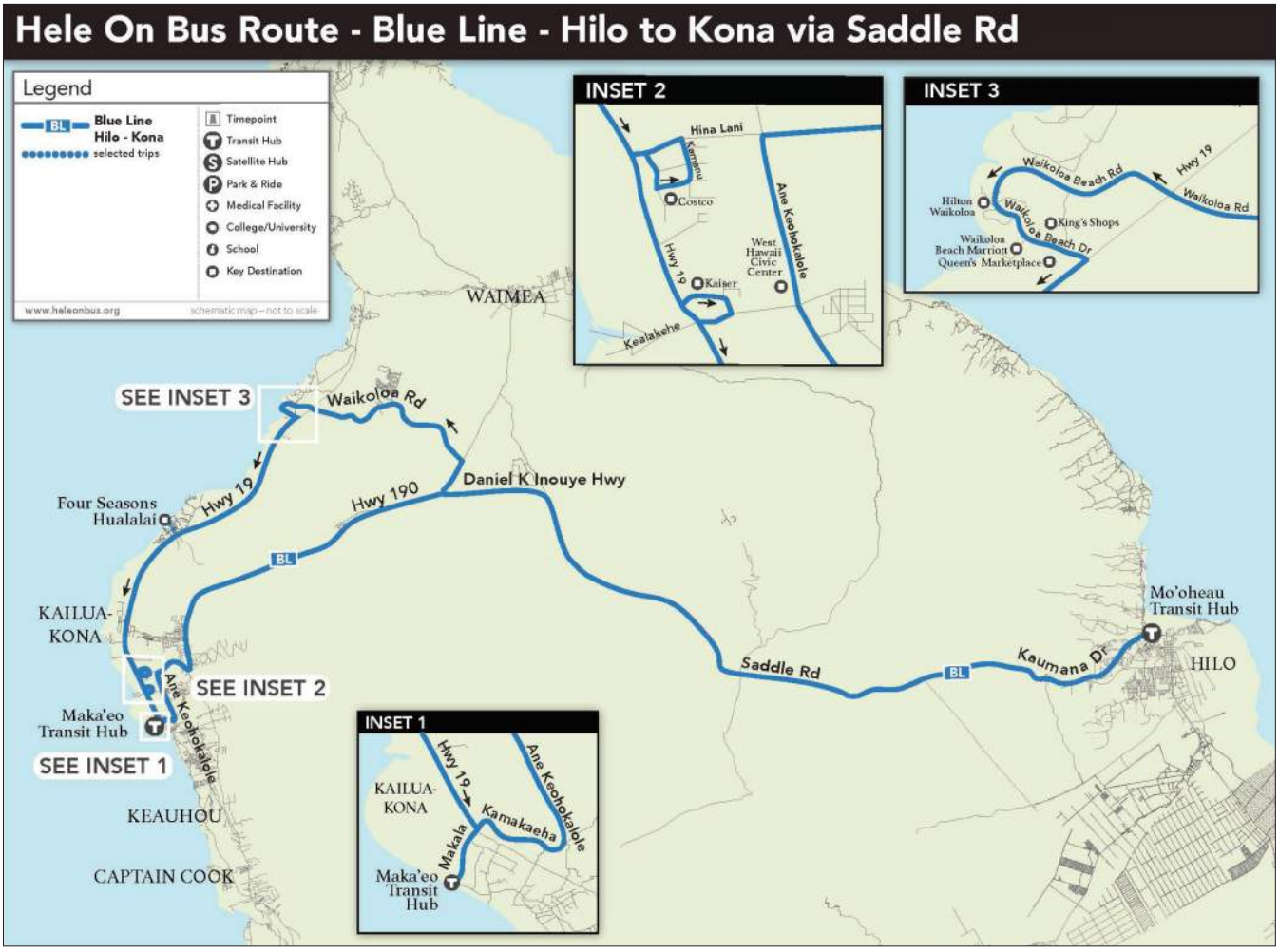
A new direct connecting route from Hilo to Kona using Saddle Road and Māmalahoa Highway is proposed to be called the Blue Line. It is intended for workers and job seekers. Blue Line Express trips would depart MBT at 6:00 and 8:00 AM for Kona. These two trips would not serve the resorts, but travel Mamalahoa Highway to Hina Lani Street to Ane Keohokalole continuing to the Kona Transit Center. These two trips provide the needed connections for non-resort work opportunities, business, and other trip purposes. The return trips would depart the Kona TC at 5:30 and 7:00 PM.

Hāmākua District

Most of the population in Hāmākua is in villages along both sides of Highway 19. The major road connection is Highway 19 – Mamalahoa Highway. Most residential access is from mauka/makai streets that are not through streets and many are not suitable for transit provision.

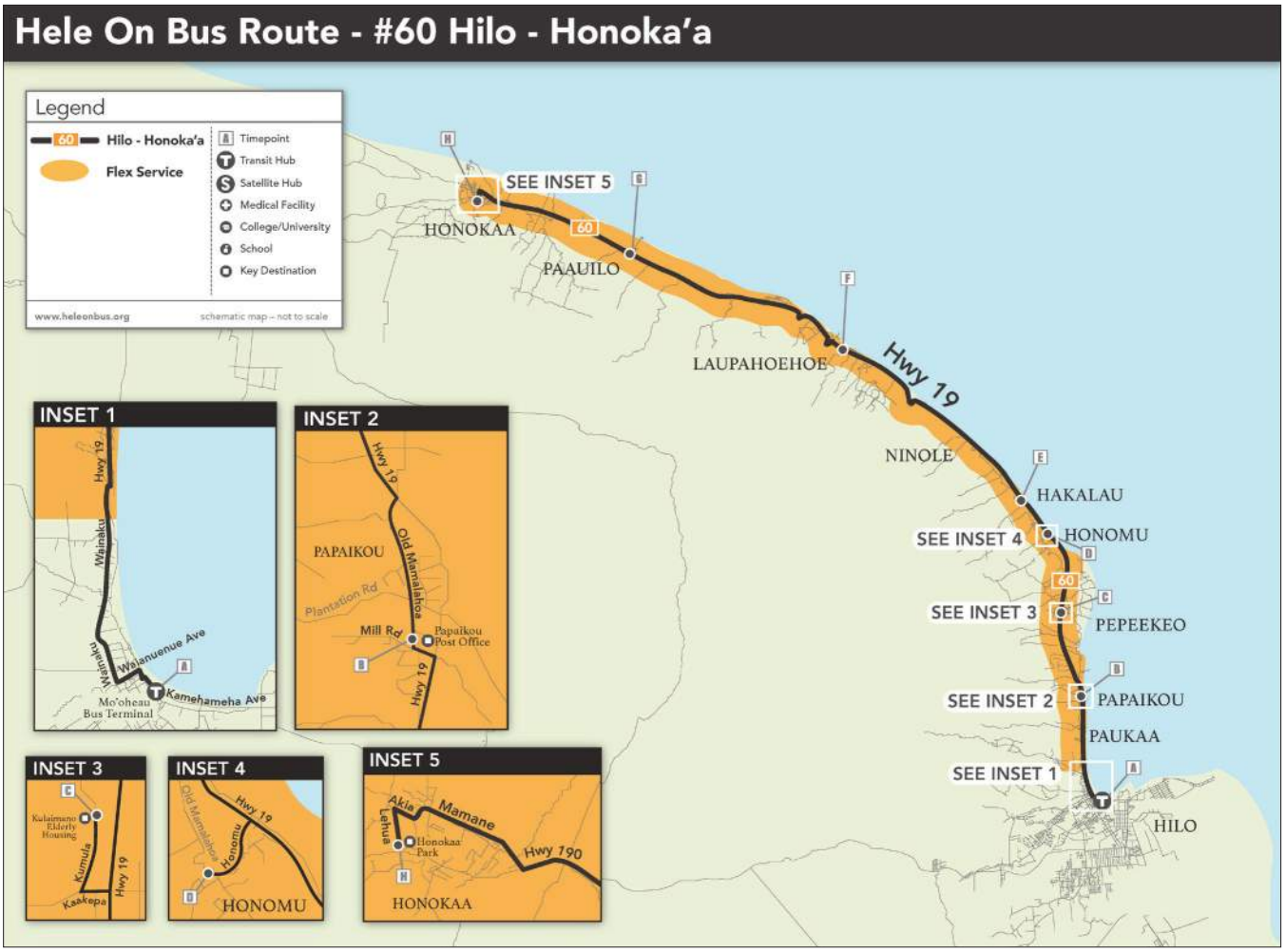
Current bus service, is provided mostly by the Hilo-South Kohala Resorts (SKR)/Kona commuter trips traveling along the highway. However, many of these trips are already full and have limited seats for additional passengers. The limited number of

Figure 4-14. Blue Line Express



Span of Service:	4:15 AM to 7:00 PM; Monday through Sunday
Headways:	N/A
Number of Trips:	4 roundtrips; two of which are from the current Hilo-South Kohala Resorts schedule
Number of Vehicles:	Four 40 to 45-foot vehicles
Implementation	Near term: Change schedules, passenger notification.

Figure 4-15. Route 60 Hilo-Honoka'a



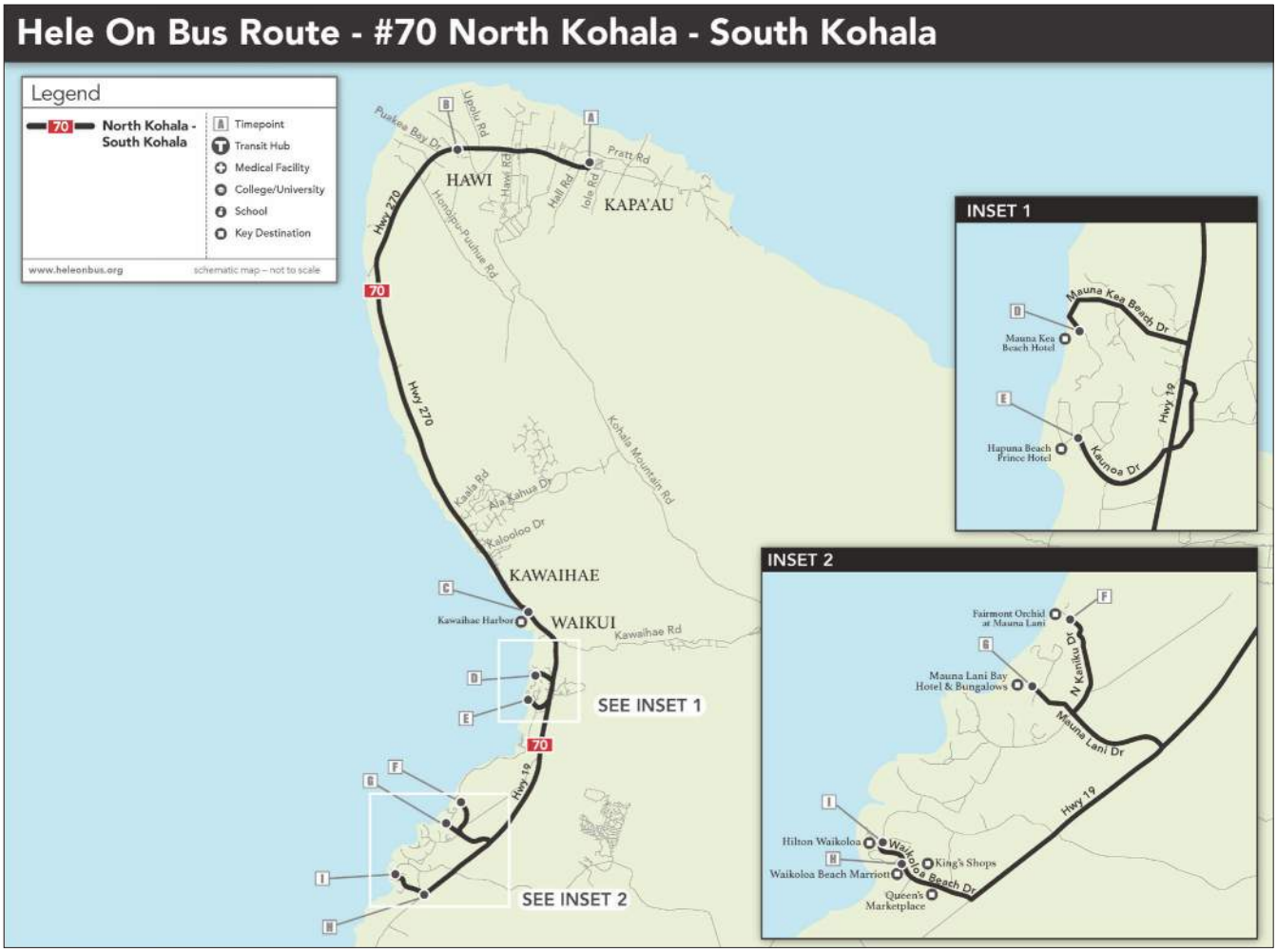
Span of Service:	5:00 AM to 7:00 PM; weekdays
Headways:	240-minute
Number of Trips:	4
Number of Vehicles:	1 smaller "cutaway" vehicle (additional vehicle)
Implementation	Intermediate to long-term a second vehicle may become necessary. One additional SKR trip to start service at MBT (4:50 AM trip) bypassing Bayfront Park and Ride Lot. This trip may need to be adjusted to start in North Hilo if bus does not have capacity for passengers along the coast. Change schedules, passenger notification, set up dispatch call center or extend contract with A2B Transportation. This route would be operated by Hele-On, but it could be contracted to A2B or similar organizations.

seats has been impacted recently by the continuous canceling of one of the SKR trips. The Hilo/Honoka'a schedule indicates there are 13 trips to and 13 trips from Honoka'a to Hilo. All but two of the trips from Honoka'a are provided by these other routes. One additional South Kohala Routes trip is recommended to start at MBT (4:50 AM trip) to provide additional seats for intending passengers along the coast.

Figure 4-15 shows that the Honoka'a Route 60 (service not provided by other routes) be converted to flex service. The route would operate along the main alignment as shown, however, it would be able to divert or "flex" off the route up to ¾ mile to pick up passengers that have made a reservation. Reservation procedures are the same as the ADA paratransit service. The flexing allows Hele-On to expand paratransit service while maintaining a public posted schedule. Flexing allows service to destinations off of the regular routes such as the Papaaloa Post Office.

It is approximately 42 miles from Honoka'a to MBT, one way. Current schedules list about 50-minutes to one hour for the buses to complete that trip. This is not realistic requiring buses to operate averaging 42 miles per hour. The flex service is designed for a 4-hour round trip, allowing time for the vehicle to divert off the route.

Figure 4-16. Route 70 North Kohala-South Kohala



Span of Service:	6:20 AM to 5:35 PM; Monday through Saturday
Headways:	N/A
Number of Trips:	1
Number of Vehicles:	1 40-foot vehicle
Implementation	No change to service

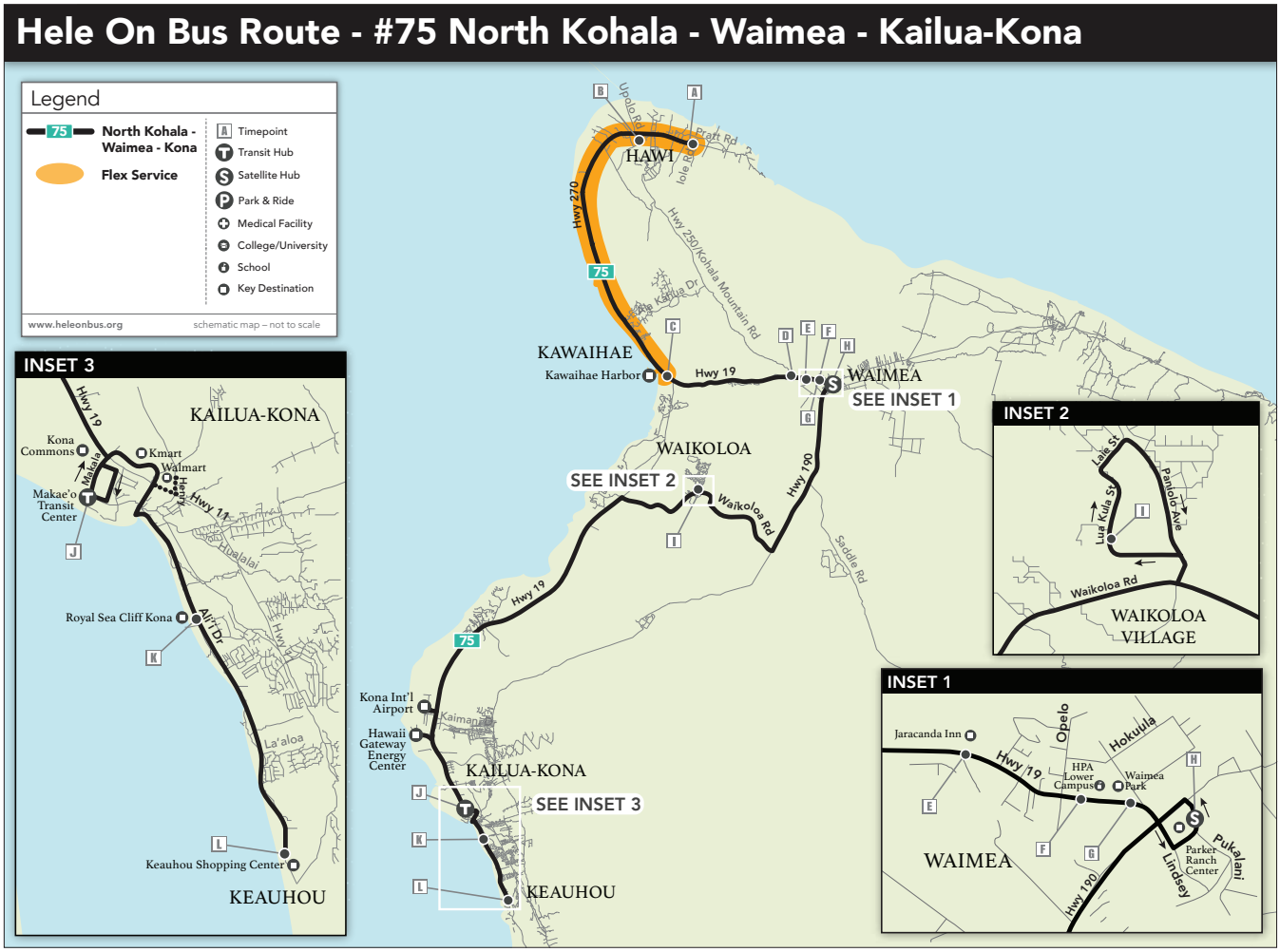
Another advantage of offering flex service is that MTA can partner with churches or other organizations that usually do not have maximum use of their parking lots during the weekdays. Commuters can park in these facilities and schedule the bus. Since most churches are off the main highway, this approach allows greater flexibility in providing commuter options.

North Kohala District

The North Kohala community is rural and residents desire to keep development to a minimum. Densities are low, with a few towns offering some services. Residents commute to jobs and major shopping areas outside the District as there are few available within the District.

North Kohala is served by two transit routes that would emanate from a future Kona maintenance facility. Each route provides one round-trip daily. One route is a

Figure 4-17. Route 75 North Kohala-Waimea-Kailua Kona

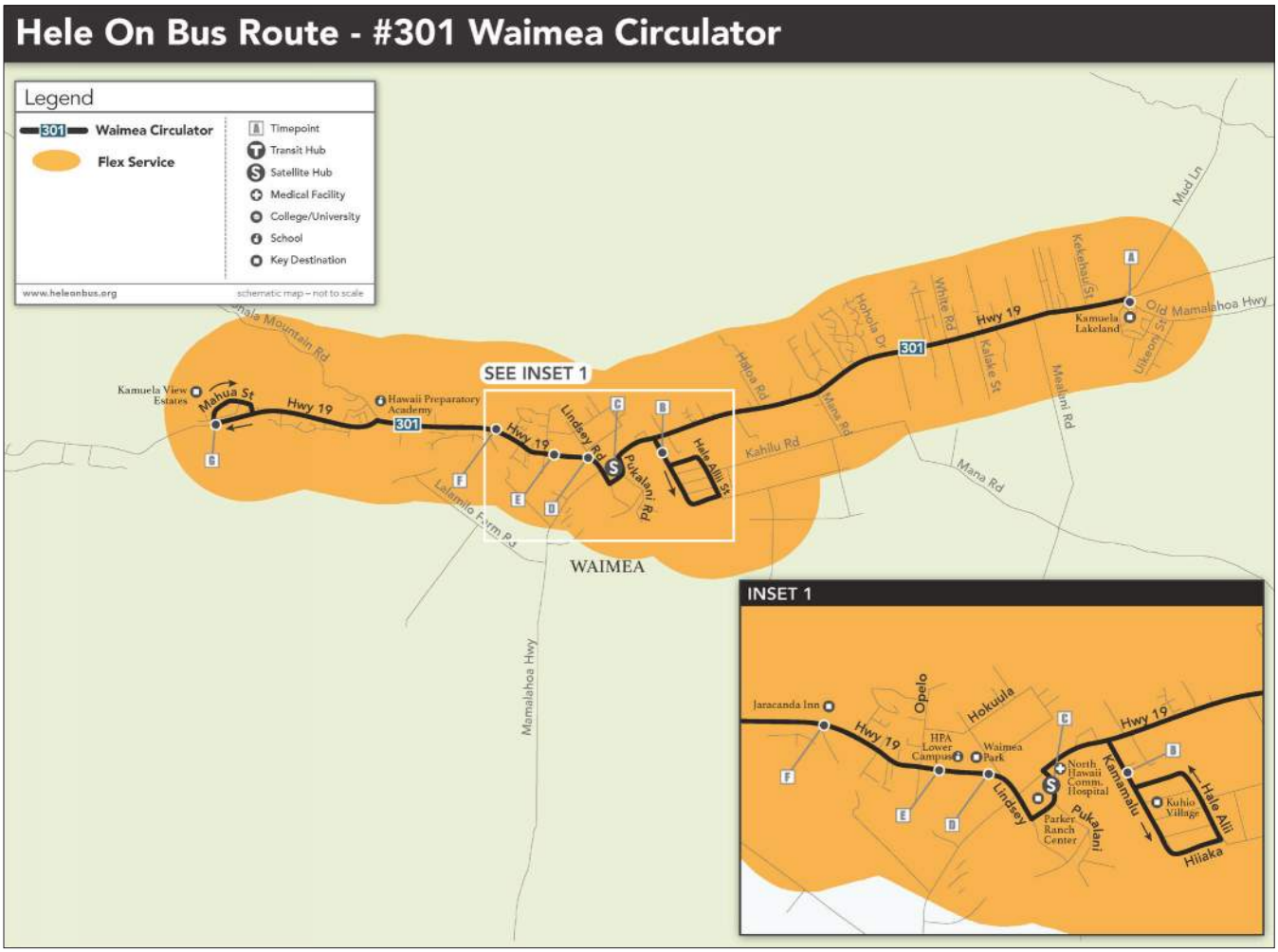


Span of Service:	6:45 AM to 4:55 PM; Monday through Sunday
Headways:	N/A
Number of Trips:	1
Number of Vehicles:	1 40-foot vehicle
Implementation	Near term – add Kona International Airport, add Kona Hub, add Waimea Saturday service. Change schedules, passenger notification.
	Long-term - add Sunday service, set up dispatch call center or extend contract with A2B Transportation. This route would be operated by Hele-On, but it could be contracted to A2B or similar.

commuter run from North Kohala to the South Kohala Resorts (Route 70-Figure 4-16). The second route, North Kohala-Waimea-Kailua-Kona (Route 75-Figure 4-17) has a dual purpose of providing school trips from North Kohala to Waimea, then continuing to Kona for shopping opportunities. Both routes operate Monday through Saturday, although the North Kohala/Waimea/ Kailua-Kona route does not serve Waimea on Saturdays.

A third route provided limited service from North Kohala to Waimea three days a week. This route was cancelled in 2016 following the demonstration period due to low ridership. Passengers commented during the passenger survey that not enough time was provided for those intending to shop or eat in Waimea on that third route. It is recommended to add Waimea into a revised North Kohala/Waimea/Kailua-Kona Saturday and a new Sunday trip that would offer several hours of service in Waimea.

Figure 4-18. Route 301 Waimea



Span of Service:	6:30 AM to 5:30 PM in Waimea; Monday through Saturday
Headways:	90 minutes
Number of Trips:	7.5
Number of Vehicles:	1 smaller "cutaway" vehicle
Implementation	Intermediate to long-term. Change schedules, passenger notification, set up dispatch call center or extend contract.

There are no changes recommended for Route 70 North Kohala to South Kohala Resorts. There are six suggestions for Route 75 North Kohala – Waimea – Kailua Kona. Four are near term that can be implemented quickly:

- **Serve the Kona International Airport in both directions. In addition to serving the airport, passengers will have the opportunity to transfer to Route 203 at this location**
- **Serve a new Kona Hub "Makaeo Transit Hub" located at the entrance to the Old Airport Regional Park. The hub is accessed by Kuakini Highway at Makala Street**
- **Add Waimea to the Saturday trip. This will impact the running time by 45 minutes**
- **Add a Sunday trip including Waimea service.**
- **Add stops on Kawaihae Road at intersection to Ouli Ekahi access Road**

The sixth suggestion for Route 75 is to consider flex service for the North Kohala segment of the alignment (shown in Figure 4-17). This would be a long-term recommendation only to be considered if requests for service are continuous and the service has proven successful in other locations (Puna and Hāmākua).

South Kohala District

South Kohala has five bus routes running through the District, Routes 1/2, 70, 75, 80, and 90. These routes serve both South Kohala residents and businesses. Route 301 Waimea provides service wholly within the District in Waimea as shown in Figure 4-18. Currently the route provides 11 trips with 60-minute service. The route has limited ridership and is a candidate for restructure. It is recommended that the route convert to flex service. This will accommodate ADA paratransit trips which are required as complementary service to a fixed route. Providing more flexible service may also prove to encourage more riders as the service area is expanded. The hours of service are similar to the current schedule, but the number of trips are reduced to 7.5 operating with 90-minute headways to accommodate flexing off the route. However, there will be two new trips operating from Honoka'a to the Waimea Hub via the new Green Line Express.

Figure 4-19 shows the alignment of the new Green Line Express providing another opportunity for passengers to travel between Waimea and Kona. The initial trip would leave Honoka'a at 8:00 AM to the Waimea Hub and departing Waimea at 8:30 AM. The return trip would

Kona Bus Waiting Area

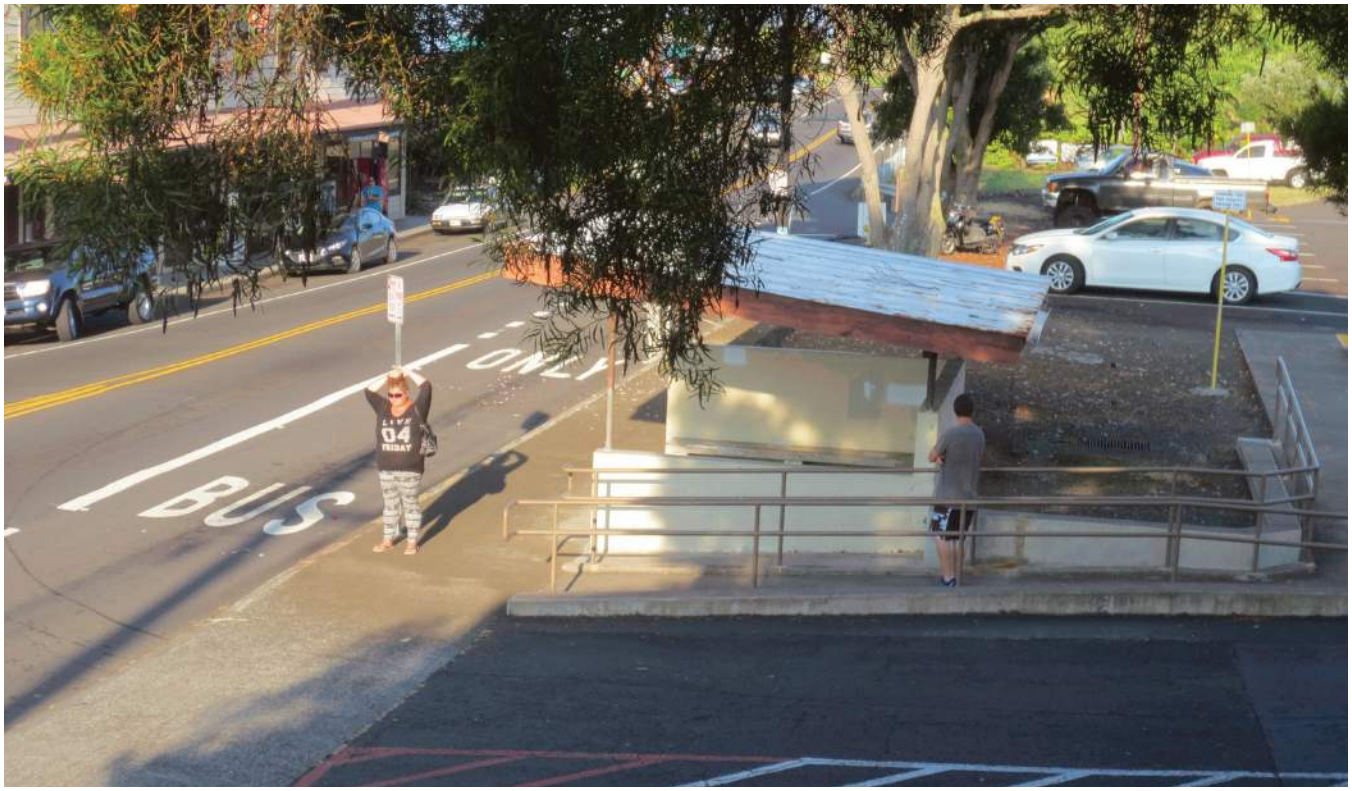
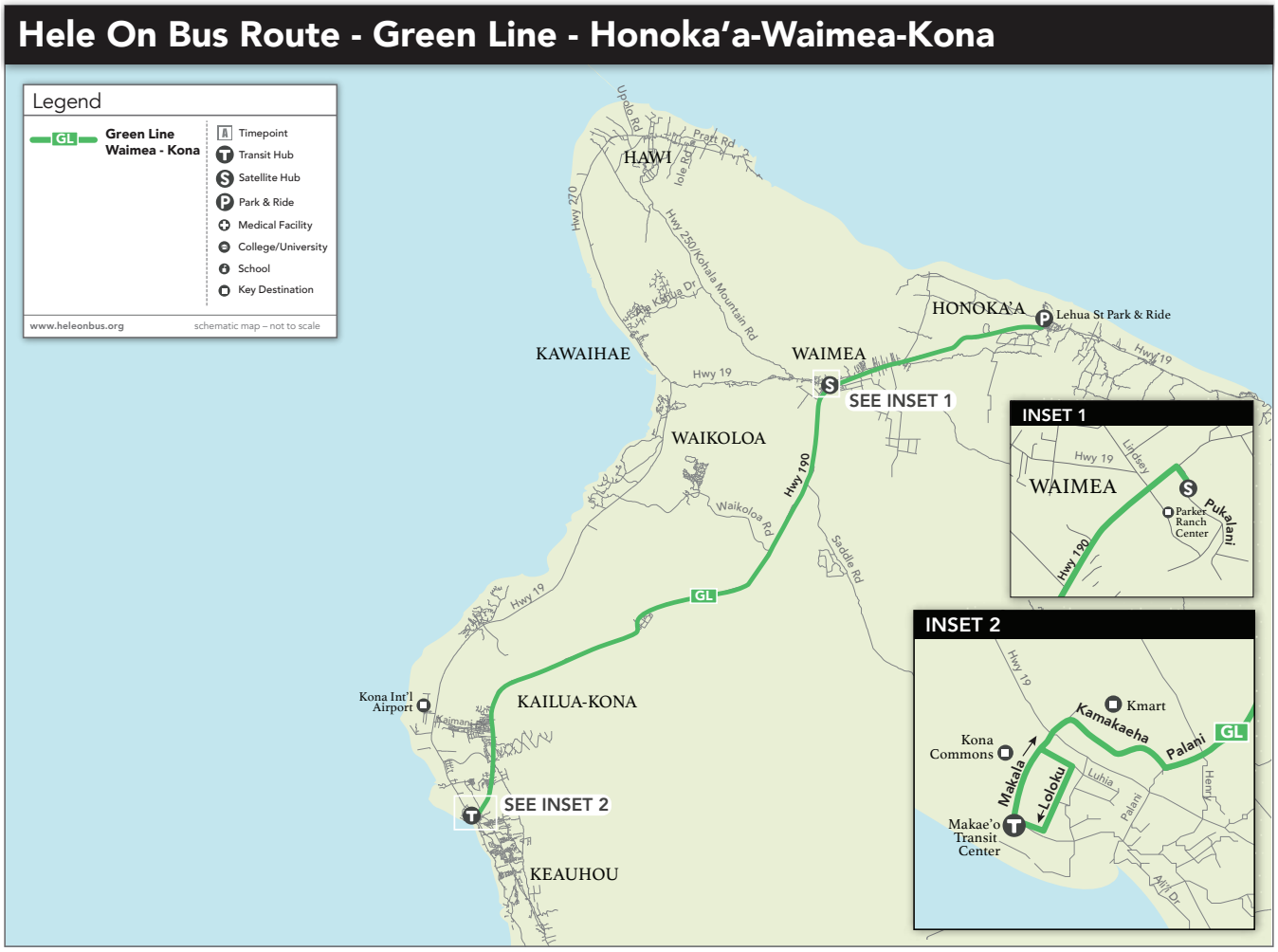


Figure 4-19. Green Line - Honoka'a-Waimea-Kona



depart the Kona TC at 5:30 PM. It is anticipated that demand would create the need for a second trip departing Honoka'a at 7:00 AM with the return trip departing the Kona Hub at 5:10 PM.

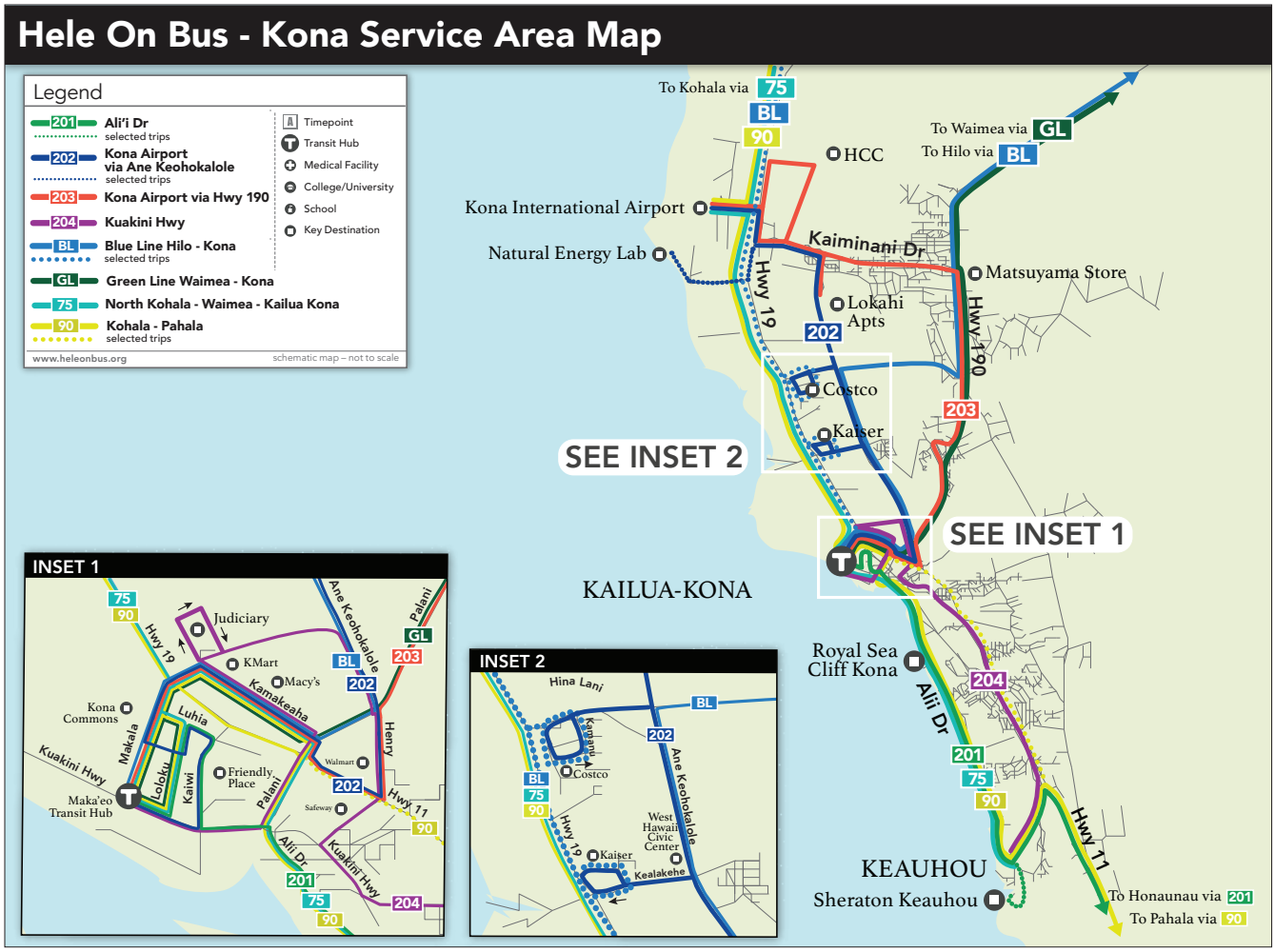
Kona District

Current transit service within Kona is complicated. Kona is served by the North Kohala-Waimea-Kailua-Kona Route (1 roundtrip), the Pahala to South Kohala Resorts route (3 roundtrips), the Hilo-Kona Route (3 roundtrips) and the Intra-Kona Route. The Intra-Kona Route incorporates the trips of the other three routes into its schedule. Timepoints or major locations in the greater Kona area are served intermittently. There is no single location in Kona where an intending passenger can access the various routes and find information on the system.

Further confusing the situation in Kona is that the Intra-Kona route may be served by different providers (changing day to day) that do not have bike racks, selected trips may be cancelled, and certain destinations may not be served as scheduled. This situation is due to a lack of operating buses which points to a need to establish a second maintenance facility (intermediate or longer-term solution) or contract with one of the private tour companies (short-term) that have a functioning maintenance facility in Kona.

However, Kona continues to grow and will continue to grow. The Kona and Hilo Districts currently provide almost the same number of jobs for County residents. By 2040, Kona is projected to provide 25 percent more jobs than Hilo. Residential and commercial development are expected to continue contributing to further congestion and commute times. For example, Kamakana Villages

Figure 4-20. Kona Hub and Spoke System

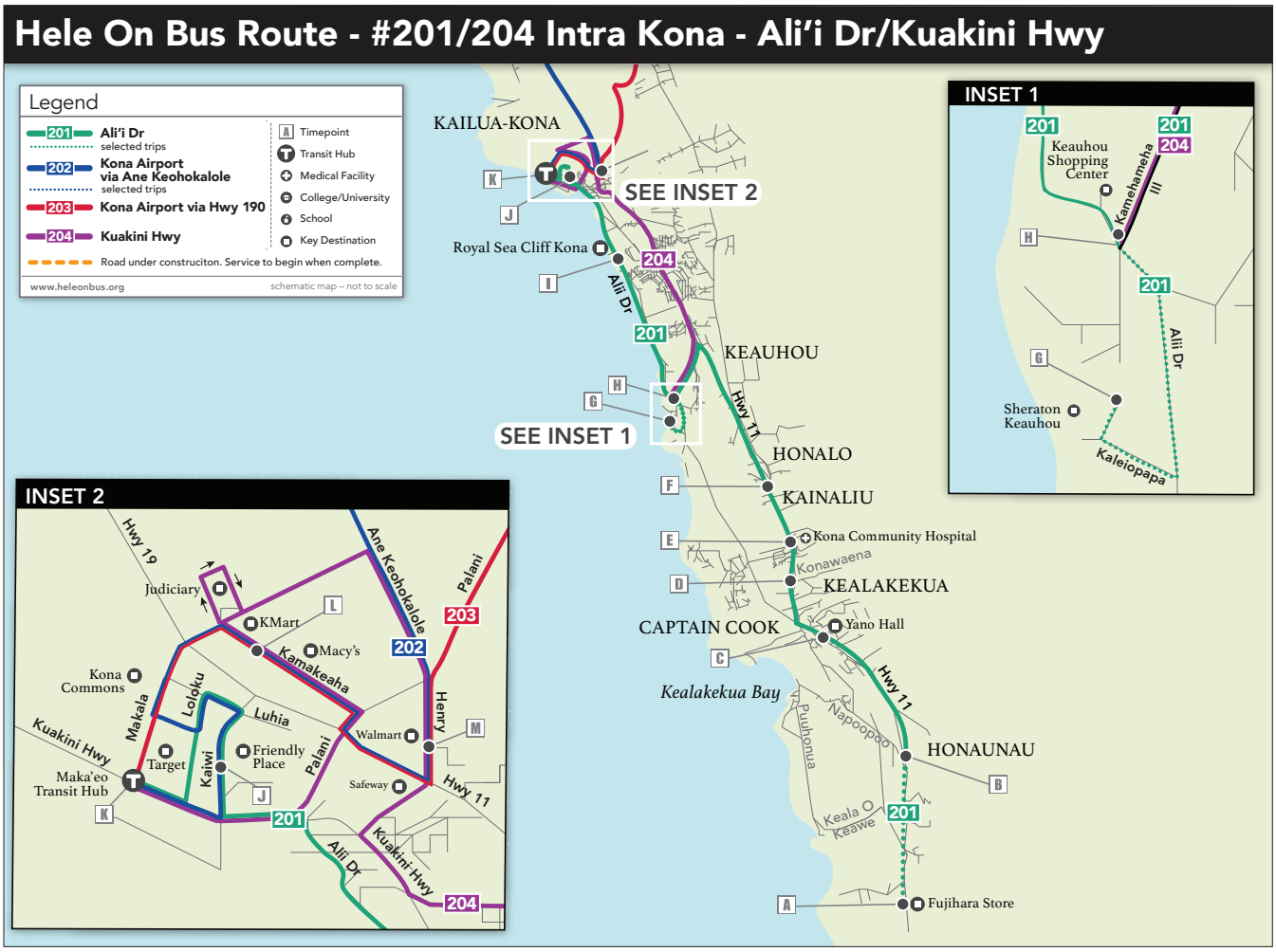


is a 2,330-home project being developed along Palani Road and Ane Keohokalole Highway (which will be served by Route 203). Developing a transit system focused on Kona will provide an alternative for residents and visitors alike.

Four routes comprise the hub and spoke system for Kona shown in Figures 4-20 through 4-22. Instead of one route providing a myriad of routing possibilities, a system approach allows the routes to expand with continuing development. Visitors have a difficult time understanding how to use the current bus system. The hub and spoke system requires additional buses to be fully implemented with a minimum of 60-minute service. However, the principles of the system can be started with less frequent service.

Near to intermediate-term implementation requires 3 buses to service the system; one for each route. Route 201 South Kona-Alii Drive will operate on 2-hour headways with service starting in Kona at 7:00 AM and in Captain Cook (Yano Hall) at 8:00 AM. Earlier trips are provided by Route 1 Hilo-Kona and Route 90 Pahala to South Kohala Resorts. Route 201 terminates at the new "Makaeo Transit Hub" located at the entrance to the Old Airport Regional Park. The hub is accessed by Kuakini Highway at Makala Street. Amenities need to be added to this site, but it is workable for the near-term. Route 204 South Kona – Kuakini Highway provides nine trips between 7:00 AM and 7:00 PM connecting the Hub with Keauhou Shopping Center using Kuakini Highway.

Figure 4-21. Intra Kona Routes 201 and 204



Span of Service: 7:00 AM to 9:00 PM; Monday through Saturday

Headways: Route 201 - 120 minutes
Route 204 – 90 minutes

Number of Trips: Route 201 – 7
Route 204 – 9 (7:00 AM to 7:00 PM)

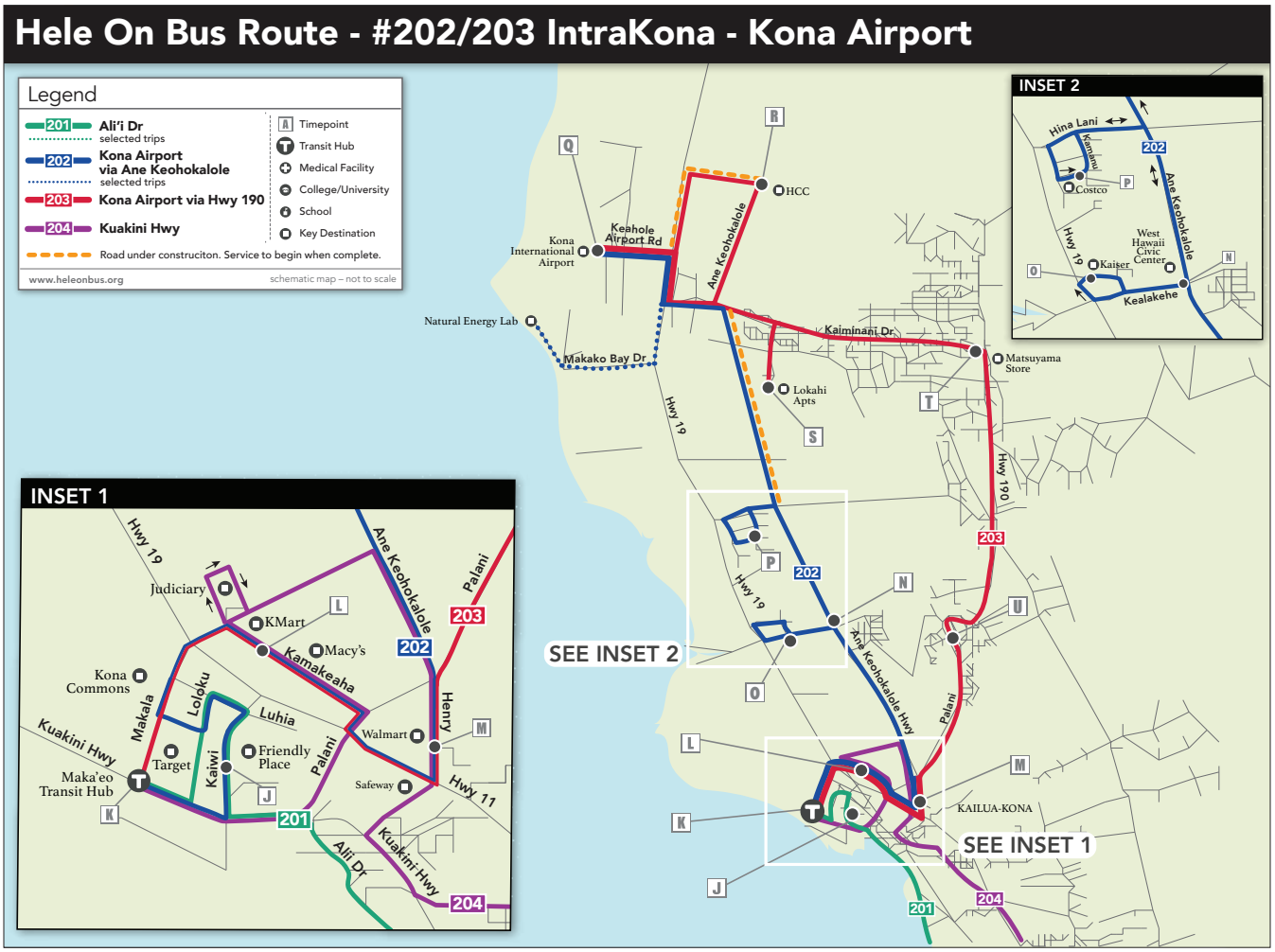
Number of Vehicles: 2 30 to 40-foot vehicles, can be served with "cutaway" vehicles

Implementation Near term: Change schedules, passenger notification if vehicles are available.

Intermediate to long-term: Add additional route to serve between the Hub and Keauhou Shopping Center via Kuakini Highway (Route 204). This route would be implemented later in the phasing of services.

Develop Transit Hub adding passenger amenities including real-time information, restrooms, bike storage, bike share, security, and perhaps other concessions. Long-term: As Kona continues to grow, add frequency requiring additional buses and operators.

Figure 4-22. Intra Kona Routes 202 and 203



Span of Service:	7:00 AM to 9:00 PM; Monday through Saturday
Headways:	Routes 202 and 203 - 90 minutes
Number of Trips:	Routes 202 and 203 – 9
Number of Vehicles:	2 30 to 40-foot vehicles, can be served with "cutaway" vehicles
Implementation	Near term: Change schedules, passenger notification if vehicles are available.
	Intermediate to long-term: Develop Transit Hub adding passenger amenities including real-time information, restrooms, bike storage, bike share, security, and perhaps other concessions. Long-term: As Kona continues to grow, add frequency requiring additional buses and operators.

Route 202 Airport via Ane Keohokalole Highway and **Route 203 Airport via Highway 190** provide 90-minute service in clockwise and counterclockwise loops. The routes terminate at the Makaeo Transit Hub and at the Kona International Airport where they are interlined into two one-way loops. Figure 4-22 shows that both Ane Keohokalole Highway and the connecting road from HCC (Route 203) to Highway 19 are not completed. This is depicted with dashed orange lines. Route 202 will continue to the airport via Highway 19 after serving Costco and Route 203 will turnaround at HCC to continue to the airport if they are implemented prior to the road sections being completed.

Kaʻū District

Kaʻū District is considered an underserved area. Housing is affordable, and lots have been sub-divided. By 2040, the percent growth in housing units is expected to be 64.7 percent over 2015. Kaʻū District has very few jobs available. Kaʻū has the second lowest number of jobs as compared to the other districts; this is not expected to change. Residents must commute long distances to access both jobs and most services.
Hele-On provides commuter service to Kaʻū residents. One roundtrip is provided to Hilo and three roundtrips are provided to Kona/South Kohala Resorts. One park-and-ride lot located in Ocean View is used by both Hele-On commuters and school bus passengers. This is a basic lot with no amenities, including lighting, paving, or restroom facilities.

Figure 4-23. Ocean View Park & Ride

With its rural, isolated area, housing is affordable, although spread out. This attracts residents who have limited resources. It also makes serving this vast area difficult. Many roads are private, in poor repair, and some are gated. Challenges to providing a transit circulator or loop route include the large blocks that were laid out in Ocean View. These blocks are quarter-mile square and encompass almost all the community.

Kaʻū has two bus routes serving the District: **Route 10 Kaʻū – Volcano – Hilo** and **Route 90 Pahala – South Kohala**. Route 10 has one roundtrip provided daily starting at the Ocean View park and ride lot. Route 90 provides three roundtrips starting in Pahala.

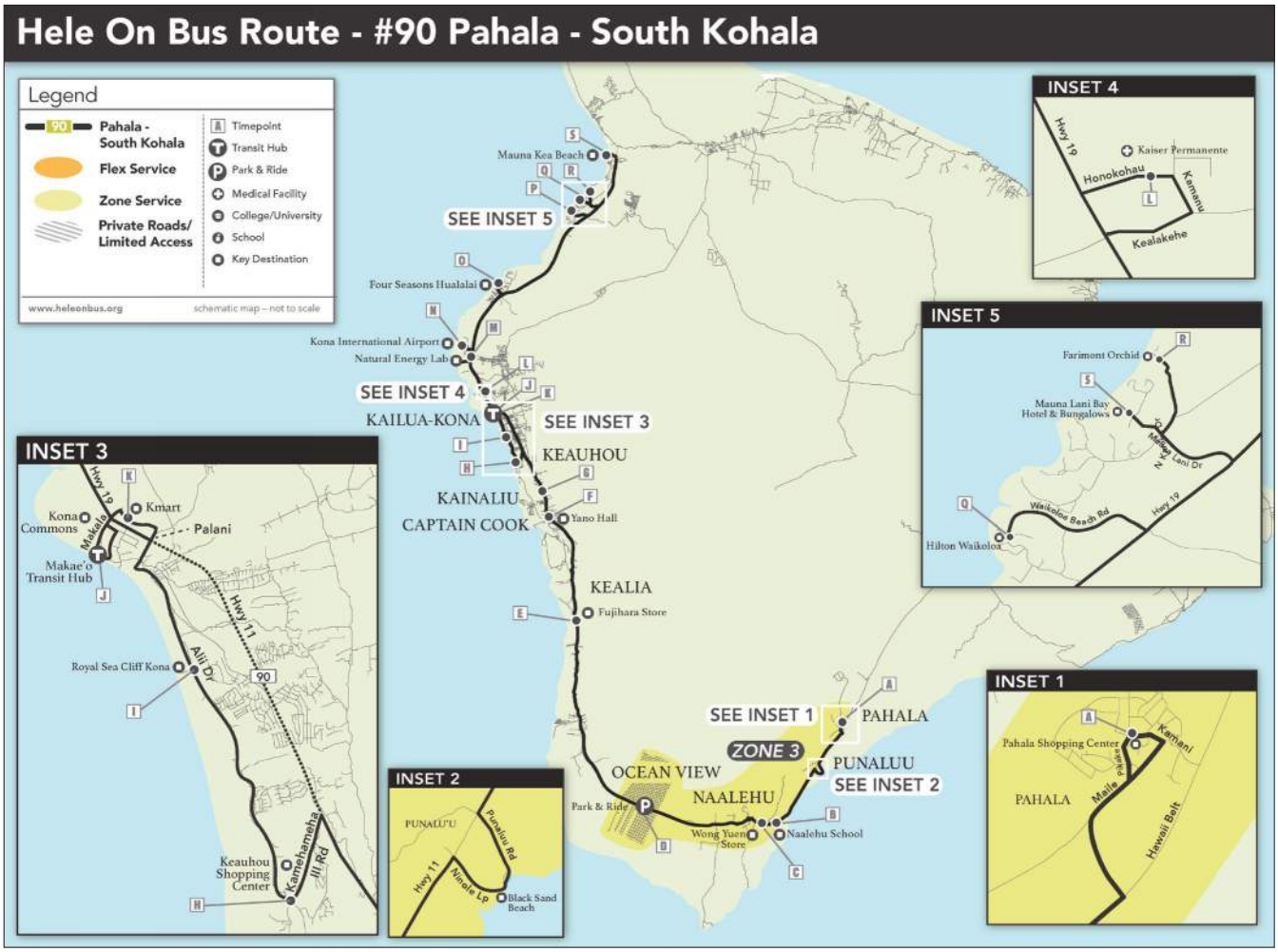
The majority of service recommendations for Kaʻū are intermediate or longer-term as they require additional vehicles. Near term recommendations include minor alignment changes for Route 90. Route 90 will take advantage of the hub location in Kona as shown in Figure 4-24. Route 90 will serve the Kona International Airport on all trips, but will no longer divert to HCC or Kona Palisades (these destinations will be served by new Route 203.

Intermediate to long-term recommendations include adding:

- **One additional round trip on Route 90 (to the Kona Hub)**
- **Two additional roundtrips between Ocean View and Volcano to connect with Route 10. One of these trips would operate on Sunday to match the Red Line Express**
- **On Mondays and Wednesdays, zone service (Zone 3) will be available to anyone within the zone (that has clear, safe access and paved roads). As with paratransit and flex services, intending passengers need to make a reservation at least 24 hours in advance for the pickup and return trips. Trips will be grouped within the zone, so passengers have the opportunity to reach the main route between Ocean View and Volcano**

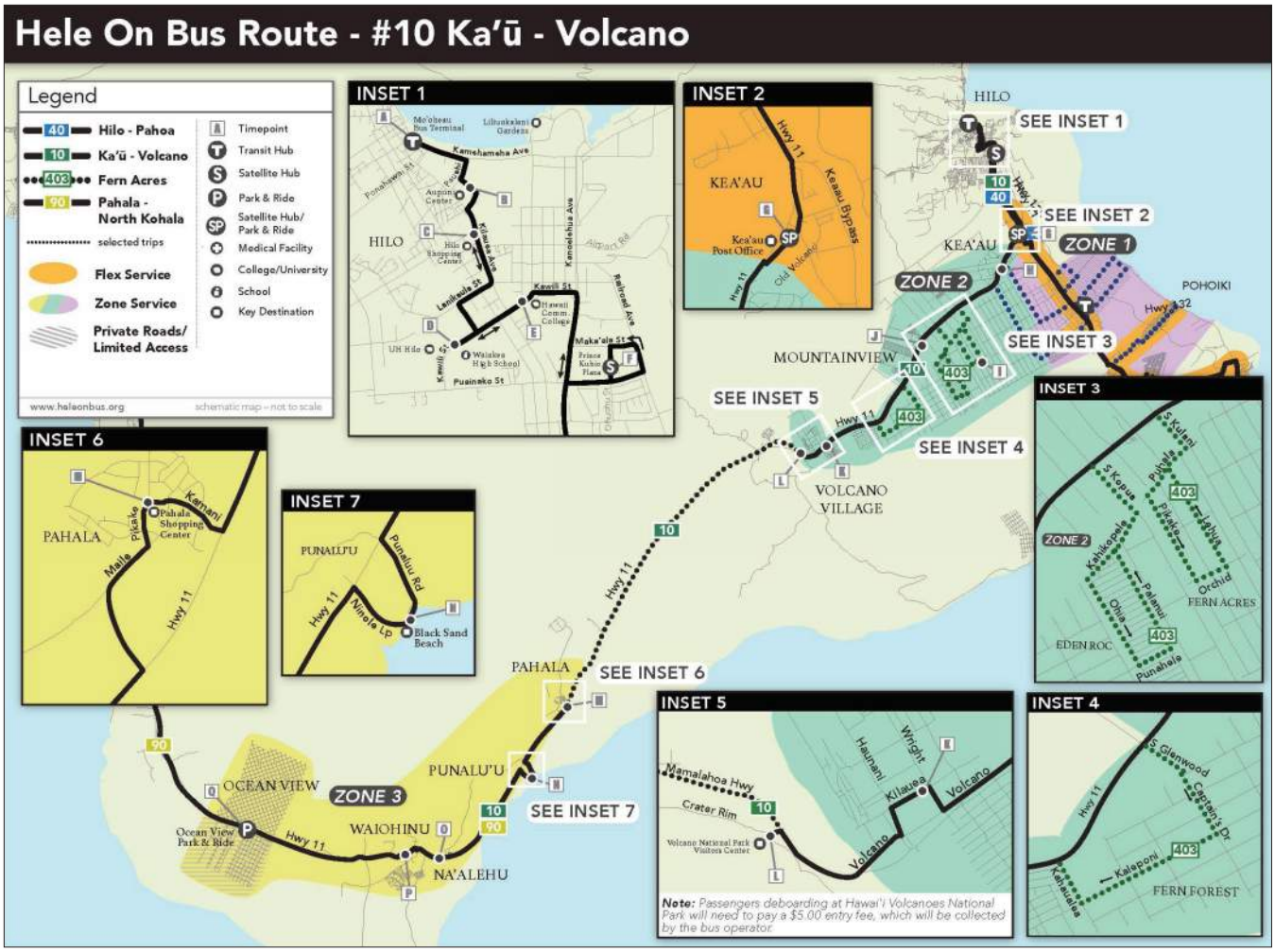
It is expected that the zone service will gauge the public's demand for additional transit services or service days. A one-to-two-year trial period should be implemented after which a review of the service utilization should be conducted. Requests for community circulation within the communities of Kaʻū have

Figure 4-24. Route 90 Pahala to South Kohala



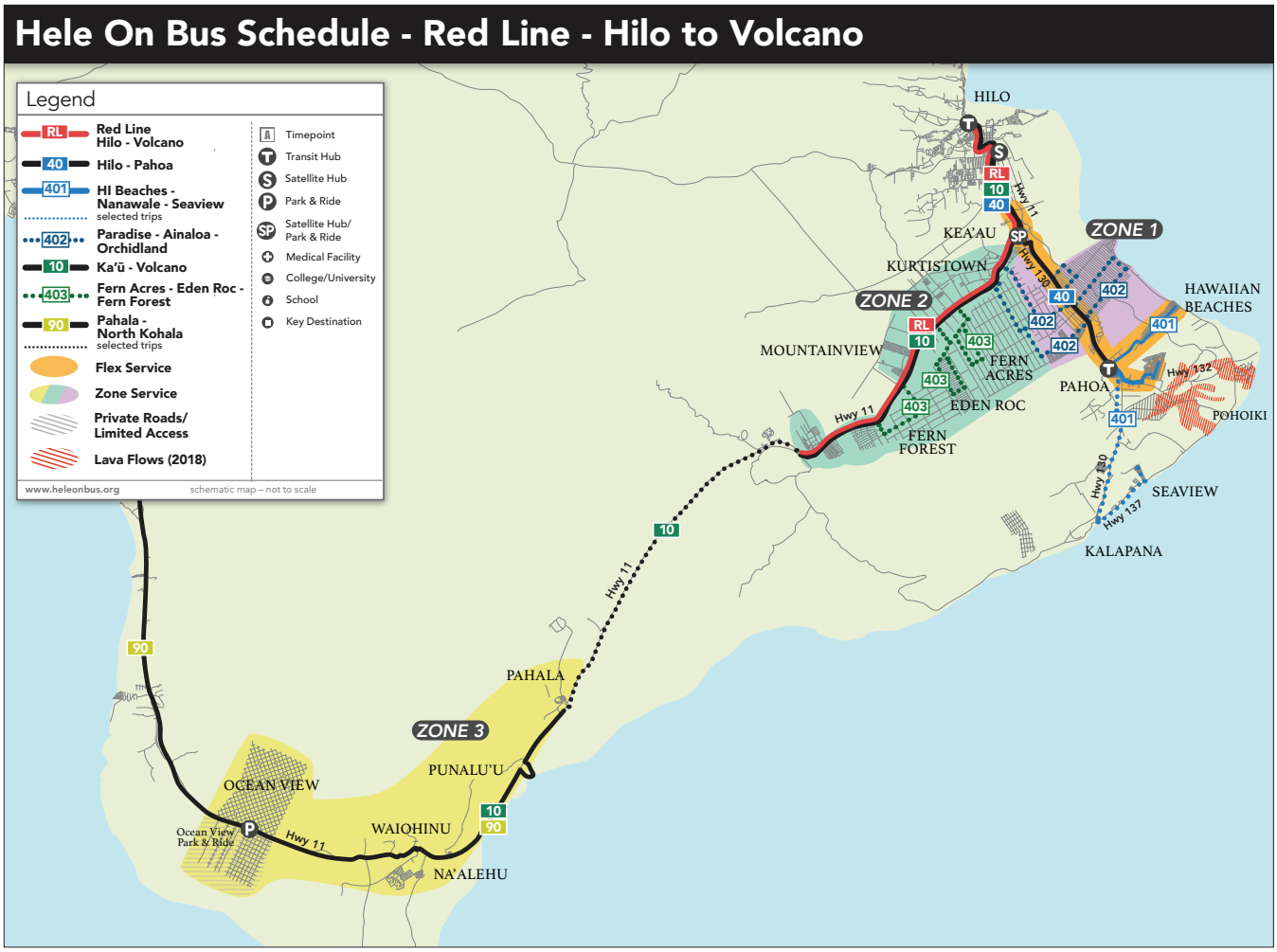
Span of Service:	3:30 AM to 7:45 PM; Monday through Saturday; 1 trip on Sunday
Headways:	N/A
Number of Trips:	3 – Pahala to South Kohala Intermediate or long term 1 - additional trip Pahala to Kona Hub (9 AM departure); intermediate-long term zone demand response on Mondays and Wednesdays (same description on Route 10 in Figure 4-21)
Number of Vehicles:	3 40-foot vehicles (Pahala to Kona) 1; additional 30 to 40-foot vehicle for added Pahala to Kona trip 1; cutaway (additional) ADA vehicle Mondays and Wednesdays
Implementation	Near term: Change schedules, passenger notification Intermediate to long-term: Upgrade Ocean View park and ride lot. Change schedules, passenger notification, set up dispatch call center or extend contract with A2B Transportation. This service would be operated by Hele-On, but it could be contracted to A2B or similar.

Figure 4-25. Route 10 Ka'ū – Volcano – Hilo and Zone Service



Span of Service:	6:40 AM to 5:15 PM; Monday through Saturday (Ocean View)
Headways:	N/A
Number of Trips:	1 - Ocean View to Hilo near-term 2 - additional trips Ocean View to Volcano; intermediate-long term Demand response on Mondays and Wednesdays (Zone 3)
Number of Vehicles:	1 40-foot vehicles, near term 1; additional 30 to 40-foot vehicle (can use smaller cutaway) 2; cutaways (long term) to serve Fern Forest, Eden Roc, and Fern Acres 1; cutaway (additional) ADA vehicle Mondays and Wednesdays
Implementation	Near term: Change schedules, passenger notification. Identify connecting services on maps. Intermediate to long-term: Add service to Fern Forest, Eden Roc, and Hawaiian Acres. Upgrade Ocean View park and ride lot. Change schedules, passenger notification, set up dispatch call center or extend contract with A2B Transportation. This service would be operated by Hele-On, but it could be contracted to A2B or similar.

Figure 4-26. Red Line Express/Route 10/Route 403 Ka'ū – Volcano – Hilo and Zone Service



Span of Service:	6:10 AM to 6:55 PM; Monday through Saturday; Sunday service on Red Line
Headways:	N/A
Number of Trips:	5 roundtrips – Volcano to Hilo near-term 2 roundtrips– Red Line Express 2 AM and 2 PM trips Route 403 for each community Demand response on Tuesdays and Thursdays (Zone 2)
Number of Vehicles:	1 40-foot vehicle, near term 1 40-foot vehicle for Red Line Express 1; cutaway (additional) ADA vehicle Tuesdays and Thursdays (same vehicle as used on Mondays and Wednesdays Zone 3) 2; cutaway ADA vehicles for Route 403
Implementation	Near term: Identify connecting services on maps. Intermediate to long-term: Change schedules, passenger notification, set up dispatch call center or extend contract with A2B Transportation. This route would be operated by Hele-On, but it could be contracted to A2B or similar.

been made. Zone service will allow MTA to see where service is used and in the longer term perhaps upgrade to flex service with more service days. The zone service will share the vehicle with two other zones to start. If additional service days become necessary, then another vehicle would be added assuming all zone services continue to operate.

Puna District

Puna's population is expected to continue to grow. Puna has more affordable housing and is within an acceptable distance to Hilo. Puna has multiple town centers including Pāhoa, Kea'au, Kurtistown, and Volcano. New development is proceeding in Pāhoa and a future town center is identified in the Puna CDP for Hawaiian Paradise Park.

Executive Order 12898, issued February 11, 1994, requires Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations in the United States. The County as a recipient of federal funds is required to identify environmental justice (EJ) populations to assess the distribution and equity of transportation projects.

An analysis of EJ populations within the county was conducted. Using Census block groups, minority populations and households below the poverty line were plotted using a one standard deviation above mean. For minority population, one standard deviation above mean is 85.0 percent and for households below the poverty line, one standard deviation above mean is 27.7 percent. In this analysis, 16 block groups are selected as EJ for minority population, 19 block groups are selected for households below the poverty line, and one block group is selected based on both characteristics. EJ areas are centered in Puna, Kaʻū, Hilo and Hāmākua. These findings show the importance of making sure transportation services are available in these geographic areas. Appendix B contains the island's EJ maps.

A full hub and spoke system is recommended to serve Puna. Transit services will include express, connector, circulator, flex, and zone routes. However, implementation cannot occur overnight. Infrastructure, vehicles, and drivers are needed. Therefore, services will be phased. Near, intermediate, and longer-range actions to reach the full system are briefly listed below and discussed more fully in the following pages:

- **Near-term:**
  Update schedules for on-time performance; introduce flex service for Hawaiian Beaches, Nanawale, and between Pāhoa and Keaʻau; install passenger shelters on Kahakai Boulevard for temporary hub; disconnect residential service along Highway 130 from Route 40; provide circulator/flex service for those areas; initiate installation of formalized bus stops; and, start planning process for hubs.
- **Intermediate:**
  Continue planning and design for hubs and start construction; continue formalized bus stop installation; start zone service; add expanded Hawaiian Paradise Park and Ainaloa/Hawaiian Acres service; add expanded Nanawale service; separate Fern Acres from Route 10 and add circulator; and, add additional trips to Route 40.
- **Intermediate to longer-term:**
  Add Red Line Express; add Orchidland, Fern Forest, and Eden Roc circulator services; add Sunday service to Red Line and Route 40; continue bus stop installation; adjust flex and zone services as needed; and, open fully developed hubs.

Two hubs are planned for Puna one in Pāhoa and one in Keaʻau supporting the transit services. Keaʻau is recommended to support a park-and-ride lot. Fully developed hubs would be in a longer-term time frame. Puna Kai is under development and will provide 103,600 square feet of retail and business space. This new construction, will add a transit stop in addition to road extensions. It would be ideal to carve out space for a larger Pāhoa hub to include a secure park-and-ride lot. Comments during the CDP process included residents indicating they would share rides and park to access the bus if a secure location were available. Partnering with the new development to provide security would increase transit ridership and allow passengers to shop at the development on the way to and from transit.

In the near-term a temporary hub could be located on Kahakai Boulevard between Pāhoa Bypass Road and Pāhoa Village Road. Buses would remain on-street in this near-term scenario. Working with adjacent businesses may provide the opportunity for shared security and shared use of parking spaces for park and riders. Two passenger shelters should be scheduled for this

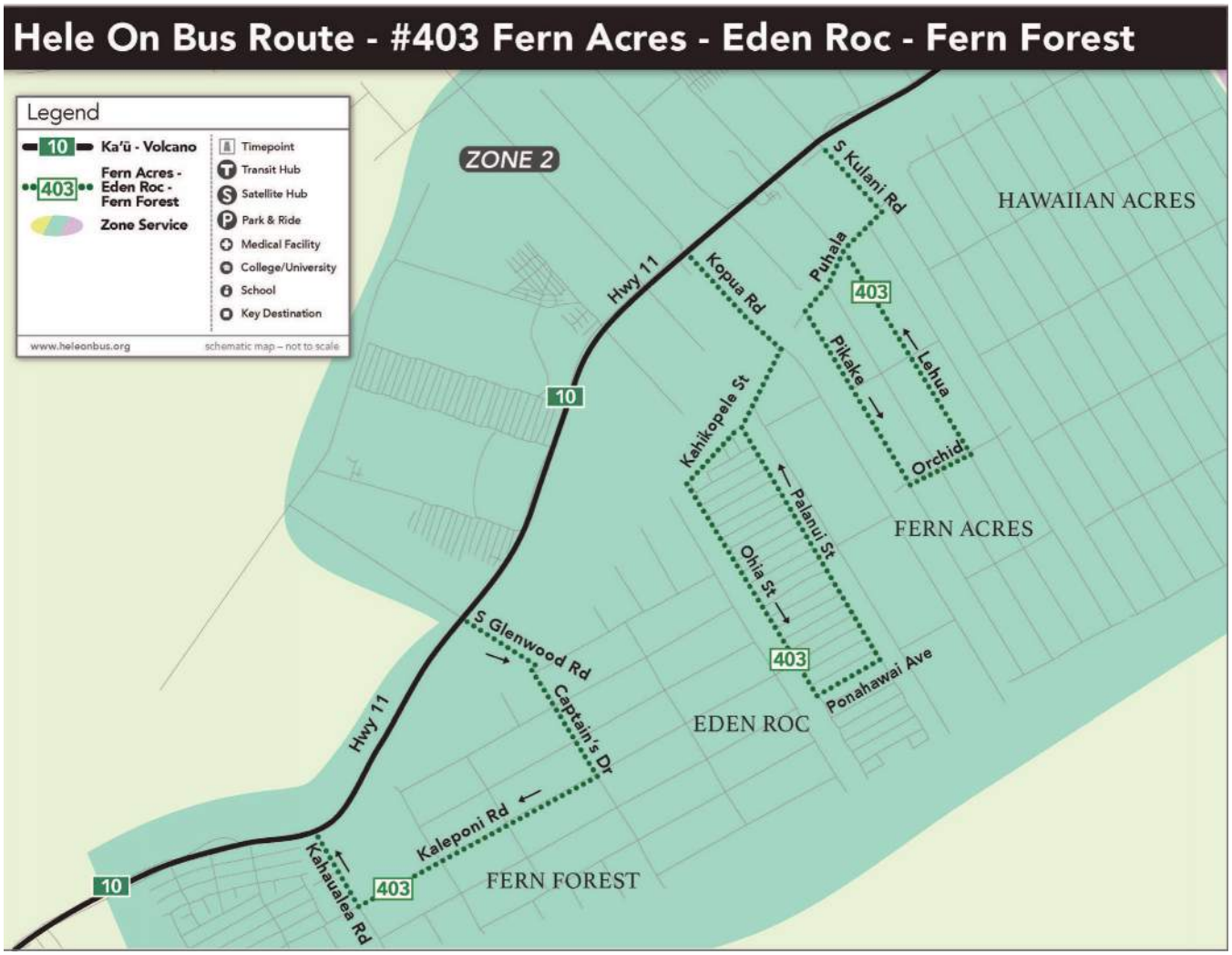
location. In the intermediate and longer-term, the new Puna Kai development may offer an off-road hub where expanded amenities can be added.

Puna is served by two Hele-On bus routes: **Route 10 Kaʻū-Volcano-Hilo** oriented along Highway 11 and **Route 40 Hilo-Pāhoa** serving along Highway 130, shown in Figures 4-25 and 4-26. Both routes are frequently behind schedule due to congestion and route length. Route 10 currently has one diversion to Fern Acres which is recommended to be provided by a new **Route 403 Fern Acres**, **Eden Roc**, and **Fern Forest**, shown in Figure 4-27. This will allow Route 10 to remain on the highway. The roads in these subdivisions are not geared for the larger buses. Currently Fern Acres is served with one inbound to Hilo trip at 9:40 AM and one return trip at 2:30 PM. A common discussion point during the public outreach was that these times are not sufficient to serve commuters. Therefore, the revised Route 403 will be scheduled such that commuters from all three communities will be able to access jobs and school in Hilo and return in the late afternoon. Other trips such as medical or shopping trips can be accommodated on the two days that zone service will be offered.

Many of the roads in Puna communities are either not paved or are in poor condition. Some of the roads are not suitable for transit service. The Puna Community Development Plan (CDP) Action Committee is working with the Department of Public Works and MTA to prioritize roads for upgrades. The roads that are prioritized will provide connectivity between neighborhoods and make it possible to extend transit into the neighborhoods as demand warrants.

The new **Red Line Express** will provide an additional trip between downtown Hilo and Volcano. The route,

Figure 4-27. Route 403 Fern Forest, Eden Roc and Fern Acres



operating on the Route 10 alignment, will depart MBT at 8:30 AM. This trip plus the 9:50 AM inbound trip departing Volcano National Park Visitor Center will provide the communities along Highway 11 with another opportunity to access jobs, schools and other services. An evening trip will depart MBT at 5:15 PM providing a commute home option. Routes 10, 40, 402, 403 and the Red Line Express will serve a future park and ride lot in Kea'au proposed by the Office of Planning, State TOD/TRD Strategic Plan. The site for the potential park and ride lot is approximately .18 miles west of the Kea'au Post Office. This will be a good location for flex and zone services in the region to meet for passengers to transfer.

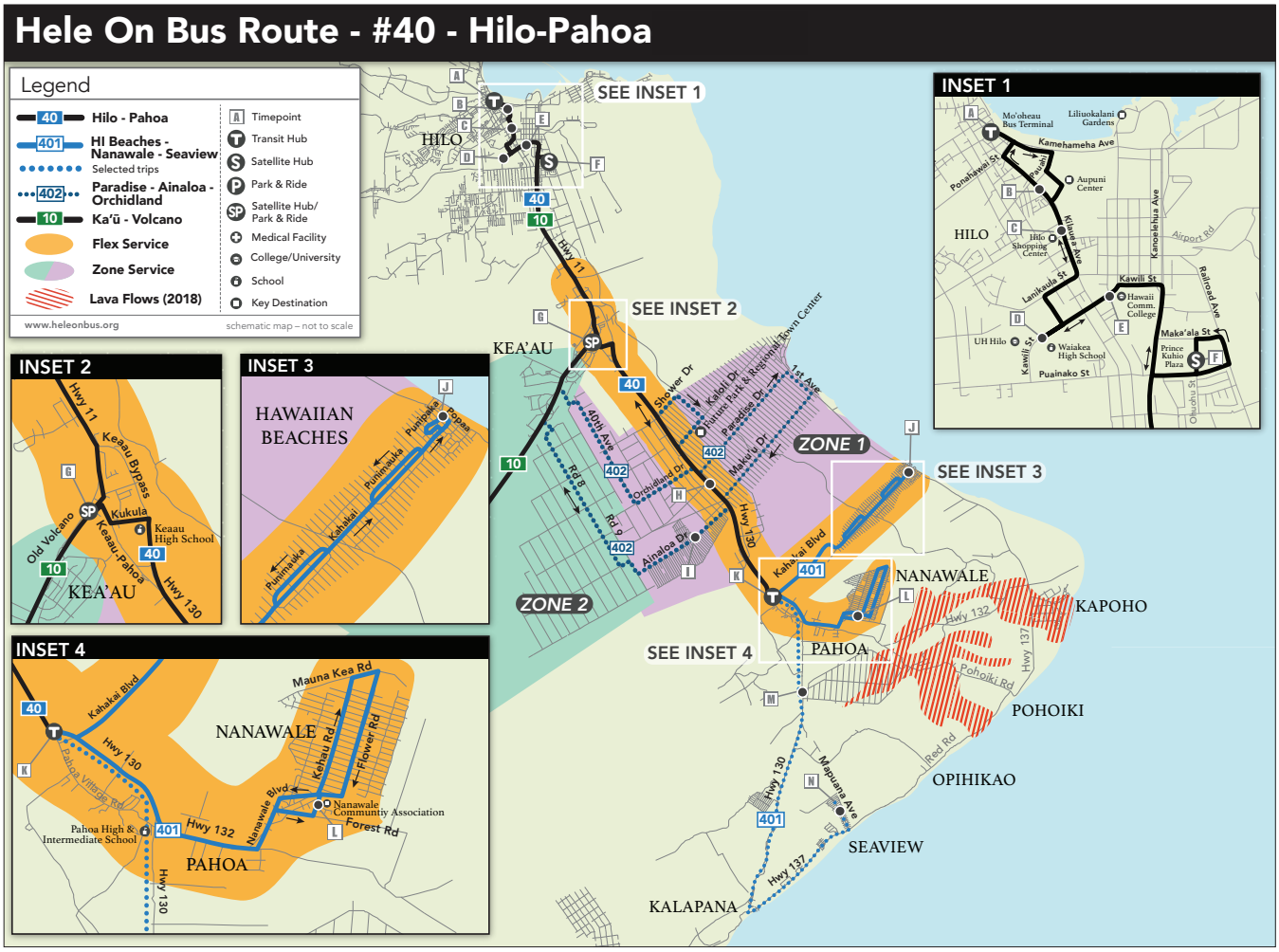
On Tuesdays and Thursdays, zone service (Zone 2) will be available to anyone within the zone (that has clear, safe access and paved roads). As with paratransit and flex services and as discussed for Zone 3, intending passengers need to make a reservation for the pick-up and return trips. Trips will be grouped within the zone, so passengers have the opportunity to reach the main route for a timed connection. It is expected the zone service will gauge the public's demand for additional transit services or service days. A one-to-two-year trial period should be implemented after which a review of the service utilization should be conducted. Zone service will allow MTA to see where service is used and in the longer term perhaps upgrade to flex service with more service days.

The zone service for Zone 2 will share the vehicle with Zones 1 and 3 to start. If additional service days become necessary, then another vehicle would be added assuming all zone services continue to operate. Zone 1 will have service on Fridays. One day is suggested since the proposed circulators in Hawaiian Paradise Park will have more coverage than current services.

Many comments were received during the community meetings and from individual mail and email submittals from Puna District residents and from the Councilmembers representing the District. Overwhelming support for expanding service into Puna's large residential divisions was the overall theme of those comments. Most were concerned about the ability to get to jobs and schools in the morning and have return trips in the afternoon and evening. A network of community commuter-oriented services has been designed for Puna District. These routes will connect to the main connector Routes 10 and 40 and the new Red Line Express. The routes are described as follows:

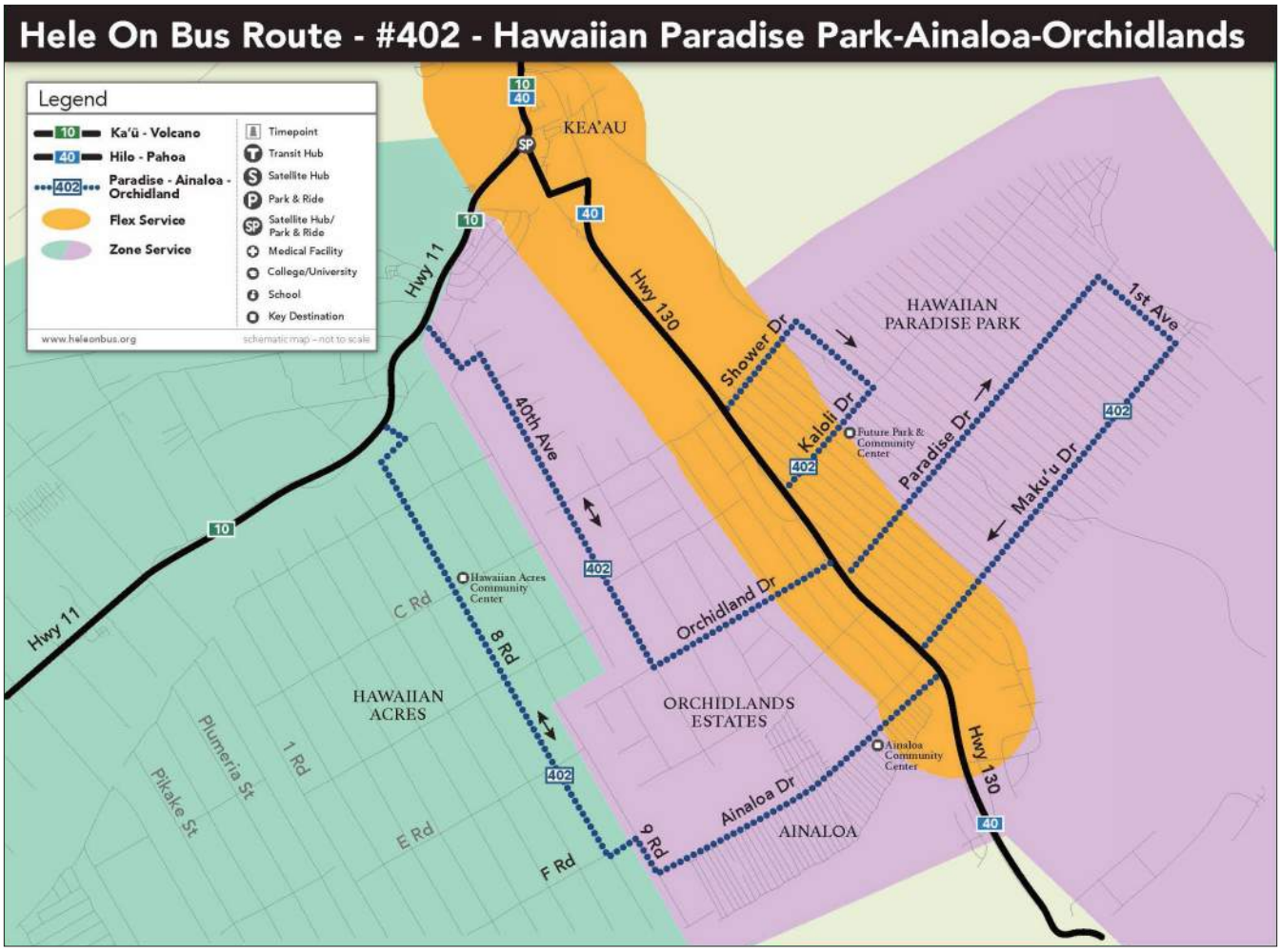
- Route 10 and Red Line Express Hilo to Volcano: Operates between Hilo MBT and Volcano National Park Visitors Center. The routes provide service to Volcano Village via Wright Road, Kilauea Road, Haunani Road and Old Volcano Road. Sunday service will be provided by the Red Line Express
- Route 40 Hilo to Pāhoa: Operates current alignment from Hilo to Pāhoa along Kea'au- Pāhoa Road to Pāhoa Village Road, traveling through the town and turning on Pāhoa Bypass Road to access the Hub on Kahakai Boulevard where the route would meet with the community circulators. Limited number of trips will operate on Sundays. Route 40 is shown in Figure 4-28.
- Community commuter services are expanded in Hawaiian Paradise Park, Ainaloa, Orchidland, and Hawaiian Acres. These communities will be served by Route 402 Hawaiian Paradise Park/Ainaloa-Hawaiian Acres/Orchidland shown in Figure 4-29. Service within Hawaiian Paradise Park has been substantially changed. New service will be provided on Shower Drive from Kea'au-Pāhoa Road (Highway130) to right onto Ohe Avenue (24th Street) and right onto Kaloli Drive to return to Highway 130. This new routing will provide service to a future Park and Town Center planned for development on Kaloli Drive between 26th and 24th (Ohe) Streets in addition to serving residents. Current service within Hawaiian Paradise Park along Paradise Drive and Makuu Drive will be extended to 1st Avenue.
- Currently Ainaloa is served only as far as the Ainaloa Community Association leaving much of the community unserved. Hawaiian Acres is currently not served by transit except from Route 10 operating on Highway 11. Currently Ainaloa is served only as far as the Ainaloa Community Association leaving much of the community unserved. Hawaiian Acres is currently not served by transit except from Route 10 operating on Highway 11.
- New Ainaloa/Hawaiian Acres service will extend beyond the Ainaloa Community Association and continue to a right on 9 Road, left on F Road, right onto Moho Road (8 Road), to A Road and a left onto Kuauli Road to Highway 11. This alignment connects Ainaloa and Hawaiian Acres providing service between Highways 11 and 130. The service will provide two AM and two PM trips. Future plans may include a bike and pedestrian connection between

Figure 4-28. Route 40/401/402 Pāhoa Service Area



Span of Service:	5:20 AM to 10:45 PM; Monday through Saturday; Sunday service on Route 40
Headways:	75-minute with implementation
Number of Trips:	15 roundtrips Route 40 15 trips Flex service 2 AM and 2 PM trips community circulators Demand response Zone 1 on Fridays
Number of Vehicles:	2 30 to 40-foot vehicles, near term Route 40 4-cutaways for flex services and community circulators 1; cutaway ADA vehicle Fridays (shared Zone service vehicle)
Implementation	Near term: Change schedules, passenger notification. Identify connecting services on maps. Formalize temporary hub/bus stop and start discussions with Puna Kai Development. Intermediate to long-term: Change schedules, passenger notification, set up dispatch call center or extend contract with A2B Transportation. These routes would be operated by Hele-On but could be contracted to A2B or similar.

Figure 4-29. Route 402 Hawaiian Paradise Park, Ainaloa, Hawaiian Acres, Orchidland



the Ainaloa Community Association and Pāhoa allowing users to bypass Highway 130. The new circulator alignment will provide connections for users to extend their trip via bus.

- Similar to Hawaiian Acres, Orchidland is not served by transit except from the highway. Two AM and two PM trips will provide service via Orchid Lane Drive from Highway 130, to right onto 40th Avenue and left onto Ola'a Road to Highway 11. This service will be implemented later in the program due to an approximate 2-mile section of roadway that would need to be paved.

The Hawaiian Acres and Orchidland trips would connect with Route 10 at the Kurtistown passenger shelter or with Routes 10 and 40 at the Kea'au hub when developed.

Lower Puna

Much has occurred in Lower Puna since the release of the Draft Plan in January 2018. Almost two dozen fissures from an ongoing Kīlauea eruption opened within the Leilani Estates and nearby areas starting in early May 2018. This latest event started in early May. Figure 4-30 shows the fissures and lava flow as reported by the United States Geological Survey on June 19, 2018. As shown the eruption has covered communities and roads. Hundreds of homes have been destroyed and other areas are isolated. Figure 4-31 shows current activity from fissure 8 in Leilani Estates.

Hele-On provided three daily trips serving Leilani Estates, Kapoho, Pohoiki, Seaview, and Kalapana prior to the eruption with a large one-way loop. Kapoho and Pohoiki are are covered by lava as is most of Leilani Estates. Kalapana and Seaview are currently not threatened by lava although many residents have evacuated due to gas emissions and volcanic glass fragments

Figure 4-30. Lower Puna East Rift Zone

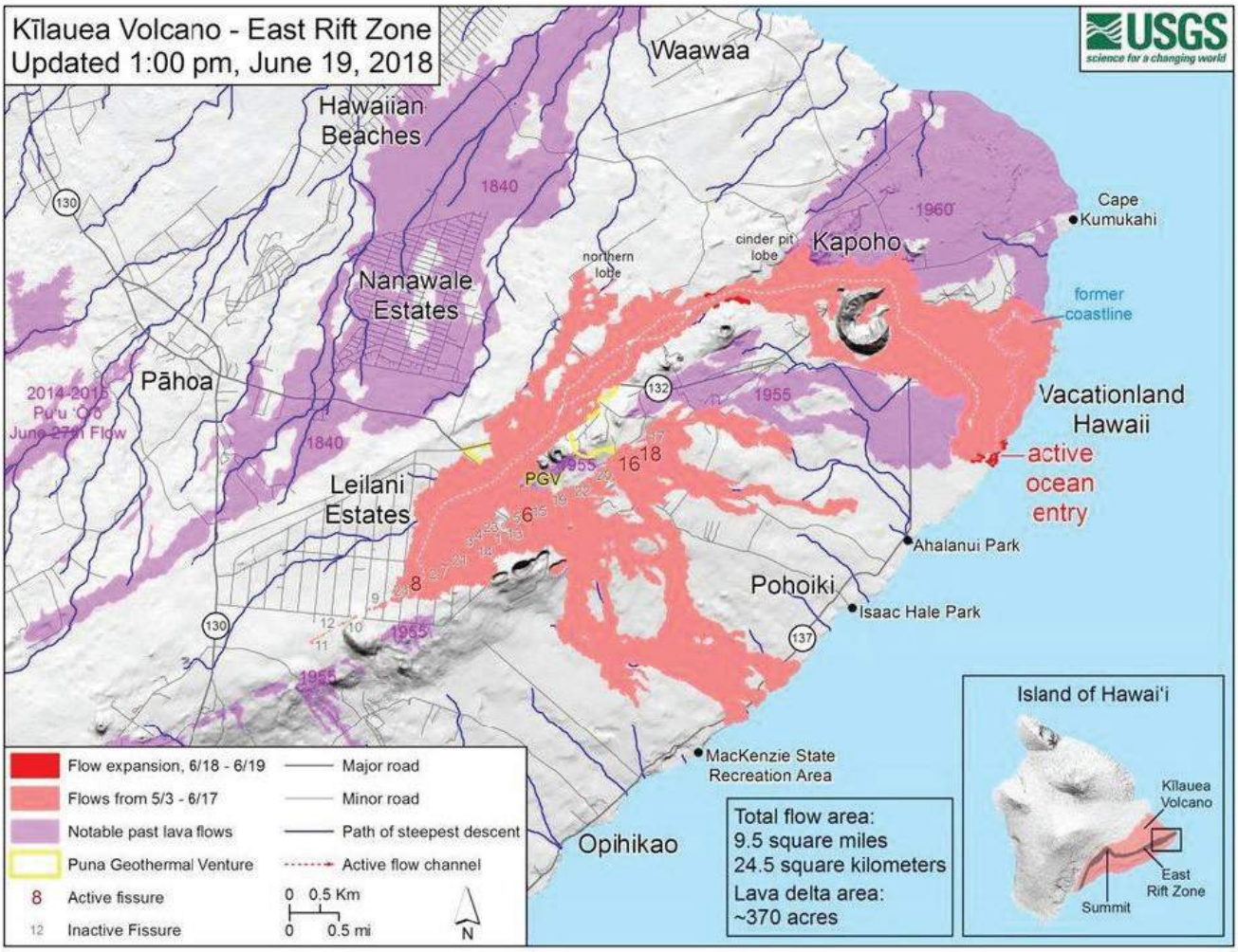
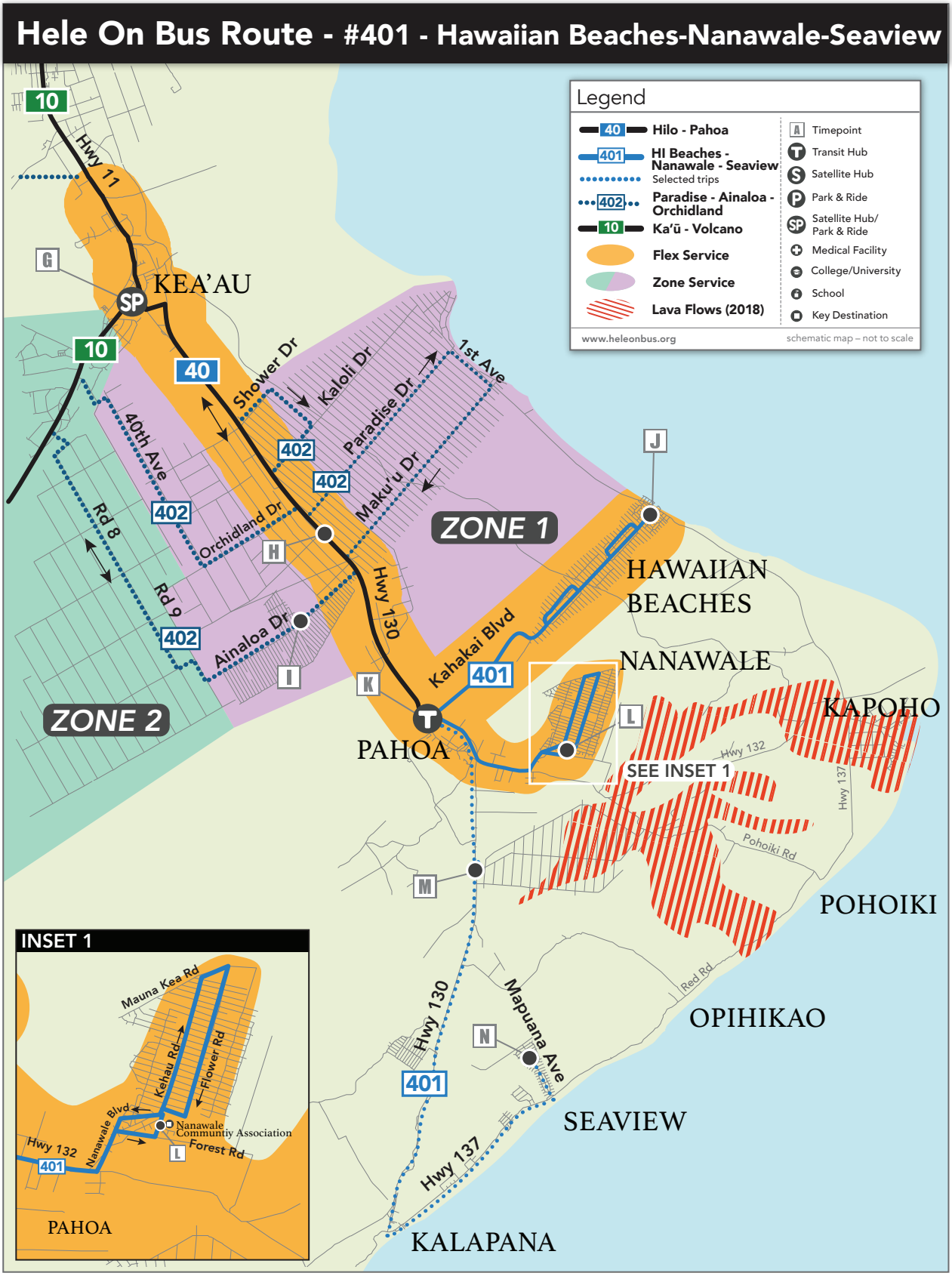


Figure 4-31 Fissure 8 in Leilani Estates

Figure 4-32. Route 401 Hawaiian Beaches, Nanawale, Kalapana



(known as Pele's hair). Highway 130 from Pahoa to Kalapana has experienced cracks and steaming, but is currently navigable.

The Master Plan recognizes that Lower Puna has experienced major events in the past and has recovered (see the purple flows in Figure 4-30). Figure 4-32 shows a modified Route 401.

- Route 401 Hawaiian Beaches/Nanawale/Kalapana will use two vehicles serving these communities. Flex service will be provided between Kea'au and Nanawale and Hawaiian Beaches. Service within Nanawale is extended along Kehau Road to Mauna Kea (this road may need upgrading to support transit service), then right onto Flower Road continuing to Nanawale Boulevard. This extension further into the community will provide service opportunities to those who currently do not have easy access to transit.
- Service to Kalapana and Seaview will operate from the Pahoa TC to Highway 130 when service is identified for restoration to Kalapana. The route will continue along Highway 137 to Seaview. The route will turnaround in the Seaview community via Mapuana Avenue, Nahokulele Street, W. Pohakupele Loop, returning to Mapuana Avenue and Pahoa. Four trips (currently three are provided) two in the morning and two in the afternoon/evening planned.
- It is anticipated that those who previously lived in the destroyed communities will either rebuild in place (if possible) or rebuild somewhere else within lower Puna. The Master Plan is a twenty-year plan, therefore the hours and miles of service originally planned to serve this area, have been retained for future services. It is expected that any service will be phased.

The Pāhoa oriented flex service should be implemented to serve ADA qualified passengers and to keep Route 40 on schedule by remaining on the highway and not diverting into the neighborhoods. One additional bus is required to make the hub and spoke system work in Pāhoa.

4.3.4 Summary of Fixed Route Recommendations

Table 4-4 provides a listing of which size bus is being recommended according to the service improvement. At full fleet size, there would be ten 20-foot buses, eighteen 30-foot, and thirty-two 35-40 foot vehicles. This fleet size assumes MTA provides all services including commuter, flex and zone paratransit. If MTA contracts commuter or paratransit services, then the vehicle fleet can be reduced.

Many service improvements have been proposed for MTA. These changes have been justified by the technical analysis presented in this report and by detailed comments received from passengers documented during the Passenger Survey. Discussions with bus drivers and passengers have added to assessment of needs. This detailed assessment included a thorough review of the individual District Community Development Plans and the County General Plan. Additional comments and recommendations were provided by stakeholders and the public during a series of community meetings.

Table 4-4 provides a description of the number and types of bus vehicles that are needed to support this service. The fleet information carries over into Chapter 5.2 which discusses the number of vehicles that need to be purchased to increase the fleet size and to replace older vehicles that have reached their useful life.
The proposed new routes and service concepts summarized in Table 4-3 will require supporting infrastructure including new bus stops, vehicles, infrastructure and additional drivers. The service plan requires operating and capital funds to be available for full implementation. The Financial Plan and Capital Program defines those costs and provides a timeline for implementation phasing.

4.4 Paratransit Services

MTA accommodates disabled passengers able to use the bus by having lifts or ramps on all vehicles along with other accommodations such as stop and route notification. In addition to Commuter and fixed route transit services the County of Hawaii provides ADA Complementary Paratransit services in the Hilo and Kona urban areas. Additionally, the County provides funding for paratransit services through the HCEOC and through the Hawaii County Parks and Recreation and Coordinated Services for the Elderly (CSE). The HCEOC paratransit services are provided to low-income residents on a pre- screened basis. The HCEOC provides paratransit services for other agencies including the Office of Aging, Medicaid, and non-profit agencies including The Brantley Center. The CSE provides transportation service for the elderly for medical and health related trips, to meal sites and other resource services. There are a limited number of non-profit agencies that provide transportation generally limited to serve their clients and programs.

4.4.1 Providing Accessiblity

Transit facilities including bus stops must be accessible to people with disabilities. Informational materials must be provided in adequate forms that ensure individuals with disabilities also have access to adequate information, including schedules, routes, fares, service rules, and temporary changes. There are a number of responsibilities MTA has to its disabled or frail passengers who are able to use the fixed and commuter route services. The following key requirements are from the US Department of Transportation Federal Transit Administration guidance on implementing the Americans with Disabilities Act (ADA):

- Route identification - Where vehicles for more than one route serve the same stop such as Mooheau Bus Terminal (MBT) or Prince Kūhiō Plaza (PKP), MTA must provide a means by which an individual with a visual impairment or other disability can identify the proper vehicle to enter or be identified to the vehicle operator as a person seeking a ride on a particular route. Without an announcement system, the driver must open the door and identify the route. It is recommended that all new vehicle purchases have the announcement system capability.
- Commuter services – A bus route may have characteristics of commuter and non-commuter service. For example, if a bus route makes stops in a suburban service area and operates as a local fixed service (serving all the bus stops), then the regulations require that local-service portion of the bus route to have complementary paratransit service. However, if this route proceeds on a highway with no intervening stop until arriving at its destination then complementary paratransit service is not required on that portion of the route. This measure would apply to Route 40 serving Pahoa. By this definition complementary paratransit service should be offered within one-mile of the route between MBT and PKP until 10 PM. It is recommended that MTA use the Shared Ride Taxi program to provide this service in the later evening hours.
- Stop Announcement - On fixed route systems bus stops must be announced. This means that any time a vehicle is to stop where a passenger can get off and transfer to another bus, the stop must be announced. The announcement can be made personally by the driver or can be made by a recording system. Announcements also must be made at

major intersections or destination points. It is recommended that all future bus purchases have a next stop announcement package as part of the vehicle specifications.

- Lifts and Ramps – It is the responsibility of MTA that when a lift is discovered to be inoperative, either because of an in-service failure or as the result of a maintenance check guidance states that MTA must take the vehicle out of service before the beginning of its next service day and repair the lift before the vehicle is put back into service. Guidance adds that when agencies do not have sufficient accessible spare vehicles available, the rules and regulations permit agencies to return vehicles with inoperable lifts to service for limited periods as follows: Vehicles with inoperable lifts may be returned to service for up to three days if there are no available spares and the transit agency's service area has a population of more than 50,000.

There are multiple actions possible to address the lifts failing. This is a common issue in transit. Suggestions include:

- **Retraining drivers on how to properly use the lifts and ramps.**
- **Have mechanics check that the lift is securely grounded after installation to ensure the electric system operates properly. This issue is more frequent in older vehicles and can be the cause for lifts that work intermittently.**
- **Lift springs wear out and break causing the lift to run less smoothly and not be able to level. It is recommended that the springs are lubricated and checked regularly.**
- **Use the correct hydraulic fluid on the lift is of most importance. Ricon, builder of wheelchair lifts and other systems, recommends using an aircraft hydraulic fluid as changes in temperature do not impact the fluid.**
- **Establish proper preventative maintenance.**

4.4.2 ADA Complementary Paratransit Service

ADA paratransit service provides complementary curb-to-curb service (door-to-door is available for those requiring assistance) for those individuals who are unable to use fixed route bus service due to disability. It is provided in those areas that have fixed route service such as the intra-Hilo and intra-Kona routes. Since ADA paratransit service is demand-responsive, vehicles do not travel a fixed route or schedule. Trips are scheduled for those qualified individuals who have pre-called to schedule their ride. A minimum of 24-hour advanced reservations are required to schedule a trip. This allows the provider to group trips within the same area to provide efficiencies in service provision.

Currently ADA paratransit service is provided in Hilo from 7:00 AM to 5:00 PM and Kona from 7:00 AM to 7:30 PM. These hours will change as the Intra-Hilo and Intra-Kona routes service hours are extended. Routes 101 Keaukaha and 103 Waiakea-Uka in Hilo are recommended to operate later in the evening until 7:00 PM and 6:00 PM, respectively. Route 40 currently provides fixed route service in Hilo between MBT and PKP until 10:00 PM, requiring later evening ADA service. The Intra-Kona Routes 201 through 203 will provide service until 9:00 PM. When those changes are implemented ADA paratransit service will extend hours in those service areas.

Most systems providing ADA paratransit service grapple with the best way to offer services with increasing demand. Strategies include:

- Grouping rides as much as possible
- Scheduling trips to allow for traffic delays or delays in boarding passengers to avoid late arrivals and missed appointments
- Asking passengers to vary their trip time (no more than an hour earlier or later) to provide efficient schedules when necessary
- Five minutes wait for the passenger to be ready to board
- Temporarily suspending passengers from being able to use the service for repeated no-shows. The no-show designation can include late shows.
- GPS automatic vehicle locators and communication terminals placed on all vehicles providing ADA paratransit service. This allows for easier communications with drivers to report last minute cancellations or rerouting due to no-shows
- Scheduling software to prepare efficient vehicle schedules (this will become necessary as demand grows)
- All persons desiring to use ADA paratransit service must be reviewed for their capabilities

ADA complementary paratransit service is expected to average three (3) to five (5) percent increase each year. MTA has provided the ADA paratransit service for two years. MTA contracts the rider assessment, call center/scheduling, and service provision. Vehicles are provided by the contractor and are therefore not included in the vehicle replacement programs shown in Chapter 5. It is recommended that MTA continues to contract the assessment, call center/scheduling, and service provision for the foreseeable future. However, it is important for MTA to review the contractor's capacity to service projected growth.

4.4.3 Shared Ride Taxi

The Shared Ride Taxi program is currently only available in the Hilo urban area. This program is available to the general public and has proven to be very successful. Of the seven taxi companies participating two have accessible vehicles. These two companies, however, offer 24-hour service and serve the Hilo Airport. Currently the passenger pays $2.00 to ride up to four miles with another $2.00 to ride up to nine miles using pre-purchased coupons. As discussed in Section 6.5.3, the Transit Master Plan recommends increasing the fair to $3.00 in 2019 and $4.00 in 2020. Currently passengers are paying 40 percent of the cost with MTA paying 60 percent. As a comparison, the fares from the fixed and commuter routes account for less than 15 percent of the cost.

The demand for paratransit service will only increase as the population continues to age. It is recommended that MTA contract with ADA accessible taxis to supplement the ADA Paratransit program. It is more cost effective to use the accessible taxis for the later evening trips. The call center will need to make sure that an ADA accessible taxi is available for the later evening trips that are pre-scheduled. MTA will need to verify in the agreement with the taxis that they will make a pre-arranged trip.

The Transit Master Plan recommends that MTA contract with Kona taxi companies to provide Shared Ride Taxi service in Kailua-Kona. Of particular importance is identifying those taxi companies with ADA accessible vehicles. The County should be proactive in developing supplement providers for the expected increase in demand. The Intra-Kona circulators are proposed to operate until 9:00 PM. Taxis may be better equipped to provide the later evening paratransit trips.

4.4.4 Flex Paratransit Services

Additional curb-to-curb paratransit-type service is recommended for areas in Waimea, along the Hamakua Coast, Puna and in North Kohala (as demand warrants) with the introduction of new Flex services. Flex routes combine general public dial-a-ride with a fixed route. Route 301 will replace the current Waimea shuttle to provide service to anyone within 3/4 mile on either side of the route alignment by pre-arrangement. The hours and conditions of service are similar to the ADA paratransit program except that it is available to the general public. Route 60 will provide four Flex trips connecting Honoka'a with downtown Hilo deviating 3/4 mile off the route to provide service. Route 401 in Puna will provide Flex service along the Highway 130 corridor between Keaau and Pahoa, Hawaiian Beaches and Nanawale service areas. Flex services will gage the demand for transit beyond the identified route alignment. Flex routes also provide needed paratransit service to areas that are not currently served.

4.4.5 Zone Paratransit Services

Since a vast majority of MTA's service is commuter, the Transit Master Plan has recommended the introduction of Zone service to provide weekly opportunities for residents in areas not provided with Flex or other paratransit service to schedule trips. These areas in Kau and Puna are recommended for new services in FY 2021. Both the Flex and Zone services are described in more detail in Chapter 4.

As the Flex and Paratransit Zone services are implemented, MTA will monitor demand to ensure that service is able to accommodate demand. If it becomes warranted due to excessive demand, fixed routes may replace the Flex routes in which case, ADA complementary paratransit services would need to be implement-ed. Similarly, Zone service may become Flex routes as demand warrants.

The TMP recommends new paratransit-type services in Hamakua, North Kohala, South Kohala, Kau and Puna Districts joining services already provided in Kona and Hilo.

Table 4-3. Summary of Proposed Services by District

CURRENT SERVICES			PROPOSED SERVICES		
DISTRICT	**Hele-On Reference**	**Number of Trips**	**Route Number**	**Number of Trips**	**Changes/Additions**
Hilo	Hilo/Kona	3 OW	1	3 OW	Serves new Kona Hub
	Intra-Hilo Keaukaha	8 RT	101	9 RT	Modifies service to provide every other trip to King's Landing offering a more direct trip to Banyan Drive and MBT from Airport. Adds new service to North Hilo. Sunday service is introduced.
	Intra-Hilo Kaumana	5 RT	102	7 RT	Kaumana City is provided 1 RT departing KC at 7 AM and returning from MBT after 5 PM. 3 additional trips are offered to the Gentry subdivision turnaround and 3 trips serve Waianuenue Ave.
	Intra-Hilo Waiakea-Uka*	2 RT	103	9 RT	6 trips will serve Waiakea-Uka and 3 additional trips will serve as far as PKP. Service to gym is discontinued and service to North Hilo is added.
			104	6 RT	New route serving center Hilo including Mohouli housing, St. Joseph School, Kamana Senior Center and housing and County agencies.
			Blue Line Express	2 RT	Express service between MBT and Kona Hub via Daniel K. Inouye Highway. Sunday service is added.
	Hilo/South Kohala Resorts*	9 RT	80	9 RT	2 trips will travel from MBT to South Kohala Resorts via Daniel K. Inouye Highway.
Hāmākua	Hilo/Honokaʻa*	2 RT	60	4 RT	Flex service is introduced to provide access to transit to the villages and small towns along the coast. The route will divert 3/4 mile off route to serve prearranged pickups. Park and ride locations are identified.
North Kohala	North Kohala-South Kohala	1 RT	70	1 RT	none
	North Kohala-Waimea-Kona	1 RT	75	1 RT	Service is added to the Kona Airport. Saturday service to Waimea is added. Longer term flex service is added as demand warrants.
South Kohala	Waimea Shuttle	11 RT	301	7.5 RT	Flex service is introduced. The route will divert 3/4 mile off route to serve prearranged pickups.
			Green Line	2 RT	Express service added between Honokaʻa, Waimea and Kona Hub. Sunday service is added.
					Waimea Hub is developed.
Kona	Kona/Hilo	3 OW	2	3 OW	Provides service to Kona Hub
	Intra-Kona*	6 RT	201	7 RT	4 Kona oriented circulator routes replace the current Intra-Kona service. All 4 routes connect at a new Kona Hub located in the vicinity of the Old Kona Airport. Route 201 provides South Kona service via Alii Drive.

			202	9 RT	Connects the Kona Hub with the Airport via Ane Keohokalole Highway.
			203	9 RT	Connects the Kona Hub with the Airport via Highway 190.
			204	9 RT	This route serves South Kona via Kuakini Highway.
					New maintenance facility to be located in Kona.
Kaʻū	Pahala/South Kohala Resorts	3 RT	90	4 RT	Added trip between Pahala and Kona Hub for a total of 4 roundtrips.
				2 RT	Two RTs are added between Oceanview and Volcano for residents to connect with Route 10 to Hilo.
			Zone 3	2 Days	Zone paratransit service is added two days a week.
Puna	Hilo/Volcano	5 RT	10	5 RT	Fern Acres service is provided by separate route.
			Red Line	2 RT	2 trips between MBT and Volcano are provided by the Red Line. Sunday service is offered.
			403	2 RT	2 AM and 2 PM trips are provided to Fern Forest, Eden Roc, and Fern Acres communities scheduled to provide commuter service.
	Hilo/Pāhoa/ Pohoiki	11 RT	40	15 RT	Service is provided between MBT and Pāhoa without diverting into the residential communities. Sunday service is added.
			401	10 RT	Flex service is added between Kea'au and Pāhoa and Hawaiian Beaches and Nanawale. One new trip for a total of 4 trips are provided to Kalapana and Seaview via Highway 130 and 137. This new trip is designed to serve commuters. Service is extended from Nanawale Blvd. to Mauna Kea Road (road improvements may be needed on Mauna Kea) in Nanawale serving further into the community.
			402	2 AM and 2 PM	New service is added in Hawaiian Paradise Park to serve Shower Drive and the future park and regional center on Kaloli Drive. The route is extended from 16th to 1st Avenue between Paradise Drive and Makuu Drive in Hawaiian Paradise Park. Ainaloa service is connected to Highway 11 via Hawaiian Acres and new service is introduced through Orchidland.
					Two hubs are developed; one in Keaau and one in Pāhoa.
			Zone 1	1 Day extending to 5 days	Zone paratransit service is added one day a week for areas along Highway 130. This service is extended to five days as demand warrants.
			Zone 2	2 Days	Zone paratransit service is added two days a week for areas along Highway 11.
*	Does not include trips operated by other routes.				
OW	One Way				
RT	Round Trip				

Table 4-4. Intermediate to Long Term - Vehicle Needs To Match Service Proposals

ROUTE		Current Vehicle Needs	Master Plan Vehicle Size Needs			
Number	Name		Cutaway 20 feet or less	Cutaway 30 feet or less	35-45 feet	Total Vehicles
1	Hilo/Kona	1			1	1
2	Kona/Hilo	1			1	1
10	Hilo/Volcano/Kau	2			2	2
10	Kau/Volcano			1		1
Red	Hilo/Volcano				1	1
40	Hilo/Pahoa/Pohoiki	4			2	2
60	Hilo/Honokaa	1	2			2
70	North Kohala-South Kohala	1			1	1
75	North Kohala-Waimea-Kona	1			1	1
Green	Waimea/Kona				1	1
80	Hilo/South Kohala Resorts	10			8	8
80	Hilo/South Kohala Resorts via Saddle				2	2
Blue	Hilo/Kona via Saddle				1	1
90	Pahala/South Kohala Resorts	3			4	4
101	Intra-Hilo Keaukaha	1		1	x	1
102	Intra-Hilo Kaumana	1		1	x	1
103	Intra-Hilo Waiakea Uka			1	x	1
104	Intra-Hilo Mohouli		x	1		1
201	South Kona via Alii Drive	2		2		2
202	North Kona via Highway 19			x	1	1
203	North Kona via Highway 190			x	1	1
204	South Kona via Kuakini Highway			1	x	1
301	Waimea Circulator	1	x	1		1
401	Hawaiian Beaches/Nanawale/Kalapana			2		2
402	Hawaiian Paradise Park/Ainaloa			2	x	2
403	Fern Acres/Fern Forest/Eden Roc		2			2
Zones 1-3	Zone Paratransit Service in Kau and Puna		4			4
	Buses required for Maximum Service	29	8	13	27	48
	Spares (minimum 20%)	7	2	3	5	10
	Total	36	10	16	32	58

Chapter Five:

5.0 RECOMMENDED ELEMENTS FOR THE TRANSIT CAPITAL PROGRAM

Chapter Five describes the elements recommended for the MTA Capital Program through text, figures, and tables. The actual multi-year capital plan is presented in Chapter Six. Therefore, it is recommended that the two chapters be read together.

During the public information meetings held in April 2018, attendees were highly supportive of all the recommended capital expenditures including: buying new buses; installing information signs at bus stops, building more bus shelters; locating transit centers in Puna, Kona, and Waimea; improved security; and creating a transit application for the island bus system.

5.1 TRANSIT APP

The top request from riders was for development of a transit application (APP) that would provide real time information. MTA previously started a procurement for such a system by identifying the features it desires. These are: upgrade of the GPS system including the hardware and the software (compatible with existing Calamp). In addition, to have the features with automatic vehicle tracking, APC, and audio/visual displays. The cost for the system is estimated at just under $500,000, which can be funded over two years. In the meantime, MTA will work with Google to create an App on their system.

5.2 TRANSIT FLEET

Far and away the most important capital need for the current transit program is to get a reliable fleet, replacing the current vehicles, and expanding to a fleet that is dependable and suited to the type of services being provided.

The effects on service, rider confidence, and MTA pride due to breakdowns and the non-availability of the equipment and "dead" vehicles has been described elsewhere in this plan and will not be repeated here. As of 2015, Hele-On had 55 vehicles listed in their bus fleet. However, 18 buses were listed as not operable or repairable. This was pared down to 37 in 2016. The current running fleet consists of 11 buses shown in Table 5-1. Of those, four were gifted this past summer from the City and County of Honolulu from their retiring fleet. These buses are in good repair, but their useful life is limited. MTA does not directly operate the paratransit services and therefore, does not have a paratransit fleet.

Table 5-1. Hele-On Active Bus Fleet (as of June 2018)

Year	Quantity	Make	Bus Numbers	Seating Capacity
1997	4	Gillig	341-347	45
2007	2	Chevy	54-55	15
2008	1	Chevy	102	15
2010	2	MCI	601-602	50
2014	1	MCI	611	49
2015	1	MCI	612	49
Total	11			

5.2.1 Transit Fleet Size and Composition

The current running fleet is 11 vehicles, well below what is required to operate current bus routes. The CIP places an emphasis on rebuilding the fleet. Table 5-2 presents a suggested fleet replacement and expansion plan based on the proposed service plan in Chapter 4. The number

of vehicles needed for current service is 36. The number needed for full implementation is 55, including spares.

No new vehicles were added to the fleet in FY 2018. Starting in Fiscal Year 2019, it is recommended that three smaller and four 40' vehicles be procured and added to the fleet. The following year 2020 should add seven under 30' vehicles. Table 5-2 is a replacement and expansion schedule which shows the number of vehicles required to operate the service. Currently and over the next several years into the future, MTA will continue to require contracting with private providers for buses. If funds become available, such as additional grant opportunities, then a more aggressive bus acquisition program should be pursued.

The Financial Plan in Chapter Six uses the following estimates for cost of the three types of vehicles needed for service. The estimated cost includes the electronics package described in Section 5.2.3. It averages to about $19,000 per vehicle.

- **20-foot or less** **$220,000**
- **25 to 30-foot** **$310,000**
- **40-foot vehicle** **$576,300**

These costs listed above are escalated by 1.2 percent per year in the CIP.

Table 5-2. Fixed Route Bus Inventory and Fleet Expansion Plan – Fiscal Years 2017 to 2027

BUDGET YEAR	MODEL YEAR	BUS DESCRIPTION	SIZE (FT)	FISCAL YEAR										
				2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	1997	Gillig	40'	8	4	4	2	2						
	2006	Chevy-26 pass	25'	1										
	2007	Gillig	40'	2	2	2	2	2						
	2008	Chevy-15 Pass	16'	1	1	1	1							
	2010	MCI	40'	3	2	2	2	2	2	2	2	2	2	2
	2014	MCI	40'	1	1	1	1	1	1	1	1	1	1	1
	2014	Eldorado	40'	1										
	2015	MCI	40'	2	1	1	1	1	1	1	1	1	1	1
2018	2019	Standard Diesel	40'											
2018	2019	Standard Diesel	<30'											
2019	2020	Standard Diesel	40'			3	3	3	3	3	3	3	3	3
2019	2020	Standard Diesel	<30'			6	6	6	6	6	6	6	6	6
2020	2021	Standard Diesel	40'				5	5	5	5	5	5	5	5
2020	2021	Standard Diesel	<30'				3	3	3	3	3	3	3	3
2021	2022	Standard Diesel	40'					3	3	3	3	3	3	3
2021	2022	Standard Diesel	<30'					3	3	3	3	3	3	3
2022	2023	Standard Diesel	40'						3	3	3	3	3	3
2022	2023	Standard Diesel	<30'						2	2	2	2	2	2
2023	2024	Standard Diesel	40'							3	3	3	3	3
2023	2024	Standard Diesel	<30'							3	3	3	3	3
2024	2025	Standard Diesel	40'								3	3	3	3
2024	2025	Standard Diesel	<30'								3	3	3	3
2025	2026	Standard Diesel	40'									3	3	3
2025	2026	Standard Diesel	<30'									3	3	3
2026	2027	Standard Diesel	40'										1	1
2026	2027	Standard Diesel	<30'										2	2
2027	2028	Standard Diesel	40'											2
2027	2028	Standard Diesel	<30'											3
		Total Active Fleet		**19**	**11**	**20**	**26**	**31**	**32**	**38**	**44**	**50**	**53**	**58**
		Peak Assignment		29	29	32	35	35	38	40	42	45	45	48
		Spares		-10	-18	-12	-9	-4	-6	-2	2	5	8	10
		Spare Ratio		-34.5%	-62.1%	-37.5%	-25.7%	-11.4%	-15.7%	-5.0%	4.8%	11.1%	17.8%	20.8%
		<20 foot Buses/Vans		1	1	7	7	7	7	7	8	8	8	8
		25 to 30 foot Buses		1	0	0	3	5	7	10	12	15	17	20
		35 to 40 foot Buses		17	10	13	16	19	18	21	24	27	28	30
		Total Buses		19	11	20	26	31	32	38	44	50	53	58
		Average Fleet Age in Years		12.2	12.6	7.1	4.1	3.7	1.9	2.3	2.7	3.1	3.8	4.4

5.2.2 Fleet Replacement

By 2027, the fleet size of 55 vehicles required to operate current and expanded services have been procured. This total number includes all vehicles including commuter services currently provided by private operators using their coaches. If MTA desires to continue the commuter service with coaches provided by private operators, then the fleet acquisition plan can be reduced. The vehicle spare ratio will be at 20 percent in 2027.

From 2027 on, MTA should continue to purchase four to five vehicles a year to maintain the fleet. The spare ratio may need to increase with the opening of a second maintenance facility in Kailua-Kona. Both maintenance facilities will need sufficient spares to operate the required services. The 40-foot buses have an average useful life of 12 years by industry standard, the smaller vehicles generally have a useful life of 7 to 9 years. If MTA contracts for the zone paratransit and flex service, the fleet acquisition plan can be reduced. Therefore, since MTA will have a fleet composed of over 48 percent smaller vehicles (by 2027), the overall average fleet age should be below six years.

MTA is currently using a van for revenue passenger service and will order six more vans from a FTA discretionary grant recieved in 2018. The current MTA van and the rented vehicles from private carriers do not have bike racks. Because this is a multi-modal plan, and base on community feedback, it is recommended that bike racks be installed on MTA vans.

The fleet replacement plan shows MTA owning all required vehicles for fixed and commuter route service. The renting of private carrier vehicles will be phased out. Until that occurs, it will be important for MTA to provide notice on which routes vehicles without bike racks can be expected.

5.2.3 Fleet electronics package

Specifications for all buses should include the following three systems:

- **Mobile Data Router and Validators for a fare system**
- **Automatic Vehicle Locator and Automatic Passenger Counting system**
- **Electronic Signage and Next Stop Announcement system**

These three systems will provide MTA with the data needed to provide both internal monitoring purposes, (passenger counting, boarding by stop, on-time performance) and external information for the public including bus location and next stop announcement for those with disabilities and new to the system. The additional cost of these systems has been included in the estimated costs for vehicles.

The CIP includes investigation of adding wifi on buses. A project is identified in FY2022 to conduct this project. There are three elements to providing wifi on moving vehicles: 1) equipment on the buses, 2) providing the data and 3) connectivity. Providing and installing the equipment costs approximately $2,000 per vehicle. Many systems provide wifi at no cost if the provider is allowed to include advertising. The third element of connectivity may be the most difficult to assess. Many parts of the County do not have reliable cell service thereby causing loss of wifi service. The CIP project would identify those areas needing upgrades along with the optimum equipment.

5.3 MAINTENANCE FACILITIES

5.3.1 Hilo Maintenance Facility

For the past few years, MTA has invested in the planning, design, and construction of a new Hilo maintenance facility. The current shared facility with Public Works is outdated and unable to accommodate the needs of the MTA system. The new maintenance facility opened in 2018.

Figure 5-1. Hilo Baseyard Facility

This facility will provide all the maintenance for the fleet. Currently, buses are stored in Kailua-Kona and in Kaʻū since the service area is so vast and drivers cannot drive buses to Kona or Pahala from Hilo to start a 4:00 AM trip. Those buses are switched with buses based in Hilo for maintenance to occur.

While the new Hilo structure has already been programmed, it is likely that there will be a need for additional capital expenditures for parts, outfitting the inventory storeroom, software for tracking each bus through preventive maintenance and repairs.

5.3.2 Second Maintenance Facility

Due to the large number of routes operating through the north and west sides of the island, it is recommended that a second maintenance facility be planned. It will likely take several years to go through the steps of planning, land acquisition, design and construction. Therefore, the capital plan recommends starting as soon as practicable to reserve the desired site. A site near the police department on Hale Māka'i off Highway 19 would be a good location. Certainly, a site owned by a public agency will cost less than one that has to be purchased on the open market.

The CIP includes the planning, design, land acquisition, construction, equipment and installation costs for a transit maintenance and operations facility to be located in the Kailua-Kona area. This second facility would be constructed in the longer term as the Kona system continues to grow. 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 is 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, 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:

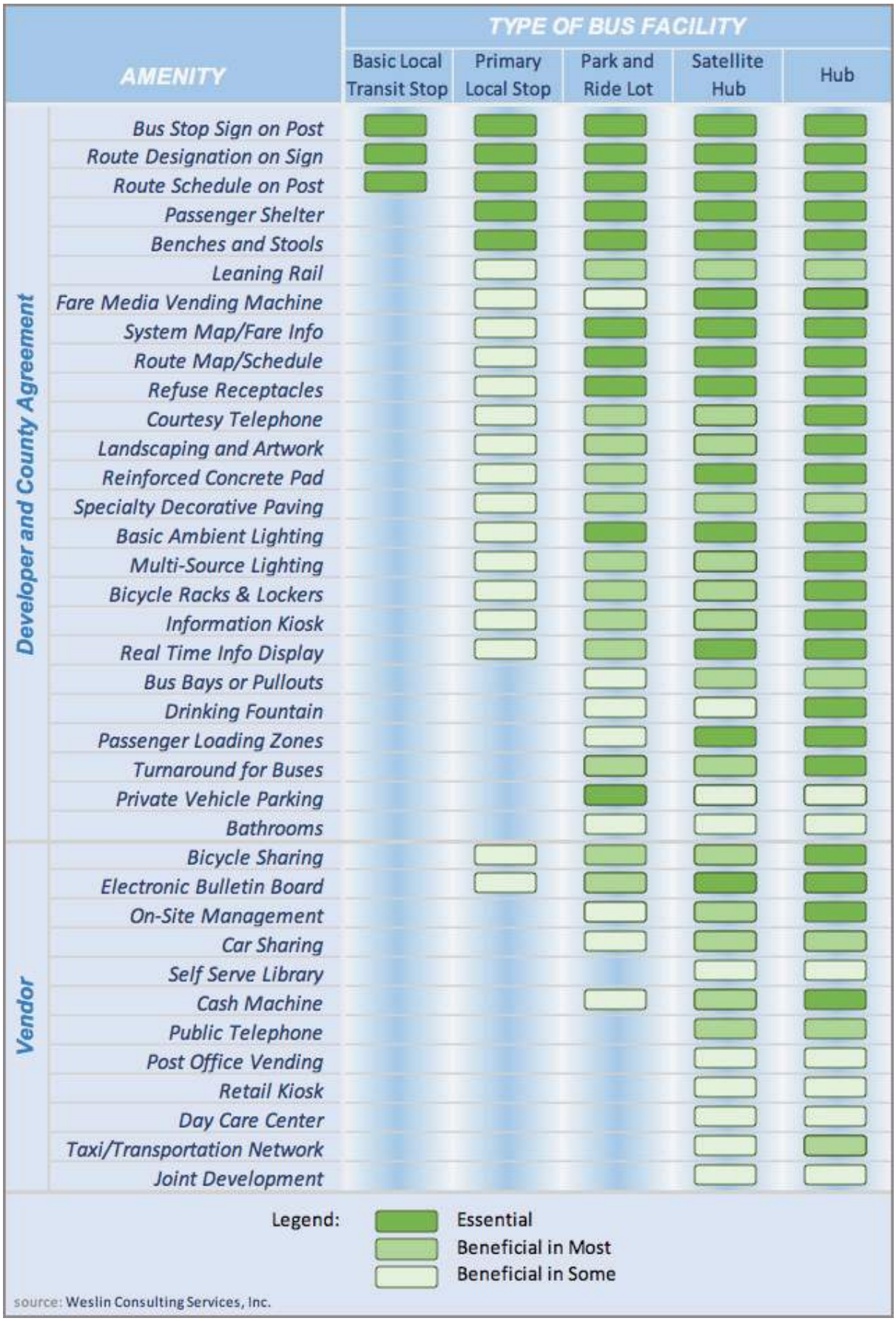
- **Zoning: industrial use or compatible current use**
- **Size: five or more acres**
- **Accessibility: ingress and egress for buses**
- **Proximity: relationship to revenue service to minimize deadheading**
- **Compatibility: fit with adjacent land uses**
- **Environmental: avoid wetlands, cultural, sensitive areas and other restricted site considerations**
- **Configuration: ability to use site efficiently to support bus service functions**
- **Topography: relatively level terrain**
- **Availability: available for use or sale**

A site with 5 acres of industrial land would have to be acquired if County land is not available. A smaller site may be viable; 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 25 buses. Recent examples indicate that construction costs should be around $200,000 per vehicle or $5,000,000. This generally excludes equipment, installation and other related costs which have been included in the CIP.

5.4 PASSENGER FACILITIES

For the recommended Hub and Spoke Service program described in Chapter Four, three types of passenger facilities are desirable: Hubs, Sheltered Stops, and Bus Stops. Each has different desirable amenities which are shown in Figure 5-2.

Figure 5-2. Facility Amenities



5.4.1 Hubs and Transit Centers

Figure 5-2 identifies two levels of hubs or transit centers: Satellite and Hub. Full Hubs are identified for Mo'oheau Bus Terminal (MBT), Kona, and Pāhoa. These locations, will have buses converging to transfer passengers and need more space for passengers and vehicles. Of these, only MBT is developed, although upgrades are needed. Hubs, whether satellite or full, provide the most amenities as they serve the most number of passengers. Satellite hubs are those locations that may not have the space for all desired amenities. This would include the current Waimea stop located on Pukalani. This stop is located on street and has a single shelter with seating.

As the system expands, it will become important to have passenger amenities at a Waimea hub, particularly electronic information and bike parking. Adjacent land is available to add these amenities. Satellite hubs are identified for Waimea, Ocean View, Kea'au, Prince Kūhiō Plaza, and Honoka'a.

Hub planning and design is proposed to start in Fiscal Year 2020 as shown in the financial plan in chapter 6. Construction would begin in 2021 and continue through 2025. Hubs to be developed and updated are shown in Table 5-3.

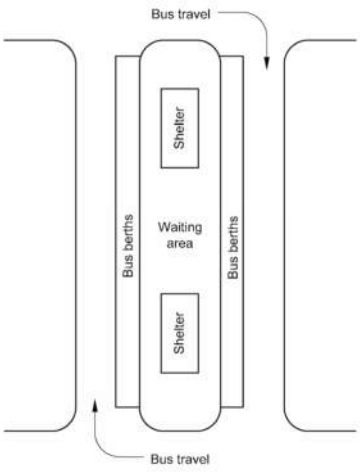
Table 5-3: Recommended Hubs for Hawai'i County

Hub	Year	Description
Pahoa	2021	The initial Pahoa hub would be temporary and located on street and can be implemented in 2019. Two passenger shelters would need to be installed. The permanent Pahoa Hub would be located near the new Puna Kai development and would require more passenger amenities including electronic signage, bike parking, fare machines, restroom.
Waimea	2021	The current Waimea hub is located on street with one passenger shelter. There is insufficient space for additional amenities on the sidewalk. However, adjacent land is undeveloped and may be available for expanded facilities including customer information, bike share, bike parking, fare equipment. Many passengers will cross the street to access shopping opportunities. Therefore, upgraded pedestrian facilities will be appropriate.
Mo'oheau Bus Terminal	2022	MBT is allocated $500,000 for upgrading facilities beyond normal maintenance. Electronic information, fare machines, bike parking, bike share need secure, covered space.
Ocean View	2022	Ocean View Park and Ride has minimal infrastructure with a gravel lot and sign. Upgraded surface, bathroom (can be portable), access signage, shelter, and seating should be added. Lighting needs to be assessed.
Honoka'a	2023	Honoka'a has two areas for bus traffic, the upper lot and lower lot. Both lots need electronic signage, electronic information, bike parking, adequate shelter and adequate seating.
Prince Kūhiō Plaza	2023	Upgrades include electronic signage, fare machines, and additional shelter and seating.
Kona	2024	The Kona Hub will be substantial and requires additional planning and design. The location would not add land acquisition costs. This Hub should be designed to hold a customer service center, bike share, bike parking, restroom, electronic signage and bus bays for a minimum of 7 buses. Potential for coordination with transit oriented development is available.
Kea'au	2025	The Kea'au Hub will include a park-and-ride lot, as well as enough room for 4 buses and passenger amenities. The hub may require land costs (not shown) if landowners are unwilling to deed sufficient space for the hub.

The planning, design, land acquisition and construction of these multiple hubs and transfer point improvements have been grouped together in the financial plan as a single transit center development program comparable to the ongoing bus stop and passenger shelter 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. Upgrades to current facilities, such as MBT, PKP, and Ocean View, are included in the construction column.

The types of features to be provided at Hubs will vary by site. All facilities should passenger shelter, seating, lighting and trash receptacles. Other considerations include:

- **Access:** Including bus-only signs to access the facility. Drop-off locations and commuter parking areas should be clearly signed. Transit facilities should have pedestrian access such as sidewalks or separated walking areas.
- **Bus Stop Positions:** There are two prominent designs for the bus positions: straight curb and saw tooth. MBT has a straight curb design. The individual bus stops at a hub should be constructed with reinforced concrete. Park and ride lots are generally built with asphalt.
- **Passenger Waiting Area:** There are three types of passenger waiting areas: center island, plaza and sidewalk. The center island is where buses stop on both sides and passengers can transfer between buses without vehicle conflicts. Plaza designs are similar, but the center pedestrian area is built on a larger scale and may include fountains, food kiosks and other services.



  The third type is the sidewalk, where the majority of passengers are waiting in the sidewalk area. This is envisioned for the initial Pahoa hub and currently occurs at Waimea. It is important to make sure this design does not encourage passengers crossing a street to access their next bus.

- **Lighting:** A range of lighting treatments are employed at the transit facilities from standard high-mast street lamps to specialized lighting treatments designed specifically for a facility such as in-ground lighting. Passenger shelters at hubs should have overhead lights underneath the shelter roof.
- **Passenger Seating:** A variety of seating treatments are provided at the transit facilities. These include individual stools, standard benches, supplemental seating offered by large tree planters and other landscaping features (such as low, decorative walls).
- **Bicycle Access and Storage:** These amenities including bicycle racks and lockers will become more important as the County embraces multi-modal transportation. Bicycle access routes will need to be clearly defined. 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. Bike Sharing stations should be located near major hubs or bus stops.
- **Passenger Shelter:** Passenger shelter should be provided at all major facilities for waiting passengers. Shelters can be the standard sized passenger shelter such as those located in Waimea or Kurtistown. Other facilities can have larger, unique shelter designs matching adjoining land use. For example, a new Kona Hub should be incorporated into the planned Transit Oriented Development design.
- **Public Restrooms:** Restrooms should be provided at all hubs.
- **Way-Finding Display or Maps:** Way finding should be at all hubs. These tie community destinations to transit and provide information for tourists.
- **Vending:** Newspaper/free publication machines, vending snack/drink machines, ATM's, can be considered.
- **Communication/Public Telephones:** All transit hubs should have signs indicating which bus routes stop at the individual bus positions. Electronic reader boards indicating bus arrival times are important to the transit user.
- **Community Functions:** Available space should be set aside for functions including Goodwill drop offs,

staffed customer service offices, recycle facilities, day care center or other community functions.

5.4.2 Bus Stops and Shelters

5.4.2.1 Formalizing Bus Stops

Formalizing a bus stop includes determining what type of amenities should be included at the bus stop. The most basic of bus stops would have a sign, route designation, and route schedule. Each bus stop needs to have a unique bus stop number as shown in the example from Honolulu in Figure 5-3. These numbers need to be posted at each bus stop.

MTA is currently in the process of developing a system app which intending passengers would use to get current information including when their bus is expected to arrive. A waiting passenger can then type in the posted bus stop number to get real time information on the next bus arrival time.

5.4.2.2 Passenger Shelters and Benches

Amenities include signs, benches, shelter, information, lighting and others identified in Figure 5-2. The planning, design, procurement, land acquisition and construction line items in the CIP are to fund bus stop locations. The MTA and County need to determine which stops will have benches and/or shelters. Primary Local Stops would add passenger shelters and seating to the basic stop amenities. As shown in Figure 5-2 there are other amenities that might prove beneficial to the passenger.

Adding additional amenities would be dependent upon safety and space concerns, as well as passenger usage at that stop and route frequency. Many of the commuter routes start very early in the morning and operate on roads and highways without lighting. Shelters should have lights that can be powered by solar energy. A design that would automatically have the light come on when an intending passenger is in the shelter would assist in letting drivers know a passenger is waiting. For these areas that are not compatible for shelters, passengers could signal drivers with a flash light.

Generally, the more frequent the route the less amenities are needed. For example, if a route has 15-minute service or less, then perhaps real-time information is not necessary as it is known a bus will arrive every 15

Figure 5-3 Basic Stop Identification Sign

Figure 5-4 Simple Bus Bench (O'ahu)

Figure 5-5 Current Design of Shelters in Hawai'i County (Kuristown)

Figure 5-6 Design used on Ana Keohokalole in Kona

minutes. However, if a route has a limited number of trips, such as Route 10 Hilo-Volcano, then it becomes more important to have information and seating, especially if that stop has more than 20 people boarding at that location. Guidelines for stop amenities need to be flexible. It becomes more important if a bus stop serves predominantly elderly passengers such as one located by a senior center, to have shelter and seating even if the number of daily passengers is limited. Figure 5-4 shows a simple bench recently placed on O'ahu.

The type of passenger shelter that Hawai'i County is currently using is shown in Figure 5-5 which is a recent new shelter in Kuristown. Figure 5-6 shows the shelter design and bus pullout used on Ane Keohokalole.

5.4.2.3 Park and Ride Lots

Park and Ride lots require additional amenities; in particular, lighting and bathrooms. Most park and ride lots serve commuters. Hele-On's commuters leave in the early morning hours when it is dark. Lighting adds safety. Bathrooms (even portable) become necessary for many commuters. Commuter trips are long especially Hilo to Kona or Pahala to Kona. In many cases, passengers have driven or been driven over 30 minutes to access the bus (Puna locations to Hilo) and their bus trip may be up to two hours to their job site. Having a bathroom available can make a difference to an intending passenger.

County park and ride lots should be used only as day parking. Overnight parking is not desirable as security is limited or not available. Park and ride lots should have bike racks and shelters.

5.5 FARE COLLECTION

As recommended in the City Audit Report on Cash Handling, all buses and vans should have secured fare boxes. In the future, a more advanced system is recommended. 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 U.S. transit systems are now using some form of magnetic based stored value or time base cards as shown in Table 5-4. Many systems are using multiple types of fare media with 42% reporting they are still using non-magnetic passes. Honolulu is in the process of implementing a smart card fare payment method. The

technology chosen by Honolulu is capable of including bike share and parking payments with the same card. Honolulu has discussed having the same technology being able to be used on all transit systems in Hawaii. MTA will need to upgrade their fare collection system in the next ten years and would benefit from joining Honolulu's system.

Table 5-4. National Fare Media Examples

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

Source: 2014 American Public Transportation Association Survey of 153 Bus Systems

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

Figure 5-7 Smart Bracelet

Chapter Six:

6.0 CAPITAL AND FINANCIAL PLANS

This chapter provides an overview of the current financial setting, analyzes revenue sources, and the impact of revenue structure on capital and financial programs. Sections 6.6 through 6.8 present future capital needs and operating expenditures for a ten-year period. Section 6.10 presents The Financial Plan.

During the public information meetings held in April 2018, attendees were highly supportive of creating a multi-modal system including expenditures for the bus and bicycling. They were supportive at a level of about sixty percent of the taxi voucher program (probably because it is now just in Hilo). Attendees recognized that improvements were going to cost something and they generally supported taxes and grants over increasing fares.

6.1 CURRENT FINANCIAL SETTING

Hele-On provides public transportation service for county residents and visitors through regularly scheduled fixed route and commuter service. These services are contracted with Polynesian Adventure Tours and back up service by Roberts Hawai'i.

Complementary paratransit demand-response service for eligible people with disabilities under the Americans with Disabilities Act (ADA) is provided in the Hilo and Kona urban areas. ADA paratransit services began service in Fiscal Year 2017. Human service paratransit transportation is provided for special needs and disabled persons outside the ADA service area.

MTA provides funding to the HCEOC and other agencies to provide transportation, including paratransit services, to low-income, elderly and disabled citizens. Transportation for those who qualify are for medical, rehabilitation centers, nutrition sites, shopping, and other trip sites.

6.2 CURRENT CAPITAL ASSETS

The current running fleet consists of 11 buses. Of those, four out of a total of seven buses were given in summer of 2017 by the City and County of Honolulu from their retiring fleet. These buses are in good repair, but their useful life is limited. MTA does not directly operate the paratransit services and therefore, does not have a paratransit fleet.

Figure 6-1 Seven buses received from Honolulu 2017

A new bus maintenance facility was completed in early 2018 and MTA moved in. The bus stop and passenger shelter capital improvement program is an ongoing expense of approximately $300,000 yearly. There are fifty bus shelters in place island-wide.

Table 6-1. Hele-On Bus Historical Information by Fiscal Year

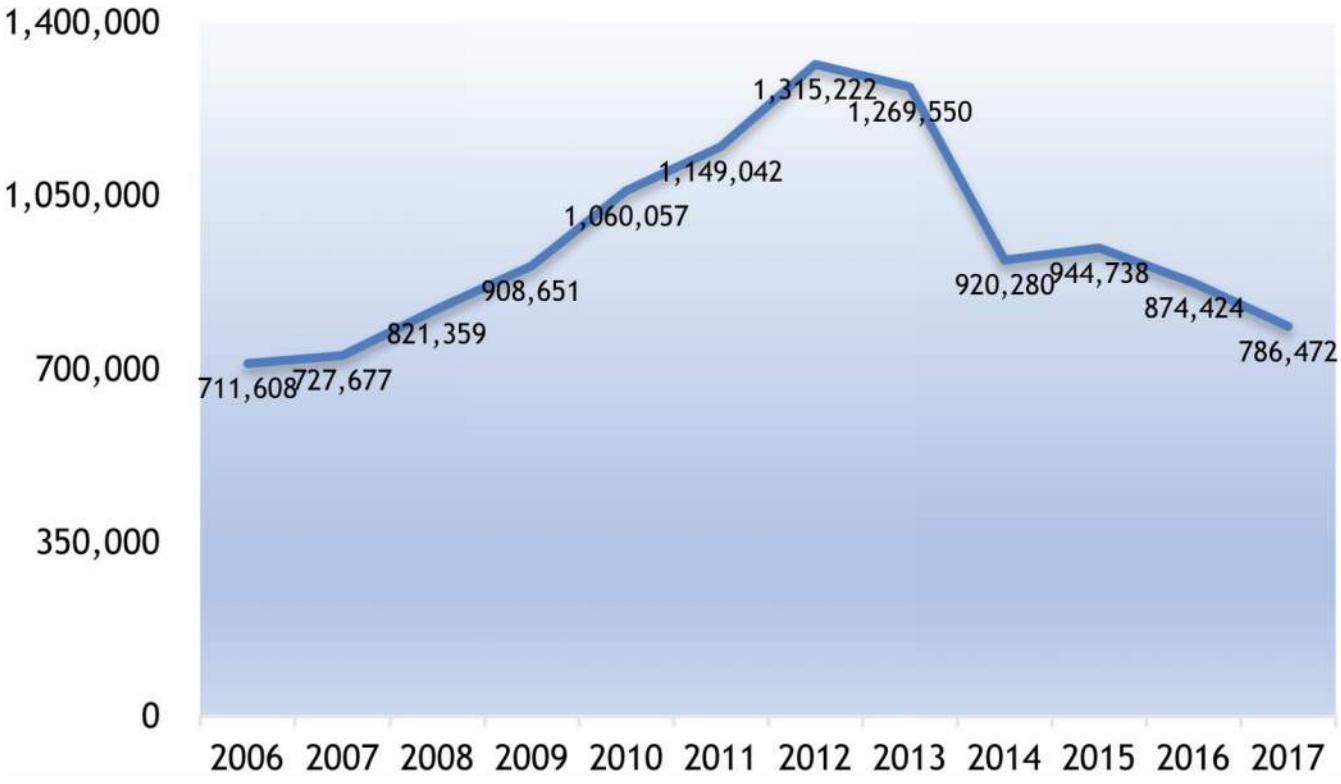
Fiscal Year	Passenger Boardings	Bus Operations	Fare Revenue	Farebox Recovery Ratio	Cost Per Passenger
2014	920,280	$6,847,105	$1,253,244	18.3%	$7.44
2015	945,000	$6,540,528	$1,044,885	16.0%	$6.92
2016	874,424	$6,782,598	$903,472	13.3%	$7.76
2017	786,472	$8,257,412	$821,017	10.0%	$10.50

Source: National Transit Database and County of Hawaii Budget

6.3 OPERATING BUDGET AND CAPITAL EXPENDITURES

Table 6-1 provides a review of the past four years of the number of passengers served, operating expenditures as reported to the National Transit Database (NTD) and from County sources. The number of passenger boardings has continued to decline from a high of about 1.2 million passengers recorded in Fiscal Year 2011 shown in Figure 6-2. The reasons for the decline in ridership is due mainly to service deterioration based upon vehicles being unavailable and an increase in breakdowns on the road. Service had become unreliable with buses not available for their assigned trips and others breaking down on the road. These issues are being addressed in the short-term by leasing vehicles from private providers, although not all scheduled trips are being accommodated. That is why the Capital Program puts an emphasis on rebuilding the fleet.

Figure 6-2. Passenger Boardings by Fiscal Year



Source: County of Hawai'i Department of Finance Comprehensive Annual Financial Report, June 30, 2011 through June 30, 2016

6.4 SOURCES OF FUNDING

MTA sources of funding come primarily from County Highway and General Funds. Over 77 percent of bus operating funds came from these two sources in fiscal year 2017 as shown in Figure 6-3 and detailed in Table 6-2. Passenger fares accounted for ten percent of the funding and 12.6% came from Federal assistance. Approximately 85% of MTA's entire budget is dedicated to bus operations. With the implementation of ADA paratransit services and other programs detailed in the Financial Plan, the percentage of operations in the overall budget will decrease. MTA receives no State operating funding support.

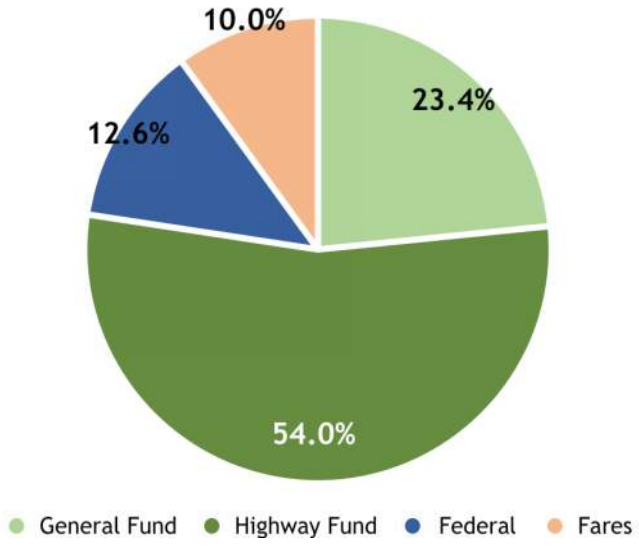
Table 6-2. Operating Fund Sources 2017

Operating Fund Sources	Amount
County General Fund	$1,929,987
County Highway Fund	$4,464,408
Federal Operating Assistance Grant	$1,042,000
Passenger Fares	$821,017
Total	$8,257,412

Source: Fiscal Year 2016 NTD and County Budget

In June 2018, the County Council approved a quarter of one percent GET surcharge to be collected between January 2019 and June 2020 (18 months). During this time, no General Funds will be used in the MTA budget, as the GET revenue source collection exceeds what had been the amount realized from the General Fund.

Figure 6-3. 2016 Sources of Operating Funds for Bus (FY2017)



6.5 FARES AND FARE STRUCTURE

6.5.1 Farebox Recovery

Farebox recovery identifies the percent passenger fares contribute to funding operation expenses. In Fiscal Year 2014 passengers paid $1,253,244 in fare revenue which provided 18.3 percent of the funding for reported operation expense for bus. Since then the farebox recovery ratio for the Hele-On bus service has ranged from 16 percent to 10 percent over the past four years, shown in Table 6-1. The average for the four years is 14.4 percent.

The human service program, including special needs and non-ADA paratransit services, does not collect a fare. The ADA complementary paratransit service demand response program was not operational in Fiscal Year 2016. In Fiscal Year 2017, fares were not collected for the first several months of service. Fares were introduced mid-fiscal year in January 2017. The shared ride taxi program reported 40.3 percent fare box recovery in 2017 (operating expense of $939,624 with $378,760 in passenger fares).

The cost per passenger for the bus service was $7.76 in Fiscal Year 2016. This was higher than the $6.92 cost per passenger from the previous fiscal year. The increase in cost per passenger is due in part to the reduction in ridership noted in Figure 6-2.

Figure 6-3 Bus Pass Examples

6.5.2 Current Fare Structure

The current fare structure is shown in Table 6-3. Fares are set by the County Council. Current fares became effective July 1, 2013 when the adult cash fare was increased to $2.00 per trip from $1.00 and senior and student fares were increased from free to $1.00.

Table 6-3. Hele-On Fares

Fare Type	Cost
Cash Fare:	
Non-discounted	$2.00, fixed route, commuter
Discounted – Seniors (60 and over), Persons with Disabilities with ID card, Students with ID	$1.00, fixed route, commuter
Monthly Passes:	
Non-discounted	$60.00, fixed route, commuter
Discounted (see above for requirements)	$45.00, fixed route, commuter
Bus Tickets:	
Regular	$15.00 for sheet of 10 tickets
Senior, Disabled, Students all with ID	$7.50 for sheet of 10 tickets

Source: County of Hawai'i Mass Transit Agency (MTA)

Hele-On Bus provides free transfers to complete a one-way trip which may be used only once. Each route has a specific color and the driver must fill out the transfer by hand which can cause route delay.

Fare choices include cash, monthly pass or bus tickets. The bus tickets are one ticket per ride with one free transfer. Baggage is allowed at a cost of $1.00 for each piece. Bicycles placed on the front rack are free.

The new paratransit service was initiated in the summer of 2016. This is a door-to-door, advance reservation service for individuals unable to use the fixed route service. Intending users are interviewed for eligibility. When approved, passengers are issued a Paratransit Eligibility card shown below. Hele-On Kakoʻo fare is $4.00 per ride. Federal law mandates that ADA paratransit fares may be no more than twice the fixed route fare.

The taxi shared ride program is available to everyone in the Hilo urbanized area. It is currently not offered in Kailua-Kona or other areas of the County. Seven taxi companies are participating in the program with two of them offering ADA accessible vehicles and two companies serving the Hilo International Airport.

Passengers may use the service to travel up to nine miles within the Hilo urbanized area. People intending to use the service must purchase coupons in increments of one, five, ten, or 15. A maximum of 15 coupons may be purchased each week. A trip of 0.1 to 4.0 miles requires one coupon (for a fare of $2.00 if purchasing a 15-coupon book) and a trip of 4.1 to 9.0 miles requires two coupons. Coupon book fares are shown in Table 6-4.

Table 6-4. Hele-On Shared Ride Taxi Program

Description	Fare
15 Coupon Book	$30.00
10 Coupon Book	$25.00
5 Coupon Book	$15.00
1 Coupon	$6.00

The coupons do not have an expiration date and are non-transferable and non-refundable.

The taxi program carried 134,986 in 2017 as reported to the Federal Transit Administration (FTA) National Transit Database (NTD).

6.5.3 Recommendation for Fares and Fare Policies

The Transit Master Plan does not recommend a fare increase on the fixed rate and commuter service t this time. Rather, the emphasis is on achieving system reliability. The Transit Master Plan recommends a review of fare policies once reliability is restored. The following subjects are recommended to be part of the fare structure review:

- **Eliminate the free transfer between buses including transfers for the discounted bus tickets. A fare would be required for each boarding.**
- **In lieu of free transfers offer a $5.00 daily pass. The discounted fare would be $2.50. The daily pass would be good on all buses for the day it is purchased. The**

goal of this policy shift away from providing transfers is to take the driver out of policing fare payment. Hand writing transfers or making sure the transfer is used within the time frame allowed, causes bus delay and places drivers in situations where they may have to challenge a fare payment.

- **Review increasing the passenger fare for the Shared Ride Taxi Program to $3.00 and $4.00 in Fiscal Year 2020 per coupon for the 15-Coupon Book. The single-ride coupon fare remains the same, while the other coupon book options will have a price increase.**

Table 6-5. Recommended Hele-On Shared Ride Taxi Program Fare Increase

Description	2020	2021
15 Coupon Book	$45.00	$60.00
10 Coupon Book	$35.00	$45.00
5 Coupon Book	$20.00	$25.00
1 Coupon	$6.00	$6.00

- **Upgrade fare collection system. Investigate options and start procurement process in Fiscal Year 2025. An upgraded fare collection system offers possibilities such as a 24-hour or 48-hour fare ticket that can be automatically read.**

In 2014 the nation wide average single trip base fare of the 153 bus systems surveyed was $1.56. This was reported in the Public Transportation Fare Database, a report prepared by the American Public Transportation Association through a voluntary survey of members. The survey included all public transportation modes; 153 systems reported data for the bus mode.

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 Hele-On 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. These single trip fare surcharges are included in Table 6-6.

Sixty-two percent of all bus systems offer a one-day pass at an average cost of $4.46. The majority of systems offering a one-day pass have discontinued use of transfers. Issuing and policing use of transfers frequently causes route delay and eliminating their use also reduces driver and passenger conflict. TheBus in Honolulu instituted use of the one-day pass and discontinued issuing transfers in summer 2017. The fare for the one-day pass costs $5.50 starting January 1, 2018, raising .50 cents from the introduction fare of $5.00. An example of the one-day pass is shown to the right.

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.

6.5.4 National Comparison

In 2014 the nation wide average single trip base fare of the 153 bus systems surveyed was $1.56. This was reported in the Public Transportation Fare Database, a report prepared by the American Public Transportation Association through a voluntary survey of members. The survey included all public transportation modes; 153 systems reported data for the bus mode.

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 associat-

Table 6-6. Comparison to National Fares

Fare Type	Cost	Number of Systems	Percent of Systems Reporting	Hele-On 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 Zone Surcharge (Distance Based)	Up to $13.50	23	15%	None
Average One Day Pass Cost	$4.45	95	62%	None
Monthly Pass Average Cost	$55.07	135	88%	$60.00

Source: 2014 American Public Transportation Association Survey of 153 Bus Systems

ed with peak-period, peak-direction, and limited–stop services comparable to the Hele-On 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, and limited-stop services over longer distances. These single trip fare surcharges are included in Table 6-6.

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6.6 OPERATIONS FINANCIAL PLAN

6.6.1 Operating Costs by Year

The recommended ten-year operating budget is shown in Table 6-8. No new services are planned for implementation in Fiscal Year 2018 (current year) as shown in Table 6-8. Therefore, operation costs reflect the current budget. Subsequent years have a two percent (2%) inflation factor built into the operating costs through Fiscal Year 2022, after which the inflation factor increases to three percent (3%). Operating costs for the bus routes are expected to decrease in FY19 and FY20 due to MTA procuring new buses to replace rentals.

The operational costs shown in years 2019 through 2025 are drawn from a detailed description of each service improvement provided in the Service Plan. The Service Plan 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. The following provide a brief description of service changes by Fiscal Year.

- **FY2019:** Route 40 Pahoa will be converted into a hub and spoke operation starting in 2019. This allows one (1) additional trip to start and ultimately four (4) additional roundtrips to be provided between Hilo and Pahoa. Two new Routes 401 and 402 will be introduced; Route 401 as Flex service later in the year. These routes will connect to Route 40 in Pahoa.

  The Blue Line Express operating between Hilo and Kona via Saddle Road and the Daniel K. Inouye Highway will be introduced in the second half of FY2019.

  Discussions with MTA's current paratransit provider should occur early in Fiscal Year 2019 to determine if they are capable of providing Flex service. MTA could provide the service using current drivers with the scheduling of Flex trips being done by MTA's ADA Paratransit providers.

  The negative number shown for current routes in Table 6-7 is the cost of current service hours that are redeployed into new Routes 401 and 402. The New Blue Line Express will start one roundtrip during the weekdays in FY2019.
- **FY2020:** Routes 101, 102 and 103 are changed per the service plan. This includes added trips on all three routes. Saturday service to Waimea on Route 75-North Kohala/Waimea/Kailua-Kona is implemented this fiscal year.

  The Honokaa Route 60 is converted to Flex service providing two (2) additional trips a day. The Waimea Circulator Route 301 offering Flex service is also implemented during this fiscal year.
- **FY2021:** Route 10 adds two weekday trips between Ocean View and Volcano Village in this fiscal year shown as additions to current routes. The Blue, Green, and Red Line Expresses are introduced in Fiscal Year 2021. The Red Line will offer two weekday and Saturday trips. The Green Line will provide one weekday trip and a second weekday and Saturday trip are provided on the Blue Line.

  Fiscal Year 2021 sees the introduction of Zone service in the Kau and Puna Districts.
- **2022:** Three new routes are introduced in 2022. Routes 201, 202, and 203 provide the hub and spoke system for Kona. Since these are new routes, the operating cost for current Route 201 is shown as a negative number under "Additions to Current Routes".

  Extended service and additional trips are added to Routes 402 and 403. This includes service to Hawaiian Acres via

Ainaloa, service in Orchidland and Eden Roc. FY2022 also sees the expansion of Sunday service. Limited Sunday service is provided on the Blue, Green, Red Lines Express Routes and Routes 40, 75, 101, and Route 10 from Ocean View to Volcano (to connect to the Red Line.) A second weekday trip and Saturday service is provided on the Green Line.

- **2023:** One new trip between Pahala and Kailua-Kona is added to Route 90 during this fiscal year. New Route 104 Mohouli is added. Zone paratransit service is extended in Zone 2 to five days a week as demand warrants.
- **2024:** No new services are scheduled for FY2024.
- **2025:** Route 204 adds to the hub and spoke system in Kona providing service between the Hub and Keauhou Shopping Center via Kuakini Highway providing new service to residential areas, medical services, shopping opportunities.

Table 6-8 also provides the operating costs for other services in addition to bus. These are described in the following paragraphs.

- **Shared Ride Taxi:** Shared Ride Taxi is currently operating in urban Hilo. While, the program may extend to Kona it is capped in the Financial Plan at $1,000,000 as reflected in the 2018 budget. This budget includes a demonstration project of $100,000 with Transportation Network Companies (Uber/Lyft) to provide shared ride services to supplement the taxi program.
- **Bike Share:** This Master Plan recommends that MTA take an active role in the expansion and administration of the current Bike Share program currently operating in Kona. Fifteen bike share stations are recommended for installation in Fiscal Year 2019 and 2020. Four stations would be placed in Kona, eight in Hilo, and three in Waimea. The procurement and installation of the 15 stations is expected to be provided by a grant. $120,000 is added to each year for program operations, balancing (moving bikes around to rebalance the stations), customer service, and publicity
- **Paratransit:** MTA provides paratransit service to the elderly and disabled in areas throughout the County. This service is provided by contract with various programs. The paratransit costs shown provide an escalation of 3 percent per year.
- **ADA Paratransit:** MTA instituted ADA Paratransit service in Fiscal Year 2017 for the urban Hilo and Kona areas. ADA paratransit costs are escalated 3 percent per year. ADA service will expand hours of service as the Hilo and Kona hub and spoke routes are expanded
- **Vanpool:** This plan recommends MTA work to establish a vanpool program. This is recommended to start with a two-year demonstration project. The costs shown in Table 6-7 are based upon six vanpools of 15 members each being established, a total of 10 vanpools in 2020 and 17 vanpools in 2021. Each 15-member vanpool traveling from Hilo to the South Kohala Resorts is expected to cost approximately $28,800 annually. The table shows the costs over several years. The costs are additive and do not consider that if successful, one or two South Kohala Resorts bus trips per day may be able to be discontinued

6.6.2 Operating Revenues by Year

The annual revenue for each year is determined by multiplying annual passenger trips by expected revenue rate per unlinked trip. That rate is expected to increase as new services are implemented and system consistency and reliability are improved. Since this plan does not include a fare increase (other than the elimination of transfers in favor of a day pass), the revenue per unlinked trip is e xpected to remain fairly constant at $1.20 per trip after reaching that number in FY2022, then rising to $1.28 in FY2027. Total annual passenger boardings are projected to increase to past high levels by 2022 and continue to increase as new services are introduced.

The ADA paratransit operating revenues per year are impacted by the growth in the service. ADA paratransit ridership is expected to grow by 10 percent per year through 2021. This high rate of growth is expected as potential eligible people become aware of the service. The rate of growth will slow to approximately three percent per year starting in 2022.

Two fare increases have been recommended for the shared taxi service: one in 2019 and another in 2020 to $4.00 per coupon based on a 15-coupon book. The increase in average fare per trip is reflected in Table 6-8. This will also impact the total number of passengers using the service although the fare revenue will continue to increase.

Bike share user fees are expected to increase a minimum of 20 percent per year from an initial $20,000 in 2020. The ultimate goal is for bike share user fees to cover the administrative cost of the system. This could happen much sooner if bikes are stationed around the university and college campuses as well as major transit hubs and employment areas. Biki Bike in Honolulu has seen a huge

increase in usage by workers during the lunch hour and on Fridays after work.

Vanpool revenues are based upon a total cost of $28,800 per year per 15-member vanpool with an annual County subsidy of $12,000 per vanpool. Vanpool members pay the remaining $16,800 per vanpool per year. This equates to about $93 per month per vanpool member. The benefit of a vanpool which would include more reliability and a quicker trip to work should outweigh the higher monthly cost as compared to the monthly cost to ride the bus. A vanpool administrator could work with the major resorts to help defray the additional monthly cost.

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 6-9 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.

Table 6-8 on page 96-97 provides the details of the calculations used to estimate the operating revenues by year for each of the modes.

6.7 CAPITAL IMPROVEMENT PROGRAM AND CAPITAL FINANCIAL PLAN

The cost estimates for the Capital Improvement Program (CIP) are provided in Table 6-9 (see pages 98-99). The MTA CIP covers the period from Fiscal Year 2019 to 2027. The CIP includes three major elements: transit facilities, passenger systems and fleet purchases.

The CIP Transit Facilities section includes the existing bus stop and shelter program and the additional stops required to formalize current flag stops and due to service expansion included in the service plan. The Master Plan recommends all new routes such as the Intra-Kona routes have formalized bus stops. The Transit Facilities section also includes transit centers, a maintenance facility and signs.

6.8 FINANCIAL PLAN BY YEAR

This section discusses the combined expenses for operations and capital for the period 2018 to 2027 shown in Table 6-10 on pages 100-101. There are four sections in the Financial Plan: Expenses, Operating Revenue, Grants, and County Funding. Each section has total costs shown. The administration and marketing line item under Expenses is based upon current budgeting for those items not associated with individual modes plus an escalation of three percent per year. The administration and marketing line item does not include the additional staff MTA 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 6-9 for each year.

The operations line items are the total numbers from the last row in Table 6-7, Financial Plan Operating Costs by Year. The capital investments line item is the last row in Table 6-9, Capital Improvement Program.

The fare revenue is from the annual revenue in Table 6-9 on pages 98-99, Financial Plan Operating Revenues by Fiscal Year. The deficit has been identified as being supported from the County General Fund Operating Budget and the County Highway Fund.

Grant funding is consistent with historic Federal grants MTA has received and is included in current budgets under Federal Operating Grants and Bus & Facilities. The Fixing America's Surface Transportation (FAST) Act, December 4, 2015 provides general fund authorizations for FTA's public transportation assistance programs for five years (fiscal years 2016 through 2020). The Financial Plan assumes current funding levels. The third line item under Grants funding is Federal Capital Investment. These are discretionary grants, are not predictable but have been included for minimal levels for transit centers, park and ride lots, and a second operating base. This category of grants are dependent on pass through funds as determined by the State. Other Federal Grant opportunities are available under discretionary grants. This category has not been included in the financial plan since these grants are very competitive and not predictable. The County should apply for any discretionary grants that become available for the Capital Improvement Program (Table 6-9). If discretionary or bus & facility grants are not available, then the County would absorb the total cost for the Capital Improvement Program.

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. Therefore, the discretionary grant funds are identified for fleet and fare equipment. County practice in purchasing has been to only fund the local share to match federal funds for vehicles. However, this is unlikely to be sufficient for replacing the bus fleet in the near term. Therefore, it is recommended than an accelerated schedule be used for the vehicles needed for implementing hub-and-spoke. Through this approach, the County can move expeditiously and consider newer used vehicles that may be available in the local market.

With fixed investments, the Federal government shares ownership of the assets where the fixed investment is constructed. This can include land. This has proven to be an awkward situation with other transit operations if they later change the use to either a different public operation or joint partnership with private interests.

The balance of the capital funding is expected to be supported by County Capital Improvement Program budget requests. The capital investments identified in this plan are ones that are essential for the cost effective and productive continued operation of Hele-On and other modal operations. Capital funding is expected to be supported by county Capital Improvements Program (CIP) budget requests which use a variety of financing sources including General Obligation Bonds. The funding for the Capital Investments is allocated to County General and Highway Funds or the GET surcharge.

6.9 SOURCES OF FUNDING

6.9.1 County Funding – Highway Fund

As shown in Table 6-10 in FY2020 County funding from the Highway Fund would be $5,164,111 when the GET is available. FY21 through FY27 when GET is not available show that total County funding ranges starts at $18,389,354 in FY21. This high cost in FY25 is due to the costs associated with a second maintenance facility.

Table 6-10 shows that a combined $15,150,000 ($1,500,000 in FY19 and $13,650,000 in FY20) is available from the GET surcharge for other roadway projects. The use of the GET in these two years greatly reduces County funding from the General and Highway Funds allowing those monies to be used for other needed programs and services.

Table 6-11 shows how the Financial Plan would be modified if the County extends the GET surcharge. No additional county funding would be required from the General or Highway Fund accounts except for FY25 when $3,000,000 is required from the Highway Fund. Capital Investment costs in FY25 include construction of a second maintenance facility.

6.9.2 GET Surcharge

In June 2018 the County of Hawaii Council voted to increase the County excise tax by .025 percent for 18 months. Collections of the surcharge will begin on January 1, 2019. This funding will be available for half of fiscal year 2019 and all of fiscal year 2020. County estimates indicate $10,000,000 will be generated in FY2019 and $25,000,000 in FY2020.

The GET funds are proposed to be split between MTA for buses and DPW for roads. As shown in Table 6-10, in FY 2019, when only six months of GET are available, $8.5 million are assigned to MTA and $1.5 million are assigned to DPW. The dollars for MTA replace $4.94 million that would have come from the General Funds, and provide an additional $3.6 million to fund immediate term priorities. In FY 2020 a full year GET collection would yield $25 million. Of this, $11.35 million would be for MTA and used to purchase additional buses as well as the passenger amenity programs. The balance of $13.54 million would be for roadways or carry-over.

Table 6-11 shows an expenditure plan for MTA and the multi-modal programs in the event that County Council determines the GET should be extended beyond FY 2020. State law allows the collection period to run through 2030.

6.9.3 County Fuel Tax

The County raised the gas tax by 6.2 cents in 2017. Revenues from this source go into the County Highway Fund. These funds are allocated to roads and mass transit. An additional 4 cent increase in the gas tax is scheduled to occur in 2018 and 2019. These two increases are dependent upon the Public Works Department submitting a plan to the Council on how those funds will be used. If the higher revenue levels are approved, then the County would be able to use additional Highway Funds to fund MTA, thereby reassigning General Funds to other programs.

6.10 ALTERNATIVE FUNDING OPPORTUNITIES

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.

6.10.1 Impact Fees

Some of the future Hele-On needs will be the result of new development. This is especially true for the Kailua-Kona area. 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. Investments suitable for impact fees can be included within the permitting process including:

- **Bus stops**
- **Acquisition of transit and paratransit vehicles intended to operate on roadways, 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 shelters, park and ride lots, and terminals.**

6.10.2 Capital Leasing

The county may wish to explore the possibility of acquiring vehicles through a capital lease-to-own program. Many private entities are offering such services to public transit authorities. This option allows for a phased program to be implemented by the private sector and possibly making vehicles available sooner with a fixed payment over time.

Table 6-7. Operating Costs by Fiscal Year 2018-2022

SERVICE	OPERATING COST BY FISCAL YEAR				
	2018	2019	2020	2021	2022
EXISTING SERVICE					
Current Routes	$10,360,872	$10,129,658	$9,500,000	$9,405,110	$10,017,751
Additions to Current Routes		-$320,350	-$279,304	$416,215	-$105,520
NEW ROUTES					
Blue Line Express		$200,000	$204,000	$237,880	$242,638
Green Line Express				$237,880	$242,638
Red Line Express				$475,760	$485,275
Route 60 Hilo/Honokaa Flex Service			$333,920	$340,598	$347,410
Route 104 Mohouli					
Route 201 South Kona via Alii Drive					$365,400
Route 202 North Kona via Highway 19					$438,200
Route 203 North Kona via Highway 190					$438,200
Route 204 South Kona via Kuakini Hwy					
Route 301 Waimea Circulator Flex			$325,520	$332,030	$338,671
Route 401 Hawaiian Beaches/Nanawale Flex		$375,870	$383,387	$391,055	$398,876
Route 402 Paradise Park/Ainaloa		$200,320	$204,326	$208,413	$212,581
Route 403 Fern Acres/Fern Forest/Eden Roc		$200,320	$204,326	$208,413	$212,581
Zones 1 - 3 Kau and Puna Districts				$250,560	$255,571
Sunday Service expansion					$285,280
Subtotal	$10,360,872	$10,785,818	$10,876,176	$12,503,915	$14,175,553
SHARED TAXI	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
BIKE SHARE (Expansion Kona, Hilo, Waimea)		$120,000	$120,000	$123,600	$127,308
DISABLED & SPECIAL NEEDS	$592,000	$600,000	$600,000	$600,000	$600,000
TAXI INVESTIGATIONS & HILO DOWNTOWN	$126,900	$126,900	$126,900	$126,900	$126,900
PARATRANSIT & RURAL ASSISTANCE	$864,379	$864,379	$864,379	$864,379	$864,379
ADA PARATRANSIT	$500,000	$515,000	$530,450	$546,364	$562,754
VANPOOL		$300,000	$576,000	$720,000	$720,000
Subtotal	$3,083,279	$3,526,279	$3,817,729	$3,981,243	$4,001,341
Totals	$13,444,151	$14,312,097	$14,693,905	$16,485,157	$18,176,894

Notes:
2% escalation per year has been added to the fixed route, flex, zone, and commuter routes to 2022, then increased to 3%.
Fixed route and commuter services are based on $95 per hour. Flex and Zone routes are $80 per hour.
Shared Taxi is capped at $1,000,000 per year, expenses will decrease with an increase in fare. This category includes introduction of working with Transportation Network Companies (TNC) such as Uber/Lyft.
Bike Share has an annual operation fee to maintain bikes, includes escalation of 3% starting in FY2021.
ADA Paratransit current service cost is based upon an estimate of $500,000 for FY18 (approximately double the inaugural year cost) with a 3% escalation per year.
Vanpool is expected to have 10 vanpools form in FY2019, 20 total in FY2020 and 25 in FY2021.

Table 6-7. Financial Plan Operating Costs by Fiscal Year 2023-2027

SERVICE	OPERATING COST BY FISCAL YEAR				
	2023	2024	2025	2026	2027
EXISTING SERVICE					
Current Routes	$10,110,476	$10,525,662	$10,736,175	$10,950,898	$11,169,916
Additions to Current Routes	$208,800	$0	$0	$0	$0
NEW ROUTES					
Blue Line Express	$249,917	$257,414	$265,137	$273,091	$281,283
Green Line Express	$249,917	$257,414	$265,137	$273,091	$281,283
Red Line Express	$499,833	$514,828	$530,273	$546,182	$562,567
Route 60 Hilo/Honokaa Flex Service	$357,833	$368,568	$379,625	$391,013	$402,744
Route 104 Mohouli	$89,205	$91,881	$94,638	$97,477	$100,401
Route 201 South Kona via Alii Drive	$376,362	$387,653	$399,282	$411,261	$423,599
Route 202 North Kona via Highway 19	$451,346	$464,886	$478,833	$493,198	$507,994
Route 203 North Kona via Highway 190	$451,346	$464,886	$478,833	$493,198	$507,994
Route 204 South Kona via Kuakini Hwy			$281,700	$290,151	$298,856
Route 301 Waimea Circulator Flex	$348,831	$359,296	$370,075	$381,177	$392,613
Route 401 Hawaiian Beaches/Nanawale Flex	$410,843	$423,168	$435,863	$448,939	$462,407
Route 402 Paradise Park/Ainaloa	$218,959	$225,527	$232,293	$239,262	$246,440
Route 403 Fern Acres/Fern Forest/Eden Roc	$218,959	$225,527	$232,293	$239,262	$246,440
Zones 1 - 3 Kau and Puna Districts	$722,598	$744,276	$766,604	$789,602	$813,290
Sunday Service expansion	$293,838	$302,654	$311,733	$321,085	$330,718
Subtotal	$15,259,062	$15,613,641	$16,258,494	$16,638,887	$17,028,544
SHARED TAXI	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
BIKE SHARE (Expansion Kona, Hilo, Waimea)	$131,127	$135,061	$139,113	$143,286	$147,585
DISABLED & SPECIAL NEEDS	$600,000	$600,000	$600,000	$600,000	$600,000
TAXI INVESTIGATIONS & HILO DOWNTOWN	$126,900	$126,900	$126,900	$126,900	$126,900
PARATRANSIT & RURAL ASSISTANCE	$864,379	$864,379	$864,379	$864,379	$864,379
ADA PARATRANSIT	$579,637	$597,026	$614,937	$633,385	$652,387
VANPOOL	$720,000	$720,000	$720,000	$720,000	$720,000
Subtotal	$4,022,043	$4,043,366	$4,065,329	$4,087,950	$4,111,250
Totals	$19,281,105	$19,657,007	$20,323,822	$20,726,837	$21,139,795

Notes:
2% escalation per year has been added to the fixed route, flex, zone, and commuter routes to 2022, then increased to 3%.
Fixed route and commuter services are based on $95 per hour. Flex and Zone routes are $80 per hour.
Shared Taxi is capped at $1,000,000 per year, expenses will decrease with an increase in fare. This category includes introduction of working with Transportation Network Companies (TNC) such as Uber/Lyft.
Bike Share has an annual operation fee to maintain bikes, includes escalation of 3% starting in FY2021.
ADA Paratransit current service cost is based upon an estimate of $500,000 for FY18 (approximately double the inaugural year cost) with a 3% escalation per year.
Vanpool is expected to have 10 vanpools form in FY2019, 20 total in FY2020 and 25 in FY2021.

Table 6-8. Financial Plan Operating Revenues by Fiscal Year 2018-2022

SERVICE	CURRENT SERVICES	OPERATING REVENUE BY FISCAL YEAR			
	2018	2019	2020	2021	2022
BUS SERVICES					
Annual Passenger Trips	742,250	779,363	802,743	826,826	868,167
Revenue per Unlinked Trip	$1.04	$1.04	$1.11	$1.15	$1.20
Annual Revenue	$771,940	$810,537	$891,045	$950,850	$1,041,800
ADA PARATRANSIT					
Annual Passenger Trips	7,880	8,668	9,535	10,488	10,803
Revenue per Unlinked Trip	$1.33	$3.20	$3.20	$3.20	$3.20
Annual Revenue	$10,490	$27,738	$30,511	$33,562	$34,569
SHARED TAXI					
Annual Passenger Trips	169,000	160,000	155,000	155,775	156,554
Revenue per Unlinked Trip	$2.19	$3.25	$4.15	$4.15	$4.15
Annual Revenue	$370,531	$520,000	$643,250	$646,466	$649,699
SHARED TAXI					
Taxi Licenses	$26,940	$27,000	$27,000	$27,000	$27,000
BIKE SHARE					
User Fees			$20,000	$24,000	$28,800
VANPOOL					
Member Contribution		$175,000	$336,000	$420,000	$420,000
OTHER (advertising)			$30,000	$50,000	$50,000
TOTALS	$1,179,901	$1,560,275	$1,977,807	$2,151,878	$2,251,868

Table 6-8. Financial Plan Operating Revenues by Fiscal Year – 2023-2027

SERVICE	OPERATING REVENUE BY FISCAL YEAR				
	2023	2024	2025	2026	2027
BUS SERVICES					
Annual Passenger Trips	911,575	957,154	1,005,012	1,055,262	1,108,025
Revenue per Unlinked Trip	$1.20	$1.20	$1.25	$1.25	$1.28
Annual Revenue	$1,093,890	$1,148,585	$1,256,265	$1,319,078	$1,418,273
ADA PARATRANSIT					
Annual Passenger Trips	11,127	11,461	11,805	12,159	12,524
Revenue per Unlinked Trip	$3.20	$3.20	$3.20	$3.20	$3.20
Annual Revenue	$35,606	$36,675	$37,775	$38,908	$40,075
SHARED TAXI					
Annual Passenger Trips	157,337	158,123	158,914	159,709	160,507
Revenue per Unlinked Trip	$4.15	$4.15	$4.15	$4.15	$4.15
Annual Revenue	$652,947	$656,212	$659,493	$662,790	$666,104
	$27,000	$27,000	$27,000	$27,000	$27,000
BIKE SHARE					
User Fees	$29,376	$35,251	$42,301	$50,762	$60,914
VANPOOL					
Member Contribution	$420,000	$420,000	$420,000	$420,000	$420,000
OTHER (advertising)	$50,000	$50,000	$50,000	$50,000	$50,000
TOTALS	$2,308,820	$2,373,723	$2,492,834	$2,568,538	$2,682,366

Table 6-9. Capital Improvement Program Years 2018-2022

Item	Cost By Budget Year				
	2018	2019	2020	2021	2022
FACILITIES					
Bus Stops					
planning & design		$20,000	$20,000	$20,000	$20,000
procurement and					
land acquisition		$130,000	$130,000	$130,000	$130,000
installation		$150,000	$150,000	$150,000	$150,000
Signs & Wayfinding					
planning & design		$50,000			
procurement			$200,000		
installation			$150,000		$75,000
Transit Centers					
planning			$350,000	$100,000	
design			$200,000	$300,000	
land acquisition				$1,000,000	
construction				$1,500,000	$1,000,000
Maintenance Facility					
planning				$200,000	$200,000
design					$400,000
land acquisition					
construction					
equipment					
installation					
Park & Ride Lots			$150,000		$200,000
PASSENGER SYSTEMS					
Fare Collection System					
planning					
specifications					
procurement					
Electronic Information					
transit app		$250,000	$250,000		
planning & specifications		$100,000			
procurement & installation			$300,000	$100,000	
WI-FI on buses					$300,000
FLEET					
specifications		$20,000			
procurement	$1,565,000	$2,328,900	$3,857,238	$2,630,900	$2,434,500
Totals	$1,565,000	$3,048,900	$5,757,238	$6,130,000	$4,909,500

Table 6-9. Capital Improvement Program – Years 2023-2027

Item	Cost By Budget Year					
	2023	2024	2025	2026	2027	SUBTOTALS
FACILITIES						
Bus Stops						
planning & design	$20,000	$20,000	$20,000	$20,000	$20,000	$180,000
procurement and						
land acquisition	$130,000	$130,000	$130,000	$130,000	$130,000	$1,170,000
installation	$150,000	$150,000	$150,000	$150,000	$150,000	$1,350,000
Signs & Wayfinding						
planning & design		$50,000				$100,000
procurement	$100,000		$250,000			$550,000
installation	$75,000	$75,000	$75,000			$450,000
Transit Centers						
planning	$300,000					$750,000
design	$500,000					$1,000,000
land acquisition	$500,000					$1,500,000
construction	$700,000	$2,000,000	$2,000,000			$7,200,000
Maintenance Facility						
planning						$400,000
design						$400,000
land acquisition	TBD					TBD
construction		$2,000,000	$3,000,000			$9,000,000
equipment			$1,500,000			$1,700,000
installation			$500,000			$500,000
Park & Ride Lots						
PASSENGER SYSTEMS						
Fare Collection System						
planning		$50,000				$50,000
specifications		$60,000				$60,000
procurement			$2,000,000	$2,000,000		$4,000,000
Electronic Information						
transit app						$500,000
planning & specifications						$100,000
procurement & installation						$565,000
WI-FI on buses						$300,000
FLEET						
specifications	$20,000					$40,000
procurement	$2,789,100	$2,727,100	$2,856,300	$1,300,500	$2,291,000	$24,780,538
Totals	$5,284,100	$7,262,100	$12,481,300	$3,600,500	$2,591,000	$52,630,538

Table 6-10. Financial Plan Fiscal Years 2018-2022

EXPENSES	FISCAL YEAR				
	2018	2019	2020	2021	2022
Category					
Administration & Marketing	$672,100	$692,263	$713,031	$734,422	$756,454
Bus Operations	$10,360,872	$10,785,818	$10,876,176	$12,503,915	$14,175,553
Other Modal Operations	$3,083,279	$3,526,279	$3,817,729	$3,981,243	$4,001,341
Capital Investments	$1,565,000	$3,048,900	$5,757,238	$6,130,900	$4,909,500
Total Expenses	$15,681,251	$18,053,260	$21,164,174	$23,350,479	$23,842,849
FUNDING SOURCES	**2018**	**2019**	**2020**	**2021**	**2022**
Operating Revenue					
Bus Fare Revenue	$771,940	$810,537	$891,045	$950,850	$1,041,800
Other Modal Revenue	$407,961	$749,738	$1,086,761	$1,201,029	$1,210,068
Total Fare Revenue	$1,179,901	$1,560,275	$1,977,807	$2,151,878	$2,251,868
Grants					
Federal Operating Grant	$1,042,000	$1,042,000	$1,042,000	$1,042,000	$1,042,000
Federal Bus & Facilities	$700,000	$880,000	$880,000	$880,000	$880,000
Federal Capital Investment*	$575,000	$575,000	$575,000	$575,000	$575,000
Total Grants	$2,317,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax (18 months):					
Estimated Excise Tax Revenue	--	$10,000,000	$25,000,000	--	--
GET Transit Funding	--	$8,500,000	$11,350,000	--	--
GET Other Transportation Projects & Carryover	--	*$1,500,000*	*$13,650,000*	--	--
County Funding:					
General Fund	$3,861,243	$0	$0	$7,000,000	$7,000,000
Highway Fund	$8,323,107	$5,495,985	$5,339,368	$11,701,601	$12,093,981
Total County non-GET Funding	$12,184,350	$5,495,985	$5,339,368	$18,701,601	$19,093,981
SUMMARY	**2018**	**2019**	**2020**	**2021**	**2022**
Total Expenses	$15,681,251	$18,053,260	$21,164,174	$23,350,479	$23,842,849
Fare Revenue	$1,179,901	$1,560,275	$1,977,807	$2,151,878	$2,251,868
Grants	$2,317,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax	--	$8,500,000	$11,350,000	--	--
County General Fund	$3,861,243	$0	$0	$7,000,000	$7,000,000
County Highway Fund	$8,323,107	$5,495,985	$5,339,368	$11,701,601	$12,093,981
Total Funding Sources	$15,681,251	$18,053,260	$21,164,174	$23,350,479	$23,842,849
GET Other Transportation Projects & Carryover		*$1,500,000*	*$13,650,000*	--	--

**Discretionary grant funding is not guaranteed.*

Table 6-10. Financial Plan Fiscal Years – 2023-2027

EXPENSES	FISCAL YEAR				
	2023	2024	2025	2026	2027
Category					
Administration & Marketing	$779,148	$802,523	$826,598	$851,396	$876,938
Bus Operations	$15,259,062	$15,613,641	$16,258,494	$16,638,887	$17,028,544
Other Modal Operations	$4,022,043	$4,043,366	$4,065,329	$4,087,950	$4,111,250
Capital Investments	$5,284,100	$7,262,100	$12,481,300	$3,600,500	$2,591,000
Total Expenses	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
FUNDING SOURCES	**2023**	**2024**	**2025**	**2026**	**2027**
Operating Revenue					
Bus Fare Revenue	$1,093,890	$1,148,585	$1,256,265	$1,319,078	$1,418,273
Other Modal Revenue	$1,214,930	$1,225,138	$1,236,569	$1,249,460	$1,264,094
Total Fare Revenue	$2,308,820	$2,373,723	$2,492,834	$2,568,538	$2,682,366
Grants					
Federal Operating Grant	$1,042,000	$1,042,000	$1,042,000	$1,042,000	$1,042,000
Federal Bus & Facilities	$880,000	$880,000	$880,000	$880,000	$880,000
Federal Capital Investment*	$575,000	$575,000	$575,000	$575,000	$575,000
Total Grants	$2,497,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax (18 months):					
Estimated Excise Tax Revenue	--	--	--	--	--
GET Transit Funding	--	--	--	--	--
GET Other Transportation Projects & Carryover	--	--	--	--	--
County Funding:					
General Fund	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
Highway Fund	$13,538,533	$15,850,907	$21,641,887	$13,113,195	$12,428,367
Total County non-GET Funding	$19,999,792	$22,200,897	$27,833,324	$19,158,263	$18,281,781
SUMMARY	**2023**	**2024**	**2025**	**2026**	**2027**
Total Expenses	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
Fare Revenue	$2,308,820	$2,373,723	$2,492,834	$2,568,538	$2,682,366
Grants	$2,497,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax	--	--	--	--	--
County General Fund	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
County Highway Fund	$13,538,533	$15,850,907	$21,641,887	$13,113,195	$12,428,367
Total Funding Sources	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
GET Other Transportation Projects & Carryover	--	--	--	--	--

**Discretionary grant funding is not guaranteed.*

Table 6-11. Financial Plan by Fiscal Year with Excise Tax Surcharge

EXPENSES	FISCAL YEAR				
	2018	2019	2020	2021	2022
Category					
Administration & Marketing	$672,100	$692,263	$713,031	$734,422	$756,454
Bus Operations	$10,360,872	$10,785,818	$10,876,176	$12,503,915	$14,175,553
Other Modal Operations	$3,083,279	$3,526,279	$3,817,729	$3,981,243	$4,001,341
Capital Investments	$1,565,000	$3,048,900	$5,757,238	$6,130,900	$4,909,500
Total Expenses	$15,681,251	$18,053,260	$21,164,174	$23,350,479	$23,842,849
FUNDING SOURCES	**2018**	**2019**	**2020**	**2021**	**2022**
Operating Revenue					
Bus Fare Revenue	$771,940	$810,537	$891,045	$950,850	$1,041,800
Other Modal Revenue	$407,961	$749,738	$1,086,761	$1,201,029	$1,210,068
Total Fare Revenue	$1,179,901	$1,560,275	$1,977,807	$2,151,878	$2,251,868
Grants					
Federal Operating Grant	$1,042,000	$1,042,000	$1,042,000	$1,042,000	$1,042,000
Federal Bus & Facilities	$700,000	$880,000	$880,000	$880,000	$880,000
Federal Capital Investment*	$575,000	$575,000	$575,000	$575,000	$575,000
Total Grants	$2,317,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax (18 months):					
Estimated Excise Tax Revenue	--	$10,000,000	$25,000,000	$25,000,000	$25,000,000
GET Transit Funding	--	$8,500,000	$11,350,000	$18,701,601	$19,093,981
GET Other Transportation Projects & Carryover	--	*$1,500,000*	*$13,650,000*	*$6,298,399*	*$5,906,019*
County Funding:					
General Fund	$3,861,243	$0	$0	$0	$0
Highway Fund	$8,323,107	$5,495,985	$5,339,368	$0	$0
Total County non-GET Funding	$12,184,350	$5,495,985	$5,339,368	$0	$0
SUMMARY	**2018**	**2019**	**2020**	**2021**	**2022**
Total Expenses	$15,681,251	$18,053,260	$21,164,174	$23,350,479	$23,842,849
Fare Revenue	$1,179,901	$1,560,275	$1,977,807	$2,151,878	$2,251,868
Grants	$2,317,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax	--	$8,500,000	$11,350,000	$18,701,601	$19,093,981
County General Fund	$3,861,243	$0	$0	$0	$0
County Highway Fund	$8,323,107	$5,495,985	$5,339,368	$0	$0
Total Funding Sources	$15,681,251	$18,053,260	$21,164,174	$23,350,479	$23,842,849
GET Other Transportation Projects & Carryover	--	*$1,500,000*	*$13,650,000*	*$6,298,399*	*$5,906,019*

*Discretionary grant funding is not guaranteed.

Table 6-11. Financial Plan by Fiscal Year with Excise Tax Surcharge - Continued

EXPENSES	FISCAL YEAR				
	2023	2024	2025	2026	2027
Category					
Administration & Marketing	$779,148	$802,523	$826,598	$851,396	$876,938
Bus Operations	$15,259,062	$15,613,641	$16,258,494	$16,638,887	$17,028,544
Other Modal Operations	$4,022,043	$4,043,366	$4,065,329	$4,087,950	$4,111,250
Capital Investments	$5,284,100	$7,262,100	$12,481,300	$3,600,500	$2,591,000
Total Expenses	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
FUNDING SOURCES	**2023**	**2024**	**2025**	**2026**	**2027**
Operating Revenue					
Bus Fare Revenue	$1,093,890	$1,148,585	$1,256,265	$1,319,078	$1,418,273
Other Modal Revenue	$1,214,930	$1,225,138	$1,236,569	$1,249,460	$1,264,094
Total Fare Revenue	$2,308,820	$2,373,723	$2,492,834	$2,568,538	$2,682,366
Grants					
Federal Operating Grant	$1,042,000	$1,042,000	$1,042,000	$1,042,000	$1,042,000
Federal Bus & Facilities	$880,000	$880,000	$880,000	$880,000	$880,000
Federal Capital Investment*	$575,000	$575,000	$575,000	$575,000	$575,000
Total Grants	$2,497,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax (18 months):					
Estimated Excise Tax Revenue	$25,000,000	$25,000,000	$25,000,000	$25,000,000	$25,000,000
GET Transit Funding	$20,538,533	$22,850,907	$24,941,887	$20,113,195	$19,428,367
GET Other Transportation Projects & Carryover	*$4,461,467*	*$2,149,093*	*$58,113*	*$4,886,805*	*$5,571,633*
County Funding:					
General Fund	$0	$0	$0	$0	$0
Highway Fund	$0	$0	$3,700,000	$0	$0
Total County non-GET Funding	$0	$0	$3,700,000	$0	$0
SUMMARY	**2023**	**2024**	**2025**	**2026**	**2027**
Total Expenses	$25,344,353	$27,721,630	$33,631,721	$25,178,733	$24,607,733
Fare Revenue	$2,308,820	$2,373,723	$2,492,834	$2,568,538	$2,682,366
Grants	$2,497,000	$2,497,000	$2,497,000	$2,497,000	$2,497,000
General Excise Tax	$20,538,533	$22,850,907	$24,941,887	$20,113,195	$19,428,367
County General Fund	$0	$0	$0	$0	$0
County Highway Fund	$0	$0	$3,100,000	$0	$0
Total Funding Sources	$25,344,353	$27,721,630	$33,031,721	$25,178,733	$24,607,733
GET Other Transportation Projects & Carryover	*$4,461,467*	*$2,149,093*	*$58,113*	*$4,886,805*	*$5,571,633*

*Discretionary grant funding is not guaranteed.

Chapter Seven:

7.0 CONCLUSION

The charge for this Master Plan has been to identify a twenty year program for multimodal transportation improvements. Knowing the large number of needs, and the competition for tax dollars, these have to be assigned priorities. Further, in many instances, they can be considered building blocks to the desired system. Some services need to be tested before they are fully implemented.

This chapter looks at the Immediate Priorities, followed by four five-year periods.

7.1 IMMEDIATE PRIORITIES (2018-2020)

- **Restore service reliability and get ridership back to previous levels (1.2 million passenger boardings)**
- **Acquire up to 14 buses/vans using previous grants and new capital funds to bring the fleet to 25**
- **Once reliability is restored, continue to add additional service hours and routes to create a hub and spoke pattern, starting in Puna**
- **Start Hilo to Kona service using Saddle Road**
- **Continue to review and implement paratransit service per federal requirements**
- **Create a multi-modal transportation system on the island. Embrace multiple vendors for providing bicycle, vanpool, transit and other multi modal services**
- **Increase staffing of the MTA to adequately respond to the range of responsibilities needed to serve the public. Add three new positions: Garage Supervisor, Administrative Services Assistant and Account Clerk. Re-classify an existing position to serve as Multi-Modal Mobility Manager and Planner**
- **Create a Transit APP for rider information and print new and accurate maps for service and schedules**

Restore Service Reliability and Ridership; Acquire Buses

The best way to achieve this is through building up the fleet to 55 (25 in the next two years). County owned vehicles and the maintenance capability to support keeping these on the road. The strategies here are to accelerate bus and cutaway van purchases (as described in the capital plan). With a new maintenance facility comes the opportunity to start fresh with equipment and with procedures.

Operating Contract

The bus operating service contract is renewed every three years. The next renewal comes in 2018. This is an excellent opportunity to address customer service, on-time performance, and cash handling procedures.

Add Additional Service in a Hub and Spoke Pattern

Service for circulators would be added in Puna, Kona, and Hilo. New express cross County service would be added using Saddle Road which is time saving and allows for additional trips.

Paratransit

Review operations and investigate additional options for paratransit such as taxis and transportation network companies. Expand paratransit options to other parts of the island. New Flex and Zone services will provide new paratransit operations to Hāmākua, North Kohala, South Kohala, Kaʻu, and Puna.

Multi-Modal System

Expansion of the bike share program in Kona and new service to Waimea and Hilo would be started. A vanpool subsidy program would be started for commuters.

Increase Staffing

These recommendations and other findings of this transportation master plan study confirm that the positions and organization of the current MTA are stretched too thin, become ineffective with administrators focused on putting out fires, which in turn, lead to burn-out and staff turnover. Success of the program is linked to having qualified and committed staff.

In 2018 MTA hired a new Executive Administrator. Three additional positions are recommended for the immediate term: Administrative Services Assistant, a Garage Supervisor, and Account Clerk at a combined annual cost of $220,000.

- **Administrative Services Assistant (ASA).** This position would be responsible for developing the budget, overseeing accounts receivable/payable, purchasing, applying for and managing federal grants, vehicle purchase and contracts. Right now these duties are lodged with the Administrator. With the size and complexity of the current and anticipated transit system, this function needs to be separated out. The ASA would also be responsible for IT, record keeping, and annual submissions to the National Transit Database (NTD) along with grant management and fiscal reports. Finally, the ASA would be responsible for Human Resources.
- **Garage Supervisor.** Now that the County has a brand new facility with four bays, it is time to take a hold of the program, including developing policies and procedures for daily maintenance, dispatch, preventive maintenance, warranty work, and minor and major repairs. This would be the responsibility of the garage supervisor (with initial consultant assistance to help it move quickly). It is also critical to establish a database and records for each bus so its use and efficiency can be tracked. Maintenance positions are proposed to increase to create a second shift, and the Garage Supervisor will oversee this expansion, training, inventory and record keeping.
- **Account Clerk.** This position is needed to fulfill the recommendations of the Legislative Auditor for cash handling and receipt. This function needs two people. It also will help cover time periods later in the afternoon to properly receive cash boxes.
- **Multi-Modal Mobility Manager.** It is anticipated that this position can be created by revising the duties of an existing position. This position would negotiate with third parties for provision of services such as bike share, vanpool, Transportation Network Companies, and human service agencies. The Multi-Modal Mobility Manager would also participate in the program to identify hubs, the bus stop program, and coordination of standards with DPW and others. This position would also oversee implementation of the Transit APP.

In 2015, the State Department of Transportation conducted a study of needs statewide for human services. For Hawai'i island, the following recommendations were made:

- Public Awareness and Education. There is a need for more public awareness of different modes of transportation and service eligibilities.
- Mobility Manager and Coordination among service providers and to facilitate future planning, develop a directory of providers, conduct resource inventory, and tackle challenges among providers.
- Mobility Center to screen, assess and schedule transportation rides. This includes human services providers and private providers who operate on different scheduling systems. This would also involve working with Hawai'i County Economic Opportunity Council (HCEOC), Hawai'i Office of Aging/ADRC and Coordinated Services for the Elderly.
- Building Transportation Service Capacity. Prepare a sustainable mobility plan and business model to look at different revenue sources such as foundations. See who can afford to pay. Work with health plans to expand coverage for travel to medical and essential destinations.

7.2 NEAR TERM (2020-2025)

- **Acquire 5-6 new and replacement vehicles per year to bring the fleet to 40**
- **Increase service to have all proposed circulators in place**
- **Continue the multi-modal program and expand bike share to Hilo**
- **Plan, design, and build the Kona hub. Consider**

Figure 7-1. Passengers are eager for additional service that is reliable

options to provide light maintenance on Kona side

- **Add staffing to include a Deputy Administrator / Operations Manager, Inventory Clerk, and a second shift of (4) mechanics and (1) working supervisor. By the time the fleet size is 25, there should be no less than six mechanics**
- **Implement the Bus Stop numbering program at all time spots and connect with geographic location data**

Additional MTA Staffing for 2020-2025

It is recommended that the following new positions be created. They do not all have to be established at once, in fact that would be a lot of people to absorb into the organization at one time. The second shift of mechanics should be in place by the time the fleet size reaches thirty-five county owned vehicles.

- **Deputy Administrator/Operation Manager.** This position would oversee day-to-day operations of assigning buses to routes and trouble shooting. It is not possible for the Administrator to be available 24-7, 365 days a year. A Deputy not only fills in for the Administrator for short or long term absences, but can trouble shoot, explore new technologies, and take on special assignments.
- **Second shift of four automotive mechanics and one working supervisor.** Two shifts means sixteen hour use of the facility, and the opportunity to divide the type of work done by each shift.
- **Inventory Clerk.** Having an inventory person is the most efficient way to handle parts. The mechanics fill out a request form and give it to inventory clerk rather than roam through the inventory storeroom. It prevents theft and helps with replacement of inventory in a timely manner.

7.3 MID TERM (2025-2030)

- **Reassess the Paratransit program and expand it to other parts of the island as needed.**
- **Paratransit support staff. One person is recommended to assist the program manager for Paratransit**
- **Continue to acquire 5-6 buses per year to achieve a fleet size of 58**
- **Continue the multi-modal, bus stop and amenities programs**
- **Design and develop a Puna hub and complete roadway improvements to allow for Intra-Puna service**
- **Implement the multi-modal complete streets program in Hilo**

7.4 LONG TERM (2030-2035)

- **Plan, design, and construct a Waimea hub**
- **Upgrade Mooheau hub**
- **Update this Transportation Master Plan**
- **Expand number of runs for routes that have demonstrated consistently high ridership**

7.5 VISION (2035-2040)

- **Service to operate on a full hub and spoke pattern with hubs in Hilo, Kona, Waimea, Puna, and Keeau**
- **Conduct robust Bike Share, Vanpool and TNC programs**
- **Have a full Public Information and Outreach Program**

Implementing the Vision will require the hard work and dedication of the MTA staff. Figures 7-2 and 7-3 are a comparison of the existing organization chart to what would be proposed for twenty years out, with the expectation that positions are added during each period as shown above.

7.6 PERFORMANCE MONITORING AND ACCOUNTABILITY

When it passed the GET surcharge for 18 months, the County Council provided MTA the opportunity to work on the immediate term priorities.

To ensure transparency and build confidence and trust, it is recommended that MTA regularly report back to Council on its progress. Examples of progress include: service restoration and expansion, new routes instituted, schedule changes and adherence, bus purchases, and similar metrics.

Appendix E provides examples metric tracking that would prove helpful.

Figure 7-2. Existing Organization Chart

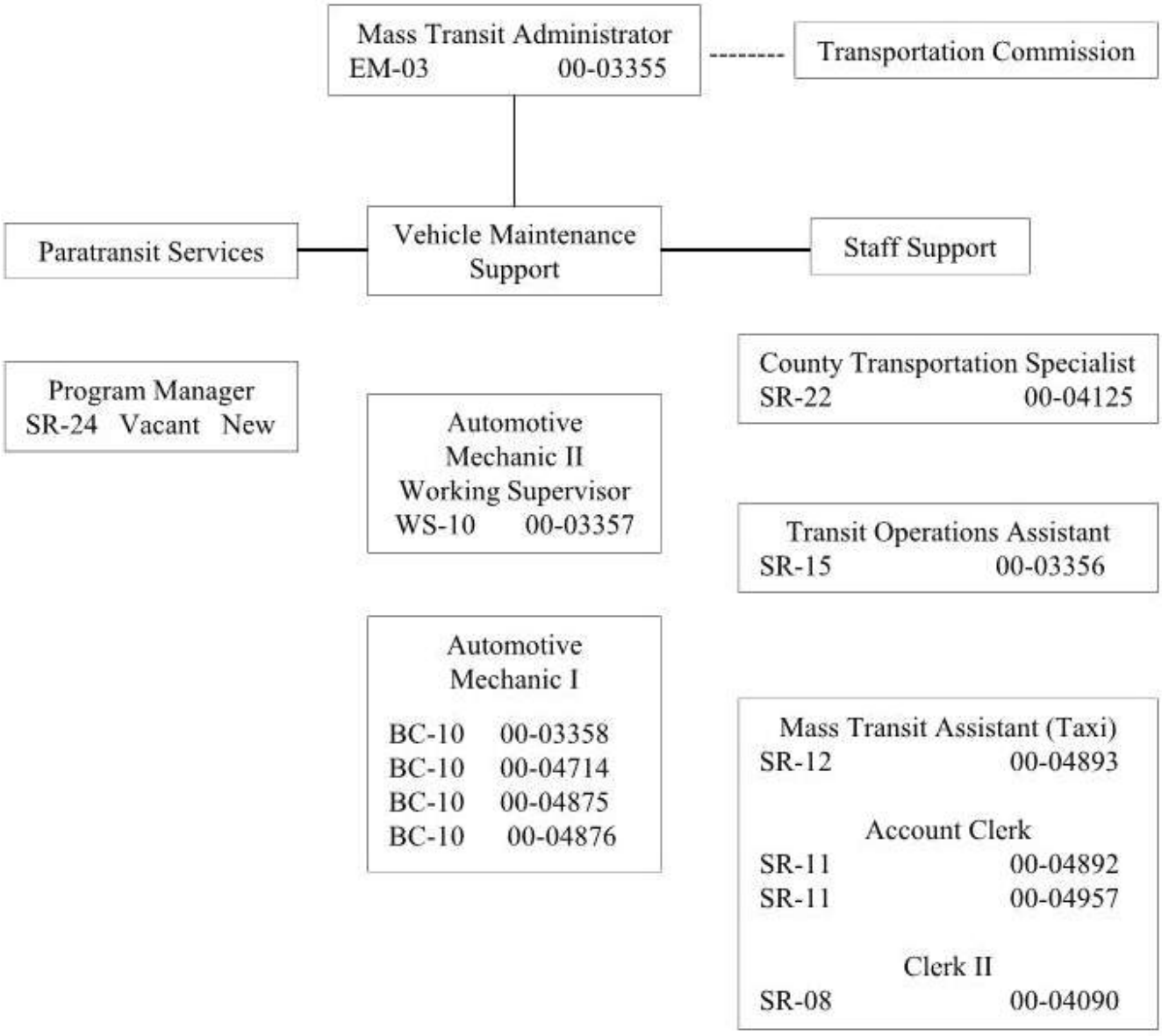
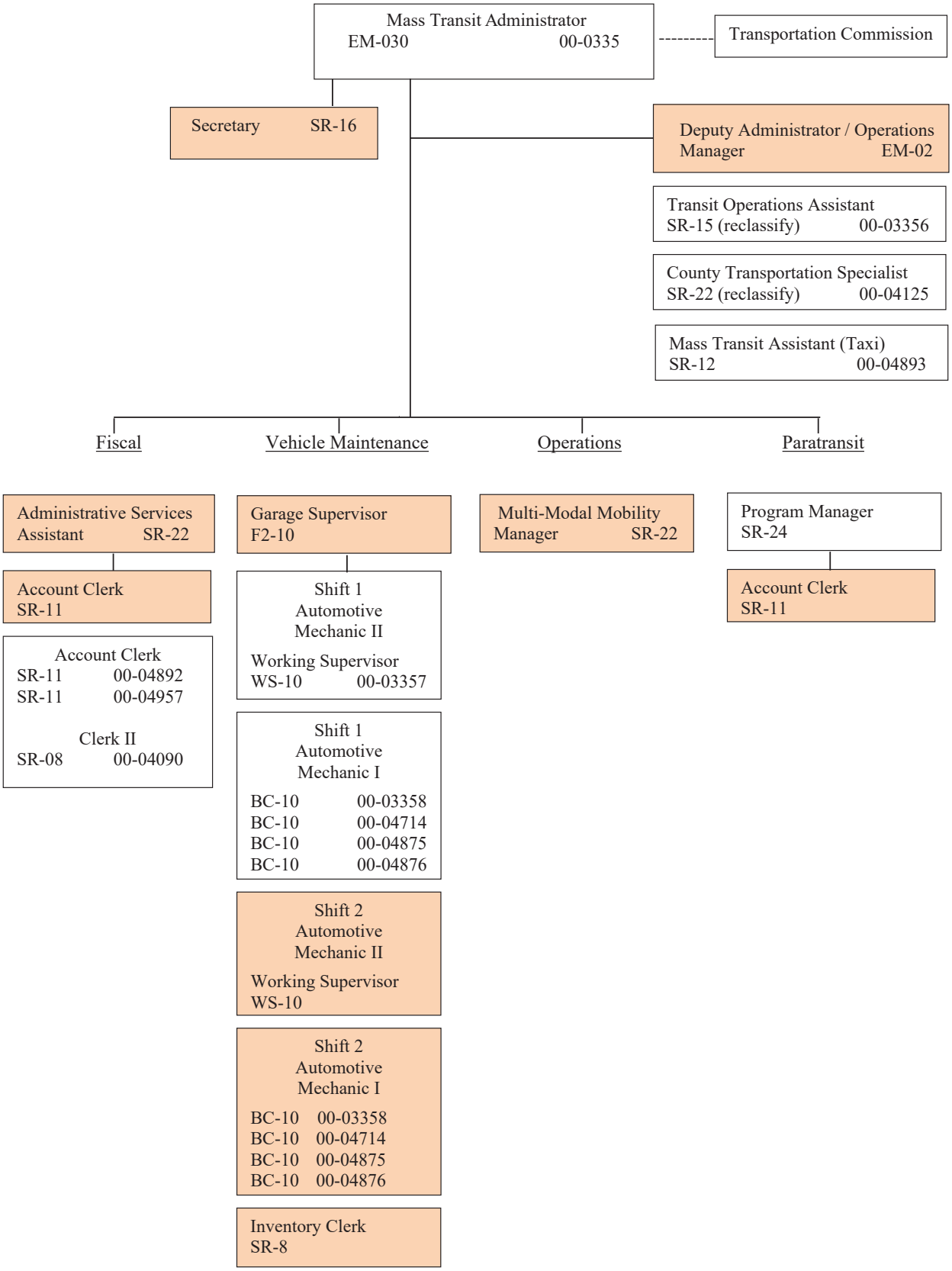


Figure 7-3. Organization Chart



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APPENDICES

APPENDIX A:
Demographic Analysis for Hawai'i County

APPENDIX B:
Environmental Justice Analysis for Hawai'i County

APPENDIX C:
Proposed Route Numbering System of Current and Future Routes

APPENDIX D:
Hele-On Route Maps for Existing Service

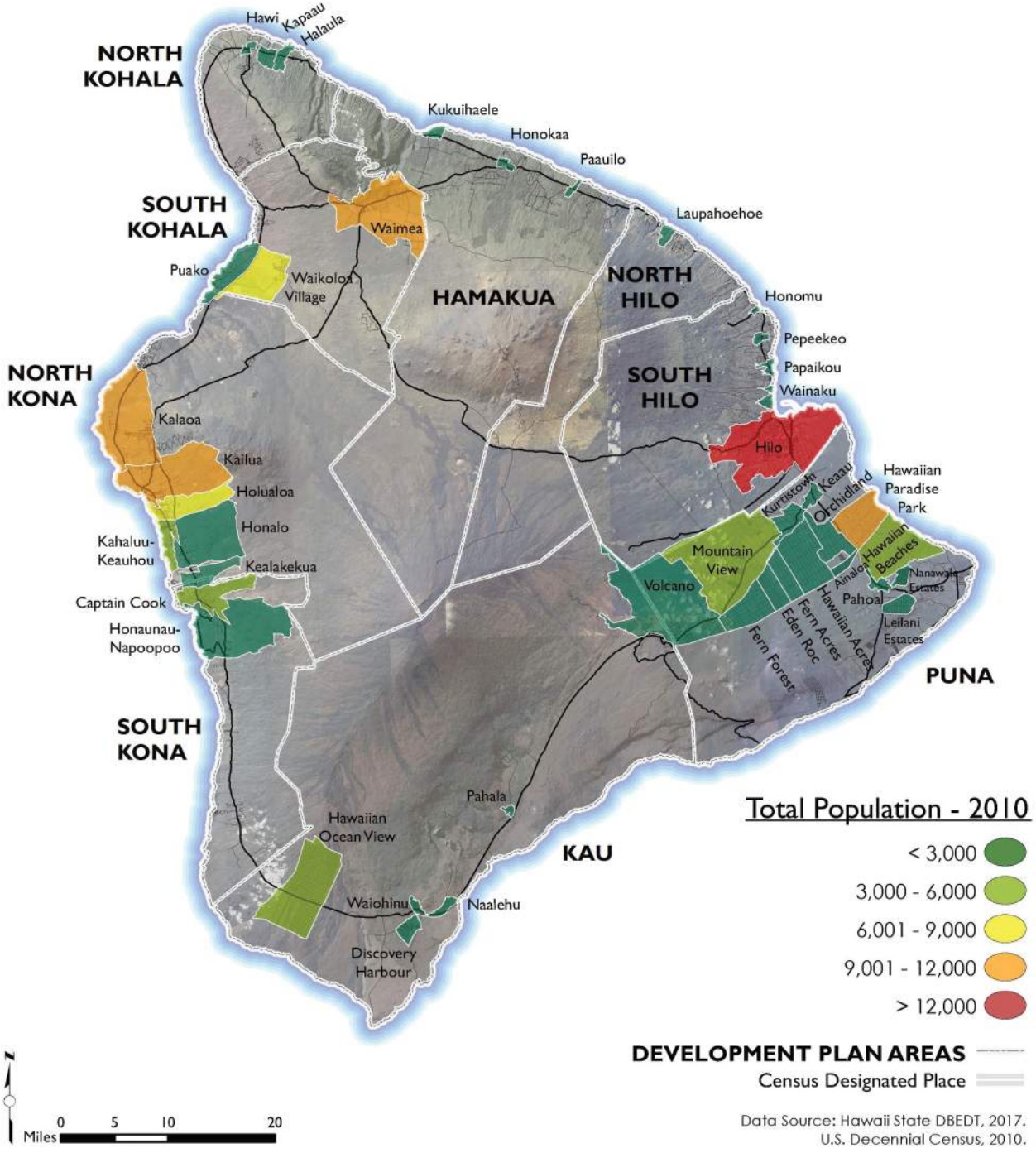
APPENDIX E:
Service Design Guidelines and Performance Monitoring

APPENDIX AQ

DEMOGRAPHICS OF HAWAI'I COUNTY

Number of People by Census Designated Place

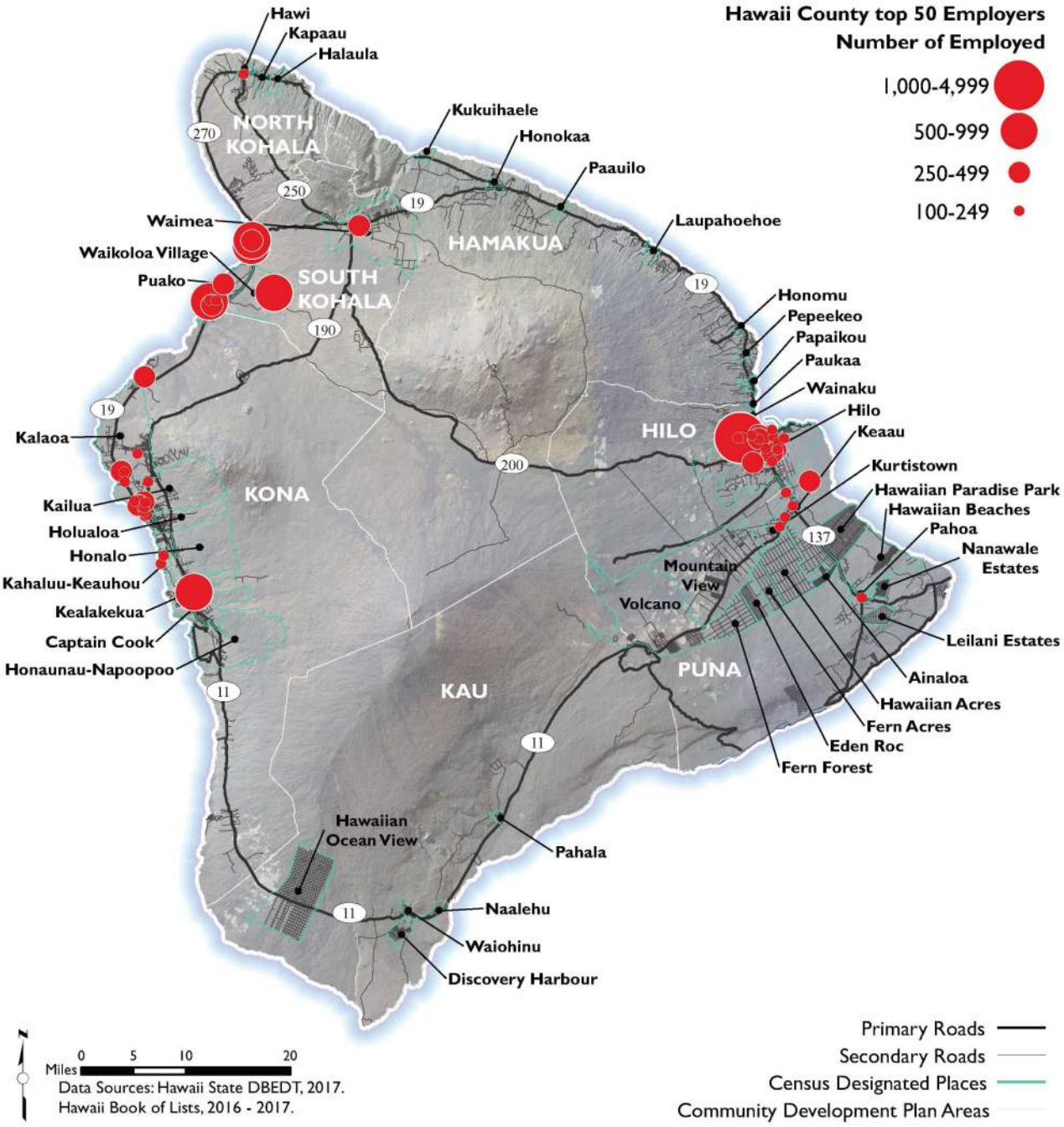
Hawaii County, Hawaii. 2010 Decennial Census.



FIFTY LARGEST EMPLOYERS

Employment Opportunities in Hawaii County

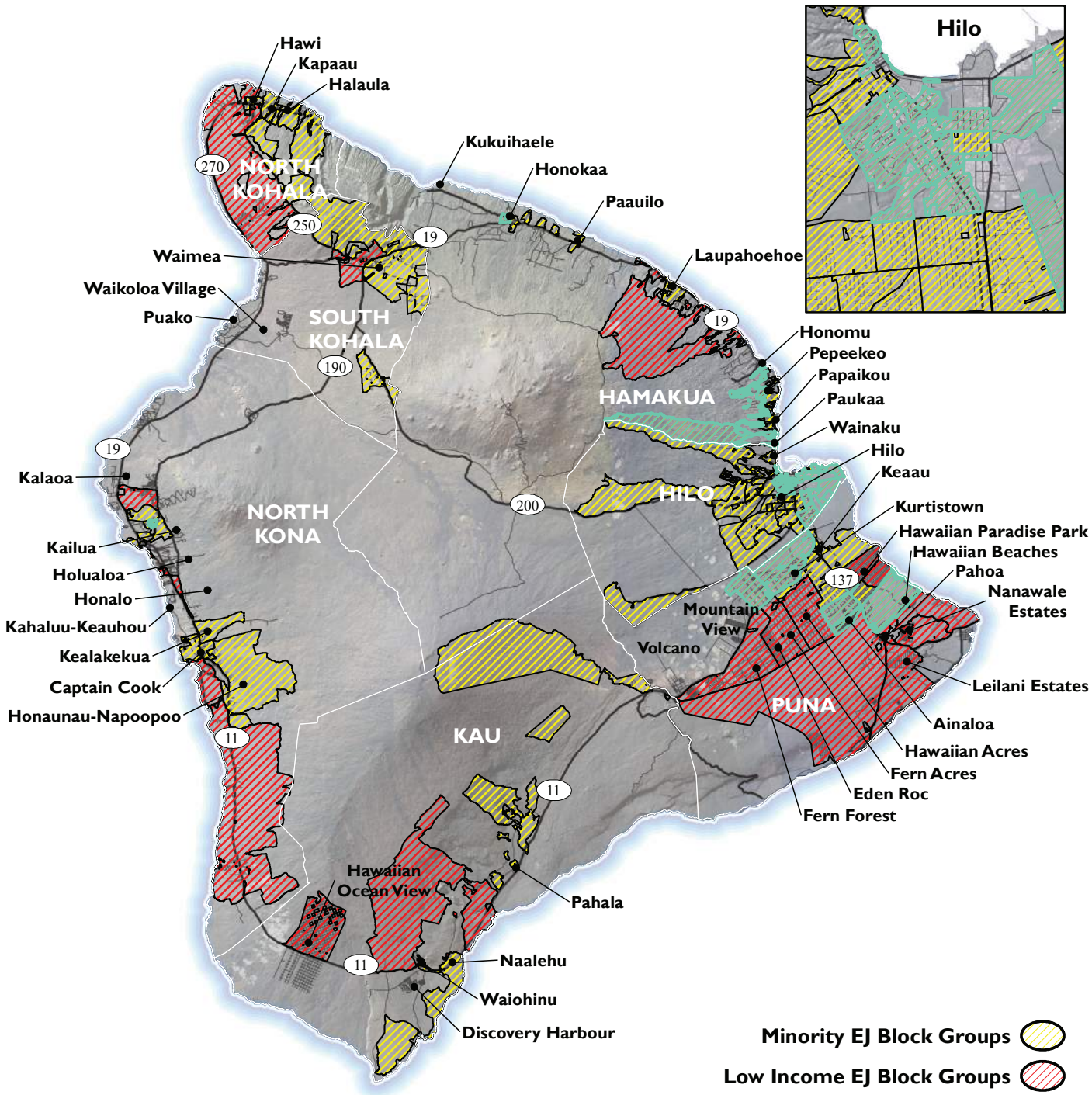
Number of employment opportunities for the top 50 employers in Hawaii County.



APPENDIX B

ENVIRONMENTAL JUSTICE ANALYSIS FOR HAWAIʻI COUNTY

Census block group environmental justice designations

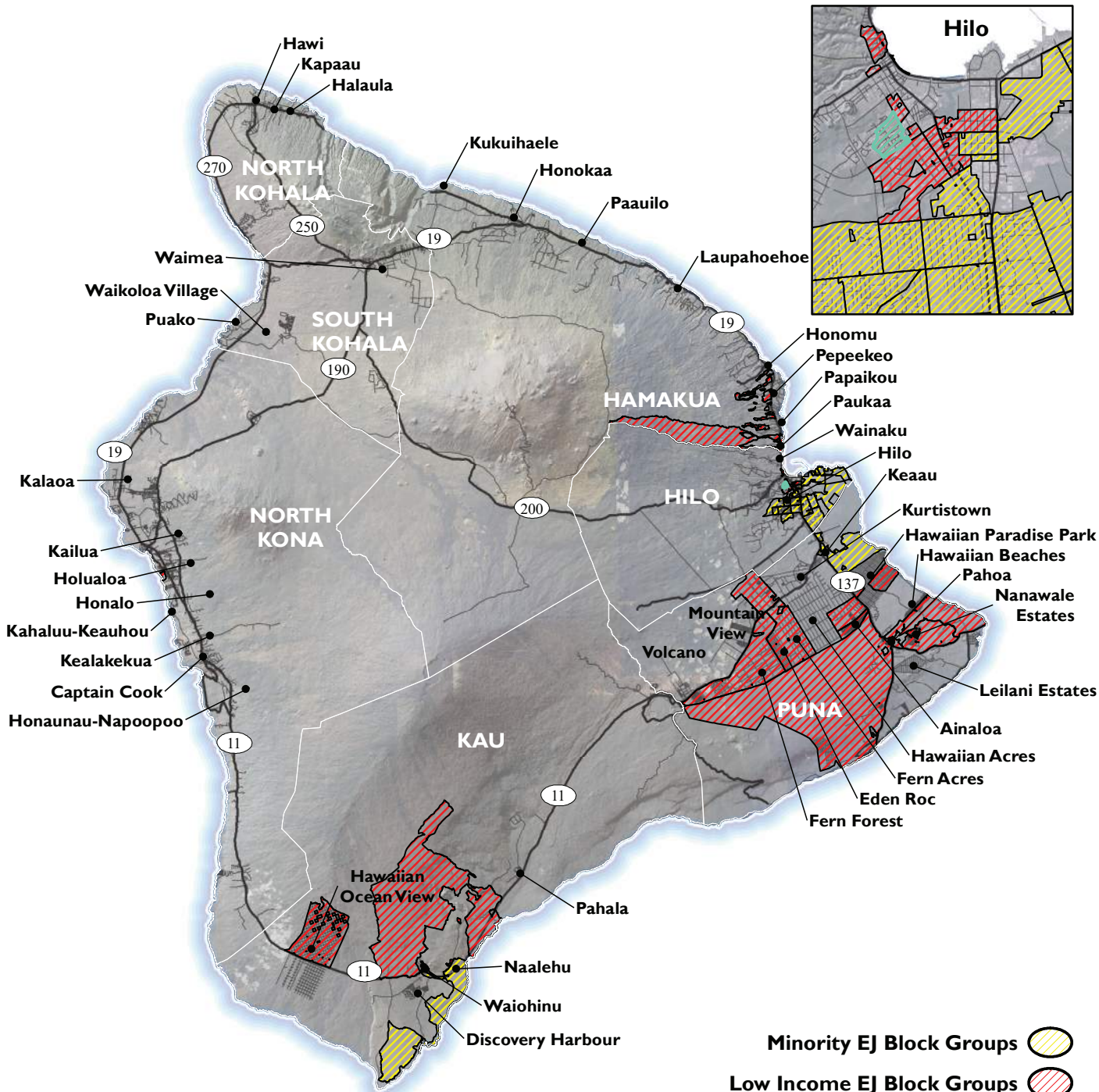


Census block groups were designated as Environmental Justice areas if they were above the Hawaii County averages of 67.0% for minorities and 14.6% for households with poverty level income.

Data Sources: Hawaii State DBEDT (2017).American Community Survey (2015).

Environmental Justice Analysis for Hawai'i County

Census block group environmental justice designations



Census block groups were designated as Environmental Justice areas if they were one standard deviation above mean values for minority race (>85.7%) and/or households with income below the poverty line (>27.7%).

Minority EJ Block Groups

Low Income EJ Block Groups

Low Income and Minority EJ Block Groups

0 5 10 20

Miles

Data Sources: Hawaii State DBEDT (2017).American Community Survey (2015).

STANDARD DEVIATION METHOD

			Minority Population			
Geography	Total Population	Block Groups	Total	Mean (%)	One Standard Deviation Above Mean	Block Groups One Standard Deviation
Hawaii County	**185,079**	**106**	**127,248**	**67.0%**	**85.0%**	**16**
Puna	45,326	21	30,108			1
Hilo	45,714	33	38,132			14
Kau	8,451	4	5,326			1
Kona	47,872	26	28,377			0
Hamakua	13,767	11	9,921			0
North Kohala	6,322	4	4,369			0
South Kohala	17,627	7	11,015			0

	Households Below Poverty Line				
Geography	Number of Households	Total	Mean (%)	One Standard Deviation Above Mean	Block Groups One Standard Deviation
Hawaii County	**43,306**	**6127**	**14.6%**	**27.7%**	**19**
Puna	10,161	2208			10
Hilo	10,366	1239			6
Kau	1,638	426			1
Kona	12,072	1324			1
Hamakua	3,139	336			1
North Kohala	1,453	229			0
South Kohala	4,477	365			0

	Minority and Poverty EJ	
Geography	Number of Block Groups Minority and Poverty EJ	Population Minority and Poverty EJ
Hawaii County	**1**	**1,296**
Puna	0	0
Hilo	1	1,296
Kau	0	0
Kona	0	0
Hamakua	0	0
North Kohala	0	0
South Kohala	0	0

ABOVE AVERAGE METHOD

			Minority Population		
Geography	Total Population	Block Groups	Total	Mean (%)	Number of Block Groups Above Average
Hawaii County	**185,079**	**106**	**127,248**	**67.0%**	**63**
Puna	45,326	21	30,108		10
Hilo	45,714	33	38,132		32
Kau	8,451	4	5,326		2
Kona	47,872	26	28,377		7
Hamakua	13,767	11	9,921		7
North Kohala	6,322	4	4,369		3
South Kohala	17,627	7	11,015		2

	Households Below Poverty Line			
Geography	Number of Households	Total	Mean (%)	Number of Block Groups Above Average
Hawaii County	**43,306**	**6127**	**14.6%**	**38**
Puna	10,161	2208		15
Hilo	10,366	1239		10
Kau	1,638	426		1
Kona	12,072	1324		7
Hamakua	3,139	336		3
North Kohala	1,453	229		1
South Kohala	4,477	365		1

	Minority and Poverty EJ	
Geography	Number of Block Groups Minority and Poverty EJ	Population Minority and Poverty EJ
Hawaii County	**19**	**29,801**
Puna	6	13,320
Hilo	10	11,105
Kau	0	0
Kona	1	2,634
Hamakua	2	2,742
North Kohala	0	0
South Kohala	0	0

APPENDIX C

PROPOSED ROUTE NUMBERING OF CURRENT AND FUTURE ROUTES

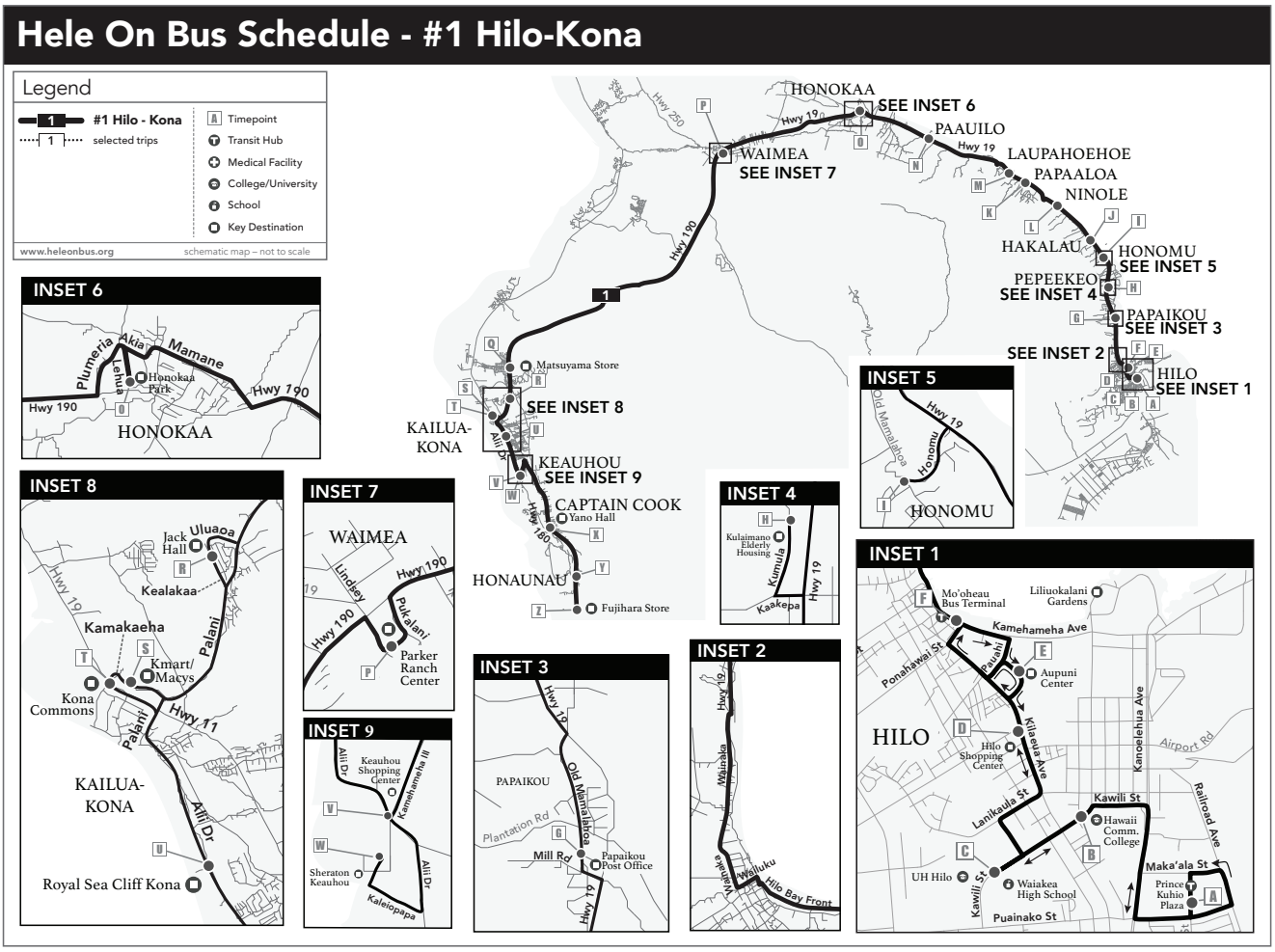
ROUTE			DESCRIPTION		
Hele-On Reference	Number of Trips	Proposed Route Number	Home Transit Center	Major Intermediate Stops	Extensions and Diversions
Blue Line Express to Kona	2 RT	**Blue Line**	MBT/ Bayfront		None
Red Line Express to Volcano	2 RT	**Red Line**	MBT		None
Green Line Express to Kona	2 RT	**Green Line**	Waimea		None
Hilo/Kona	3 OW	**1**	MBT	Waimea, Honoka'a	Prince Kūhiō Plaza
Kona/Hilo	3 OW	**2**	Kona TC	Waimea, Honoka'a	Kealia
Hilo/Volcano	5 RT + 2 RT OV to Volcano	**10**	MBT	Kurtistown, Kea'au	Ka'ū; 2 RTs between Ocean View and Volcano
Hilo/Pāhoa/ Pohoiki	15 RT	**40**	MBT,/		
Pāhoa TC	Kea'au, UH, Prince Kūhiō Plaza	**None**			
Hilo/Honoka'a*	4 RT	**60**	MBT		None
North Kohala-South Kohala	1 RT	**70**	None		None
North Kohala-Waimea-Kona	1 RT	**75**	None	Waimea, Waikoloa Village	Kona Airport
Hilo/South Kohala Resorts*	7 RT	**80**	MBT/ Bayfront	Honoka'a, Waimea	None
Hilo/South Kohala Resorts via Saddle Road	2 RT	**80**	MBT/ Bayfront	None	None
Pahala/South Kohala Resorts	4 RT	**90**	Pahala/ Kona TC	Ocean View	Kaiser, HCC, West Hawaii Civic Center
Intra-Hilo Keaukaha	9 RT	**101**	MBT	UH, Prince Kūhiō Plaza, Airport	North Hilo
Intra-Hilo Kaumana	7 RT	**102**	MBT		None

Intra-Hilo Waiakea-Uka	9 RT	**103**	MBT	UH, Prince Kūhiō Plaza	Banyan Drive, North Hilo
Intra-Hilo Mohouli	6 RT	**104**	MBT		None
Intra-Kona Alii Drive	7 RT	**201**	Kona TC		None
Intra-Kona Airport via Ane Keohokalole Hwy	9 RT	**202**	Kona TC	Civic Center, Kaiser, Costco	None
Intra-Kona Airport via Hwy 190	9 RT	**203**	Kona TC	HCC	None
Intra-Kona Kuakini Hwy	9 RT	**204**	Kona TC		None
Waimea Shuttle	7.5 RT	**301**	Waimea		Honoka'a, MBT, Prince Kūhiō Plaza on one trip only
Hawaiian Beaches/ Nanawale	10 RT	**401**	Pāhoa TC		Kea'au TC
Hawaiian Paradise Park/Orchidland/ Ainaloa/Hawaiian Acres	3 AM/3 PM	**402**	Kea'au TC	Kurtistown	None
Western Puna Circulator	2 AM/2 PM	**403**	Kea'au TC	Eden Roc, Fern Acres, Fern Forest	None
Zone 1	1 Day extending to 5 Days	**Zone 1**	Pāhoa TC		
Zone 2	2 Days	**Zone 2**	Kea'au TC		
Zone 3	2 Days	**Zone 3**	Ocean View/ Pahala		

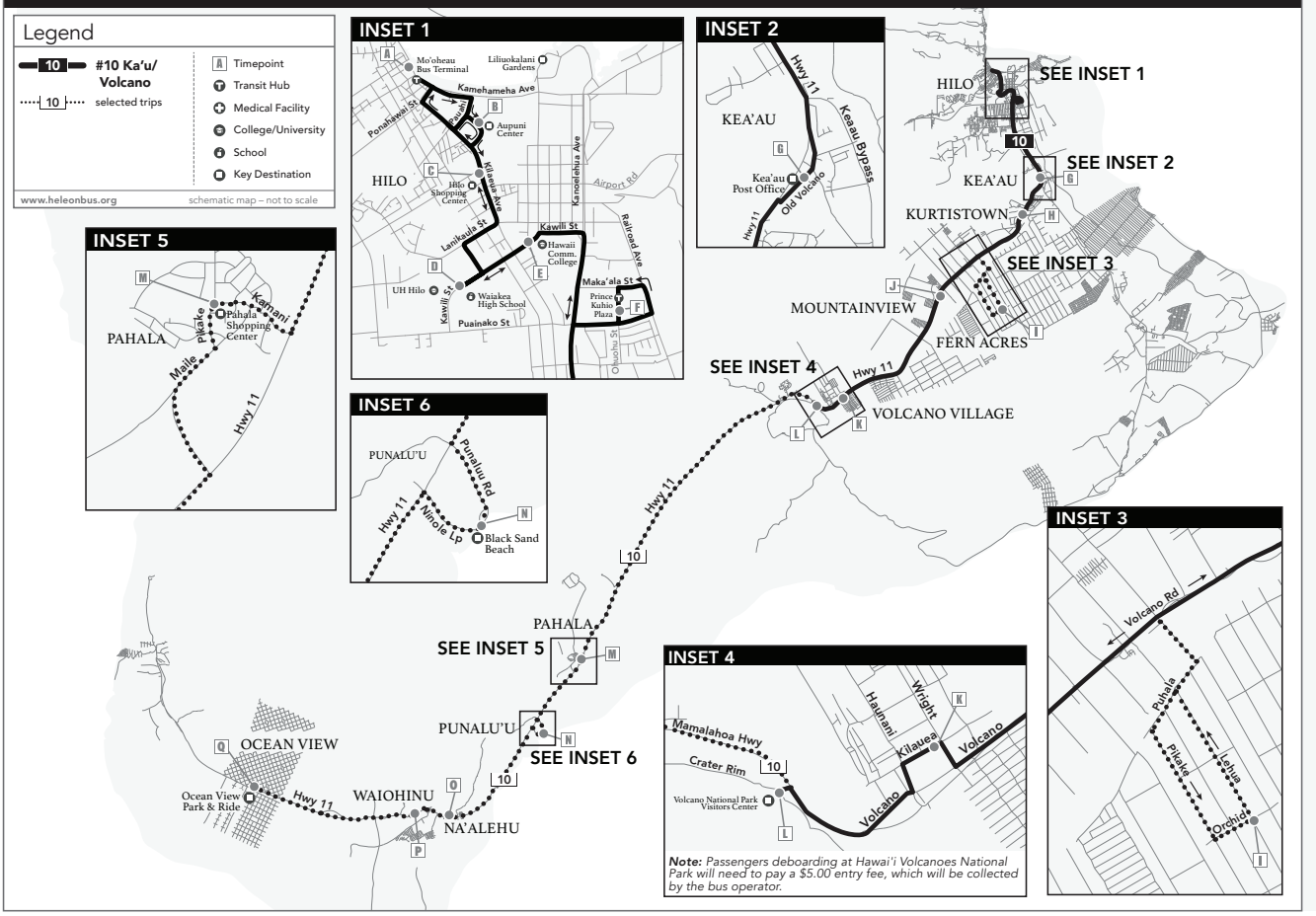
* Does not include trips operated by other routes.
OW One Way
RT Round Trip

APPENDIX D

HELE-ON ROUTE MAPS FOR EXISTING SERVICE

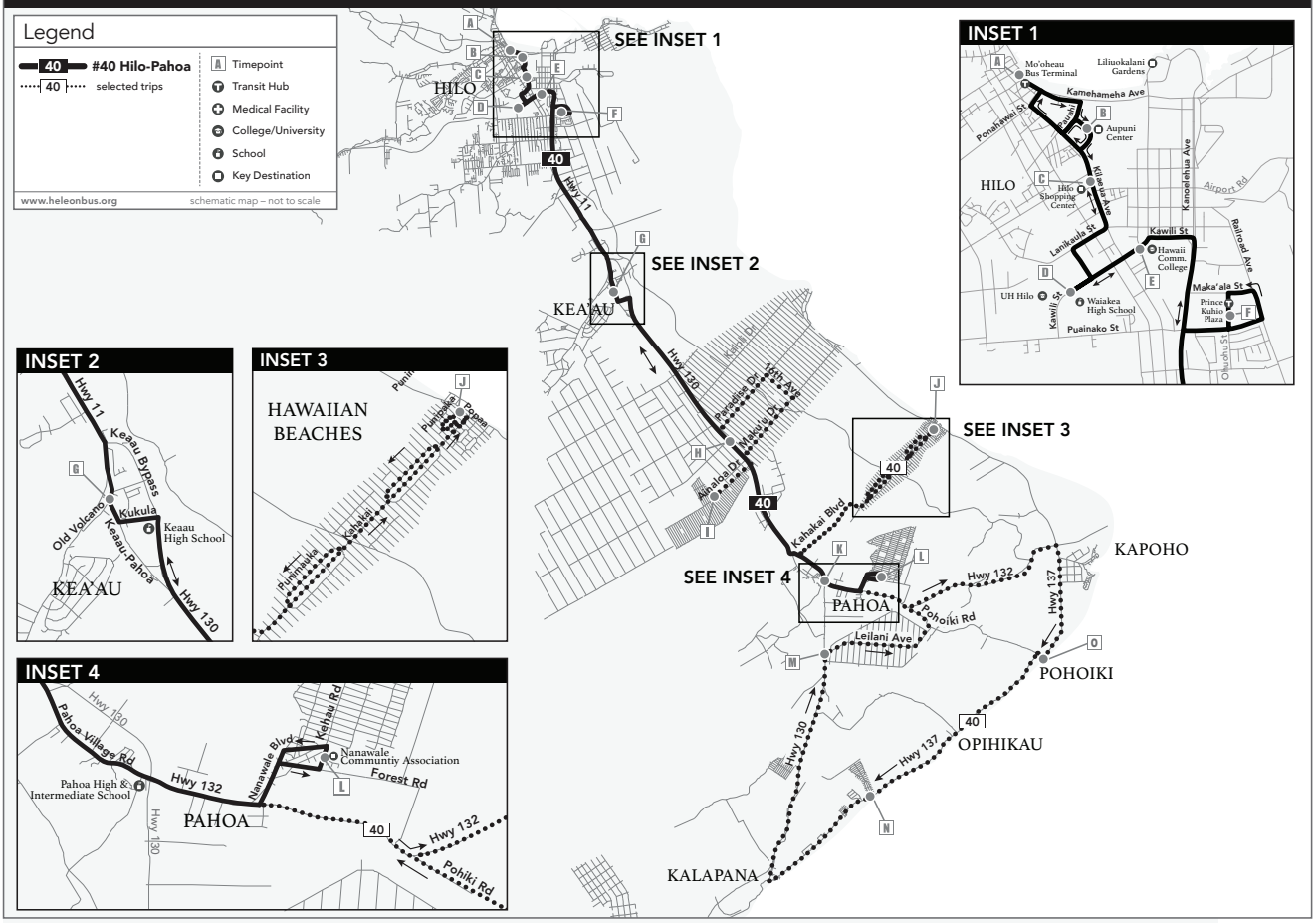


Hele On Bus Schedule - #10 Ka'u/Volcano

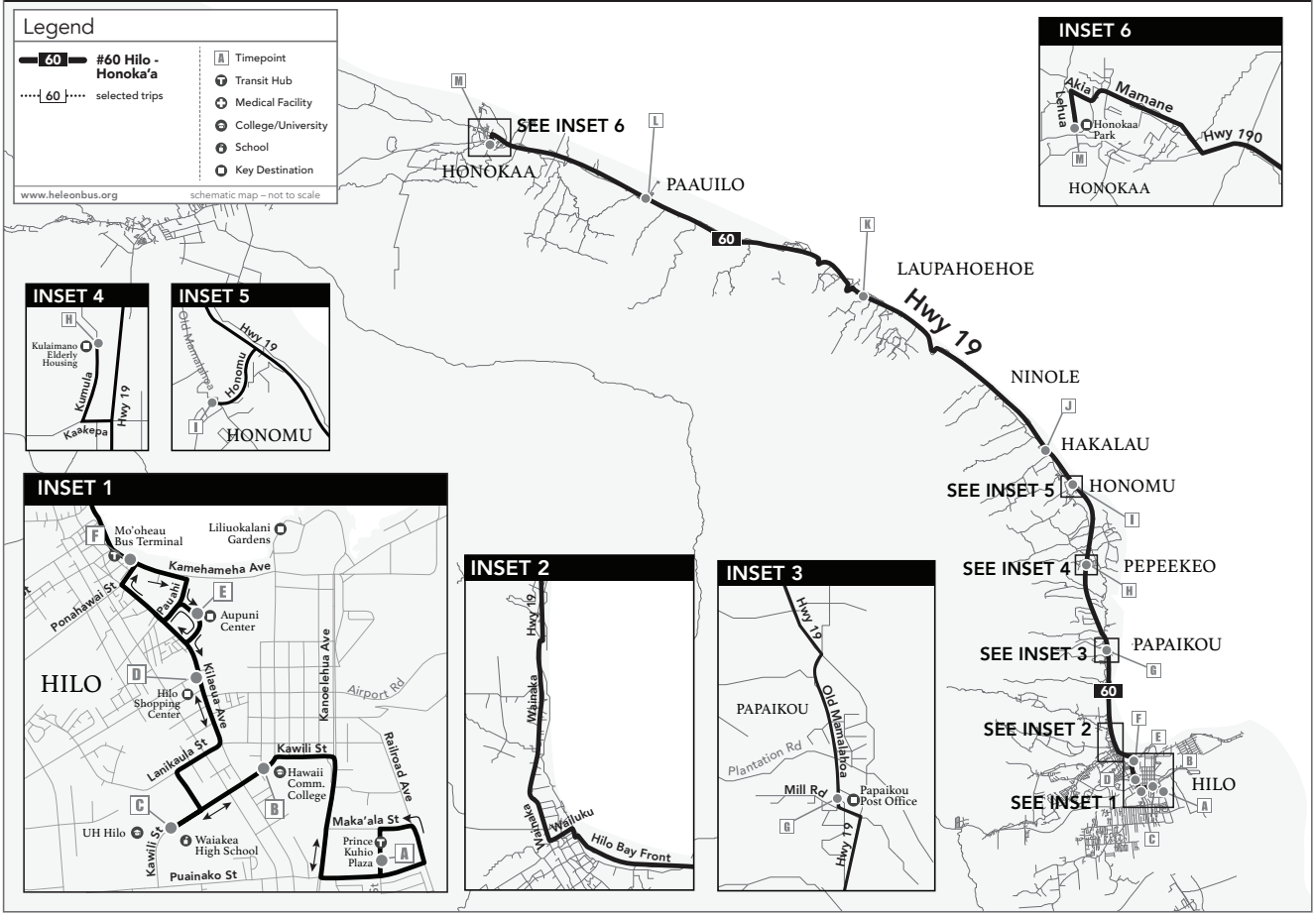


Note: *Passengers deboarding at Hawai'i Volcanoes National Park will need to pay a $5.00 entry fee, which will be collected by the bus operator.*

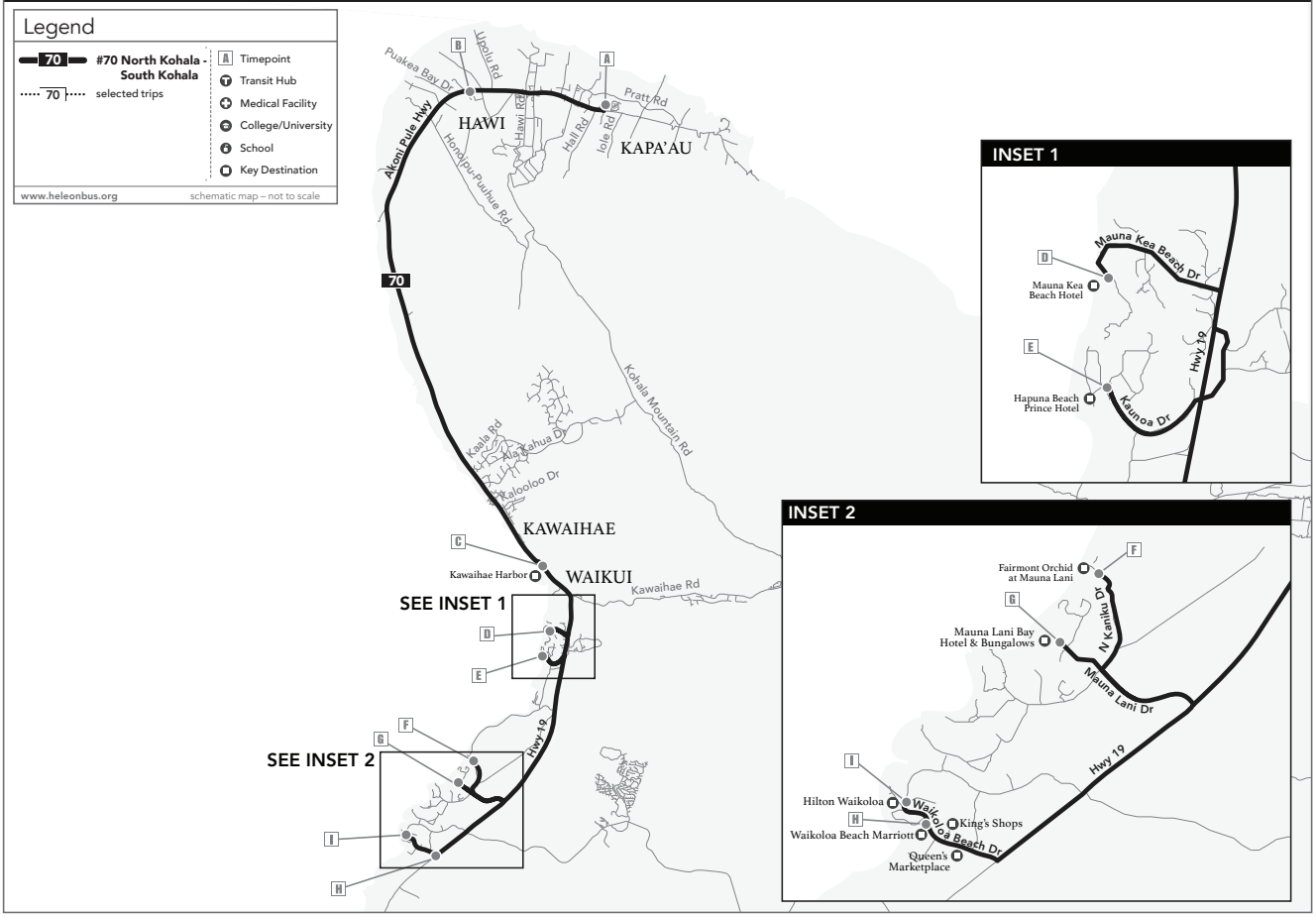
Hele On Bus Schedule - #40 Hilo-Pahoa-Pohoiki



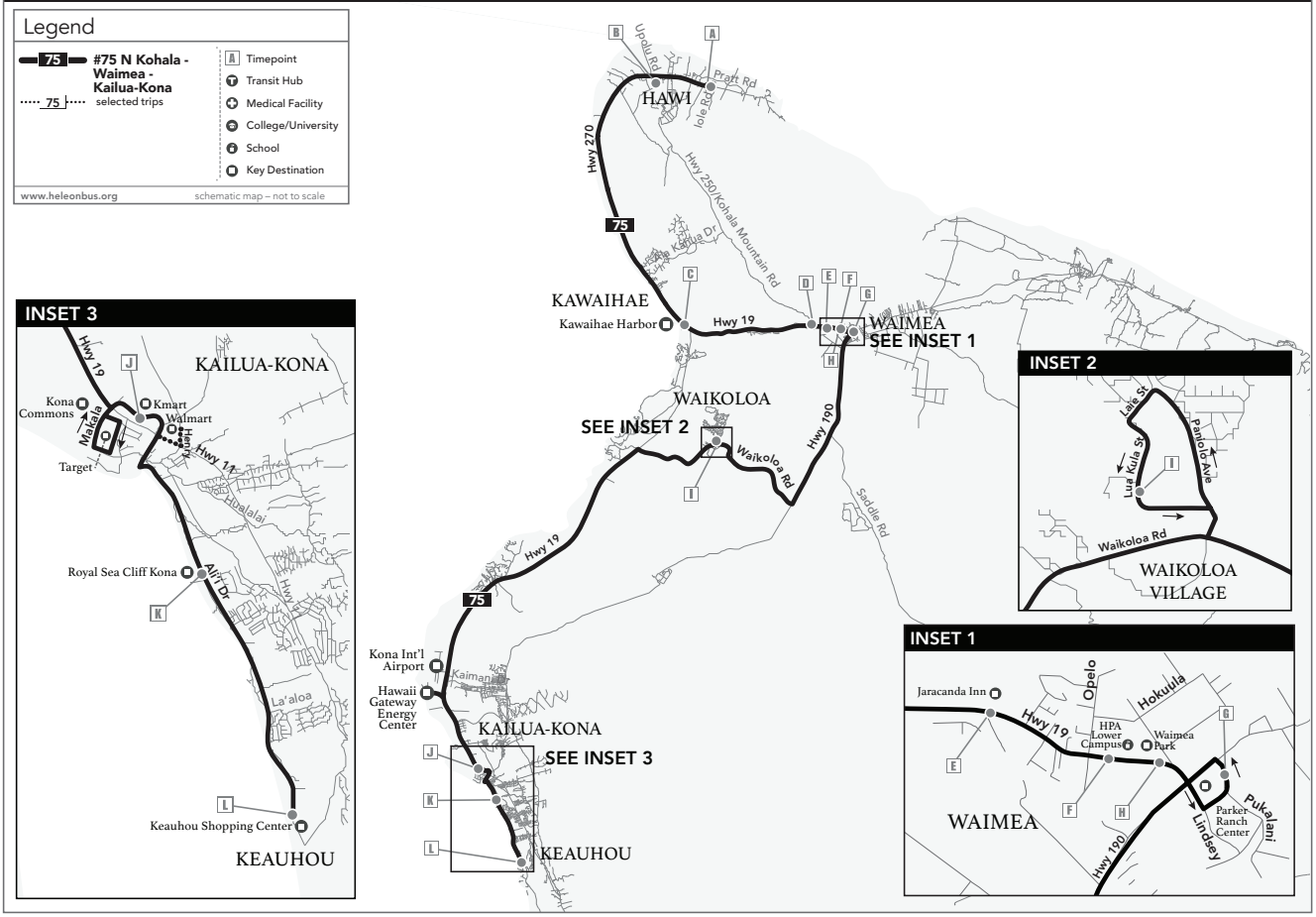
Hele On Bus Schedule - #60 Hilo - Honoka'a



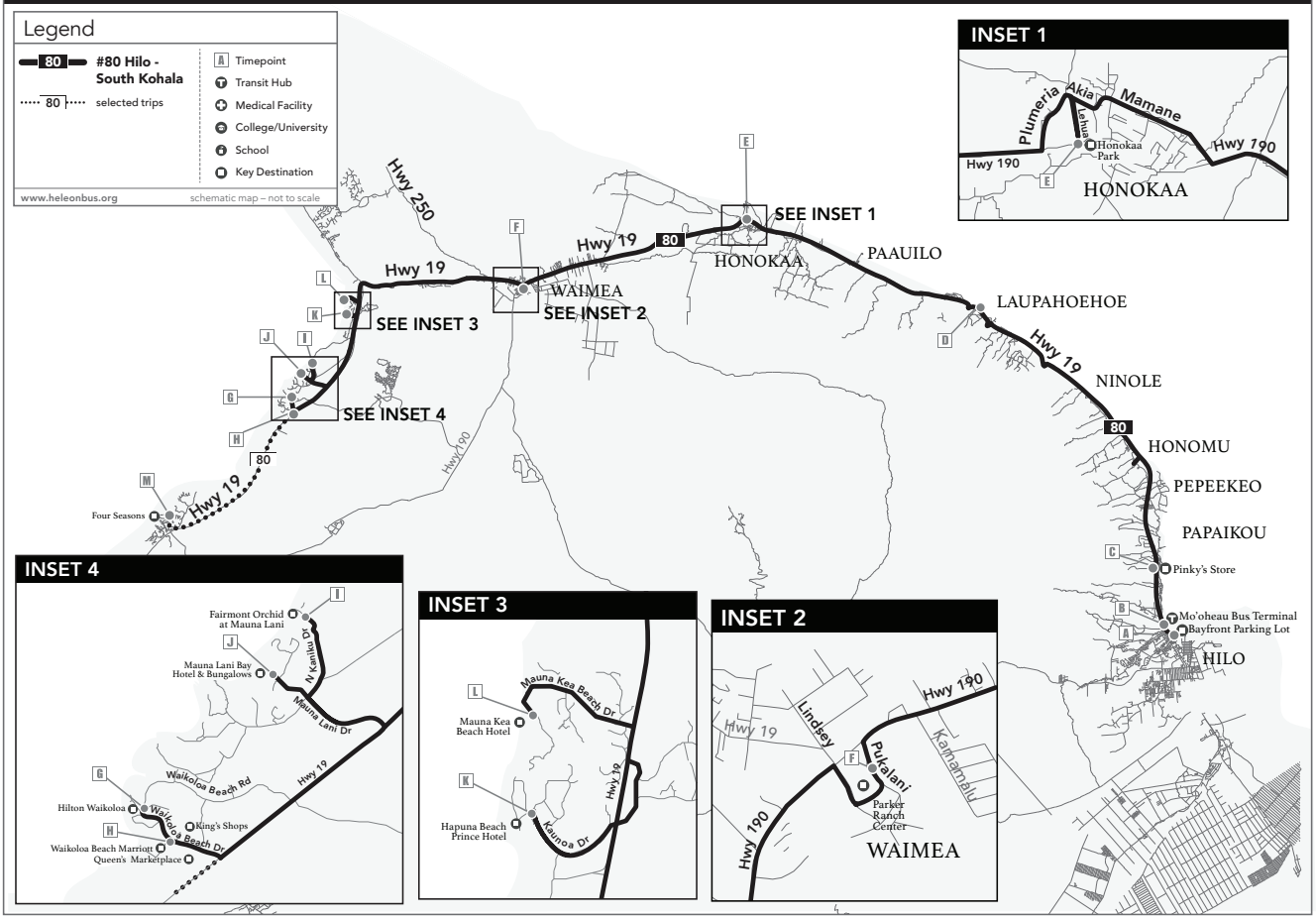
Hele On Bus Schedule - #70 North Kohala - South Kohala



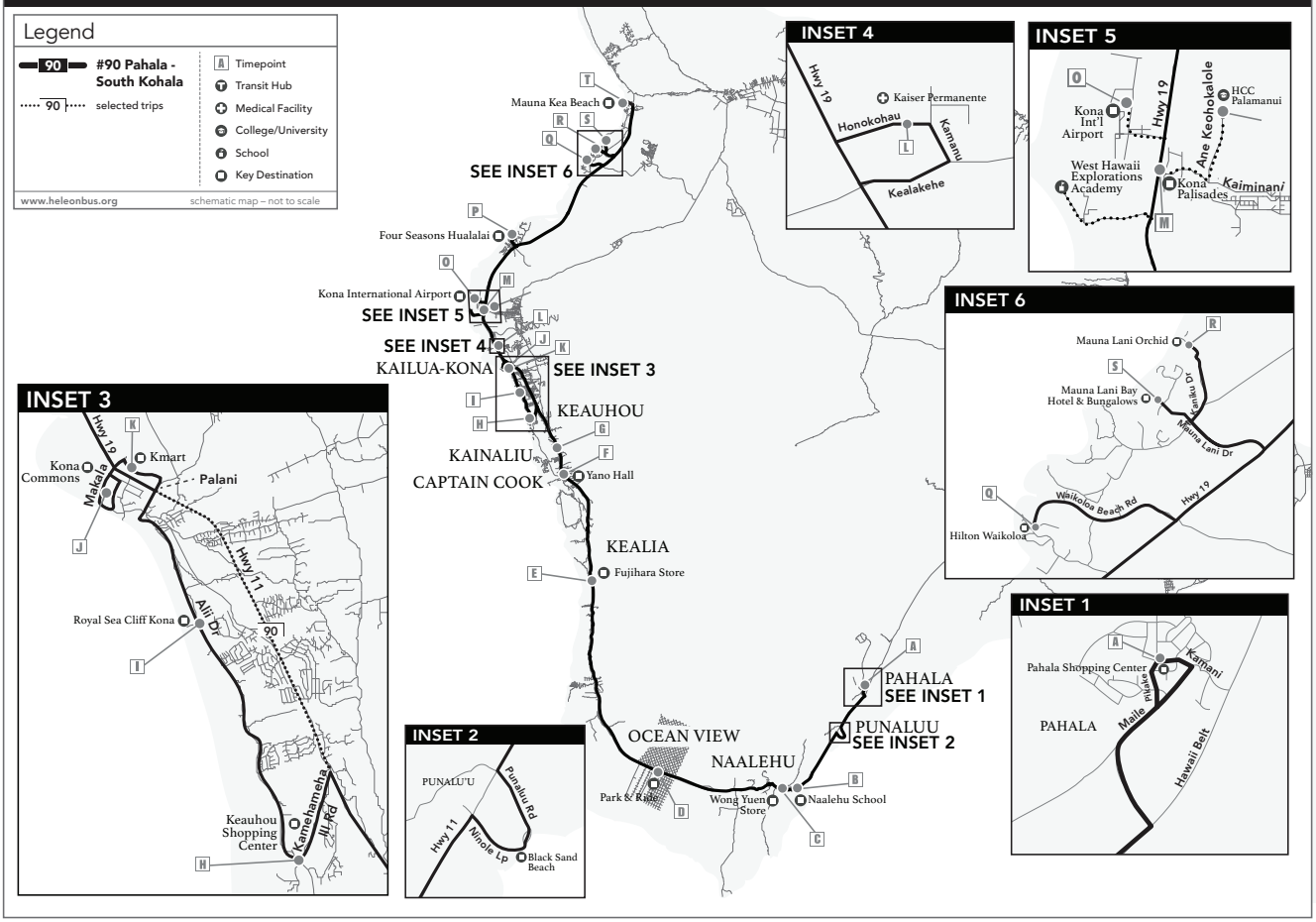
Hele On Bus Schedule - #75 North Kohala - Waimea - Kailua-Kona



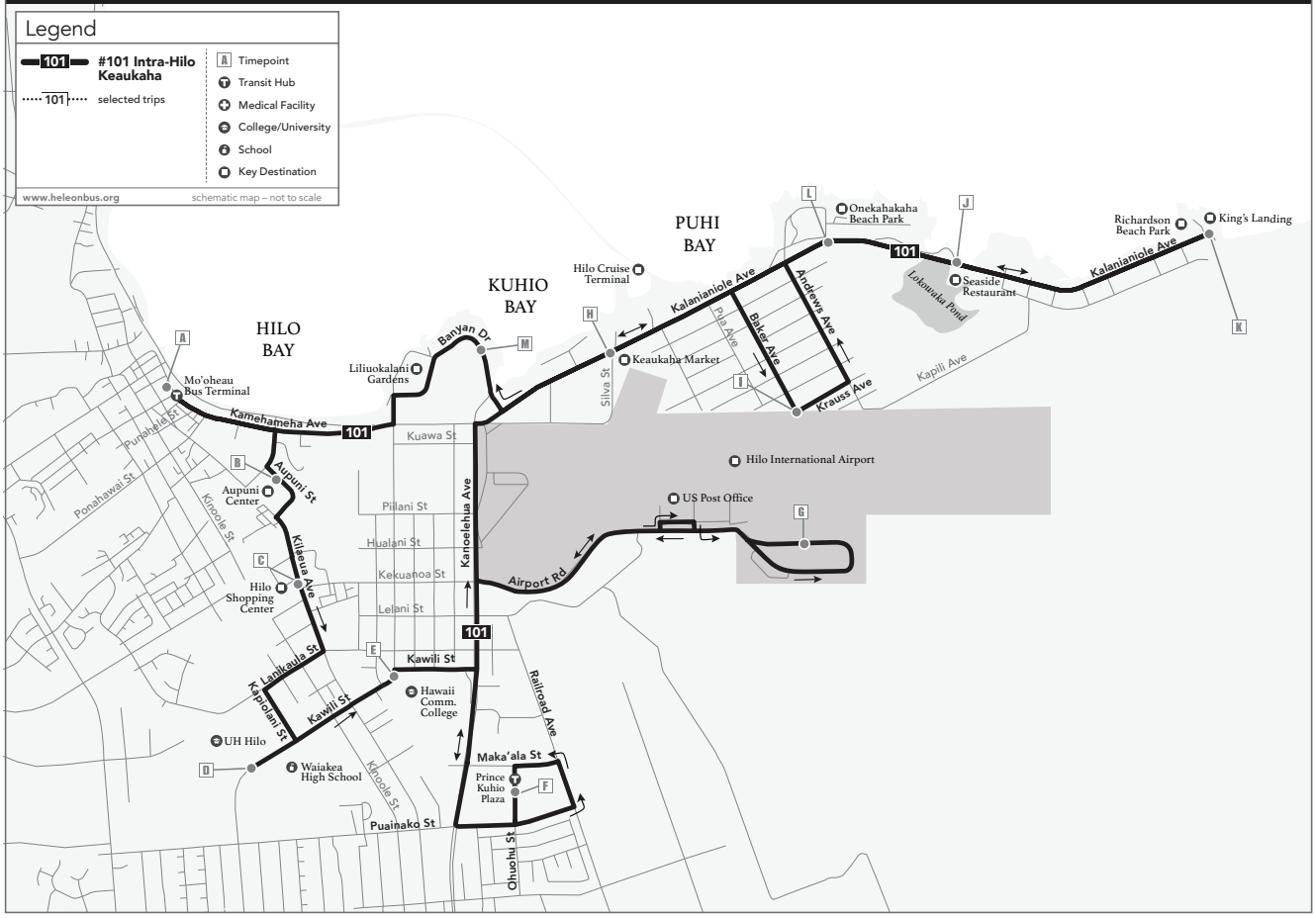
Hele On Bus Schedule - #80 Hilo - South Kohala



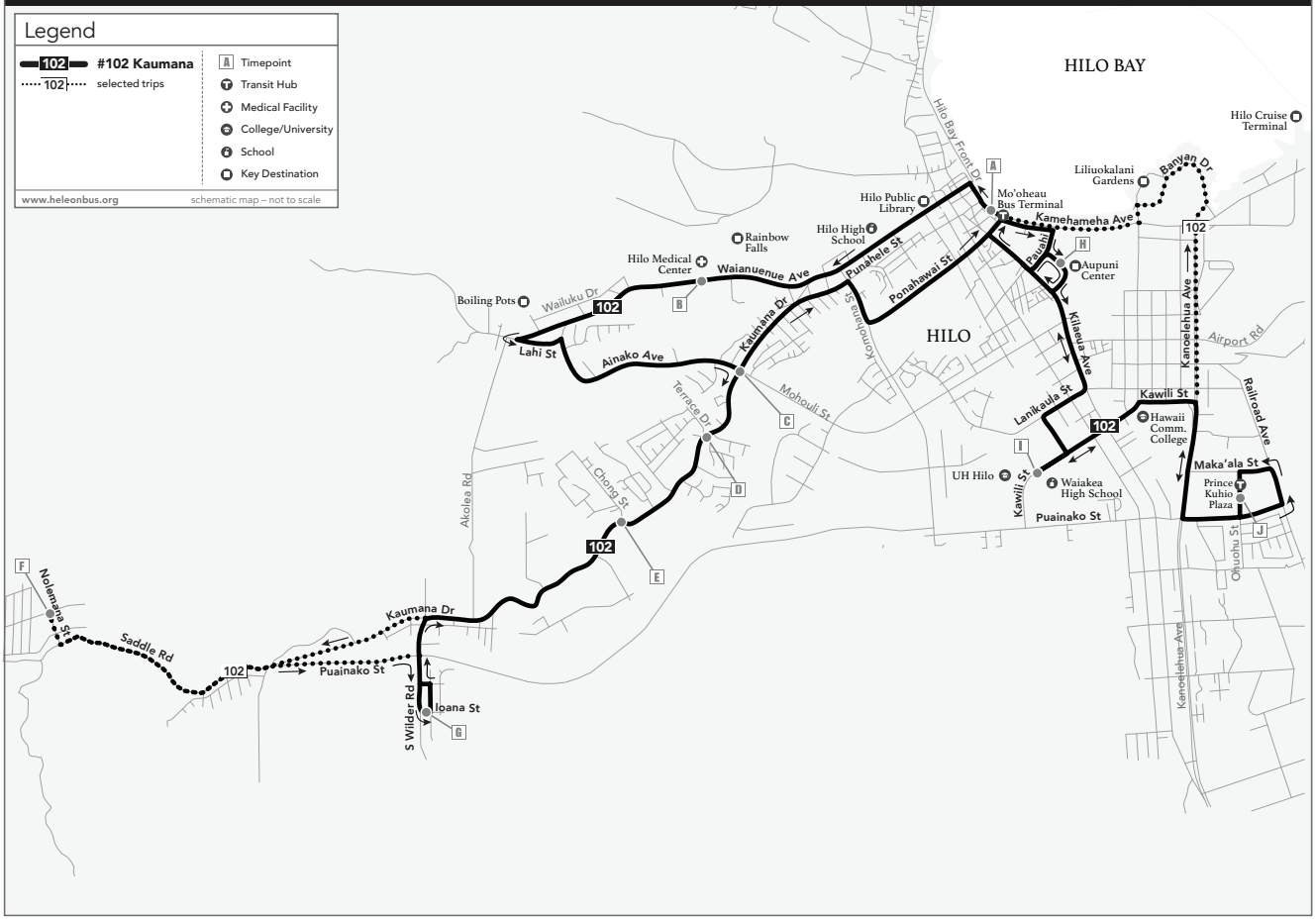
Hele On Bus Schedule - #90 Pahala - South Kohala



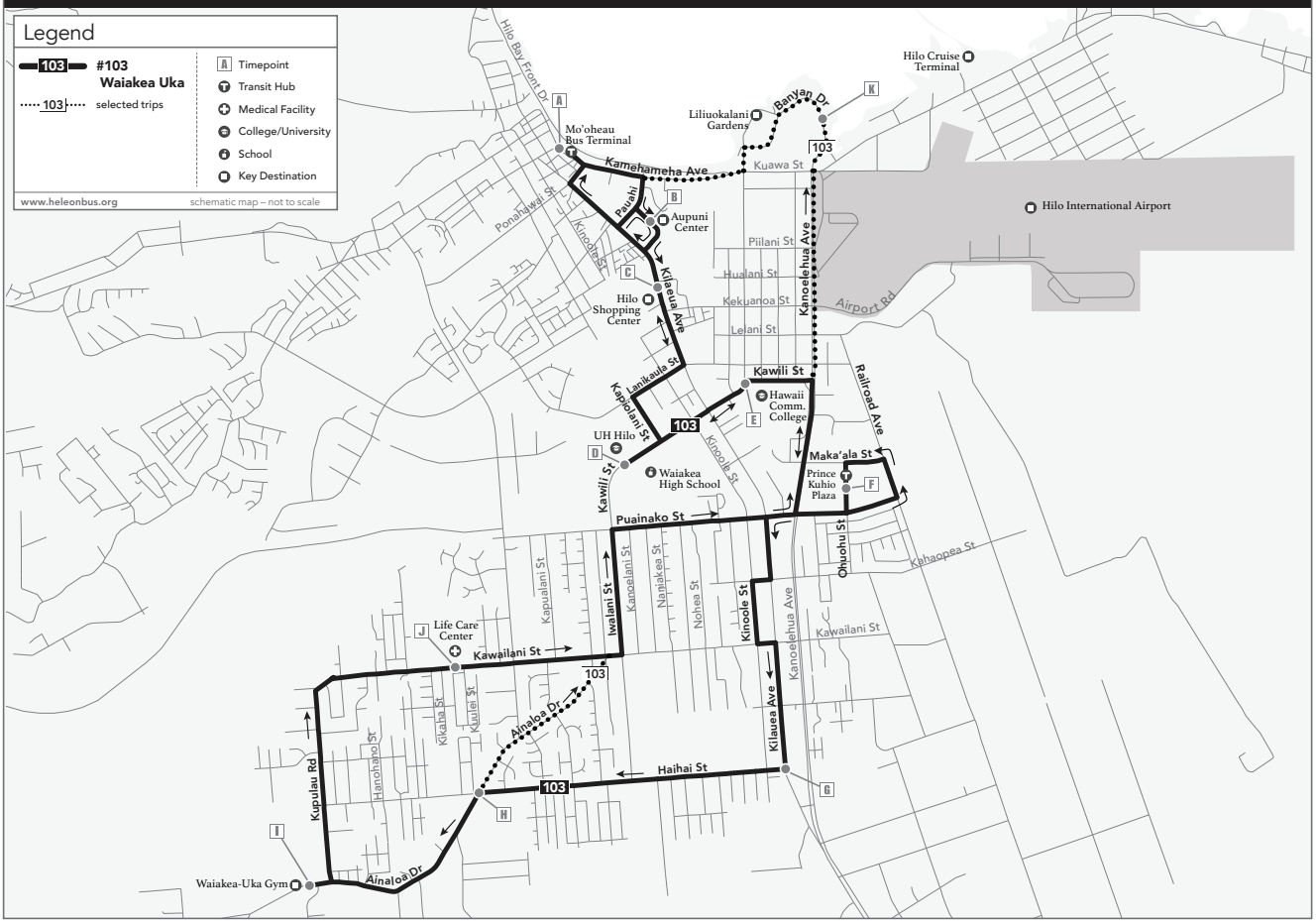
Hele On Bus Schedule - #101 Intra-Hilo Keaukaha



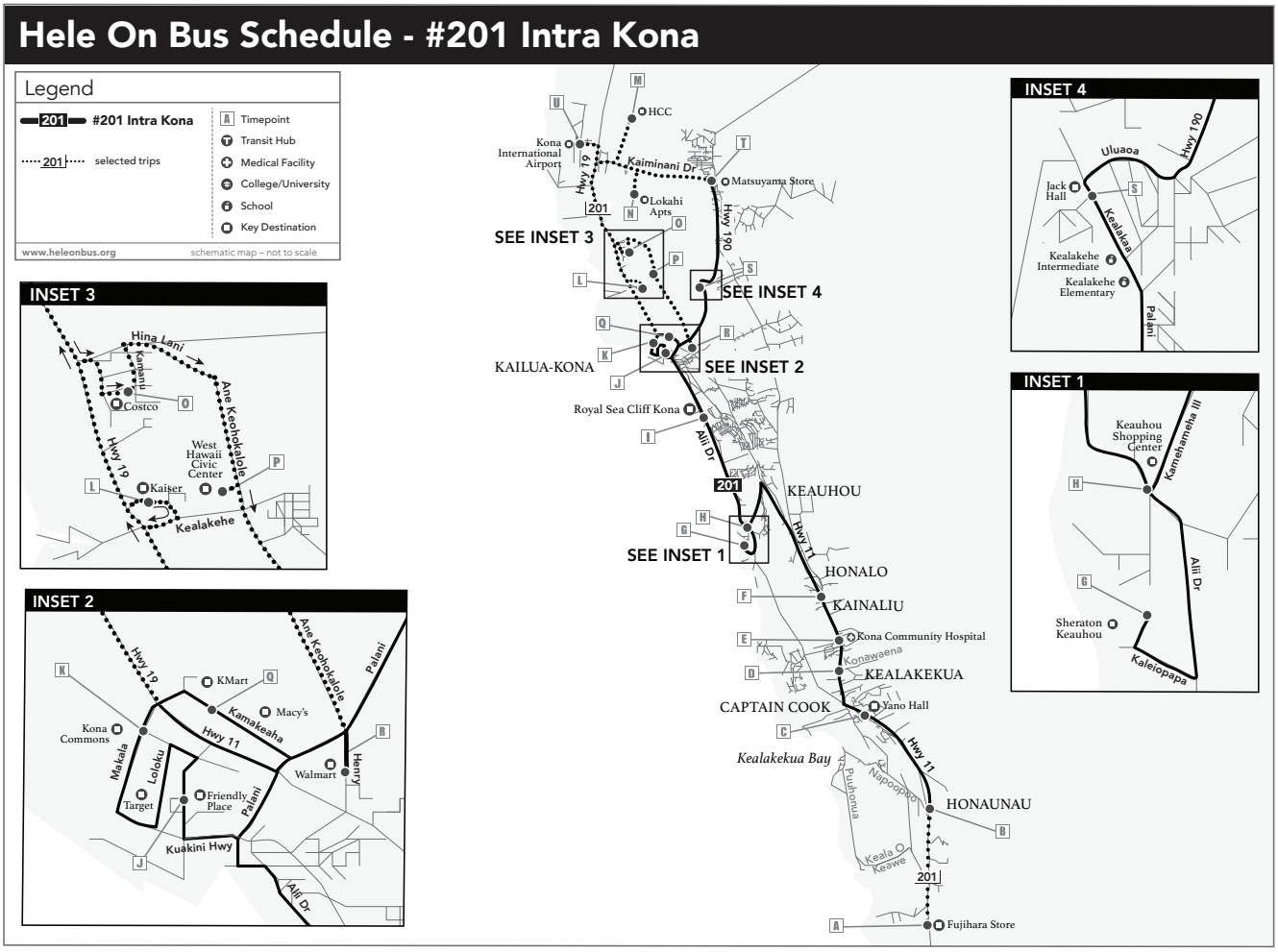
Hele On Bus Schedule - #102 Intra-Hilo Kaumana



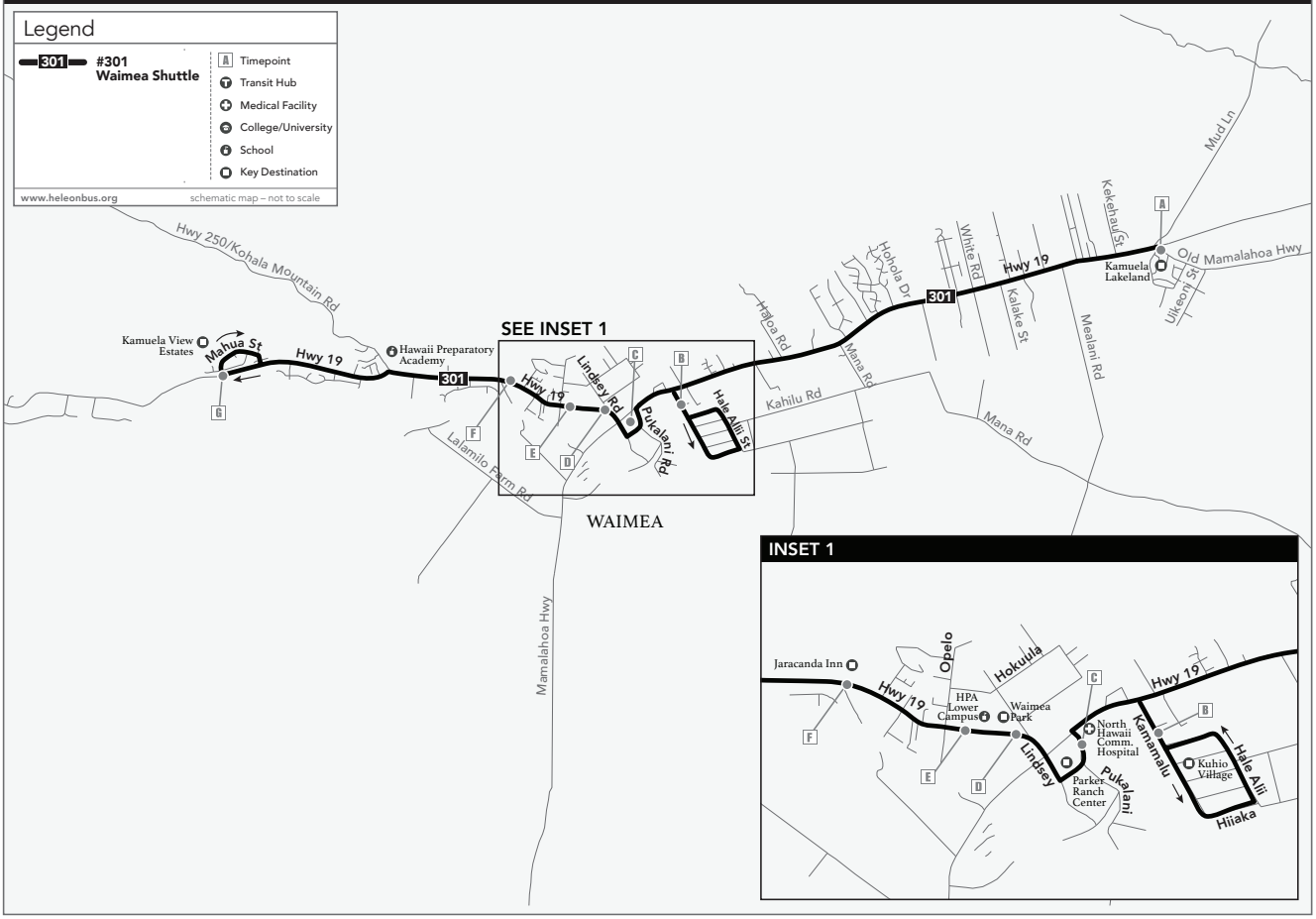
Hele On Bus Schedule - #103 Intra-Hilo Waiakea Uka



Hele On Bus Schedule - #201 Intra Kona



Hele On Bus Schedule - #301 Waimea Shuttle



APPENDIX E

SERVICE DESIGN GUIDELINES AND PERFORMANCE MONITORING

MTA serves both small urban and rural areas. Service design guidelines are used so the agency has guidance in developing new services or incorporating changes to existing services.

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

When fixed routes, flex services, zone services, and paratransit services are assembled into a complete network, they should convey a public transportation service that operates effectively as a system. Given the size and geography of MTA's service area, it is apparent that the system has two areas (urban Hilo and Kona) where transportation services are centralized. Connections from intermediate and outlying Districts feed into these two major centers. The two centers are connected by Route 1, a northern route through Waimea. The guidelines presented in the following paragraphs build upon this goal of strengthening the overall system. 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 Hele-On Bus service coverage area.

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. Hele-On riders frequently walk much longer distances. This will be a developing measure as much of the current Hele-On system operates with without formalized bus stops using flag stops. 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)**
- **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)**
- **Service Coverage --A location is considered "served" if transit service operates within ¼ mile of the location (San Antonio, Texas)**

Route Structure

The following service design guidelines are based upon a review of industry best practices.

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 most 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**
- **Route Distance Percent Limit -- Transit route distances should not exceed auto travel distances for the same trip by more than 20 to 40 percent**
- **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)**

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. The temptation is to divert a bus for example the Pāhoa route from the main part of the alignment to serve another adjacent area such as Ainaloa.

- **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)**
- **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)**
- **Route Deviation Time Limit -- Route deviations from a direct path from end-to-end of the route shall account for no more than ¼ of the end-to-end travel time of the route (Denver RTD)**
- **Route Deviation Added Time -- Route deviations should not have more than three additional minutes of additional travel time for all through passengers (Denver RTD)**
- **Percent of Passengers Deviated --Route deviation passengers served should be no less than 25 percent of the passengers affected by the deviation (York, PA)**

Transfer 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). About one-fourth of the passengers participating in the passenger survey indicated they transferred or would transfer to another bus to complete their trip.

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)**
- **Maximum Number of Transfers -- No more than 25 percent of transit customers should require more than one vehicle to complete their trip (Boston, Massachusetts)**
- **Percent Not Transferring -- Direct local service must be made to 70 percent of riders and express service to 80 percent of riders (Federal Transit Administration)**

Interlining

A popular practice transit agencies use to reduce the amount of transfer activity is 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.

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:

- **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**
- **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 is more important for the shuttle and intra-community services, then the connector routes**

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 mile for more urban areas and two to three for more rural areas. 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. As MTA formalizes more bus stops, it is recommended that four to five bus stops per mile in the urban areas and two to three per mile for the rural areas be the standard.

Route Operations

Hele-On route operations were reviewed 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.

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)**

Service frequency refers to how often buses arrive at a 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 evening or Saturday policy headway is sixty minutes. Only the Waimea Shuttle operates with sixty-minute headways**
- **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**

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. For example, at major transit hubs in Hilo and Kona, routes should be on easy to remember and understand increments.

Performance Monitoring

Regular performance monitoring provides the information MTA needs to determine the effectiveness of the system overall and of the individual services. It provides a historical benchmark for which the system can compare itself and lets the decision-makers and public know how the system is performing against goals and how it is improving. MTA reports to the Federal Transit Administration National Transit Database (NTD) as a rural general public transit agency. MTA must submit annual reports to the NTD, but due to its designation, does so with Reduced Reporting. MTA reports operating characteristics and financial information including operating and capital expenses and their sources including fares and passenger boardings for the following three modes of service:

- **Bus Service**
- **Paratransit Service with separate columns for ADA Complementary Paratransit service and human services**
- **Shared Ride Taxi**

Additional reporting for the three modes includes information on the vehicle fleet (except for purchased transportation such as the paratransit and taxi service), annual vehicle revenue miles, annual vehicle revenue hours, and unlinked passenger trips (each passenger boarding is counted even if the passenger has transferred to the vehicle).

The following performance measures are the most common used in the industry to assess system productivity and to compare performance among services within the same category. It is important to maintain data to track performance in each of the following measures. Some of these measures are described using annual numbers, however, MTA should maintain and report data monthly. Performance measures using data reported for Fiscal Year 2016 are included.

- **Cost per revenue hour: Annual (monthly) operating expenses divided by annual (monthly) vehicle revenue hours:**

Commuter Bus	*$83.96*
Demand Response	*$26.38*
Taxi	*$9.80*

- **Cost per trip: Annual operating expenses divided by annual unlinked passenger boardings:**

Commuter Bus	*$7.76*
Demand Response	*$11.37*
Taxi	*$4.93*

- **Cost per revenue mile: Annual operating expenses divided by annual vehicle revenue miles:**

Commuter Bus	*$2.27*
Demand Response	*$1.82*
Taxi	*$1.50*

- **Passenger Trips per revenue hour: Annual boardings divided by annual vehicle revenue hours. This measure does not include deadhead time (such as the travel time between the base yard and start of the route):**

Commuter Bus	*10.8*
Demand Response	*2.3*
Taxi	*2.0*

- **Passenger trips per revenue mile: Annual passenger boardings divided by annual revenue miles. This measure does not include deadhead mileage (such as the travel miles between the base yard and start of the route):**

Commuter Bus	*0.3*
Demand Response	*0.2*
Taxi	*0.3*

- **Passenger trips per vehicle trips: Annual passenger boardings divided by annual vehicle trips by route type (commuter, connector, circulator). This measure is useful for monitoring services that have few trips. Vehicle trips are not reported to NTD**
- **Farebox recovery ratio: Percentage of operating costs that are recovered through the fares paid by the ridership. Minimum farebox standard would be 20 percent:**

Commuter Bus	*13.3%*
Demand Response	*0.0%*
Taxi	*61.2%*

- **On-time performance: Defined as a bus being late by more than five minutes or early by one minute. This data is not reported to NTD, however, with automatic vehicle location (AVL) system this data would be provided in reports**
- **Number of accidents per miles operated. Safety data is not included in reduced reporting, but needs to be collected and locations plotted**

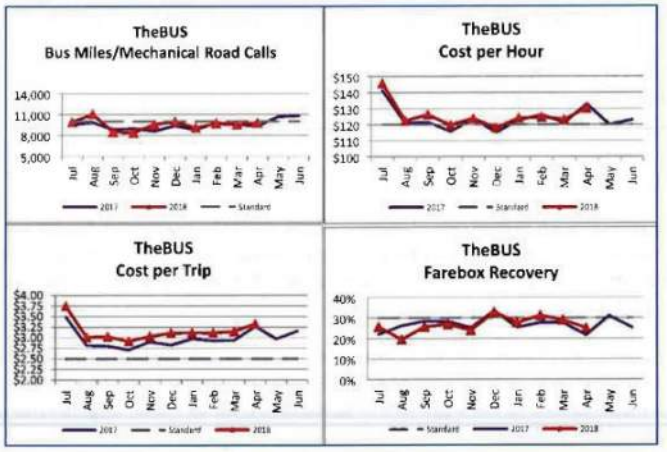
In addition to number of accidents per miles operated, the following monitoring mechanisms are typically reported to track vehicle reliability and condition.

- **Vehicle miles per vehicle**
- **Revenue miles per vehicle**
- **Revenue hours per vehicle**
- **Spare ratio**
- **% of deadhead miles**
- **Vehicle miles between service disruptions (road calls)**
- **Average age of fleet (currently 12.2 years for the active fleet)**

Metrics

Ridership and other statistics are gathered and recorded daily, it is important to present a monthly report to the Administrator for dissemination to identified stakeholders including th Major. Once the spreadsheets are set up for data input, the reporting of the data is straight forward. It is important that the data is maintained and monitored. By doing this, abnormalities can be quickly identified. The following shows an example of how a report card would look.

The report card would also show selected key performance indicators in graphic form to show how the current fiscal year performance measures against the prior year's performance. Potential mapped performance indicators are checked in the above table. The following shows an example of four measure TheBus in Honolulu tracks. The goal is shown in a dashed gray line and the current and previous fiscal years are mapped using different colors. TheBus maps eleven measures.



A similar report card would be developed for the ADA Paratransit service.

Service Review

Regular review of performance is necessary for MTA to serve constituents with the best service possible. To do that, MTA should establish a Service Review Team (SRT) that meets at a minimum quarterly. Three of the meetings should review the monthly report cards discussed above to identify any abnormalities in service consumption. In addition to reviewing service and route performance, the Service Review Team should review major employer and school schedules and other factors that impact route schedules. Route schedules should be reviewed for revision at least twice a year.

At least once a year, the SRT will review the performance of MTA services: Express, Commuter, Connector, and Circulator routes; ADA Paratransit; and, Shared Ride Taxi. The following performance measures, which are included in the monthly report card, would be used in the service review:

- **Boardings per revenue mile**
- **Boardings per revenue hour**
- **Boardings per revenue trip**
- **Farebox Recovery**
- **On-time performance**

The following table shows a first review of the MTA bus routes would be represented. Routes would be ranked within their service classification. That way performance ranking is based on similar services. Any route ranked in the bottom for two performance measures is identified for further analysis and may be considered non-performing.

New routes or major route changes would be expected to reach a satisfactory performance within two years. If a route after two years is not found to be performing satisfactorily the Service Review Team would identify if modifications to the alignment or schedule should be made, targeted marketing engaged, or if the route should be eliminated.

When a route is identified for further review, the SRT should consider other factors including the demographics of the neighborhoods served, whether there are a high number of low-income, disabled, young or elderly residents in determining what actions if any should be taken. If a route shows improvement after actions have been taken, but continues to perform below others in the same classification, then it should continue to be monitored to determine if additional actions should be implemented. The SRT may determine that a route or perhaps certain trips offer a service to a community that may have limited other options and recommend retention of the service based on policy.

Mass Transit Agency - Fixed and Commuter Routes Service Review For the Month Ending:

Performance Indicators	June 2019	June 2018	Percent Change	Fiscal Year to Date 2019	Fiscal Year to Date 2018	Percent Change	Goals	Mapped
Total Monthly Ridership							100,000	
Average Weekday Ridership							4,500	x
Cost per Revenue Hour							$100	x
Cost per Passenger Trip							$5.50	x
Cost per Revenue Mile								
Passenger Trips per Hour								x
Passenger Trips per Mile								
Percent of Trips On Time							85%	x
Percent Maintained Pullouts/Base							100%	x
Percent of Maintenance Inspections Completed on Time							98%	
Spare Ratio							20%	
Bus Miles/Major Collisions							200,000	
Bus Miles/Mechanical Road Calls							10,000	x
Farebox Recovery							25%	x
Complaint Rate (Complaints per 100,000 boardings)							5	x
Percent Complaints Responded to Within 30 Days							100%	

Mass Transit Agency - ADA Paratransit Report Service Review For the Month Ending:

Performance Indicators	June 2019	June 2018	Percent Change	Fiscal Year to Date 2019	Fiscal Year to Date 2018	Percent Change	Goals	Mapped
Total Monthly Ridership								
Average Weekday Ridership								x
Cost per Revenue Hour							<3% incr	x
Cost per Passenger Trip							<3% incr	x
Cost per Revenue Mile							<3% incr	
Passenger Trips per Hour								x
Percent of Trips On Time or Early							>90%	x
Very Early Trips (>30 minutes)							<1%	x
Very Late Trips (>30 minutes)							<1%	
No Show/Late Cancellation Rate							<5%	
Advance Cancellation Rate							<15%	
Missed Trip Rate							0%	x
Farebox Recovery								x
Complaint Rate (Complaints per 1,000 boardings)							<1%	x
Calls Answered within 5 Minutes							95%	

Mass Transit Agency - Bus Route Review Performance Report For the Month Ending:

Route	Performance Measures									
	Board-ings/ Revenue Mile	Rank within Category	Board-ings/ Revenue Hour	Rank within Category	Board-ings/ Revenue Trip	Rank within Category	Farebox Recovery	Rank within Category	On-Time Perfor-mance	Rank within Category
Express										
Blue Line										
Red Line										
Green Line										
Totals										
Commuter										
Route 70 North Kohala/South Kohala										
Route 75 North Kohala/Waimea/Kona										
Route 80 South Kohala Resorts										
Route 90 Pahala/South Kohala Resorts										
Totals										
Connectors:										
Route 1 Hilo/Kona										
Route 2 Kono/Hilo										
Route 10 Hilo/Volcano/Kau										
Route 40 Hilo/Pahoa										
Totals										
Community Circulators Urban:										
Route 101 Intra-Hilo Keaukaha										
Route 102 Intra-Hilo Kaumana										
Route 103 Intra-Hilo Waikea Uka										
Route 104 Intra-Hilo Mohouli										
Route 201 South Kona via Alii Drive										
Route 202 North Kona via Highway 19										
Route 203 North Kona via Highway 190										
Route 204 South Kona via Kuakini Highway										
Totals										
Community Circulators Rural:										
Route 301 Waimea										
Route 401 Hawaiian Beaches/Nanawale/Kalapana										
Route 402 Hawaiian Paradise Park/Ainaloa										
Route 403 Fern Acres/Fern Forest/Eden Roc										
Totals